



## Home

### About this Databook

Vale's ESG Databook 2023 is intended to offer to the stakeholders an extensive vision of our performance according to the sustainable development, presenting data relating to the period of January 1 to December 31, 2023, and supply, as much as possible, history data from the last 5 years. These data complete the informations presented on our Integrated Report 2023.

The "Material Topics" section of this document indicates the economic, environmental, social and governance topics that have been prioritized in accordance with the materiality matrix of Vale's Integrated Report (IR) 2023, which identifies priority topics that have a significant impact on the organization's value creation in the short, medium and long terms and presents the GRI Standards 2021 (Global Reporting Initiative) contents related to each material theme. As a good practice, we seek to report in this document, in addition to the GRI content considered material for the Integrated Reporting, other GRI indicators/content that can be reported, but that are not material for the IR 2023, and therefore are not listed in the GRI Content Summary nor in the Preparation Basis for the IR 2023.

In this Databook we have reported indicators of the Global Reporting Initiative (GRI); the Metals & Mining from Sustainability Accounting Standard (SASB); the Task Force on Climate-related Financial Disclosures (TCFD); the key metrics from World Economic Forum (WEF) and the Sustainable Development Goals (SDG) of UN, as well as our adherence to the Mining Principles of the International Council on Mining and Metals (ICMM).

We also present the of Integrated Report 2023 Preparation Basis, that has as function sharing with readers the definitions and details of concepts adopted by Vale to report it's non-finance contents referring to GRI Standards and to identify the assured contents for the Integrated Report 2023.



## References

Documents	2019	2020	2021	2022	2023
Sustainability Report	<a href="#">Download</a>	-	-	-	-
Integrated Report	-	<a href="#">Download</a>	<a href="#">Download</a>	<a href="#">Download</a>	<a href="#">Download</a>
Form 20F	<a href="#">Download</a>	<a href="#">Download</a>	<a href="#">Download</a>	<a href="#">Download</a>	<a href="#">Download</a>
Tax Transparency Report	<a href="#">Download</a>	<a href="#">Download</a>	<a href="#">Download</a>	<a href="#">Download</a>	-
Reference Form	<a href="#">Download</a>	<a href="#">Download</a>	<a href="#">Download</a>	<a href="#">Download</a>	<a href="#">Download</a>
Forms of Ethics and Compliance	-	-	-	<a href="#">Download</a>	<a href="#">Download</a>
Financial statements	<a href="#">Download</a>	<a href="#">Download</a>	<a href="#">Download</a>	<a href="#">Download</a>	<a href="#">Download</a>

### ESG Portal



## How to use this Databook

### How to read the Databook

The Databook is divided in three main topics, Economic, Environmental and Social. These tabs present informations of the GRI and SASB standards. The informations about the standards ICM and WEF can be found separated in their tabs.

To make it easier for the reader to search for information, the tabs referring to the indexes are represented by the orange colour, in these tabs are present the informations that will come next, and also direct links for the reader to click and be directed directly to the information.

### How to search for information

It is advised to the reader to use the index tabs to reach for the information wanted. To access the indicator information just click on the indicated link in the index tabs and the reader will be directly pointed to the report.

If the reader is looking for a specific indicator of the GRI or SASB standard, it is recommended to use the index tabs with the name of the framework, in these are presented all the indicators and their links to access the information reported.

### How to navigate and use the buttons

This Databook was made with the intention of presenting a more fluid navigability to the reader, for a better navigation experience the indicated is to use the navigation buttons at the top of the page. There are buttons that take you directly to the introduction pages of the Databook (Home, References, How to use, and Content), buttons that lead directly to the indexes prior to the contents presented (Economic, Environmental, Social and Frameworks), a button that leads to the next page (represented by the arrow pointing to the right) and a button that leads to the previous page (represented by the arrow pointing on the left).

All external links are represented by buttons that lead directly to the site or file referenced throughout the text, so to access them simply click on the button with the name of the link you wish to access.












## Content

<b>Advances in Commitments</b>	<b>Advances</b>
<b>Material Topics</b>	<b>Material Topics</b>
<b>Economic</b>	<b>Economic</b>
Economic Data	<a href="#">Data</a>
<b>Environmental</b>	<b>Environmental</b>
Environmental Data	<a href="#">Data</a>
<b>Social</b>	<b>Social</b>
Social Data	<a href="#">Data</a>
<b>Frameworks</b>	<b>Frameworks</b>
Index GRI (Global Reporting Initiative)	<a href="#">GRI Index</a>
Index SASB (Sustainability Accounting Standards Board)	<a href="#">SASB Index</a>
Task Force on Climate-Related Financial Disclosures (TCFD)	<a href="#">TCFD</a>
World Economic Forum (WEF)	<a href="#">WEF</a>
Principles of International Council on Mining and Metals (ICMM)	<a href="#">ICMM Principles</a>
ICMM Performance Expectations	<a href="#">ICMM Report</a>
ICMM Social & Economic	<a href="#">ICMM Social &amp; Economic</a>
TNFD Index	<a href="#">TNFD Index</a>
Responsible Sourcing	<a href="#">Responsible Sourcing</a>
Swiss Code	<a href="#">Swiss Code</a>
<b>Preparation Base</b>	<b>Preparation Base</b>



## Advances in Public Commitments

### Goals for 2030

2030 Commitment	Related SDG	Baseline	Target	Status until 2023 (cumulative result)
Climate Change		Baseline 2017: 12.2MtCO <sub>2</sub> e	Reduce Scope 1 and 2 absolute greenhouse gas (GHG) emissions by 33% (based on 2017) by 2030. Achieve net zero scope 1 and 2 emissions by 2050.	20.4% reduction <sup>2</sup>
		Baseline 2018: 529.5 MtCO <sub>2</sub> e <sup>1</sup>	Reduce scope 3 net emissions by 15% by 2035.	14.8 % reduction <sup>3</sup>
Energy		Baseline 2017:	Global: 100% renewable electricity consumption by 2030.	88.5% consumption <sup>4</sup>
		Global: the consumption of renewables was 79%.		
		Brazil: consumption of renewables in Brazil was 83%.	Brazil: 100% renewable electricity consumption by 2025 <sup>5</sup> .	100% renewable consumption, certified by renewable declarations
Forests		Baseline 2017:	Global: the energy efficiency was 0.335 GJ/tFeEq <sup>6</sup>	0.351 GJ/tFeEq (4.5% above baseline) <sup>7</sup>
		Global: the energy efficiency was 0.335 GJ/tFeEq <sup>6</sup>	Improve the global energy efficiency indicator by 5% by 2030.	
Evolution of ESG practices		Baseline 2020	Recover and protect over 500,000 ha of forest areas beyond company boundaries by 2030.	177,705 ha (165,093 ha of protection and 12,612 ha of recovery)
Social ambition		Baseline 2021	Rank in the TOP 3 in the social requirements of the major external indices and ratings	We have improved in the ratings of the main external evaluations (MSCI, Sustainalytics and DJSI). See more in Index and Rating Evaluations.
		Baseline 2021		
		Baseline 2021	Support the lifting of 500,000 people out of extreme poverty <sup>8</sup>	In 2023, we started the implementation of the first concept test projects, which accounted for the entry of 30 thousand people into the program.
		Baseline 2021		



Baseline 2021

Support all indigenous communities neighboring Vale's operations in the development and execution of their plans and their pursuit of rights under the United Nations Declaration on the Rights of Indigenous Peoples.

Support to the Kayapó People in the elaboration of their Consultation Protocol (in progress); training on the Rights of the Indigenous Peoples of Brazil for the Guajajara Peoples, of the Caru Indigenous Land, and the Ka'apor, of the Alto Turiaçu Indigenous Land.

Atmospheric emissions		Baseline 2018:		
		Particulate matter: 7.4 Mt	Reduce Particulate Matter emissions by 16%	Compared to the base year of 2018, there was a reduction <sup>9</sup> of approximately 10% in the amount of particulate matter emitted in 2023.
		Sulphur Oxides: 147.4 Mt	Reduce Sulphur Oxide emissions by 16%	Compared to the base year of 2018, there was a significant reduction <sup>9</sup> of around 45% in the emission of sulphur oxides in 2023.
		Nitrogen Oxides: 74.1 Mt	Reduce Nitrogen Oxides by 10%	Compared to the base year of 2018, there was a reduction <sup>9</sup> of approximately 33% in the emission of nitrogen oxides in 2023.

<sup>1</sup> Due to the divestments of non-controlled companies: CSP (Companhia Siderúrgica de Pecém) and MRN (Mineração Rio do Norte), Scope 3 emissions for the 2018 base year were revised and reduced from 553 million metric tons of CO<sub>2</sub>e to 529.5 million metric tons of CO<sub>2</sub>e.

<sup>2</sup> Reduction of absolute emissions of greenhouse gases (GHG), of scopes 1 and 2 (Market-Based).

<sup>3</sup> An increase in Vale's scope 3 emissions is expected from sales volume growth due to the likelihood of increased demand for our products, as indicated in the 2021 financial report.

<sup>4</sup> The percentage of renewable electricity varies from year to year depending on consumption, the volume of certificates obtained, and the electricity generation matrix of each country in which we operate.

<sup>5</sup> In 2021, the method for monitoring the renewable electricity target in Brazil was changed from % renewable self-production to % renewable consumption.

<sup>6</sup> In this indicator, the production volumes of Vale's main products, such as pellets, coal, nickel and copper, are converted into ton of iron ore equivalent.





<sup>7</sup> Until 2021, the Energy Intensity indicator considered the main energy sources in Vale's matrix (coal/coke, fuel oil, natural gas and diesel). After 2022, this indicator will consider the sum of all energy consumption within the organization divided by the published production for the year, transformed into MFe-eq. In addition, divestments concluded in 2022 were also reflected in the 2017 target baseline.

<sup>8</sup> People living on less than USD 2.15 a day, according to the World Bank.

<sup>9</sup> These reductions are mainly related to lower production compared to 2018 and also to improved operational discipline. The emissions curve tends to rise as production increases in the coming years, being offset by the technological initiatives to be implemented by 2030.

## Other commitments Vale

Vale Commitment	Related SDG	Baseline	Target	Status until 2022 (cumulative result)
Diversity, equity and inclusion (DEI)		Baseline 2019: Women in the workforce: 13%	Increase the presence of women in the workforce to 26% by 2025.	24.38% of women.
		Baseline 2019: Women in senior leadership: 12%	Increase the presence of women in senior leadership (executive manager positions and above) to 26% by 2025.	24.44% of women.
		Baseline 2021: Black leadership	Reach 40% of the leadership in Brazil made up of black people by 2026.	34.92% of the leadership in Brazil is made up of self-declared black people
Health and safety		Baseline 2019: 55 recorded N2 events	Reduce to zero the number of recordable high-potential (N2) injuries by 2025.	In 2023, 19 high-potential lesions (N2) were recorded, a reduction of 64% compared to 2019.
		Baseline 2019: 23 thousand registered exposures	Reduce the number of exposures to harmful health agents in the workplace by 2025	For the year 2023, 10.7 thousand exhibitions were registered. Reduction of 53% compared to 2019.

Dams		-	No tailings dams in critical safety condition (emergency level 310 <sup>10</sup> ) by 2025.	In 2019, there were 4 structures at emergency level 3. To date, there are still 2 structures (South Upper and Forquilha)
		-	Implementation of the GISTM in operations: 90% conformance in 2022; 100% conformance for tailings storage structures of 'extreme' or very 'high consequence' by 2023; and 100% conformance for other structures in 2025.	As per public commitment, GISTM has been implemented for 48 EARs <sup>11</sup> of "Very High" or "Extreme" consequence classification in 2023. GISTM will be implemented for 2 more EARs by 2025, completing 100% of tailings facilities in compliance with the Standard.
		-		
		-	Decharacterize <sup>12</sup> all dams built in the upstream heightening method by 2035, in Brazil.	43% of structures have been decharacterized since 2019.

<sup>10</sup> The emergency level it is a category established by Brazilian legislation (ANM 95/2022) to classify potential risks that could compromise dam safety.

<sup>11</sup> EAR (tailings storage facilities) are structures that include dams, drainage piles and dikes.

<sup>12</sup> Decharacterization is the process of reshaping the terrain of our upstream tailings dams and partially or totally removing tailings from the reservoir and reintegrating the structure into the environment, so that the structure no longer serves its primary purpose of tailings disposal



## Material Topics

### Environmental

#### Dams

##### Impacts

After the collapse of the Mariana and Brumadinho dams, the issue of dams became one of the biggest challenges for the mining sector, and especially for Vale, due to the risks associated with its existence and the feeling of insecurity in the communities near to the mining operations.

The implementation of the Global Industry Standard for Tailings Management (GISTM) integrates social, environmental and technical aspects with the aim of avoiding any harm to people and the environment, with zero tolerance for human fatalities, among other potential impacts of dam-related incidents.

Main risks: Dam failures, social and environmental Impacts and Evacuation of territories.

Main opportunities: Technologies for less dependence on dams, Co-products from tailings.

##### Involvement

As a user of dams in some of its operations, Vale is potentially involved with possible negative impacts, as has already occurred in the collapse of the dam in Brumadinho.

##### Policies & Commitments

By adhering to the new Global Industry Standard for Tailings Management (GISTM), which includes 77 cross-cutting requirements, the governance was strengthened with the objective of reducing risks and achieving greater operational safety throughout the life cycle of the structures, including planning, design, operation and post-closure.

##### Steps taken to manage the theme

Since the collapse of the dam in Brumadinho, Vale has embarked on a journey to develop innovative solutions in the market, aiming to reduce risks in the management and monitoring of its dams. Our risk management model considers a conservative approach to the safety management of the TSSs (Tailings Storage Structures), with a robust governance and a multi-layered protection oversight, improving our ability to prevent accidents.

Vale has already implemented GISTM in 48 TSSs, 35 of which are in the Iron Ore Solutions unit in Brazil and 13 in Metals for Energy Transition (11 in Canada and 2 in Brazil). Two other Iron Ore Solutions units in Brazil – Torto and Dique de Pedra, will be complying with the GISTM Standard by August 2025. See more on the ESG Portal on the Dams page.

##### Effectiveness Tracking

Periodically, reviews are carried out by external and independent companies in order to update the physical and hydraulic safety conditions of the dams. These revisions comply with the legal requirements set forth in Brazilian regulations and in terms signed with official bodies such as the Public Prosecutor's Office (PPO). Ongoing initiatives and the progress made by Vale can be accessed on the ESG Portal.

GRI G4 MM3	Total amount of overburden, tailings and sludge and their associated risks	<a href="#">Environmental data</a>
SASB EM-MM-150a.5	Total weight of waste produced	<a href="#">Environmental data</a>
SASB EM-MM-150a.6	Total weight of sterile generated	<a href="#">Environmental data</a>
SASB EM-MM-150a.7	Total weight of hazardous waste generated	<a href="#">Environmental data</a>
SASB EM-MM-150a.8	Total weight of recycled hazardous waste	<a href="#">Environmental data</a>
SASB EM-MM-150a.9	Number of significant incidents associated with hazardous materials and waste management	<a href="#">Environmental data</a>
SASB EM-MM-150a.10	Description of waste and hazardous materials management policies and procedures for active and inactive operations	<a href="#">Environmental data</a>
SASB EM-MM-540a.1	Tailings storage facility inventory table: (1) facility name, (2) location, (3) ownership status, (4) operational status, (5) construction method, (6) maximum allowable storage capacity, (7) current amount of tailings stored, (8) consequence ranking, (9) date of most recent independent technical review, (10) material findings, (11) mitigation measures, (12) site-specific EPRP	<a href="#">Environmental data</a>
SASB EM-MM-540a.2	Summary of tailings management systems and governance structure used to monitor and maintain the stability of tailings storage facilities	<a href="#">Environmental data</a>
SASB EM-MM-540a.3	Approach to the development of Emergency Preparedness and Response Plans (EPRPs) for tailings storage facilities	<a href="#">Environmental data</a>

#### Biodiversity

##### Impacts

Biodiversity is a transversal theme when it comes to nature. We mapped our impacts by assessing the interface of our operations with areas of high biodiversity value. This assessment supports the prioritization of our actions, focusing on managing impacts and risks, as well as mapping opportunities.

From the point of view of the recovery process, the most relevant impacts of the projects are the negative ones on the physical and biotic environment.

Regarding the physical environment, most of the potential impacts can be minimized through physical (geotechnical) and chemical stabilization and revegetation (surface protection) of structures typical of open-pit mining, such as pits, sterile and/or tailings piles and dams, as well as other support and logistical structures, such as cuts, landfills, borrow areas, surplus material disposal areas, among others.



In relation to the biotic environment, potential impacts that cannot be avoided must first be minimized, such as, for example, by making use of plans or programs for handling and/or rescuing the flora, which are carried out before the suppression activities of vegetation, and recovery of degraded areas, with the objective of rehabilitating them in the short and medium term, but creating environmentally appropriated conditions to restore them in the long term.

Thus, once the possibilities of mitigation measures have been exhausted, residual impacts must be the subject of a restoration plan or program, with the aim of compensating for losses and, whenever possible, promoting biodiversity gains in the territories, in line with the greater objective of neutralizing negative impacts.

With that in mind, both plans or programs for the management and/or recovery of flora, as well as those for the recovery of degraded areas (stabilization and revegetation of structures) and those for restoration as a compensatory measure, have as their main focus the plant species of importance for conservation, such as endemic, rare, endangered, for traditional use or for economic and scientific interest, for example.

Main risks: Impacts on areas of high relevance to biodiversity.

Main opportunities: Intensify our contribution to the Amazon biome, Investment in research and conservation of Biodiversity, Development of impact businesses for the recovery of biomes, Development of new technologies that support the prevention of fires and other risks.

#### Involvement

The impact of Vale on biodiversity is directly linked to its operations.

#### Policies & Commitments

In 2019, Vale launched its 2030 agenda, which brings goals related to reducing pressures on nature, reducing our emissions and capturing new water, as well as the search for positive results beyond impact management.

Among them are the Forest Goal – to recover and protect 500,000 hectares beyond our walls, and the Water Goal – to achieve a further 7% reduction in our specific water use, both by 2030. These are voluntary commitments, which go beyond our legal obligations and our borders, seeking to bring together economic development with environmental protection and well-being to the communities where we operate.

We are committed to preventing and neutralizing significant impacts in our new projects and expansions located in areas of high biodiversity value, seeking to avoid net losses and, whenever possible, generating positive impacts. Vale adheres to the Sustainable Mining Principles of the International Council on Mining and Metals (ICMM), including principle 7 and its performance expectations focused on biodiversity conservation, and the Brazilian Business Commitment to Biodiversity of the Brazilian Business Council for Sustainability Development (CEBDS).

We have publicly consolidated the decision not to operate in UNESCO World Natural Heritage Sites. This commitment is a guideline of our internal regulations on Guidelines and Processes for Biodiversity Management. It is important to highlight that we have no projects or operations in these areas, and we help protect an important site – Reservas da Costa do Descobrimento da Mata Atlântica – comprising the Vale Natural Reserve (RNV) and the Sooretama Biological Reserve (ReBio Sooretama).

#### Steps taken to manage the theme

Form of Management

Scientific research and knowledge are essential pillars for our impact management, supporting decisions and underpinning our mitigation, recovery and compensation strategy. To this end, partnerships are developed with research institutions and technical experts, as well as investments in the Vale Institute of Technology as a great catalyst for scientific knowledge in the Amazon, and in the Vale Nature Reserve, as a center for conservation and knowledge of the Atlantic Forest.

At Vale, the recovery of degraded areas (RAD) is integrated into its approach to biodiversity, which aims to neutralize its impacts, covering all phases of the project's life cycle, from prospecting, through implementation, operation and to its closure. Since the potential impacts of projects cannot be avoided, the area recovery process can be among the most important measures to minimize, restore and compensate the impacts.

As a minimization measure, the recovery process should be directed to the areas impacted by the projects, characterized as degraded, with a view to mitigating the impacts on the physical environment in the short and medium term, mainly, without losing sight of the possibility of restoring these areas in the long term.

As a restoration measure, the recovery process aims to facilitate or accelerate, either passively or assisted, the natural process of ecological succession and, consequently, the increase of biological diversity over the altered areas resulting from the direct and indirect impacts of the projects.

Finally, the recovery process can also be used to compensate the residual impacts of projects on biodiversity and ecosystem services, especially when promoting the restoration of areas frequently altered by third parties in the territories where they are located, which, otherwise, would not be recovered. Find out more on the ESG Portal on the "Biodiversity" page.

#### Effectiveness Tracking

Plans or programs for the recovery of degraded areas at Vale are designed and executed based on compliance with all legal requirements associated with or related to the topic, and in accordance with the technical solution required by the competent environmental agencies.

In addition, the main objective of the recovery plans or programs is to reestablish, as far as possible, the integrity of the areas observed before the impacts, based on the principle of seeking an environmental condition "equal-for-equal or better" than that prior to degradation, obviously considering, in this process, the physical, chemical and biological limitations of the impacted environments.

In this sense, plans or programs are designed with a view to incorporating ecological, aesthetic-landscape and socio-cultural values of the regions where the projects are inserted in the recovery process or in accordance with what is foreseen in the mine closure plan with regard to future use. Also, from the perspective of the ecosystem services, the search for equivalence of habitats and/or resources is contemplated in the plans or programs, especially in the context of restoration as a compensatory measure.

#### RAD research and development

The recovery of degraded areas requires the integrated action of several disciplines (botany, soils, fertility, ecology, etc.) and in different sets according to the particularities of the environmental of the sites to be treated. As it is a relatively recent area of organized knowledge, over 40 years in the Brazilian context, RAD constitutes a fertile ground for improvements, ranging from the improvement of tools for manual tasks to molecular genetics.

Seeking to improve RAD in mining processes, Vale has been developing R&D projects on this topic since 2012, through partnerships with universities and other research institutions and, more recently, through direct initiatives developed by the Vale Technological Institute for Sustainable Development (ITV DS). The main lines of research stand out:

- Monitoring the environment recovery processes;
- Ecology of native plant species of rupestrian fields;
- Selection of native species for use in the revegetation of mining structures;
- No-till of native forest and herbaceous species;
- Revegetation of residual surfaces (pits and piles);
- Mechanization of planting on cutting slopes.

GRI 304-1	Owned, leased or managed operating units within or adjacent to environmental protected areas and areas of high biodiversity value located outside environmental protected areas	<a href="#">Environmental data</a>
GRI 304-2	Significant impacts of activities, products and services on biodiversity	<a href="#">Environmental data</a>
GRI 304-3	Habitats protected or restored	<a href="#">Environmental data</a>
GRI 304-4	IUCN Red List species and national conservation list species with habitats in areas affected by operations	<a href="#">Environmental data</a>
GRI G4 MM1	Amount of land (owned or leased, used for productive or extractive activities) altered or rehabilitated	<a href="#">Environmental data</a>
GRI G4 MM2	Number and percentage of operational units that need biodiversity management plans according to established criteria and number (percentage) of these units with plans in force	<a href="#">Environmental data</a>
SASB EM-MM-160a.1	Description of environmental management policies and practices for active sites	<a href="#">Environmental data</a>
SASB EM-MM-160a.2	Percentage of mine sites where acid rock drainage is present: (1) predicted to occur, (2) actively mitigated, and (3) under treatment or remediation	<a href="#">Environmental data</a>

## Eco-Efficiency

Form of Management	<b>Impacts</b>	<p>We recognize that our activities impact and depend on water resources. Therefore, we have an important role to play in the pursuit of responsible, more efficient use and influence the management of this resource with users in the watersheds where we operate. Another relevant point for our eco-efficiency is atmospheric emissions. This is due to the mining activity emits particulate matter (PM), sulfur oxides (SOx) and nitrogen oxides (NOx), which affect air quality and ecosystems around operations. These air pollutants are released by the chimneys of pelletizing and briquetting plants and base metal plants, as well as the burning of fuels in mobile equipment.</p> <p>Main risks: Water crisis and unavailability of water resources; Compliance with ICMM quality standards for effluent disposal; Atmospheric emissions from operations.</p> <p>Main opportunities: Expansion of the water monitoring network and search for new technologies, Efficient use of water resources through dry processing, Global strategy to reduce atmospheric emissions.</p>
	<b>Involvement</b>	The impact of Vale over eco-efficiency is directly linked to its operations.
	<b>Policies &amp; Commitments</b>	<p>In 2019, Vale launched its 2030 agenda, which sets goals of reducing pressures on nature, reducing our emissions and capturing new water, as well as the pursuit of positive results beyond impact management. We have made public commitments to minimize them, through the adoption of more efficient and sustainable processes and new control technologies. We aim to go beyond the obligations set out in the legislation, in line with our global strategy to lead the transition to low-carbon mining. Vale has a special attention to reducing the impacts caused by atmospheric emissions on communities near operations.</p>
	<b>Steps taken to manage the theme</b>	<p>Vale adopts a mitigation hierarchy to predict and avoid impacts arising from changes in air quality or to minimize them, when it is not possible to avoid and, in cases where residual impacts remain, to compensate/neutralize the risks and impacts to workers, affected communities and the environment.</p> <p>We seek to reduce our emissions through a series of measures, such as improving control systems, testing dust suppressant products, and improving management processes, among others. The equipment used to monitor emissions and air quality makes it possible to act quickly in case of deviations.</p> <p>In compliance with environmental constraints, we also maintain and operate air quality monitoring networks in some operations and nearby communities. These initiatives support the adoption of control systems, monitoring plans and emissions management. See more on the ESG Portal on the "Nature" page.</p>
	<b>Effectiveness Tracking</b>	<p>In 2021, Vale achieved the goal of reducing the specific use of water and committed to updating it. With the understanding that the new water target should broaden the view beyond specific use and consider aspects of availability, quality, access to water and ecological flow in the river basins where we operate, indicator 6.4.2 of the United Nations 2030 Agenda was adopted. The calculation of water stress considers the ratio between the total freshwater collected by the company and the difference between the total water resources available and the water needed for aquatic life.</p> <p>In 2024, Vale received an A rating on the CDP Water assessment, one of the world's leading impact assessment initiatives.</p>

GRI 303-1	Interactions with water as a shared resource	<a href="#">Environmental data</a>
GRI 303-2	Management of water discharge-related impacts	<a href="#">Environmental data</a>
GRI 303-3	Water withdrawal	<a href="#">Environmental data</a>
GRI 303-4	Water discharge	<a href="#">Environmental data</a>
GRI 303-5	Water consumption	<a href="#">Environmental data</a>
GRI 305-6	Emissions of ozone-depleting substances (ODS)	<a href="#">Environmental data</a>
GRI 305-7	Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	<a href="#">Environmental data</a>
SASB EM-MM-120a.1	Atmospheric emissions of the following pollutants: (1) CO, (2) NOx (excluding N2O), (3) SOx, (4) particulate matter (PM10), (5) mercury (Hg), (6) lead (Pb), and (7) volatile organic compounds (VOCs)	<a href="#">Environmental data</a>
SASB EM-MM-140a.1	(1) Total water withdrawn, (2) Total water consumed, percentage of each in regions with High or Extremely High Baseline Water Stress	<a href="#">Environmental data</a>
SASB EM-MM-140a.2	Number of incidents of non-compliance associated with water quality licenses, standards and regulations	<a href="#">Environmental data</a>

## Mine closure and future use

Form of Management	<b>Impacts</b>	<p>Main risks: Failure to achieve compliance and legislation targets, non-recovery of biodiversity, Invasion and misuse of land, Low economic diversification, maintaining local dependence on mining activities.</p> <p>Main opportunities: Minimize risks in the territories where we operate and generate aptitudes for future uses, Generation of value to the territories, economic diversification and implementation of new businesses.</p>
	<b>Involvement</b>	The mine closure and future use are directly linked to the impacts of Vale on both its activities and its business relationships.
	<b>Policies &amp; Commitments</b>	100% of our operations have closure plans that are in compliance with the best practices adopted by the International Council on Mining and Metals (ICMM) and legislation. At the same time, we follow up and monitor all mine closure actions and progressive rehabilitation of the units, seeking the correct use of resources and that the assessment of the social, economic and environmental impacts is contemplated.
	<b>Steps taken to manage the theme</b>	<p>Mine closure requires a multidisciplinary approach, which involves environmental, social, economic and regulatory aspects. In addition, the participation of the community is fundamental in this process, so that there is active listening to the expectations for the resignification of the territory, aiming at the generation of shared value and local development. Besides, a reorganization of the management structure was incorporated into the mining planning area, in order to ensure that the issues are worked on together and that operations are carried out in a sustainable and responsible manner from the opening of the mine to its closure. An Executive Committee was also implemented for mine closure and future use, which contributes to integrating technical processes and sustainability assumptions.</p>

Executive Committee was also implemented on mine closure and future use, which contributes to integrating technical processes and sustainability assumptions into this agenda.

#### Effectiveness Tracking

To offer this legacy to the population, Vale follows and monitors all mine closure and progressive rehabilitation actions, including the correct use of resources and the assessment of social, economic and environmental impacts, having disbursed approximately USD 172 million in 2023. All operations have closure plans in compliance with the best practices of the International Council on Mining and Metals (ICMM) and the respective legislation. Processes are executed in a way that mitigates risks, protects the environment, maintains compliance with laws, and ensures the correct transition to the closure of mining operations and long-term sustainability.

GRI G4 MM10

Number and percentage of operations with plans to close activities.

[Environmental data](#)

## Climate Change

#### Impacts

Climate change, as pointed out in the Global Risks Report of the World Economic Forum for almost a decade ago, is among the main global risks to people and supply chains worldwide. This reality is also reflected in the concern of stakeholders and in Vale's materiality. In this sense, it is our priority to promote low-carbon mining, which contributes to the entire value chain, making our business resilient to the effects of climate change and allowing us to contribute to the fair transition in the world.

Main risks: Transition risks: changes in the pattern of demands, changes in public policies on emissions restrictions (including carbon taxation) and reputational risk, among others; Physical risks: average temperature increase, extreme weather and sea conditions.

Main opportunities: Development of decarbonization solutions; Use of proprietary technology to offer more premium products; Increased participation of renewable sources in the energy matrix, including electricity and fuels; Indicators and requirements for engagement with customers and suppliers.

#### Involvement

Vale's impact on climate change is directly linked to its operations and business relationships.

#### Policies & Commitments

To lead the decarbonization agenda and supported by its global climate change policy, Vale has, since 2019, a periodic forum composed of members of the executive committee and senior leadership, in addition to linking emission reduction targets to its variable remuneration. In 2017, we aligned with the guidelines of the Task Force on Climate Change-Related Financial Disclosures (TCFD), aiming to manage the impacts arising from the transition to a low-carbon economy, as well as the physical impacts of climate change on our operations, in addition to participating in the main existing assessments. In 2023, for the fourth consecutive year, we received an A- rating in the CDP Climate Change assessment, a score above the mining industry average. CDP updated the scoring methodology and added new questions to the document, which made the assessment more rigorous when compared to previous years.

We publish the climate change strategy and its progress, including the decarbonization roadmap, which is updated annually. This information can be found in the CDP Climate, ESG Portal and in the Climate Change Report.

#### Steps taken to manage the theme

Our main decarbonization program, PowerShift, aims to make the company's energy matrix cleaner, with renewable energy and alternative fuels and greater efficiency of operations using new technologies.

To maximize its impact, PowerShift partners with technology experts, research centers, vendors, and other companies in the industry. This is the case of the Charge On Innovation Challenge initiative, promoted by Vale, BHP and Rio Tinto to encourage the development of innovative technologies aimed at decarbonizing the mineral sector. More information about this topic is available in the Vale Integrated Report, on the ESG Portal on the "Climate" page and in the Climate Change Report.

#### Effectiveness Tracking

See more in the Vale Integrated Report, on the ESG Portal on the "Climate" page and in the Climate Change Report.

GRI 201-2

Financial implications and other risks and opportunities due to climate change

[Economic Data](#)

GRI 302-1

Energy consumption within the organization

[Environmental data](#)

GRI 302-2

Energy consumption outside the organization

[Environmental data](#)

GRI 302-3

Energy intensity

[Environmental data](#)

GRI 302-4

Reduction of energy consumption

[Environmental data](#)

GRI 305-1

Direct (Scope 1) GHG emissions

[Environmental data](#)

GRI 305-2

Energy indirect (Scope 2) GHG emissions

[Environmental data](#)

GRI 305-3

Other indirect (Scope 3) GHG emissions

[Environmental data](#)

GRI 305-4

GHG emissions intensity

[Environmental data](#)

GRI 305-5

Reduction of greenhouse gas (GHG) emissions

[Environmental data](#)

SASB EM-MM-110a.1

Scope 1 gross global emissions, percentage covered by emission limitation regulations

[Environmental data](#)

SASB EM-MM-110a.2

Discussion of the long-term and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets and a review of performance against these targets

[Environmental data](#)

SASB EM-MM-130a.1

(1) total energy consumed, (2) percentage of grid electricity, (3) percentage of renewable energy

[Environmental data](#)

## Governance

### Governance and Compliance

#### Impacts

Main risks: Market risks; Operational risks; Legal and tax risks; Mergers, acquisitions and divestments; Abusive and discriminatory practices; Strategic, financial and cyber risks; Changes in Laws and Regulations.

Main opportunities: Cultural transformation; Innovation and new technologies.

#### Involvement

The impact of Vale on governance and compliance is directly linked to its operations and business relationships.

### Policies & Commitments

Our objective is to be in line with the best national and international governance practices, including: a majority of independent directors, the appointment of a Lead Independent Director (LID); a process of self-assessment by the Board of Directors, a limit on the number of terms of office for members of the Board of Directors, among others. Vale works firmly to preserve integrity and eliminate conflicts of interest, rejecting any conduct, influence or decision motivated by interests that are not in accordance with the standards we have established in our Code of Conduct. Our anti-corruption rules are aimed at complying with all applicable laws, including the U.S. Foreign Corruption Practices Act (FCPA), the Brazilian Anti-Corruption Law (Lei nº. 12.846/2013) and local laws of each country in which we operate.

### Steps taken to manage the theme

Vale's governance brings together practices and policies aligned with the purpose of the company. The evolution in continuous improvement and risk management processes contributes to the sustainability of the business, generating value for shareholders and investors. The restructuring of the Executive Committee in 2023 supported the strategy of focusing on core assets, which simplifies the portfolio and concentrates activities in geographies where our competitive advantages are evident, as well as stimulates the capacity for innovation in the scope of solutions for the energy transition.

To disseminate Vale's values that must be put into practice by employees, we have the Ethics & Compliance Program, with pillars that seek to prevent, detect and correct misconduct. Within it, constant training is promoted throughout the year, in addition to specific training on the prevention of corruption cases for groups that work directly with public officials. When a misconduct is confirmed, we take actions in accordance with the Consequence Management Policy, applying the corresponding corrections with fairness and transparency. See more on the ESG Portal on the "Governance" page.

### Effectiveness Tracking

See more on the ESG Portal on the Governance page and in the Vale Integrated Report, in the Governance section.

GRI 201-1	Direct economic value generated and distributed	<a href="#">Economic Data</a>
GRI 201-4	Financial assistance received from the government	<a href="#">Economic Data</a>
GRI 205-1	Operations assessed for risks related to corruption	<a href="#">Economic Data</a>
GRI 205-2	Communication and training on anti-corruption policies and procedures	<a href="#">Economic Data</a>
GRI 205-3	Confirmed cases of corruption and actions taken	<a href="#">Economic Data</a>
GRI 206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	<a href="#">Economic Data</a>
SASB EM-MM-510a.1	Description of the management system for preventing corruption and bribery throughout the value chain	<a href="#">Economic Data</a>
SASB EM-MM-510a.2	Production in countries that have the 20 lowest corruption perception scores from Transparency International	<a href="#">Economic Data</a>

## Social

### Human rights

#### Impacts

The assessment of human rights risks is carried out in all operations and critical projects, with the definition of controls integrated into the processes of the activities and with the performance of due diligence, including suppliers, with the application of a self-diagnosis questionnaire, engagement, inspections and monitoring of action plans. Also, the due diligence process is done in cases of mergers and acquisitions of new projects and joint ventures. Human Rights Due Diligence (HRDD), on the other hand, is an in-depth assessment of actual and potential impacts that is integrated through corrective actions and monitored periodically, in cycles of three to five years.

Main risks: Risks of human rights violations in its operations, along the value chain.

Main opportunities: Advance the inclusion of the human rights lens in all company processes and decision-making, contribute to promoting the human rights and companies' agenda in the mining sector and in other sectors, in joint ventures and with customers.

#### Involvement

We recognize that our operation and value chain deal with sensitive social and environmental issues, which can generate impacts and risks of Human Rights violations. Therefore, our commitment to Human Rights is directly connected to the company's strategic pillars and based on respect for people's dignity and integrity.

#### Policies & Commitments

Respect for Human Rights is a non-negotiable condition and the basis for Vale's social performance. The firm performance in the management of Human Rights in operations and in the value chain follows the learnings and the evolution of practices that involve continuous dialogue with society. This premise is essential for solving problems and building a culture of respect for the dignity and integrity of people potentially impacted by business activities and relationships.

Our commitment is connected to the Ethics & Compliance Program and our cultural transformation journey. We follow international standards such as the UN Guiding Principles on Business and Human Rights, the principles of the United Nations Global Compact, the Universal Declaration of Human Rights, the principles and guidelines of the International Council on Mining and Metals (ICMM), among others.

Vale also maintains the Listening and Response Mechanism to receive Human Rights complaints from society. In addition, Vale has made a commitment to respond 100% of the allegations on the subject made through the Business & Human Rights Resource Centre (BHRRCC, the Business and Human Rights Information Centre).

GRI 408-1	Operations and suppliers at significant risk for incidents of child labor	<a href="#">Social Data</a>
GRI 409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	<a href="#">Social Data</a>
GRI 410-1	Security personnel trained in human rights policies or procedures	<a href="#">Social Data</a>
SASB EM-MM-210a.1	Percentage of (1) proven reserves and (2) probable reserves in or near conflict areas	<a href="#">Social Data</a>
SASB EM-MM-210a.2	Percentage of (1) proven reserves and (2) probable reserves on or near indigenous lands	<a href="#">Social Data</a>
SASB EM-MM-210a.3	Discussion of engagement processes and due diligence practices with respect to human rights, indigenous rights and operation in conflict areas	<a href="#">Social Data</a>

## People

Form of management	<b>Impacts</b> Main risks: Local labor laws, Hiring of outsourced labor, Leadership succession plan. Main opportunities: Implement and accelerate the Technical Training Program for our employees, Training/activation of operational leaders in cultural transformation.		
	<b>Involvement</b> In addition to being an essential part of the success of our business, people can be directly impacted by Vale's policies and actions both in its operation and in its business relationships.		
	<b>Policies &amp; Commitments</b> Our key commitments related to people at Vale are expressed in our Vale Diversity and Inclusion Policy, Human Rights Guide, Human Rights Policy and Code of Conduct.		
	<b>Steps taken to manage the theme</b> The cultural transformation of Vale is one of the learnings from the Brumadinho tragedy. We believe that the company will only be different when our people act differently, according to the values and key behaviors required and on a trajectory of constant improvement. This journey, which began in 2019, is being developed in practice and has engagement as a way to encourage our employees to be the protagonists in achieving our organizational ambitions. Engagement is measured through employees' perceptions of questions related to five pillars: culture, leadership, career, well-being, and belonging. Besides, in 2023, the first engagement survey was applied after the beginning of the cultural transformation journey, with an overall favorability of 82% and highlighting the leadership and career pillars. Based on the results, actions such as leadership development programs, review of the Culture and Engagement element in the VPS, and communication campaign aimed at the operational public were implemented. Furthermore, our intentional and affirmative performance in Diversity, Equity and Inclusion is a result from our learning. We adopt measures to build work environments that reflect all the diversity that exists in society, with spaces for people to feel respected and have their voices and ideas valued. We are guided by our Diversity and Inclusion Policy, and we have professional training programs; career development; training focused on combating harassment, discrimination and prejudice; and inclusive recruitment. Find out more on the ESG Portal on the "Our People" page. The Valer, a learning ecosystem of Vale, supports the development of employees and the generation of shared value with the community. It is segmented into five main audiences: all employees and communities, future employees, operational technicians, specialists and leaders. For each audience, Valer offers training and solutions for the transfer of learning to the day-to-day, in exchanges between people and in practice. The Humanized care for situations of sexual and moral harassment and discrimination is provided through the Reception Channel, launched in 2022 in Brazil, and through the Respect Channel, launched in 2023 for Base Metals operations in Canada. Therefore, employees and contractors can feel more comfortable reporting sensitive information, thus contributing to the effectiveness of the investigation process. Vale respects freedom of association and maintains good relations with unions in all countries where it operates, seeking to resolve conflicts through periodic meetings with representatives of the associations. In 2023, no labor representations were recorded. We base our work on the Code of Conduct, on local labor laws, on the eight Fundamental Conventions of the International Labor Organization (ILO) and on the guidelines of the Organization for Economic Cooperation and Development (OECD). When the local law of a country where we operate restricts this right, we maintain contact with equivalent workers' organizations. Find out more on the ESG Portal on the "Our People" page.		
	<b>Effectiveness Tracking</b> Find more on the ESG Portal on the "Our People" page, and in the Vale Integrated Report, in the People section.		
	GRI 201-3	Defined benefit plan obligations and other retirement plans	<a href="#">Economic Data</a>
	GRI 401-1	New employee hires and employee turnover	<a href="#">Social Data</a>
	GRI 401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	<a href="#">Social Data</a>
	GRI 401-3	Parental leave	<a href="#">Social Data</a>
GRI 404-1	Average hours of training per year, per employee	<a href="#">Social Data</a>	
GRI 404-2	Programs for upgrading employee skill and transition assistance programs	<a href="#">Social Data</a>	
GRI 404-3	Percentage of employees receiving regular performance and career development reviews	<a href="#">Social Data</a>	
GRI 405-1	Diversity in governance bodies and employees	<a href="#">Social Data</a>	
GRI 405-2	Ratio of basic salary and remuneration of women to men	<a href="#">Social Data</a>	
GRI 406-1	Incidents of discrimination and corrective actions taken	<a href="#">Social Data</a>	
GRI 407-1	Operations and suppliers where the right to freedom of association and collective bargaining may be at risk	<a href="#">Social Data</a>	
SASB EM-MM-310a.1	Percentage of active workforce covered by collective bargaining agreements, described by US and foreign employees	<a href="#">Social Data</a>	
SASB EM-MM-310a.2	Number and duration of strikes and lockouts	<a href="#">Social Data</a>	
<b>Health and Safety</b>			
Form of management	<b>Impacts</b> Main risks: Risks related to accidents at work and fatalities; Risks related to the health of employees; Risks of process accidents or catastrophic events (process safety and operational risk management) in activities, including open-pit mining, underground mining, and metals refining and processing. Main opportunities: Structuring the verification of critical controls; Accelerate the use of technology to keep people away from risks.		
	<b>Involvement</b> Vale's impact on health and safety is directly linked to its operations and, to a lesser extent, to its business relationships.		
	<b>Policies &amp; Commitments</b> We have emergency response policies and procedures aligned with industry best practices and specific requirements. Applicable to all units, these requirements were based on internationally recognized practices developed by agencies such as the Federal Emergency Management Agency (FEMA) and the International Council on Mining and Metals (ICMM), using tools as the Incident Command System (ICS) and Awareness and Preparedness for Emergencies at Local Level (APELL) of the United Nations Environment Program (UNEP), for instance.		
	<b>Steps taken to manage the theme</b> The Health and Safety strategy is supported by the Vale Production System (VPS) management system. It has as its value "Life First" and is based on three pillars: prevention of injuries and chronic diseases; fatality prevention; prevention of catastrophic accidents. Within the VPS, we have specific elements to prevent and mitigate risks, promote continuous improvement in occupational safety and encourage the health care of our employees, which undergo periodic evaluations. More than identifying and mapping risks, we act in the association of controls, in effective communication and in the reporting of them at all levels of the company. With the Lead with Safety Program, we worked on behavioral development actions with about 900 leaders between 2022 and 2023, with the aim of integrating safety and accident prevention into our daily decisions. The Security Transformation Program, on the other hand, relied on an intense effort to increase the maturity and efficiency of the installed solutions, seeking the		

The Security Transformation Program, on the other hand, focused on initiatives aimed at increasing the reliability and efficiency of the mines' operations, seeking the best experience for the employees. The focus was on monitoring and sustaining safety solutions, involving analysis of monitoring centers, standardization of journeys, actions to deal with deviations to detect drowsiness and proximity alerts, and management of adoption and efficiency indicators. Find out more on the ESG Portal on the "Occupational Health and Safety" page.

#### Effectiveness Tracking

The main control initiatives in Health and Safety are:

Hazard Identification and Risk Analysis (HIRA): identifies hazards and risk analysis, details the causes of scenarios for process accidents, existing protections, criticality of risks in the dimensions of people and environment, as well as critical and very critical operational scenarios with potential for business interruption. The program is in its second cycle (2022 to 2025).

Asset Integrity Technical Standards (PNR): applicable to the life cycle of assets (engineering, construction, commissioning, operation and decommissioning), define technical requirements to prevent and mitigate unwanted events based on risk scenarios.

Metrics for process accidents: guidelines for capturing and investigating process accidents (process safety), that is, events involving our production processes that result in an uncontrolled release of energy and/or materials (toxic or not). When fully implemented, the metrics will become an important indicator in our security strategy.

Safe Work Permit (PTS): assesses risks of routine and non-routine tasks considered critical or very critical. It begins with maintenance planning, continues with a discussion at the activity site, permeates the execution of the activity and ends with the delivery of the service and closing of the maintenance order.

Critical Activity Requirements (RAC): internal compliance standards for the execution of critical and very critical tasks. These are critical requirements for eliminating fatal accidents in these activities.

Exposure to health risks: global corporate guideline for the management and development of programs to monitor and control employees' occupational health, which includes quantitative objectives for reducing health risk scenarios in the medium term, as well as primary, secondary and tertiary health care with a focus on preventing work disability. Find out more in the Vale Integrated Report, in the Health and Safety section.

GRI 403-1	Occupational health and safety management system	<a href="#">Social Data</a>
GRI 403-2	Hazard identification, risk assessment and incident investigation	<a href="#">Social Data</a>
GRI 403-3	Occupational health services	<a href="#">Social Data</a>
GRI 403-4	Worker participation, consultation and communication on occupational health and safety	<a href="#">Social Data</a>
GRI 403-5	Worker training on occupational health and safety	<a href="#">Social Data</a>
GRI 403-6	Promotion of worker health	<a href="#">Social Data</a>
GRI 403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	<a href="#">Social Data</a>
GRI 403-8	Workers covered by an occupational health and safety management system	<a href="#">Social Data</a>
GRI 403-9	Work-related injuries	<a href="#">Social Data</a>
GRI 403-10	Work-related ill health	<a href="#">Social Data</a>
SASB EM-MM-320a.1	(1) Mine Safety and Health Administration (MSHA) total incidence rate, (2) fatality rate, (3) near miss frequency rate (NMFR), and (4) average hours of health, safety, and emergency response training emergencies for (a) full-time employers and (b) contract employees.	<a href="#">Social Data</a>

## Local Communities

#### Impacts

Main risks: Socio-environmental impacts arising from the operation, Health and safety risks in the communities where we operate, Risks of conflicts due to involuntary resettlement and land use, Risks of conflicts with indigenous and traditional communities.

Main Opportunities: Maximizing the generation of value for communities.

#### Involvement

Vale's impact on local communities is directly linked to its operations and business relationships.

#### Policies & Commitments

The service measures are defined and executed based on a diagnosis of the reality and the engagement of the stakeholders. They aim at the restitution of livelihoods in conditions equivalent to or better than those verified before the displacement of families, such as the replacement of land, housing and economic activities impacted, according to the guidelines of international organizations as the International Finance Corporation (IFC) and the World Bank, for instance. Find out more on the ESG Portal and in the Human Rights Guide.

#### Steps taken to manage the theme

For Vale, the relationship with local communities is a priority. Understanding and meeting the perspectives of communities and incorporating them into our decisions is a challenge and there is always room for improvement. Through dialogue, we share information about activities and enterprises, their possible risks and impacts, and the measures taken to avoid, reduce, or compensate for them.

Currently, 97% of our operations have an established relationship process with local communities. It includes steps to identify and characterize communities and stakeholders; management of manifestations; implementation of relationship and dialogue plans; management of possible conflicts and critical issues. During the environmental licensing phase, we follow all legal obligations of engagement, ensuring the disclosure of information related to the project.

The engagement is done by specialized teams and, in 2023, we related to 1,574 local communities in the countries where we operate. During this period, a total of 452 Local Community Relationship Plans were implemented, of which 385 were in Brazil. Of the 177 communities considered a priority for engagement in Brazil, 88% were served by Relationship Plans. We are committed to serving 100% of priority communities with plans by 2026. See more on the ESG Portal on the "Local Communities" page.

#### Effectiveness Tracking

Active listening is one of the key behaviors in our transformation journey. We learned that it is not enough to carry out the dialogue and address the manifestations, but to understand the perception of the effectiveness of our engagement efforts. In 2022, we conducted the first Community Perception Survey in Brazil, interviewing 5,105 people in five states (ES, RJ, MG, MA, PA), covering 44 municipalities and 163 communities. In 2023, we consolidated the results to deepen the understanding of the level of trust and expectations of neighboring communities.

The survey shows that we are making progress, but there is still room for improvement and learning, with 57% of respondents saying that engagement actions are on the right way and 14% on the wrong way. Regarding knowledge of Vale's actions in the territory, 56% answered that there were no actions. 81% of respondents agreed with the statement 'Vale is a reliable company', while 5% did not agree and 14% were neutral and did not know/did not answer. As next steps, social strategies related to the most impactful and relevant topics will be built. See more on the ESG Portal on the "Local Communities" page and in the Vale Integrated Report, in the Local Communities section.

GRI 203-1	Social Expenditures	<a href="#">Economic Data</a>
GRI 203-2	Significant Indirect Economic Impacts	<a href="#">Economic Data</a>
GRI 411-1	Incidents of violation involving rights of indigenous peoples	<a href="#">Social Data</a>
GRI 413-1	Operations with local community engagement, impact assessments, and development programs	<a href="#">Social Data</a>
GRI 413-2	Operations with significant negative impacts on local communities	<a href="#">Social Data</a>

Form of management

GRI G4 MM5	Total number of operations located in or adjacent to indigenous peoples' territories, and number and percentage of operations or locations where there are formal agreements with indigenous peoples' communities	<a href="#">Social Data</a>
GRI G4 MM6 e MM7	Number and description of significant conflicts relating to land use, customary rights of local communities and indigenous peoples, and the extent to which mechanisms for escalating demands and grievances were used to resolve these conflicts.	<a href="#">Social Data</a>
GRI G4 MM9	Locations where resettlements took place, the number of households resettled in each and how their livelihoods were affected in the process	<a href="#">Social Data</a>
SASB EM-MM-210b.1	Discussion of the process for managing risks and opportunities associated with community rights and interests	<a href="#">Social Data</a>
SASB EM-MM-210b.2	Number and duration of non-technical delays	<a href="#">Social Data</a>



## Economic

Indicator	Description	Location
GRI 201-1	Direct economic value generated and distributed	<a href="#">Economic Data</a>
GRI 201-2	Financial implications and other risks and opportunities due to climate change	<a href="#">Economic Data</a>
GRI 201-3	Defined benefit plan obligations and other retirement plans	<a href="#">Economic Data</a>
GRI 201-4	Financial assistance received from the government	<a href="#">Economic Data</a>
GRI 202-1	Ratios of standard entry level wage by gender compared to local minimum wage	<a href="#">Economic Data</a>
GRI 202-2	Proportion of senior management hired from the local community	<a href="#">Economic Data</a>
GRI 203-1	Infrastructure investments and services supported	<a href="#">Economic Data</a>
GRI 203-2	Significant Indirect Economic Impacts	<a href="#">Economic Data</a>
GRI 204-1	Proportion of spending on local suppliers	<a href="#">Economic Data</a>
GRI 205-1	Operations assessed for risks related to corruption	<a href="#">Economic Data</a>
GRI 205-2	Communication and training on anti-corruption policies and procedures	<a href="#">Economic Data</a>
GRI 205-3	Confirmed cases of corruption and actions taken	<a href="#">Economic Data</a>
GRI 206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	<a href="#">Economic Data</a>
GRI 207-1	Approach to tax	<a href="#">Economic Data</a>
GRI 207-2	Tax governance, control and risk management	<a href="#">Economic Data</a>
GRI 207-3	Stakeholder engagement and management of concerns related to tax	<a href="#">Economic Data</a>
GRI 2-27	Compliance with laws and regulations	<a href="#">Economic Data</a>
SASB EM-MM-510a.1	Description of the management system for preventing corruption and bribery throughout the value chain	<a href="#">Economic Data</a>
SASB EM-MM-510a.2	Production in countries that have Transparency International's 20 lowest corruption perception scores	<a href="#">Economic Data</a>





Economic

GRI 201-2 (2016)

Description: Financial implications and other risks and opportunities due to climate change

Year	Vale's answer	Assurance
2019	<p>For the physical risks of climate change, Vale developed, in partnership with the Vale Technological Institute (ITV), maps of impacts based on analyzes by the Intergovernmental Panel on Climate Change (IPCC).</p> <p>Physical Risk: Impacts associated with climate change, such as increased temperatures, changes in precipitation patterns, extreme events and rising sea levels can negatively impact operations, workforce and surrounding communities and environment. Among the potential implications, there may be a production stoppage, the need for repairs and modifications to infrastructure, among others. Financial implications before taking preventive measures is variable. The loss of machinery and production downtime can eventually run into millions of dollars.</p> <p>For risk management, Vale has developed an adaptation strategy based on the inclusion of climate change variables in existing risk management processes - this makes it possible to predict possible future problems and reassess controls, eliminating and/or minimizing thus the impacts.</p> <p>Regulatory Risk: A carbon pricing may imply additional costs, both directly and indirectly, which in turn may impact the competitiveness of companies. Carbon pricing can impact the company in three main ways: (i) operating costs; (ii) cost of electricity; (iii) fuel costs.</p> <p>As a way of managing risk, Vale monitors climate legislation in areas where Vale operates and maintains engagement in the process of developing regulations, either directly or through forums and associations in which Vale participates.</p> <p>General Risk: A change in the pattern of coal consumption as a result of the perception of it as a highly emitting product could impact the demand for the commodity in the future. Vale conducts regulatory monitoring of the pricing of greenhouse gas emissions, mainly in the countries where its customers are located.</p> <p>Among the opportunities arising from climate change are: replacing the purchase of electricity with self-production of clean and/or renewable energy; Greater demand for less carbon intensive products could positively impact Vale, which has the lowest carbon intensity per unit of gross revenue among large mining companies. Vale identifies as an opportunity the maintenance of the forest carbon stock, mainly in Brazil, in the context of defining the national carbon market. To learn more, see the 2019 Sustainability Report (p. 96 and 112).</p>	Independently assured by SGS ICS Certificadora Ltda.
2020	<p>Physical Risk: Impacts associated with climate change, such as increased temperatures, changes in precipitation patterns, extreme events and rising sea levels can negatively impact operations, workforce and surrounding communities and environment. Among the potential implications, there may be a production stoppage, the need for repairs and modifications to infrastructure, among others. Financial implications before taking preventive measures is variable. The loss of machinery and production downtime can eventually run into millions of dollars.</p> <p>For risk management, Vale has developed an adaptation strategy based on the inclusion of climate change variables in existing risk management processes - this makes it possible to predict possible future problems and reassess controls, eliminating and/or minimizing thus the impacts.</p> <p>Regulatory Risk: A carbon pricing may imply additional costs, both directly and indirectly, which in turn may impact the competitiveness of companies. Carbon pricing can impact the company in three main ways: (i) operating costs; (ii) cost of electricity; (iii) fuel costs.</p> <p>As a way of managing risk, Vale monitors climate legislation in areas where Vale operates and maintains engagement in the process of developing regulations, either directly or through forums and associations in which Vale participates.</p> <p>General Risk: A change in the pattern of coal consumption as a result of the perception of it as a highly emitting product could impact the demand for the commodity in the future. Vale conducts regulatory monitoring of the pricing of greenhouse gas emissions, mainly in the countries where its customers are located.</p> <p>Among the opportunities arising from climate change are: replacing the purchase of electricity with self-production of clean and/or renewable energy; Greater demand for less carbon intensive products could positively impact Vale, which has the lowest carbon intensity per unit of gross revenue among large mining companies; Vale identifies as an opportunity the maintenance of the forest carbon stock, mainly in Brazil, in the context of defining the national carbon market.</p>	Independently assured by Bureau Veritas Certification
2021	<p>At Vale, we assess transition risks (i.e. carbon prices, reputation issues, new technology issues) and physical risks (i.e. operational impacts caused by climate variables) related to climate change in accordance with the TCFD recommendations.</p> <p>Our Climate Change Team works with our Risk Management Team to constantly map transition risks related to climate change recorded in Vale's Bwise System.</p> <p>As for physical risks, we have developed a methodology called "Vale Climate Forecast" to deal with short- and long-term risks related to physical impacts on our assets.</p> <p>For more information, please consult Vale's Climate Change Report: <a href="http://www.vale.com/esg/pt/Documents/vale-CCR-2021-PT.pdf">http://www.vale.com/esg/pt/Documents/vale-CCR-2021-PT.pdf</a></p>	-
2022	<p>We assess transition risks (for example, emerging regulations at state, national and international levels related to the price of carbon, issues of a reputational nature that could potentially arise from the perception of our performance in addressing climate change, and issues related to technology that may materially disrupt or alter planning and trade routes), as well as physical risks (e.g. operational impacts due to extreme weather conditions whose intensity is increased as a consequence of climate change) as per the recommendations of the Task Force on Climate Related Financial Disclosures (TCFD).</p> <p>Our climate change team identifies and monitors risks with the support of our risk management team to constantly map transition risks related to climate change. For transition risks, we have a systematic approach to monitoring the regulatory landscape and emerging climate-related trends such as proposals, initiatives, laws, etc. Potential impacts are calculated and qualified within Vale's executive committee and through the governance of the company's "Low Carbon Forum". In parallel, we seek cutting-edge information and stakeholder alignment, as well as the company's advanced positioning on climate-related policies, through our broader senior management process around climate change, with participation in Global Forums, such as the International Conference on Mining and Metals (ICMM), the World Economic Forum, the World Business Council on Sustainable Development, and international events on this topic, such as the annual Conference of the Parties (COP), the annual meeting of the UN General Assembly and "NYC Climate Week", and other events in critical jurisdictions such as Brazil, Canada, China, USA, Europe, Indonesia, the Middle East.</p> <p>For physical risks, we have developed a methodology called "Vale Climate Forecast" to deal with short and long term risks related to physical impacts on our assets due to climate change. For more information, please see <a href="https://www.vale.com/web/esg/climate-change">https://www.vale.com/web/esg/climate-change</a>.</p>	-
2023	<p>We assess transition risks (e.g., emerging regulations at state, national, and international levels related to carbon pricing, issues of a reputational nature that may potentially arise from the perception of our performance in addressing climate change, and emerging technology-related issues that may disturb or materially alter planning and trade routes), as well as physical risks (e.g. operational impacts due to extreme weather conditions whose intensity is increased as a consequence of climate change) in accordance with the recommendations of the Task Force on Climate Related Financial Disclosures (TCFD).</p> <p>Our climate change team identifies and monitors risks with the support of our risk management team to constantly map transition risks related to climate change. For transition risks, we have a systematic approach to monitoring the regulatory landscape and emerging climate-related trends, such as proposals, initiatives, laws, etc. Potential impacts are calculated and qualified within Vale's executive committee and through the governance of the company's "Low Carbon Forum". In parallel, we seek cutting-edge information and stakeholder alignment, as well as the company's advanced positioning on climate-related policies, through our broader senior management process around climate change, with participation in Global Forums such as the International Council on Mining and Metals (ICMM), the World Economic Forum, the World Business Council on Sustainable Development, and international events on this topic, such as the annual Conference of the Parties (COP), the annual meeting of the UN General Assembly and the "NYC Climate Week", and other events in critical jurisdictions such as Brazil, Canada, China, USA, Europe, Indonesia, the Middle East.</p> <p>For physical risks, we have developed a methodology called "Vale Climate Forecast" to address short- and long-term risks related to physical impacts on our assets due to climate change. For more information, please see the Climate page on the ESG Portal.</p>	-
Links:	<a href="#">ESG Portal - Climate</a>	

2023 - Risks and opportunities arising from climate change									
Tipe	Category	Subcategory	Impact on	Description	Level	Financial Implications before action is taken	Methods used to manage risk/opportunity	Costs of measures taken to manage risk/opportunity	

Risk	Regulatory	Carbon taxation	Revenue	<p>The CBAM, or Carbon Border Adjustment Mechanism, is a policy proposed by the European Union (EU) that aims to ensure that imported goods pay a price for their carbon emissions that is comparable to the price paid by EU domestic producers through the EU-ETS. The CBAM will come into force in 2026, but as early as October 2023 it is in a transition period, in which EU importers will have to report the total carbon emissions embedded in the products they have imported.</p> <p>For VALE, CBAM represents both a risk and an opportunity. The risk is that the company will be forced to pay an additional tax on its products exported to the EU, which will increase its costs and reduce its competitiveness. The opportunity is that the company can take advantage of CBAM to position itself as a leading company in sustainability, as it has a history of reducing its carbon emissions and goals linked to the cause.</p>	High	<p>Variable. The impact will depend on a number of factors, including: the price of carbon licenses on the European market; The volume of products exported by VALE to the EU; The carbon intensity of VALE's production.</p>	<p><b>Risk planning and management:</b> The company is conducting detailed planning to mitigate the impact of CBAM, including identifying risks, developing scenarios, and implementing mitigation measures through project analysis on the MACC curve.</p> <p><b>Communication:</b> The company is proactively communicating with its customers and stakeholders about CBAM to ensure that everyone is aware of the potential impacts. In addition, it has been developing, in partnership with the consulting firm Way Carbon, the first report of the CBAM transition period, scheduled to be delivered at the end of January.</p> <p><b>Innovation:</b> The company is investing in innovation to reduce its carbon emissions, which will help mitigate the impact of CBAM.</p>	<p>The cost of CBAM to Vale could reach USD 109 million per year. The costs of the measures taken by VALE to manage the risk/opportunity represented by CBAM are difficult to estimate precisely. However, Vale announced that it will invest between USD 4 billion and USD 6 billion in sustainability-related actions by 2030 to achieve its emission reduction targets. These amounts will indirectly be used to mitigate the impacts of CBAM.</p>
Opportunity	General	Other	Cost	<p>Investment in clean and/or renewable electricity generation projects.</p> <p>This opportunity is well seen globally, especially after the definitions and implications of the last COP 28, as it is aligned with the reduction of energy consumption from fossil sources and also with Vale's scope 2 target. The goal was to achieve zero scope 2 emissions by 2025 in Brazil. A fact, which the company achieved at the end of 2023. Globally, this target is set for 2030. This goal helps reduce the carbon footprint of Vale's products.</p>	Intermediary	<p>Variable. Since the development of the Sol do Cerrado Project is taking advantage of the purchase of PPAs, which is cheaper.</p>	<p>Vale has invested in the self-production/acquisition of electricity from renewable sources. The decarbonization strategy is managed through the energy area, considering the risk management of energy projects, with the support of Climate Change and Strategic Planning.</p>	<p>The estimated cost of the Sol do Cerrado Project is an investment of USD 500 million. The Sol do Cerrado Project, with an installed capacity of 766 megawatts-peak, will produce approximately 193 megawatts of energy per year for Vale's operations, contributing significantly to the goal of zero scope 2 in Brazil in 2023. This project, going live at this time, is one of the largest in Latin America.</p>
Risco	Regulatory	International, national, regional or state emissions regulation	Cost	<p>In 2023, the International Maritime Organization (IMO) approved a series of new rules to reduce greenhouse gas (GHG) emissions from shipping. The new rules include:</p> <ul style="list-style-type: none"><li>• decrease the carbon intensity of ships through further improvements in energy efficiency for new vessels;</li><li>• reduce CO2 emissions per international trip, on average, by at least 40% by 2030 compared to 2008;</li><li>• adopt zero or near-zero GHG emission technologies, fuels and/or energy sources to account for at least 5%, seeking 10%, of the energy used by international shipping by 2030;</li><li>• peak GHG emissions from international shipping as soon as possible and "achieve net-zero GHG emissions by around 2050, i.e. close to 2050, taking into account different national circumstances, while pursuing efforts to phase them out" in a manner consistent with the Paris Agreement target;</li></ul>	High	<p>Variable. The new rules will require shipping companies to invest in new technologies and operational practices, which will increase operating costs. The cost of shipping is a challenge for the Vale business given the greater distance from our largest buyers (especially China) compared to our competitors.</p>	<p>Vale S.A. takes a multifaceted approach to managing risks and opportunities within the company, always seeking to balance these elements to maximize return on investment and minimize potential losses. Vale's core strategy is diversification, investing in technology and innovation in the mining sector with the main focus on less carbon-intensive technologies. When it comes to shipping, the company has the Ecoshipping program, which is an initiative to reduce carbon emissions and promote sustainability in maritime transport. It uses technologies such as rotor sails and hull lubrication, as well as investing in low-carbon fuels. Vale also collaborates with ports and invests in research.</p>	<p>In 2021, Vale announced that it will invest between USD 4 billion and USD 6 billion in sustainability-related actions by 2030, this amount indirectly serves to meet the new IMO rules. A major highlight is the shipping ecoshipping program, which has been developing innovative projects in the field.</p>
Risk	Regulatory	International, national, regional or state emissions regulation	Revenue	<p>The Inflation reduction Act (IRA) is a United States legislation passed in August 2022. The purpose of the IRA is to reduce inflation and support the economy. The IRA does this by investing in clean energy and climate change, as well as health.</p> <p>Clean energy and climate change</p> <p>The IRA invests USD 369 billion in clean energy and climate change. These investments include: Tax credits for renewable energy production, such as solar and wind power</p> <p>Investments in energy efficiency and modernisation of the electricity grid</p> <p>Funding for research and development of clean technologies</p> <p>Incentives for the adoption of electric vehicles</p> <p>Supporting carbon capture and storage technologies</p> <p>These investments are designed to reduce greenhouse gas emissions and promote the transition to a cleaner economy.</p> <p>Health</p> <p>The IRA also invests USD 203 billion in healthcare. These investments include: Extension of Affordable Care Act tuition subsidies.</p>	Intermediary	<p>Variable. The implications for Vale of the IRA would be mainly related to future spending on the already planned projects, the expansion of transition metals production, mainly in Canada, and the development of new hydrogen and CCS projects. To this end, the IRA has interesting funding options:</p> <ol style="list-style-type: none"><li>1. Investment of USD 20 billion in clean energy infrastructure, including electric vehicle charging stations and transmission lines.</li><li>2. Investments of USD 50 billion in research and development of technologies for mitigation and adaptation to climate change, with an emphasis on decarbonization.</li><li>3. Financing of approximately USD 369 billion for the development of "Clean Hydrogen", encouraging the production of hydrogen with low greenhouse gas emissions.</li><li>4. Improvements to the carbon capture and storage (CCS) tax credit, with investments of USD 10 billion in demonstration projects, USD 5 billion in research and development.</li></ol>	<p>Vale S.A. takes a multifaceted approach to managing risks and opportunities within the company, always seeking to balance these elements to maximize return on investment and minimize potential losses. Vale's core strategy is diversification, investing in technology and innovation in the mining sector with the main focus on less carbon-intensive technologies. In portfolio management, we use the MACC curve to prioritize projects in the development pipeline to achieve reduction targets.</p> <p>In addition, the company periodically rebalances its investment portfolio, ensuring that it remains aligned with risk and return objectives. Asset allocation is carefully planned, taking into account the company's long-term investment horizon and risk tolerance profile. To manage the specific risks, Vale employs teams specialized in financial, operational and environmental management, responsible for</p>	<p>In 2021, Vale announced that it will invest between USD 4 billion and USD 6 billion in sustainability-related actions by 2030, this amount is indirectly used to meet the IRA, mainly the projects in Canada to expand copper and nickel production.</p>
Risk	General	Other	Revenue	<p>Reputational impact caused by non-compliance with established targets such as Vale's "Non-compliance with the 2030 Carbon Target", which is to reduce Scope 1 and 2 emissions by 33% by 2030. Financial impacts are considered to be possibly caused by the loss of market share due to reputational issues.</p>	High	<p>Not yet estimated.</p>	<p>The Bowtie method of risk analysis is used, with its registration and monitoring by the Bwise system (Risk Management system used by Vale). Preventive and mitigating controls have been created to manage the risk in question.</p>	<p>Investments in emission reduction projects contained in the Mac Curve - Marginal Abatement Cost Curve. Planned investment for the coming years is up to 6 billion dollars for the implementation of all projects.</p>
Risk	Regulatory	Carbon taxation	Cost	<p>On December 21, 2023, the Chamber of Deputies approved Bill (PL) 2148/2015, which creates the regulated market for offset securities and generation of credits for greenhouse gas (GHG) emissions in Brazil.</p> <p>The Brazilian carbon market will be a regulated market, which means that companies and institutions that emit GHGs will be required to offset their emissions through the purchase of carbon credits. These credits may be generated by projects that reduce or remove GHG emissions, such as renewable energy, afforestation and forest restoration, carbon capture and storage, and energy efficiency projects.</p>	Intermediary	<p>Variable.</p> <p>The financial implications of the Brazilian carbon market for VALE will depend on a number of factors, including:</p> <ul style="list-style-type: none"><li>The price of carbon credits. If the price of carbon credits increases, VALE will be able to profit from its emission reduction projects or spend more on the purchase of carbon credits to offset its emissions.</li><li>The volume of VALE's emissions: The greater the volume of VALE's emissions, the greater the volume destined to the purchase of carbon credits.</li></ul>	<p>VALE is taking a number of steps to prepare for the Brazilian carbon market, including: Investing in emission reduction projects: VALE is investing in emission reduction projects focused on NBS, energy efficiency projects or renewable energy projects. These investments can help the company reduce its emissions and earn carbon credits in the Brazilian carbon market. Preparing to buy carbon credits: VALE is preparing to buy carbon credits in the Brazilian carbon market. The company is developing processes to identify and evaluate emission reduction projects and to purchase carbon credits efficiently.</p>	<p>The costs of the measures taken by VALE to prepare for the Brazilian carbon market are difficult to estimate precisely. However, investments in emission reduction projects represent a significant cost for the company. This cost is managed by the range of projects mentioned in the MACC curve. Vale announced that it will invest between USD 4 billion and USD 6 billion in sustainability-related actions by 2030 to achieve its emission reduction targets. These amounts will indirectly be used to mitigate the impacts of the future Brazilian regulated carbon market.</p>

Opportunity	General	Changes in consumer attitudes	Revenue	Higher demand for less carbon-intensive products could positively impact Vale, which has the lowest carbon intensity per unit of gross revenue among large mining companies. Competitiveness has increased significantly and new taxes are being discussed for carbon-intensive products. Transition minerals, for example, are strategic and fundamental to the future low-carbon economy. Vale is following the opportunities, especially in nickel and copper, expanding beyond current production. Our nickel products are among the lowest CO2 intensity in the industry and our copper is also critical to the infrastructure required by the low-carbon transition.	Intermediary	Not yet estimated.	The development and use of less emitting and more efficient technologies is one of Vale's priorities and, therefore, the company has been studying the life cycle of some of its products (carbon footprint) to evaluate and disclose to its customers variables such as low emissions in relation to the average. We have made significant progress in mapping the carbon footprint of Iron Solutions products, increasing the percentage coverage of volume with carbon footprint to 87.2% (Europe 99.7% - sales reference 2023).  In addition, it has studied the impact on Ebitda, the demand for products that are necessary for the transition to a low-carbon economy considering the scenarios of the International Energy Agency.	Not yet estimated as they are considered emerging risks.
Risk	Physical	Increase in the incidence of storms and hurricanes	Cost	Variable. The loss of machinery and production downtime can eventually reach millions of dollars. Strategic Planning has been working closely with Climate Change and operations to estimate financial impacts.	High	Variable. The loss of machinery and production downtime can eventually reach millions of dollars. Strategic Planning has been working closely with Climate Change and operations to estimate financial impacts.	Physical Risk Management Methodology: Vale Climate Forecast. The methodology is inspired by the Bowtie Risk Management Methodology. Vale has developed an adaptation strategy that is based on the insertion of climate change variables into existing risk management processes - this allows it to predict possible future problems and reassess controls, thus eliminating and/or minimizing impacts. Improvements in Climate Change Risk Management have been implemented and the Physical Risk Management - "Vale Climate Forecast" has two work fronts: short-term impacts (operations) and long-term impacts (operations planning) to test the resilience of assets in the face of Climate Change scenarios. For the short term, the Vale Climate Forecast was developed. Tool (app and dashboard) capable of taking rain forecast data to help operational areas in decision-making.	The costs of responding to the risk of changes in precipitation patterns and extreme variability in weather patterns are the sum of the investments in Vale Climate Forecast (USD 10 thousand) and the Physical Impact Map, which includes the investment in the meteorological radar and studies related to long-term forecast data based on the IPCC RCP 4.5 and RCP 8.5 scenarios that were carried out in 2022 for the Northern Corridor (USD 1.6 million + US\$ 255,000).

### GRI 201-3 (2016)

Description: Defined benefit plan obligations and other retirement plans

Year	Vale's answer	Assurance
2019	Brazilian employees of Vale and most of its Brazilian subsidiaries can participate in retirement plans managed by Valia. Most participants in Valia's plans are participants in a plan called "Vale Mais", which Valia implemented in 2000. This plan is primarily a defined contribution plan with a defined benefit in relation to service prior to 2000 and other defined benefits to cover temporary or permanent disability, retirement and financial protection for dependents in the event of death. Valia also operates a defined benefit plan, closed to new members since May 2000, with benefits based on years of service, salary and social security benefits. This plan covers retired participants and their beneficiaries, as well as a relatively small number of employees who did not want to switch from the old plan to the "Vale Mais" plan, when it was established in May 2000. Employees of our base metals operations participate in defined benefit pension plans and defined contribution pension plans. Defined benefit plans have been closed to new participants since 2009, and all new employees in our Base Metals operations are eligible to participate in defined contribution pension plans.	Independently audited by PriceWaterhouseCoopers Auditores Independentes nas demonstrações financeiras.
2020	Brazilian employees of Vale and most of its Brazilian subsidiaries can participate in retirement plans managed by Valia. Most participants in Valia's plans are participants in a plan called "Vale Mais", which Valia implemented in 2000. This plan is primarily a defined contribution plan with a defined benefit in relation to service prior to 2000 and other defined benefits to cover temporary or permanent disability, retirement and financial protection for dependents in the event of death. Valia also operates a defined benefit plan, closed to new members since May 2000, with benefits based on years of service, salary and social security benefits. This plan covers retired participants and their beneficiaries, as well as a relatively small number of employees who did not want to switch from the old plan to the "Vale Mais" plan, when it was established in May 2000. Employees of our base metals operations participate in defined benefit pension plans and defined contribution pension plans. Defined benefit plans have been closed to new participants since 2009, and all new employees in our Base Metals operations are eligible to participate in defined contribution pension plans.	Independently audited by PriceWaterhouseCoopers Auditores Independentes nas demonstrações financeiras.
2021	Salaries and benefits for Vale and its subsidiaries are generally established on a business basis. Our benefits policy is in line with our attraction and retention strategy, in accordance with applicable laws and market practices in the countries where we operate. We provide an attractive and competitive benefits package that guarantees health, well-being, protection and quality of life. Among the main benefits offered are medical and dental assistance, life insurance, private pension plans and short- and long-term disability benefits.  Brazilian employees of Vale and most of its Brazilian subsidiaries can participate in retirement plans managed by Valia. Most participants in Valia's plans are participants in a plan called "Vale Mais", which Valia implemented in 2000. This plan is primarily a defined contribution plan with a defined benefit in relation to service prior to 2000 and other defined benefits to cover temporary or permanent disability, retirement and financial protection for dependents in the event of death. Valia also operates a defined benefit plan, closed to new members since May 2000, with benefits based on years of service, salary and social security benefits. This plan covers retired participants and their beneficiaries, as well as a relatively small number of employees who did not want to switch from the old plan to the "Vale Mais" plan, when it was established in May 2000. Employees of our base metals operations participate in defined benefit pension plans and defined contribution pension plans. Defined benefit plans have been closed to new participants since 2009, and all new employees in our Base Metals operations are eligible to participate in defined contribution pension plans.	Independently audited by PricewaterhouseCoopers Auditores Independentes nas demonstrações financeiras.
2022	Brazilian employees of Vale and most of its Brazilian subsidiaries can participate in retirement plans managed by Valia. Most participants in Valia's plans are participants in a plan called "Vale Mais", which Valia implemented in 2000. This plan is primarily a defined contribution plan with a defined benefit in relation to service prior to 2000 and other defined benefits to cover temporary or permanent disability, retirement and financial protection for dependents in the event of death. Valia also operates a defined benefit plan, closed to new members since May 2000, with benefits based on years of service, salary and social security benefits. This plan covers retired participants and their beneficiaries, as well as a relatively small number of employees who did not want to switch from the old plan to the "Vale Mais" plan, when it was established in May 2000. Employees of our base metals operations participate in defined benefit pension plans and defined contribution pension plans. Defined benefit plans have been closed to new participants since 2009, and all new employees in our Base Metals operations are eligible to participate in defined contribution pension plans.	Independently audited by PricewaterhouseCoopers Auditores Independentes Ltda nas demonstrações financeiras.
2023	Brazilian employees of Vale and most of its Brazilian subsidiaries can participate in retirement plans administered by Valia. Most of the participants in Valia's plans are participants in a plan called "Vale Mais", which Valia implemented in 2000. This plan is primarily a defined contribution plan with a defined benefit in relation to pre-2000 temporary or permanent disability, retirement, and financial protection for dependents in the event of death. Valia also operates a defined benefit plan, closed to new entrants since May 2000, with benefits based on years of service, salary and social security benefits. This plan covers retired participants and their beneficiaries, as well as a relatively small number of employees who did not want the change from the old plan to the "Vale Mais" plan when it was established in May 2000.  The majority of employees in our base metals operations participate in defined benefit pension plans and defined contribution pension plans. Defined benefit plans have been closed to new entrants since 2009, and all new employees in our Base Metals operations are eligible to participate in defined contribution pension plans. In 2023, Vale Canada, as the administrator of Canadian defined benefit pension plans, completed the purchase of annuity contracts to transfer approximately US\$ 836 million of pension plan obligations and associated assets to approximately 3,000 Canadian retirees and beneficiaries.	-

**Note:** More detailed information on retirement plans can be found in the Financial Statements - IFRS (Chapter "Explanatory Notes to the Financial Statements" item "27. Employee benefits" sub-item "Obligations with retirement benefits"). This information is also present in the Reference Forms (Item "14.3 - Description of the Employee Compensation Policy" sub-item "b. benefit policy").

Links: [Financial Statements](#) [Reference Form](#)

### GRI 201-4 (2016)

Description: Financial assistance received from the government.

Year	Vale's answer	Assurance
2019	Within the concept of financial support received from the government, Vale has some tax incentives, which are informed in the Financial Statements and Fiscal Transparency Report, available for consultation.	-
2020	Within the concept of financial support received from the government, Vale has some tax incentives, which are informed in the Financial Statements and Fiscal Transparency Report, available for consultation.	-
2021	Within the concept of financial support received from the government, Vale has some tax incentives, which are informed in the Financial Statements and Fiscal Transparency Report, available for consultation.	-
2022	Within the concept of financial support received from the government, Vale has some tax incentives, which are informed in the Financial Statements and Fiscal Transparency Report, available for consultation.	-
2023	Within the concept of financial support received from the government, Vale has some tax incentives, which are informed in the Financial Statements and Fiscal Transparency Report, available for consultation.	-

Notes: Links to the mentioned documents can be found in the "References" tab.

<sup>1</sup> The publication of the 2023 Tax Transparency Report will take place after the Integrated Report is published, to access it simply access the link in the table above.

## GRI 202-1 (2016)

Description: Ratios of standard entry level wageby g ender compared to local minimum wage

Year	Vale's answer	Assurance
2019	The local minimum wage is respected by Vale and base salaries do not differ between men and women who perform the same function, in accordance with the Human Resources Policy.	Independently assured by SGS ICS Certificadora Ltda.
2020	Vale respects the local minimum wage defined by law, and there is no difference in base wages between women and men who perform the same functions, as determined by the Human Resources Policy.	Independently assured by Bureau Veritas Certification
2021	Vale respects the local minimum wage defined by law, and there is no difference in base wages between women and men who perform the same functions, as determined by the Human Resources Policy.	-
2022	Vale remunerates 100% of its employees within the international parameters of the Living Wage global coalition (a term for living wages) , aimed at establishing remuneration standards necessary for the well-being of workers and their families.	-
2023	We pay 100% of our employees a living wage <sup>1</sup> , according to an external evaluation carried out in 2022. Deductions or restrictions on remuneration that could result in the employee being indebted to the company are prohibited.	-

Notes: <sup>1</sup> Paying a living wage means providing the means for an individual/family to acquire the goods and services necessary to achieve a basic and dignified standard of living (food, housing, education, transportation, leisure, culture, etc.) in line with the social and cultural expectations of the community and/or country where the individual is located.

## GRI 202-2 (2016)

Description: Proportion of senior management hired from the local community

Year	Vale's answer	Assurance
2019	67% of own employees come from local communities 46% of senior management members are from the local hiring community	Independently assured by SGS ICS Certificadora Ltda.
2020	66% of own employees come from local communities 40% of senior management members are from the local hiring community	Independently assured by Bureau Veritas Certification
2021	54% of own employees come from local communities 45% of senior management members are from the local hiring community	-
2022	62% of own employees come from local communities 48% of senior management members are from the local hiring community	-
2023	60% of own employees come from local communities 34% of senior management members are from the local hiring community	-

## GRI 203-1 (2016)

Description: Investments in infrastructure and services supported

Year	Vale's answer	Assurance
2019	In 2019, Vale contributed US\$ 738.7 million in socio-environmental expenditures, considering the amounts spent on repairs after the rupture of Dam I, in Brumadinho. In the social sphere, the largest investments were aimed at indigenous peoples and traditional communities, in addition to initiatives related to culture, support for communities and job and income generation, totaling US\$ 190.2 million. In the environmental field, the amount spent was US\$ 548.5 million, mainly related to waste management, atmospheric emissions and water resources.	Independently assured by SGS ICS Certificadora Ltda.
2020	In 2020, Vale contributed USD 1 billion in socio-environmental expenditures, including projects related to repairing the rupture of Dam I, in Brumadinho. In the social sphere, the largest investments were focused on health (43%) – including actions to combat Covid-19, urban infrastructure (12%), culture (12%), education (6%) and social protection (6%) , for a total of US\$390 million. In the environmental field, the amount spent was USD 609.9 million, mainly related to water resources (21%), environmental liabilities (18%), waste (13%), environmental conservation (13%) and atmospheric emissions (11%) .	Independently assured by Bureau Veritas Certification
2021	In 2021, Vale contributed USD 1.3 billion in socio-environmental expenditures, including those related to Brumadinho, which represented an increase of 28% compared to 2020. As for environmental expenditures, the contribution totaled USD 804.2 million, of which water, environmental liabilities and energy the biggest expenses. Social expenditures totaled USD 473.5, of which 73% came from own resources and 27% through incentive laws. The main expenditures were on urban infrastructure and mobility, culture, health and social protection.	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2022	In 2022, there were US\$2.4 billion in socio-environmental and institutional expenditures, including those related to Brumadinho, which represented a 83% increase compared to 2021, as follows: - US\$1,609 billion dedicated to social and institutional initiatives, of which 94% are own resources and 6% are investments from incentivized resources. The main expenses were in the areas of infrastructure and mobility, social protection, health, and culture. - US\$766.9 million dedicated to environmental initiatives considering Vale's internal expenditures, with main expenses in environmental liabilities, water resources and atmospheric emissions.	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.

2023

In 2023, Vale contributed around USD 1.6 billion in socio-environmental and institutional expenditures, including those related to Brumadinho, as follows:

- USD 677.3 million dedicated to social and institutional initiatives, of which approximately 40% is related to voluntary investment and institutional relations and operational impact management (USD 269 million); 41% are obligations (USD 277 million) and 19% are investments from Incentivized Resources1 (USD 131 million).
- USD 913.9 million dedicated to environmental initiatives, considering Vale's internal and external expenditures.

Independently assured by  
PricewaterhouseCoopers  
Auditores Independentes  
Ltda.

Notes: 1 Amount includes expenses with Incentive Laws and Pará Structure Program.  
The concept of significant investments used for reporting indicator 203-1 can be verified on the "Base of Preparation" tab of this document.

## GRI 203-2 (2016)

Description: Significant indirect economic impacts

Year	Vale's answer	Assurance
2019	<p>The significant indirect economic impacts identified were:</p> <ul style="list-style-type: none"><li>• Increased demand for infrastructure, services and products;</li><li>• Increased housing deficit and greater demand for public health, education, social protection and public security services;</li><li>• Pressure from society involving traditional territories;</li><li>• Strengthening community organization based on social participation in the company's initiatives and its value chain;</li><li>• Development and hiring of labor, suppliers and purchases of local products and services, generating an increase in tax collection and the public power's investment capacity;</li><li>• Increase in the population's income level, incentives for the expansion of the service sector, commercial activities and greater formalization of the economy;</li><li>• Development of social investment and local development programs and actions;</li><li>• Development of programs that work on the autonomy and training of these associations in public policy and management.</li></ul>	Independently assured by SGS ICS Certificadora Ltda.
2020	<p>The significant indirect economic impacts identified were:</p> <ul style="list-style-type: none"><li>• Increased pressure on public infrastructure (health, education, security, social protection and housing);</li><li>• Increase in the local cost of living;</li><li>• Development of social investment and local development programs and actions;</li><li>• Development and hiring of local labor, suppliers and purchases of local products and services, generating an increase in tax collection and the public power's investment capacity;</li><li>• Increase in the population's income level, incentives for the expansion of the service sector, commercial activities and greater formalization of the economy;</li><li>• Strengthening community organization based on social participation in the company's initiatives and its value chain.</li></ul>	Independently assured by Bureau Veritas Certification
2021	<p>The significant indirect economic impacts identified in the socio-environmental studies presented for the environmental licensing processes were:</p> <ul style="list-style-type: none"><li>• Increased pressure on public infrastructure (health, education, security, social protection and housing)</li><li>• Road system overload</li><li>• Change in the population's daily life, in social and cultural relationships built and uncomfortable for the population</li><li>• Generation of Expectations Regarding Employability and Business</li><li>• Generation of Expectations regarding the Land Negotiation</li><li>• Strengthening Community Organization and Social Development</li><li>• Generation of opportunities and new business</li><li>• Development and hiring of local labor, suppliers and purchases of local products and services, generating an increase in tax collection and investment capacity of the public authorities</li><li>• Increase in the population's income level, incentives for the expansion of the service sector, commercial activities and greater formalization of the economy</li></ul>	-
2022	<p>The significant indirect economic impacts identified in the socio-environmental studies presented for the environmental licensing processes were:</p> <ul style="list-style-type: none"><li>• Increased pressure on public infrastructure (health, education, security, social protection and housing)</li><li>• Road system overload</li><li>• Change in the population's daily life, in social and cultural relationships built and uncomfortable for the population</li><li>• Change in migration flow</li><li>• Generation of Expectations Regarding Employability and Business</li><li>• Generation of Expectations regarding the Land Negotiation</li><li>• Strengthening Community Organization and Social Development</li><li>• Generation of opportunities and new business</li><li>• Development and hiring of local labor, suppliers and purchases of local products and services, generating an increase in tax collection and investment capacity of the public authorities</li><li>• Increase in the population's income level, incentives for the expansion of the service sector, commercial activities and greater formalization of the economy</li></ul> <p>Other information on the indirect economic impact can be verified in the "Material Issues" tab of this document in the Management Form of the theme Local Communities.</p>	-
2023	<p>The significant indirect economic impacts identified in the socio-environmental studies presented for the environmental licensing processes were:</p> <p>Positive:</p> <ul style="list-style-type: none"><li>• Improvement of local accessibility</li><li>• Dynamization of economic activities</li><li>• Strengthening Community Organization and Social Development</li><li>• Development of local suppliers</li><li>• Generation of direct and indirect jobs</li><li>• Tax Revenue Collection</li><li>• Local development</li><li>• Demands for services, equipment and inputs with local suppliers</li><li>• Inclusion of workers in the social safety net</li><li>• Improvement of local employability conditions</li><li>• Increase in household income and purchasing power of the population</li><li>• Dynamization of the tertiary sector</li><li>• Generation of opportunities and new business</li><li>• Strengthening of companies by increasing the demand for goods and services</li><li>• Preparation for the labour market.</li></ul> <p>Negative:</p> <ul style="list-style-type: none"><li>• Nuisances associated with mobility, noise, vibration and particulate emissions.</li><li>• Generation of vehicle and people traffic</li><li>• Alteration in the social and cultural relations built</li><li>• Change in Pressure on Public Services and Equipment</li><li>• Changing Demographic Dynamics</li><li>• Alteration of the Daily Life of Populations</li><li>• Loss of Archaeological Heritage</li><li>• Negative impact on fishing areas due to the creation of an exclusion zone</li><li>• Alteration of the Health Conditions of the Population</li><li>• Generation of Expectations regarding Land Negotiation</li><li>• Generation of Expectations regarding Employability and Business</li><li>• Alteration of existing productive activities</li><li>• Disorderly occupation of urban space</li><li>• Increase in the sale and rental value of properties</li><li>• Changing Economic Dynamics</li><li>• Change in the Labour and Goods and Services Market</li><li>• Generation of expectations in the population</li><li>• Visual disturbance due to the alteration of the landscape.</li></ul>	-

## GRI 204-1 (2016)

Description: Proportion of spending on local suppliers

Year	Vale's answer	Assurance
------	---------------	-----------

2019	In 2019, the percentage of Vale's local purchases, considering purchases made within the states/provinces of the operations that made the purchases, was 51%.	Assegurado independentemente pela SGS ICS Certificadora Ltda.
2020	In 2020, the percentage of Vale's local purchases, considering purchases made within the states/provinces of the operations that made the purchases, was 52%.	-
2021	In 2021, the percentage of Vale's local purchases, considering purchases made within the states/provinces of the operations that made the purchases, was 53%.	-
2022	In 2022, the percentage of Vale's local purchases, considering purchases made within the states/provinces of the operations that made the purchases, was 56%.	-
2023	In 2023, the percentage of Vale's local purchases, considering purchases made within the states/provinces of the operations that made the purchases, was 55%.	-

Note: The data has no differentiation of important Operational Units, as these are the values referring to local purchases for the entire company. The reporting will be improved for the next cycles.

## GRI 205-1 (2016)

Description: Operations assessed for risks related to corruption

Year	Vale's answer	Assurance
2019	20,553 assessments were carried out regarding risks related to corruption, with 100% of Vale's operations assessed.	Independently assured by SGS ICS Certificadora Ltda.
2020	17 controls related to Vale's anti-corruption rules, 6 of which are classified as key controls. They are: socio-environmental investments, donations and sponsorships, suppliers in general, high-risk suppliers, hiring public agents and training. These controls are replicated to 41 risk owners (first line of defense), who must monitor their areas more closely, bearing in mind Vale's risk methodology, based on the three lines of defense. 100% of Vale's operations are covered by such controls and were assessed for risks related to corruption.	Independently assured by Bureau Veritas Certification
2021	In 2021, 100% of Vale's operations were subject to an assessment of risks related to corruption, the Corporate Integrity model of operation is segmented by region and not by line of business. We have 3 regions: Latin America and Africa; Canada and Europe; APME. These risks are deployed internally among the areas according to the degree of exposure to corruption and have associated controls and clear anti-corruption rules. In total, 17 controls are related to Vale's anti-corruption rules, six of which are classified as key controls and related to approvals of socio-environmental investments, specific conditions for donations and sponsorships, suppliers in general, high-risk suppliers, hiring public agents and Ethics & Compliance Program training.	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2022	In 2022, 100% of Vale's operations (57 operating units) were subject to an assessment of risks related to corruption, the Corporate Integrity model of operation is segmented by region and not by line of business. We have 3 regions: Latin America and Africa; Canada and Europe; APME. These risks are deployed internally among the areas according to the degree of exposure to corruption and have associated controls and clear anti-corruption rules. In total, 19 controls are related to Vale's anti-corruption rules, six of which are classified as key controls and related to approvals of socio-environmental investments, specific conditions for donations and sponsorships, suppliers in general, high-risk suppliers, hiring public agents and Ethics & Compliance Program training.	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2023	In 2023, 100% of Vale's operations (57 operating units) were submitted to a risk assessment related to corruption, the Corporate Integrity operating model is segmented by regions and not by line of business. We have 3 regions: Latin America and Africa; Canada and Europe; APME. These risks are deployed internally across areas according to the degree of exposure to corruption and have associated controls and clear anti-corruption rules. In total, 17 controls are related to Vale's anti-corruption rules, five of which are classified as key controls and related to approvals of social and environmental investments, specific conditions for donations and sponsorships, suppliers in general, high-risk suppliers, hiring of public agents and Ethics & Compliance Program training.	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.

Note: Reports prior to 2020 referred to due diligences carried out for transactions with Vale. As of 2020, we changed the criteria and are reporting more in line with the company's risk map. We started to report the number of controls we have related to anti-corruption rules. In Vale's consolidated risk map, there are 3 potential risks related to corruption pointed out. They are: (1) public agent corruption; (2) liabilities from unlawful acts related to corruption due to corporate transactions; and (3) undue influence during the investigation process, related to corruption, conducted by public bodies. And for these 3 potential risks mentioned, Vale has 17 controls related to anti-corruption rules, 15 of which are preventive and 2 are mitigating.

## GRI 205-2 (2016)

Description: Communication and training on anti-corruption policies and procedures

Year	Vale's answer	Assurance
2019	100% of company employees, including senior management, were informed about the anti-corruption policy and procedures. Regarding training on the subject, 100% of senior management received training in combating corruption, this index is 53% for own employees. Regarding business partners, 6.7% were informed about the organization's anti-corruption policy and procedures.	Independently assured by SGS ICS Certificadora Ltda.
2020	82.88% of own employees participated in the Movement for Integrity, which addresses ethics and integrity issues. 79.16% of employees received specific training on anti-corruption policies and rules. 1,603 employees from areas classified as priority (more sensitive to the risk of corruption) received specific and targeted training on Vale's anti-corruption rules. 57% of senior governance employees were informed about the anti-corruption policy and procedures. Regarding training on the subject, in 2020, no specific training was carried out on anti-corruption rules for Vale's senior governance, which from 2020 became biannual. Only follow-up meetings were held. Training for this audience was carried out in 2019 and will be repeated in 2021. With regard to commercial partners, 2.46% suppliers (100% of those classified as high risk) were informed about the organization's anti-corruption policy and procedures.	Independently assured by Bureau Veritas Certification
2021	In 2021, 83.54% of Vale's workforce signed the new Code acknowledgment and commitment term. 100% of senior management (50 members), directors, executive managers, supervisors, area managers and coordinators were informed about the anti-corruption policy and procedures adopted by the organization. Regarding the staffs, 72% were notified. For business partners, 1597 partners (2.4%) were informed about Vale's anti-corruption policy. This percentage takes into account only suppliers classified as "high risk" of corruption that have active contracts with Vale. All suppliers at high risk of corruption must receive a copy of Vale's anti-corruption guide and adhere to its terms. In 2021, mass communication actions were also carried out for Vale's suppliers, including the release of a message from the company's leadership on the International Day Against Corruption: <a href="http://www.vale.com/brasil/PT/aboutvale/news/Pages/dia-internacional-contra-a-corrupcao-learn-more-about-the-valley-commitment-to-ethics.aspx">http://www.vale.com/brasil/PT/aboutvale/news/Pages/dia-internacional-contra-a-corrupcao-learn-more-about-the-valley-commitment-to-ethics.aspx</a> . We carried out the first global edition of the conflict of interest campaign at a global level, with the participation of 34,422 employees (64.17% of employees with access to a computer). In the year, there was also the launch of a new online ethics and compliance course, where 89.0% of the staff was trained. With regard to high governance, 74% of members were trained in combating corruption.	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2022	About notices regarding Vale's anti-corruption policies and procedures: • The 22 members (100%) of Vale's top leadership received communications about the company's anti-corruption rules, participated in the Ethics Week and/or accountability meetings of the Ethics & Compliance Program; • 100% of senior leadership (22 members), directors (40 employees), executive managers (159 employees), supervisors (2748 employees), area managers and coordinators (2166 employees) were informed about the anti-corruption policy and procedures adopted by organization. Regarding the staffs, 74% (43757 employees with access to e-mail) were notified. • With regard to commercial partners, 525 were communicated on the subject, representing 6% of the partners. This percentage takes into account only suppliers classified as "high risk" of corruption that have active contracts with Vale. All suppliers at high risk of corruption must receive a copy of Vale's anti-corruption guide available at <a href="https://vale.com/forneedores">https://vale.com/forneedores</a> On anti-corruption training: • More than 60,000 Vale employees received training, representing 93% of the workforce; • 20 members (91%) of Vale's senior management, including the Executive Committee and Board of Directors, underwent training.	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.

About notices regarding Vale's anti-corruption policies and procedures:

- The 22 members (100%) of Vale's top leadership received communications about the company's anti-corruption rules, participated in the Ethics Week and/or accountability meetings of the Ethics & Compliance Program;
- 100% of the senior leadership (22 members, 9 members of the Executive Committee (including the CEO of Vale) and 13 members of the Board of Directors), 100% of the directors (217 employees), 100% of the general managers (292 employees), 99.9% of the managers (1189 employees), 99.9% of the coordinators (973 employees), 100% of the supervisors (2749 employees), 87.2% of technical specialists (130 employees), 99.4% of the administrative staff (1557 employees), 97.9% of the operational staff (45538 employees) and 99.8% of the professional technicians (12474 employees) were informed about the anti-corruption policy and procedures adopted by the organization.
- With regard to commercial partners, 492 were communicated on the subject, representing 6% of the partners. This percentage takes into account only suppliers classified as "high risk" of corruption that have active contracts with Vale. All suppliers at high risk of corruption must receive a copy of Vale's anti-corruption guide available at <https://vale.com/forprovedores>

Independently assured by  
PricewaterhouseCoopers  
Auditores Independentes  
Ltda.

On anti-corruption training:

- More than 63,000 Vale's own employees received training, representing 95.7% of the workforce;
- 20 members (90.9%) of Vale's senior management, including the Executive Committee and Board of Directors, underwent training.

Country	Own Employees (2-7 e 2-8)	Total people communicated	% of people communicated	Total people who received training	% of people who received training	Total number of people who received specific training	% of people who received specific training
Brazil	55,247	55,049	99.6%	53,494	96.8%	1,905	3.4%
Argentina	1	1	100.0%	1	100.0%	0	0.0%
Australia	13	13	100.0%	13	100.0%	0	0.0%
Canada	6,810	6,593	96.8%	6,197	91.0%	15	0.2%
Chile	14	14	100.0%	14	100.0%	1	7.1%
China	140	136	97.1%	136	97.1%	82	58.6%
U.S	3	3	100.0%	3	100.0%	0	0.0%
Netherlands	19	19	100.0%	19	100.0%	4	21.1%
India	1	1	100.0%	0	0.0%	0	0.0%
Indonesia	3,166	2,897	91.5%	2,712	85.7%	461	14.6%
Japan	78	78	100.0%	77	98.7%	35	44.9%
Malaysia	377	377	100.0%	376	99.7%	40	10.6%
Oman	594	594	100.0%	574	96.6%	56	9.4%
United Arab Emirates - Dubai	10	10	100.0%	10	100.0%	8	80.0%
Peru	26	26	100.0%	26	100.0%	1	3.8%
UK	195	195	100.0%	188	96.4%	0	0.0%
Singapore	50	50	100.0%	43	86.0%	16	32.0%
Switzerland	63	63	100.0%	56	88.9%	27	42.9%
Taiwan	0	0	0.0%	0	0.0%	0	0.0%
<b>Total Vale Global</b>	<b>66,807</b>	<b>66,119</b>	<b>99.0%</b>	<b>63,939</b>	<b>95.7%</b>	<b>2,651</b>	<b>4.0%</b>

Note: Members of the board of directors have not been accounted for, as they are not company employees.

## GRI 205-3 (2016)

Description: Confirmed cases of corruption and measures taken

Year	Vale's answer	Assurance
2019	During the period, no cases of corruption were identified in relation to public agents. Three cases of private corruption involving suppliers were confirmed. All of them were analyzed by the company, which proceeded with the termination of a contract, blocking the supplier and dismissing the three employees involved.	Independently assured by SGS ICS Certificadora Ltda.
2020	In 2020, 7 cases of private corruption were confirmed, in all cases employees were dismissed or punished. There was also the blocking of 3 suppliers after verification. There were no corruption-related lawsuits filed against the organization or its employees during the reporting period.	Independently assured by Bureau Veritas Certification
2021	In 2021, no cases of corruption involving public agents were identified. Through the company's Whistleblower Channel, 3 cases of bribery involving private companies were identified, all of which resulted in actions to terminate the employees involved. There were no corruption-related legal proceedings filed/initiated between January 1 and December 31, 2021.	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2022	In 2022, 4 cases of private corruption were confirmed, which resulted in the dismissal of an employee and a notification to a third party. There were no cases of termination or non-renewal of contracts due to corruption in any jurisdiction. Vale is a party to confidential and non-confidential judicial, administrative and arbitration proceedings, considered relevant individually or jointly, and, based on applicable legislation and regulations, duly discloses such proceedings in its Reference Form available on the company's website : <a href="https://vale.com/pt/communicados-resultados-apresentacoes-e-reports">https://vale.com/pt/communicados-resultados-apresentacoes-e-reports</a> .	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2023	In 2023, 2 cases of private corruption were confirmed. In the first case, the accused was demobilized from the contract during the investigation process for low performance, in the second case, the employee will be terminated for misconduct, in addition to its low performance, according to the ongoing action plan. There have been no cases of termination or non-renewal of contracts due to corruption in any jurisdiction. Vale is a party to confidential and non-confidential judicial, administrative and arbitration proceedings, considered relevant individually or jointly, and, based on the applicable laws and regulations, duly discloses such proceedings in its 2023 Reference Form.	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.

## GRI 206-1 (2016)

Description: Legal actions for anti-competitive behavior, anti-trust, and monopoly practices

Year	Vale's answer	Assurance
2019	There were no lawsuits for competitive behavior, antitrust and monopoly practices	Independently assured by SGS ICS Certificadora Ltda.
2020	There were no lawsuits for competitive behavior, antitrust and monopoly practices	Independently assured by Bureau Veritas Certification
2021	There were no lawsuits for competitive behavior, antitrust and monopoly practices	-
2022	There were no lawsuits for competitive behavior, antitrust and monopoly practices	-
2023	There were no lawsuits for competitive behavior, antitrust and monopoly practices	-

Links: [Reference Form](#)

## GRI 207-1 (2019)

Description: Approach to tax

Year	Vale's answer	Assurance
2022	The data referring to this indicator was not part of the assurance reporting scope, since the Tax Transparency Report will be published after the publication date of the Integrated Report. The data should be consulted through the link: <a href="https://www.vale.com/en/comunicados-resultados-apresentacoes-e-relatorios">https://www.vale.com/en/comunicados-resultados-apresentacoes-e-relatorios</a> .	-
2023	Vale discloses its approach to tax risks, its approach to tax planning and other general guidelines through its Tax Compliance Policy - POL-0046-G. The data referring to this indicator that are not in the Tax Compliance Policy were not part of the scope of assurance reporting, since the Tax Transparency Report that will contain references to this indicator will be released after the date of publication of the Integrated Report. The data should be consulted through the link below.	-
Links:	<a href="#">Tax Policy - POL-0046-G</a>	<a href="#">Tax Transparency report</a>

## GRI 207-2 (2019)

Description: Tax governance, control and risk management

Year	Vale's answer	Assurance
2022	The data referring to this indicator was not part of the assurance reporting scope, since the Tax Transparency Report will be published after the publication date of the Integrated Report. The data should be consulted through the link: <a href="https://www.vale.com/en/comunicados-resultados-apresentacoes-e-relatorios">https://www.vale.com/en/comunicados-resultados-apresentacoes-e-relatorios</a> .	-
2023	Vale discloses its approach to tax risks, its approach to tax planning and other general guidelines through its Tax Compliance Policy - POL-0046-G. The data referring to this indicator that are not in the Tax Compliance Policy were not part of the scope of assurance reporting, since the Tax Transparency Report that will contain references to this indicator will be released after the date of publication of the Integrated Report. The data should be consulted through the link below.	-
Links:	<a href="#">Tax Policy - POL-0046-G</a>	<a href="#">Tax Transparency report</a>

## GRI 207-3 (2019)

Description: Stakeholder engagement and management of concerns related to tax

Year	Vale's answer	Assurance
2022	The data referring to this indicator was not part of the assurance reporting scope, since the Tax Transparency Report will be published after the publication date of the Integrated Report. The data should be consulted through the link: <a href="https://www.vale.com/en/comunicados-resultados-apresentacoes-e-relatorios">https://www.vale.com/en/comunicados-resultados-apresentacoes-e-relatorios</a> .	-
2023	Vale discloses its approach to tax risks, its approach to tax planning and other general guidelines through its Tax Compliance Policy - POL-0046-G. The data referring to this indicator that are not in the Tax Compliance Policy were not part of the scope of assurance reporting, since the Tax Transparency Report that will contain references to this indicator will be released after the date of publication of the Integrated Report. The data should be consulted through the link below.	-
Links:	<a href="#">Tax Policy - POL-0046-G</a>	<a href="#">Tax Transparency report</a>

## GRI 2-27 (2021)

Description: Compliance with laws and regulations

Note: The information reported in this indicator was independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.

Region	Vale's answer									
	Non-monetary sanctions and fines for significant <sup>1</sup> cases in 2023									
	Environment		Social		Mining regulation		Labor		Others <sup>1</sup>	
	Non-monetary sanctions	Fines	Non-monetary sanctions	Fines	Non-monetary sanctions	Fines	Non-monetary sanctions	Fines	Non-monetary sanctions	Fines
South America	0	12		1	28	0	0	0	0	1
North America	0	0	0	0	0	0	0	1	0	0
Europe	0	0	0	0	0	0	0	0	0	0
Asia	0	0	0	0	0	0	0	0	0	0

Note: <sup>1</sup> For information on the concept considered for the term "significant", as well as the other legal areas covered by the report, which are considered in the "Other" column of the tables, see the Databook under the "Glossary - Basis of Preparation" tab.

<sup>2</sup> This is a sanction resulting from an administrative process of accountability "PAR" initiated by the Comptroller General of the Union (CGU), which through a decision published in August 2022 concluded that Vale S.A. failed to present reliable information in the system of the National Mining Agency (ANM) in relation to Dam 1 in Brumadinho/MG and that it issued a positive Declaration of Condition of Stability for this structure, referring to the period from June to September 2018, when, in the opinion of said body, it should be negative. The sanction applied was based on Law 12.846/13, even though the agency acknowledged that there had been no acts of corruption and that there had been no involvement or tolerance by senior management in the facts found in the PAR. However, as it considered that the circumstances found constituted an act harmful to the Public Administration by hindering the inspection of the mining authority, it set a fine of R\$86.2 million. A writ of mandamus filed by Vale S.A. with the Superior Court of Justice against the administrative decision handed down by the CGU is currently pending, as it disagrees with the conviction and considers Law No. 12,846/2013 to be inapplicable to the case.

Region	Vale's answer									
	Fines paid in 2023					Total monetary value of fines paid in 2023 (USD)				
	Environment	Social	Mining regulation	Labor	Others	Environment	Social	Mining regulation	Labor	Others
South America	9	2 <sup>3</sup>	10	76	29	2,747,534.27	17,284,702.84 <sup>3</sup>	8,762.32	2,313,911.8	55,907.63
North America	0	0	0	1	0	0	0	0	162,153.68	0
Europe	0	0	0	0	0	0	0	0	0	0
Asia	0	0	0	0	0	0	0	0	0	0

Note: <sup>3</sup> One of the fines paid in 2023 reported under "Company" refers to the case described in footnote 2 in the table above.

In 2023, 127 fines were paid, totaling USD 22,572,961.70; of these, 86 fines, totaling USD 5,022,664.24, had their underlying events in previous reporting periods.

## SASB - EM-MM-510a.1

Description: Description of the management system for preventing corruption and bribery throughout the value chain

Year	Vale's answer	Assurance
------	---------------	-----------



2019	Vale has the Code of Conduct, which, together with the Global Anti-Corruption Policy and the Global Anti-Corruption Manual, make up the Global Anti-Corruption Program, which is the responsibility of Corporate Integrity. The program is aimed at all employees, administrators, service providers, suppliers, distributors, consultants, representatives, agents, brokers or any other professionals contracted to represent or act on behalf of, for the benefit or in the interest of the company. Vale has structured listening and response channels with the aim of strengthening the relationship between the company and its stakeholders. These channels, which make up the formal mechanism for manifestations, can be used by all individuals who may be affected by a certain activity or operation of the company.	-
2020	By determination of the Board of Directors, with the recommendation of the Extraordinary Investigation Independent Advisory Committee, Vale created the Compliance Board in March 2020. The Chief Compliance Officer (CCO), appointed in July 2020, is directly linked to the Board of Directors and continuously interacts with the Audit Committee, granting a degree of autonomy and independence from the other executive structures of the company. The CCO is responsible for supervising the Whistleblower Channel, the Internal Audit and the Corporate Integrity area. Vale has a channel for registering cases of non-compliance with the Code of Conduct and legislation. The channel is operated by an independent company and structured to guarantee absolute secrecy, protecting the whistleblower's anonymity and preserving the information so that a fair investigation can occur. Vale's compliance and ethics standards adhere to the recommendations of the United Nations, the International Council on Mining and Metals (ICMM), the eight Fundamental Conventions of the International Labor Organization (ILO) and the Extractive Industry Transparency Initiative (EITI).	-
2021	Vale has zero tolerance for corruption and bribery. The company's anti-corruption rules are mechanisms to ensure compliance with all applicable anti-corruption laws, including the US Foreign Corrupt Practices Act (FCPA), the Brazilian Anti-Corruption Law (Law No. Act). The Global Anti-Corruption Policy is the main document on the subject and reiterates Vale's commitment to doing business with integrity. Employees also rely on the Global Anti-Corruption Handbook for practical guidance. Suppliers, on the other hand, must follow the guidelines of the Anti-Corruption Guide, developed especially for third parties. Vale acts in compliance with the laws and regulations to which it is subject, including, but not limited to, Law 12,846/13 – Brazilian Anti-Corruption Law, the FCPA, U.S. Foreign Corrupt Practices Act and the UK Bribery Act.	-
2022	Vale has zero tolerance for corruption and bribery. In addition to the Code of Conduct, the Ethics & Compliance Program presents anti-corruption rules. The Global Anti-Corruption Policy is the main document on the subject and reiterates Vale's commitment to doing business with integrity. Employees also rely on the Global Anti-Corruption Handbook for practical guidance. Suppliers, on the other hand, must follow the guidelines of the Guide to combat corruption, developed especially for third parties. Vale acts in accordance with the laws and regulations to which it is subject, including but not limited to Law 12,846/13 - Brazilian Anti-Corruption Law, the FCPA, U.S. Foreign Corrupt Practices Act and the UK Bribery Act.	-
2023	Vale has zero tolerance for corruption and bribery. In addition to the Code of Conduct, the Ethics & Compliance Program presents anti-corruption rules. The Global Anti-Corruption Policy is the main document on the subject and reiterates Vale's commitment to doing business with integrity. Employees also rely on the Global Anti-Corruption Handbook for practical guidance. Suppliers, on the other hand, must follow the guidelines of the Guide to combat corruption, developed especially for third parties. Vale acts in accordance with the laws and regulations to which it is subject, including but not limited to Law 12,846/13 - Brazilian Anti-Corruption Law, the FCPA, U.S. Foreign Corrupt Practices Act and the UK Bribery Act.	-

SASB - EM-MM-510a.2

Description: Production in countries that have the 20 lowest corruption perception scores from Transparency International

Year	Vale's answer	Assurance
2019	Vale does not have operations in any of the 20 worst countries listed in the Transparency International corruption perception ranking.	-
2020	Vale does not have operations in any of the 20 worst countries listed in the Transparency International corruption perception ranking.	-
2021	Vale does not have operations in any of the 20 worst countries listed in the Transparency International corruption perception ranking.	-
2022	Vale does not have operations in any of the 20 worst countries listed in the Transparency International corruption perception ranking.	-
2023	Vale does not have operations in any of the 20 worst countries listed in the Transparency International corruption perception ranking.	-

GRI 201-1 (2016)

Description: Direct economic value generated and distributed

Note: The information reported in indicator 201-1 was independently audited in the financial statements.

2023

Value generated and distributed (In US\$ million)

	North America, except Canada	Canada	South America, except Brazil	Brazil	Europe	Africa	Middle East	Asia	Oceania	TOTAL
Incomes	-	2,099.4	-	3,870.8	32,578.8		0.00	3,235.4	-	41,784.4
Direct Economic Value Generated	-	2,099.4	-	3,870.8	32,578.8	-		3,235.4	-	41,784.4
Operational costs	-	2,718.6	0.1	12,063.8	4,791.4		272.8	1,311.5	-	21,158.2
Employee wages and benefits	-	657.7	-	2,426.8	36.2		49.6	150.6	-	3,320.9
Research and Development	-	167.1	16.6	416.1	6.7		-	112	3.9	722.5
Payments to Capital Providers	385.3	23.3	-	5,713.8	133.6		-	-	-	6,256.0
Payments to Government	6.68	(255)	2.17	5,123.0	(19)	-	15.47	141.28	0.83	5,015.5
Environmental Expenditures	-	93.76	0.90	800.7	0.04	-	1.75	16.81	-	913.9
Social Expenditures	0.10	3.46	0.14	660.7	-	-	1.69	11.20	-	677.3
Distributed Economic Value	392.1	3,409.3	19.9	27,204.9	4,948.5	-	341.3	1,743.4	4.8	38,064.3
Accumulated Economic Value	(392.10)	(1,309.99)	(19.93)	(23,334.16)	27,630.3	-	(341.32)	1,492.0	(4.77)	3,720.1

2022

Value generated and distributed (In US\$ million)

	North America, except Canada	Canada	South America, except Brazil	Brazil	Europe	Africa	Middle East	Asia	Oceania	TOTAL
Incomes	-	2,151.4	2.4	4,296.6	33,691.7	-	(0.00)	3,697.5	-	43,839.5
Direct Economic Value Generated	-	2,151.4	2.4	4,296.6	33,691.7	-		3,697.5	-	43,839.5
Operational costs	-	2,964.0	7.4	11,725.6	6,010.8	-	302.9	1,201.5	0.2	22,212.4

Employee wages and benefits	-	521.9	3.1	1,292.2	26.7	-	35.5	121	0.8	2,001.5
Research and Development	-	163.7	28.3	356.2	5.8	-	-	102	4.4	659.9
Payments to Capital Providers	515.2	242.3	-	6,583.7	46.7	-	-	-	-	7,388.0
payments to government	24.3	(246)	3.4	7,995.7	(27)	22.3	13.6	144.6	0.7	7,931.6
Environmental Expenditures	-	33.17	0.99	712.27	0.79	-	2.28	1.32	16.03	766.9
expenditures Social	-	6.06	0.18	1,590.01	1.15	-	1.91	5.97	4.06	1,609.3
<b>Distributed Economic Value</b>	<b>539.5</b>	<b>3,685.3</b>	<b>43.5</b>	<b>30,255.7</b>	<b>6,064.9</b>	<b>22.3</b>	<b>356.2</b>	<b>1,576.1</b>	<b>26.1</b>	<b>42,569.6</b>
<b>Accumulated Economic Value</b>	<b>(539.55)</b>	<b>(1,533.90)</b>	<b>(41.04)</b>	<b>(25,959.16)</b>	<b>27,626.8</b>	<b>(22.30)</b>	<b>(356.22)</b>	<b>2,121.3</b>	<b>(26.09)</b>	<b>1,269.8</b>

## 2021

Value generated and distributed (In US\$ million)

	North America, except Canada	Canada	South America, except Brazil	Brazil	Europe	Africa	Australasia	Middle East	TOTAL
Incomes	-	1,805.5	1.3	5,272.6	44,317.2	-	3,104.9	(0.0)	54,501.5
<b>Direct Economic Value Generated</b>	<b>-</b>	<b>1,805.5</b>	<b>1.3</b>	<b>5,272.6</b>	<b>44,317.2</b>	<b>-</b>	<b>3,104.9</b>	<b>(0.0)</b>	<b>54,501.5</b>
Operational costs	-	2,312.5	13.3	10,565.4	6,097.5	-	796.0	240.6	20,025.3
Employee wages and benefits	-	435.0	6.9	1,252.4	30.8	-	106.2	41.0	1,872.3
Research and Development	-	110.2	26.4	324.1	20.9	-	67.1	-	548.6
Payments to Capital Providers	421.9	252.0	-	13,475.8	26.2	-	-	-	14,176.0
payments to government	17.5	(194.3)	2.8	7,740.4	(21.8)	60.0	86.3	3.7	7,694.6
Environmental Expenditures	-	106.5	0.7	670.8	1.2	19.7	1.5	3.7	804.2
expenditures Social	-	6.0	0.0	449.2	1.7	14.2	1.6	0.8	473.5
<b>Distributed Economic Value</b>	<b>439.4</b>	<b>3,027.9</b>	<b>50.0</b>	<b>34,478.1</b>	<b>6,156.6</b>	<b>93.9</b>	<b>1,058.9</b>	<b>289.7</b>	<b>45,594.6</b>
<b>Accumulated Economic Value</b>	<b>439.4</b>	<b>1,222.4</b>	<b>(48.8)</b>	<b>(29,205.5)</b>	<b>38,160.7</b>	<b>(93.9)</b>	<b>2,046.0</b>	<b>(289.7)</b>	<b>8,906.9</b>

## 2020

Value generated and distributed (In US\$ million)

	North America, except Canada	Canada	South America, except Brazil	Brazil	Europe	Africa	Australasia	Middle East	TOTAL
Incomes	-	2,055.0	3.1	2,768.5	32,268.5	-	2,922.6	-	40,017.7
<b>Direct Economic Value Generated</b>	<b>-</b>	<b>2,055.0</b>	<b>3.1</b>	<b>2,768.5</b>	<b>32,268.5</b>	<b>-</b>	<b>2,922.6</b>	<b>-</b>	<b>40,017.7</b>
Operational costs	-	2,421.1	22.6	8,131.9	4,285.2	1,425.9	836.5	239.7	17,362.9
Employee wages and benefits	-	495.1	7.8	1,178.6	9.1	55.1	111.7	42.0	1,899.4
Research and Development	-	92.2	13.4	241.9	3.7	31.4	60.2	0.1	442.9
Payments to Capital Providers	365.7	286.0	-	3,380.0	73.4	-	-	-	4,105.0
payments to government	1.9	(416.0)	3.2	3,925.3	(46.4)	7.8	52.1	5.4	3,533.3
Environmental Expenditures	-	166.6	0.4	371.1	4.9	13.8	49.7	3.4	609.9
expenditures Social	-	2.8	0.2	370.4	1.8	4.7	7.3	2.8	390.0
<b>Distributed Economic Value</b>	<b>367.6</b>	<b>3,047.8</b>	<b>47.5</b>	<b>17,599.1</b>	<b>4,331.7</b>	<b>1,538.7</b>	<b>1,117.5</b>	<b>293.4</b>	<b>28,343.3</b>
<b>Accumulated Economic Value</b>	<b>(367.6)</b>	<b>(992.8)</b>	<b>(44.5)</b>	<b>(14,830.6)</b>	<b>27,936.8</b>	<b>(1,538.7)</b>	<b>1,805.1</b>	<b>(293.4)</b>	<b>11,674.4</b>

## 2019

Value generated and distributed (In US\$ million)

	North America, except Canada	Canada	South America, except Brazil	Brazil	Europe	Africa	Australasia	Middle East	TOTAL
Incomes	-	1,742.0	4.0	3,130.0	29,315.0	-	3,379.0	-	37,570.0
<b>Direct Economic Value Generated</b>	<b>-</b>	<b>1,742.0</b>	<b>4.0</b>	<b>3,130.0</b>	<b>29,315.0</b>	<b>-</b>	<b>3,379.0</b>	<b>-</b>	<b>37,570.0</b>
Operational costs	-	3,093.0	41.0	10,411.0	4,585.0	1,874.0	910.0	273.0	21,187.0
Employee wages and benefits	-	737.0	9.0	1,186.0	23.0	89.0	103.0	42.0	2,189.0
Research and Development	-	77.0	20.0	252.0	3.0	47.0	44.0	-	443.0
Payments to Capital Providers	-	-	-	3,806.0	-	-	-	-	3,806.0
payments to government	1.5	(120.6)	4.3	3,487.7	98.4	(1.7)	231.9	5.7	3,510.4
Environmental Expenditures	-	99.5	0.7	248.8	5.1	26.9	162.4	5.1	548.5
expenditures Social	-	3.6	0.2	168.9	-	9.0	8.4	0.1	190.2
<b>Distributed Economic Value</b>	<b>1.5</b>	<b>3,889.5</b>	<b>75.2</b>	<b>19,560.3</b>	<b>4,517.7</b>	<b>2,044.3</b>	<b>1,459.7</b>	<b>325.9</b>	<b>31,874.2</b>
<b>Accumulated Economic Value</b>	<b>- 1.5</b>	<b>-2,147.5</b>	<b>(71.24)</b>	<b>(16,430.3)</b>	<b>24,797.3</b>	<b>- 2,044.3</b>	<b>1,919.3</b>	<b>- 325.9</b>	<b>5,695.8</b>



## Environmental

Indicator	Description	Location
GRI 302-1	Energy consumption within the organization	<a href="#">Environmental data</a>
GRI 302-2	Energy consumption outside the organization	<a href="#">Environmental data</a>
GRI 302-3	Energy intensity	<a href="#">Environmental data</a>
GRI 302-4	Reduction of energy consumption	<a href="#">Environmental data</a>
GRI 303-1	Interactions with water as a shared resource	<a href="#">Environmental data</a>
GRI 303-2	Management of water discharge-related impacts	<a href="#">Environmental data</a>
GRI 303-3	Water withdrawal	<a href="#">Environmental data</a>
GRI 303-4	Water discharge	<a href="#">Environmental data</a>
GRI 303-5	Water consumption	<a href="#">Environmental data</a>
GRI 304-1	Owned, leased or managed operating units within or adjacent to environmental protected areas and areas of high biodiversity value located outside environmental protected areas	<a href="#">Environmental data</a>
GRI 304-2	Significant impacts of activities, products and services on biodiversity	<a href="#">Environmental data</a>
GRI 304-3	Habitats protected or restored	<a href="#">Environmental data</a>
GRI 304-4	IUCN Red List species and national conservation list species with habitats in areas affected by operations	<a href="#">Environmental data</a>
GRI 305-1	Direct (Scope 1) GHG emissions	<a href="#">Environmental data</a>
GRI 305-2	Energy indirect (Scope 2) GHG emissions	<a href="#">Environmental data</a>
GRI 305-3	Other indirect (Scope 3) GHG emissions	<a href="#">Environmental data</a>
GRI 305-4	GHG emissions intensity	<a href="#">Environmental data</a>
GRI 305-5	Reduction of greenhouse gas (GHG) emissions	<a href="#">Environmental data</a>
GRI 305-6	Emissions of ozone-depleting substances (ODS)	<a href="#">Environmental data</a>
GRI 305-7	Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	<a href="#">Environmental data</a>
GRI 306-1	Waste generation and significant waste-related impacts	<a href="#">Environmental data</a>
GRI 306-2	Management of significant waste-related impacts	<a href="#">Environmental data</a>
GRI 306-3	Waste generated	<a href="#">Environmental data</a>
GRI 306-4	Waste diverted from disposal	<a href="#">Environmental data</a>
GRI 306-5	Waste directed to disposal	<a href="#">Environmental data</a>
GRI 308-1	New suppliers that were screened using environmental criteria	<a href="#">Environmental data</a>
GRI 308-2	Negative environmental impacts in the supply chain and actions taken	<a href="#">Environmental data</a>
GRI G4 MM1	Amount of land (owned or leased, used for productive or extractive activities) altered or rehabilitated	<a href="#">Environmental data</a>
GRI G4 MM2	Number and percentage of operational units that need biodiversity management plans according to established criteria and number (percentage) of these units with plans in force	<a href="#">Environmental data</a>
GRI G4 MM3	Total amount of overburden, tailings and sludge and their associated risks	<a href="#">Environmental data</a>
GRI G4 MM10	Number and percentage of operations with plans to close activities.	<a href="#">Environmental data</a>
SASB EM-MM-110a.1	Scope 1 gross global emissions, percentage covered by emission limitation regulations	<a href="#">Environmental data</a>
SASB EM-MM-110a.2	Discussion of the long-term and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets and a review of performance against these targets	<a href="#">Environmental data</a>
SASB EM-MM-120a.1	Atmospheric emissions of the following pollutants: (1) CO, (2) NOx (excluding N2O), (3) SOx, (4) particulate matter (PM10), (5) mercury (Hg), (6) lead (Pb), and (7) volatile organic compounds (VOCs)	<a href="#">Environmental data</a>
SASB EM-MM-130a.1	(1) total energy consumed, (2) percentage of grid electricity, (3) percentage of renewable energy	<a href="#">Environmental data</a>
SASB EM-MM-140a.1	(1) Total water withdrawn, (2) Total water consumed, percentage of each in regions with High or Extremely High Baseline Water Stress	<a href="#">Environmental data</a>
SASB EM-MM-140a.2	Number of incidents of non-compliance associated with water quality licenses, standards and regulations	<a href="#">Environmental data</a>

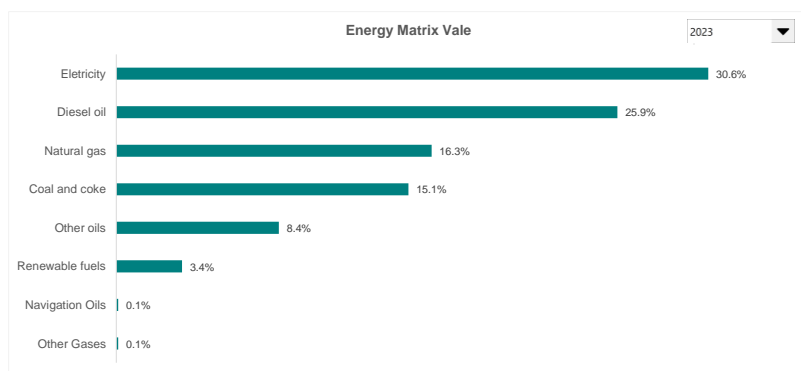
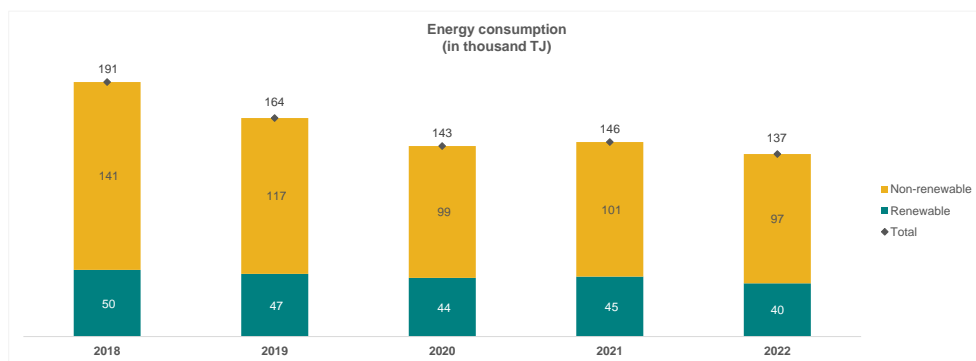
SASB EM-MM-150a.4	Total weight of non-mineral waste generated	<a href="#">Environmental data</a>
SASB EM-MM-150a.5	Total weight of tailings produced	<a href="#">Environmental data</a>
SASB EM-MM-150a.6	Total weight of waste rock generated	<a href="#">Environmental data</a>
SASB EM-MM-150a.7	Total weight of hazardous waste generated	<a href="#">Environmental data</a>
SASB EM-MM-150a.8	Total weight of recycled hazardous waste	<a href="#">Environmental data</a>
SASB EM-MM-150a.9	Number of significant incidents associated with hazardous materials and waste management	<a href="#">Environmental data</a>
SASB EM-MM-150a.10	Description of waste and hazardous materials management policies and procedures for active and inactive operations	<a href="#">Environmental data</a>
SASB EM-MM-160a.1	Description of environmental management policies and practices for active sites	<a href="#">Environmental data</a>
SASB EM-MM-160a.2	Percentage of mine sites where acid rock drainage is present: (1) predicted to occur, (2) actively mitigated, and (3) under treatment or remediation	<a href="#">Environmental data</a>
SASB EM-MM-160a.3	Percentage of (1) proven reserves and (2) probable reserves in or near sites with protected conservation status or threatened species habitat	<a href="#">Environmental data</a>
SASB EM-MM-540a.1	Tailings storage facility inventory table: (1) facility name, (2) location, (3) ownership status, (4) operational status, (5) construction method, (6) maximum allowable storage capacity, (7) current amount of tailings stored, (8) consequence ranking, (9) date of most recent independent technical review, (10) material findings, (11) mitigation measures, (12) site-specific EPRP	<a href="#">Environmental data</a>
SASB EM-MM-540a.2	Summary of tailings management systems and governance structure used to monitor and maintain the stability of tailings storage facilities	<a href="#">Environmental data</a>
SASB EM-MM-540a.3	Approach to developing Emergency Preparedness and Response Plans (EPRPs) for tailings storage facilities	<a href="#">Environmental data</a>

## Environmental

## GRI 302-1 (2016)

**Description:** Energy consumption within the organization

Year	Vale's Answer			Electricity consumption		Assurance
	Renewable	Non-renewable	Total	Electricity consumption (including own generation and purchase)	Electricity sold	
2019	47 thousand TJ	117 thousand TJ	164 thousand TJ	-	-	Independently assured by SGS ICS Certificadora Ltda.
2020	44 thousand TJ	99 thousand TJ	143 thousand TJ	-	-	Independently assured by Bureau Veritas Certification
2021	45 thousand TJ	101 thousand TJ	146 thousand TJ	43.2 thousand TJ	13.9 thousand TJ	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2022	40 thousand TJ	97 thousand TJ	137 thousand TJ	41.4 thousand TJ	19.3 thousand TJ	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2023	45 thousand TJ	102 thousand TJ	147 thousand TJ	45.0 thousand TJ	17.4 thousand TJ	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.



**Note:** The calculation tool used is the CR360 System, which performs energy unit conversions. Consolidation approach based on operational control. Although the information complies with both standards (GRI and SASB), only the completeness of the GRI standard was ensured independently.

## GRI 302-2 (2016)

**Description:** Energy Consumption outside the organization

Year	Vale's Answer	Assurance
2019	192 thousand TJ (considered the categories 4, 7 and 9 of scope 3)	Independently assured by SGS ICS Certificadora Ltda.

2020	186 thousand TJ (considered the categories 4, 7 and 9 of scope 3)	Independently assured by Bureau Veritas Certification
2021	181 thousand TJ (considered the categories 4, 7 and 9 of scope 3)	-
2022	174 thousand TJ (considered the categories 4, 7 and 9 of scope 3)	-
2023	176 thousand TJ (considered the categories 4, 7 and 9 of scope 3)	-

#### GRI 302-3 (2016)

Description: Rate of energy intensity

Year	Vale's Answer	Assurance
2019	0.379 TJ / thousand metric tons of iron ore equivalent. 0.362 TJ / thousand metric tons of iron ore equivalent (discounting consumption and production of the divestments that occurred in 2022).	Independently assured by SGS ICS Certificadora Ltda.
2020	0.352 TJ / thousand metric tons of iron ore equivalent. The equivalent iron ore production data used in the calculation was revised after publication of the 2020 Integrated Report. 0.335 TJ / thousand metric tons of iron ore equivalent (discounting consumption and production of the divestments that occurred in 2022).	Independently assured by Bureau Veritas Certification
2021	0.349 TJ / thousand metric tons of iron ore equivalent. 0.338 TJ / thousand metric tons of iron ore equivalent (discounting consumption and production of the divestments that occurred in 2022).	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2022	0.343 TJ / thousand metric tons of iron ore equivalent. 0.335 TJ / thousand metric tons of iron ore equivalent (discounting consumption and production of the divestments that occurred in 2022).	-
2023	0.351 TJ / thousand metric tons of iron ore equivalent. (Obtained by dividing indicator 302-1 by Vale Production 2023).	-

Note: The divestments made in 2022 refer to Estrela Ferroligas de Manganês (Barbacena Ferroalloy Plant and Ouro Preto Ferroalloy Plant), Mineração Corumbaense Reunida, Transbarge Navegacion, Vale Nickel (Dalian) Co. and Vale Moçambique.

#### GRI 302-4 (2016)

Descrição: Reduction of Energy Consumption

Year	Vale's Answer	Assurance
2019	7,171 TJ of energy saved/avoided as a result of initiatives to improve conservation or efficiency.	Independently assured by SGS ICS Certificadora Ltda.
2020	1,273.8 TJ of energy saved/avoided as a result of initiatives to improve conservation or efficiency.	Independently assured by Bureau Veritas Certification
2021	1,136.1 TJ of energy saved/avoided as a result of initiatives to improve conservation or efficiency.	-
2022	1,572.2 TJ of energy saved/avoided as a result of initiatives to improve conservation or efficiency.	-
2023	409.9 TJ of energy saved/avoided as a result of initiatives to improve conservation or efficiency.	-

#### GRI 303-1 (2018)

Description: Interactions with water as a shared resource

Year	Vale's Answer	Assurance
2020	The Water and Water Resources Policy, drawn up in 2020, establishes risk management and impact prevention processes for the entire production chain, through active participation, directly or through representative entities, in the different forums related to management of the water resources of the river basin(s) where Vale operates and more specifically in our area of influence to discuss water security strategies. Another principle of the Water and Water Resources Policy is the contribution to preserving the volume and quality of surface and groundwater in watersheds and marine areas, continuous improvement of sustainable management and responsible use of water resources, supporting water accessibility projects and sewage treatment for communities. We established the Water Goal 2030 in Year 2018, whose objective is to reduce the abstraction of fresh water used in our processes per ton produced, which means a lower volume of new water abstracted, for the same production volume. This goal is part of the plano Structuring of Water Resources 2030, started in 2018, which is part of the socio-environmental goals voluntarily assumed by Vale, related to different thematic axes.	Independently assured by Bureau Veritas Certification

In order to develop responsible management of water use in the territory, where the mining project will be implemented, the water availability in quantity and quality is verified considering the other dependent users of that hydrographic basin. For this purpose, the uses of water in the respective hydrographic basins are consulted through the systems controlled by the environmental agencies and user registration. After these analyzes and verification of feasibility, specific reports are prepared to obtain permissions for the use of water and the release of effluents. Quali-quantitative monitoring networks are installed that operate from the implementation phase until the closure of the project. The results of this information are consolidated into management systems (Hydro Geoanalyst, Credit 360 and an internal management platform) and analyzed by specialized technicians in order to ensure environmental quality and quantity and legal commitments.

The Water Goal established in Year 2018 was committed to reducing the capture of fresh water for use in our production processes. The objective was to reduce 10% of the specific use referring to Year 2017 until 2030 (new and fresh water abstracted and used in processes per ton produced), which means a lower volume of new water abstracted for the same production volume. Throughout 2021, the accumulated results exceeded the established objective.

The interaction between water and Vale starts in preliminary studies for new developments and may even continue after closure.

Through monitoring, studies, water balance and analysis, availability, demand, disposal, reuse, other managed waters are calculated and their respective qualities verified. The studies also include the use of water by other users in the respective river basins where we operate. For this purpose, the information available in the systems controlled by the responsible bodies is considered.

Our new water abstraction to supply operating units has permits for use when applicable.

We always invest in expanding qualitative and quantitative monitoring networks, training our professionals and engaging with stakeholders.

Quali-quantitative monitoring data are analyzed by specialized technicians in order to ensure the quality of results, comply with legal commitments; and maintain them consistently in management systems (Hydro Geoanalyst, Credit 360 and an internal management platform).

Responsible Management of Water Resources is present in our organizational culture. Through 4 pillars of action - Governance, Monitoring and Control, Engagement with Communities and Management of Water Risks - we seek to promote this management in the regions where we are present. In this context, in 2018 we made a commitment to reduce the specific use of fresh water in our production processes by 10% by 2030 (Year-base 2017). The result was achieved and surpassed in 2021 (20% reduction). According to the guideline of our Water and Water Resources Policy, when the target is achieved or the proposed deadline expires, it must be updated. It is in the final phase of validating the new commitments that should be published in the Integrated Report in April/2023. In addition to the quantitative target, actions aligned with the 4 pillars will be included

Our goal is to ensure the responsible management of water resources and effluents generated in the process. Water use should be rational, socially equitable, environmentally sustainable and economically beneficial, considering a process that is inclusive of stakeholders and the watershed. We closely monitor our indicators in order to ensure greater operational efficiency and provide us with healthy and sustainable growth. Our uses, consumptions and disposals are monitored, analyzed and stored in an integrated data management system, which is audited annually.

Through monitoring, studies, water balance and analyses, the availability, demands, discharges, reuse, other managed waters are calculated and their respective qualities are verified. The studies also include the use of water by other users in the respective watersheds where we operate.

The qualitative and quantitative monitoring data are analyzed by specialized technicians in order to ensure the quality of the results, comply with legal commitments; and maintain them in a form consisting of management systems (Hydro Geoanalyst, Credit 360 and internal management platform). We always invest in the expansion of qualitative and quantitative monitoring networks, in the training of our professionals and in engagement with stakeholders.

Our global sustainability goals are aligned with the Sustainable Development Goals (SDGs) of the United Nations (UN) 2030 Agenda and the guidelines of the International Council on Mining and Metals (ICMM). The 2030 Water Target, which began in 2018, determined a 10% reduction in the specific use of fresh water compared to the base year 2017. With great commitment, we achieved a 20% reduction in 2021, nine years ahead of schedule. We have updated our 2030 target, we will focus our efforts to achieve an additional 7% on average reduction in our specific use by 2030, considering more significant targets for units located in regions with high or critical water stress levels. This update of the target will promote a cumulative reduction of 27% (2017 base) added to the result already achieved.

## GRI 303-2 (2018)

Description: Management of water discharge-related impacts

Year	Vale's Answer	Assurance
2020	Considering the high and low quality standards adopted by the ICMM for disposal, in 2020 Vale disposed of 52% of its effluents in high quality. The other 48% discarded, despite being considered of low quality, respect the release limits established in local legislation.	Independently assured by Bureau Veritas Certification
2021	Vale uses the ICMM Standards to assess effluent disposal. ICMM standards: - High quality: total Dissolved Solids < 5.000mg/l and pH between 4 and 10 and without components, chemical compounds and contaminants in concentrations harmful to human health. - Low quality: Total Dissolved Solids > 5.000mg/l or pH < 4 or > 10 or have components or chemical compounds or contaminants in concentrations harmful to human health	-
2022	Vale uses the ICMM Standards to assess effluent disposal. ICMM standards: - High quality: total Dissolved Solids < 5.000mg/l and pH between 4 and 10 and without components, chemical compounds and contaminants in concentrations harmful to human health. - Low quality: Total Dissolved Solids > 5.000mg/l or pH < 4 or > 10 or have components or chemical compounds or contaminants in concentrations harmful to human health	-
2023	Our effluent discharges follow the quality standards in effect as determined by the respective entities responsible for each location and according to the water quality framework of the receiving body. The results are presented to the competent entities according to the frequency determined by them. As there is no quality index standardized by the competent authorities for the mining sector, we follow the classification guideline defined by the ICMM to disclose the quality of our effluents in our public reports. This guidance can be found in the Water Reporting, Good Practice Guide, 2nd Edition, page 35 (low quality and high quality).	-
	Vale uses the ICMM Standards to evaluate effluent discharge. ICMM Standards: - High quality: total Dissolved Solids < 5,000mg/l and pH between 4 and 10 and without components, chemical compounds and contaminants in concentrations harmful to human health. - Low quality: Total Dissolved Solids > 5,000mg/l or pH < 4 or >10 or have components or chemical compounds or contaminants in a concentration harmful to human health.	-
	Our effluent discharges follow the current quality standards determined by the respective responsible bodies of each location and according to the water quality framework of the receiving body. The results are presented to the competent bodies according to the frequency determined by them. As there is no quality index standardized by the competent bodies for the mining sector, we follow the classification guidance defined by ICMM to disclose the quality of our effluents in our public reports. This guidance can be found in the Water Reporting, Good Practice Guide, 2nd Edition, page 35 (low quality and high quality).	-

## GRI 303-3 (2018)

Description: Water withdrawal

Year	Vale's Answer	Assurance
------	---------------	-----------

2020	<p>Underground collection (m³): 35 million  Surface capture (m³): 103 million  Supply company (m³): 6 million  Total: 145 million m³ of water collected for Vale production  Total volume of new water abstracted according to the region's water risk:  Low: 131 million m³ (90%)  Low to medium: 10 million m³ (7%)  Medium to high: 3 million m³ (2%)  High: 1 million m³ (1%)  Extremely high: There was no uptake in regions with this risk.</p>	Independently assured by Bureau Veritas Certification
2021	<p>Underground collection (m³): 42.8 million  Surface capture (m³): 69.8 million  Supply company (m³): 6.2 million  Stored fresh water: 4.5 million m³  Total capture of fresh water for use (others): 0.9 million m³  Total: 118.8 million m³ of water captured for Vale production  Total volume of new water abstracted according to the region's water risk:  Low: 95.8 million m³  Superficial: 66.8 million m³  Underground: 26 million m³  Supply company: 3 million m³  Low to medium: 17.1 million m³  Superficial: 2.1 million m³  Underground: 15 million m³  Medium to high: 3.2 million m³  Superficial: 0.178 million m³  Underground: 1.5 million m³  Supply company: 1.5 million m³  High: 2 million m³  Supply company: 2 million m³  Extremely high: 0</p>	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2022	<p>Underground collection (m³): 28.1 million  Surface capture (m³): 78.4 million  Supply company (m³): 6.4 million  Stored fresh water: 4.7 million m³</p> <p>Total: 137.9 million m³ of water captured for Vale production  Total volume of new water abstracted according to the region's water risk:</p> <p><b>No stress: 52.5 million m³</b>  Superficial: 38.1 million m³  Underground: 12.5 million m³  Supply company: 1.9 million m³  <b>Low: 33.4 million m³</b>  Superficial: 29.1 million m³  Underground: 1.5 million m³  Supply company: 2.8 million m³  <b>Medium: 10.0 million m³</b>  Superficial: 0.05 million m³  Underground: 8.3 million m³  Supply company: 1.7 million m³  <b>High: 1.9 million m³</b>  Superficial: 1.4 million m³  Underground: 0.5 million m³  <b>Critical: 13.7 million m³</b>  Superficial: 9.0 million m³  Underground: 4.7 million m³  <b>N/A: 1.2 million m³</b>  Superficial: 0.7 million m³  Underground: 0.5 million m³</p> <p>As for the total dissolved solids parameter, the concentration did not exceed 1.000 mg/L for surface water, groundwater, and drinking water in 2022.</p>	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2023	<p>Underground collection (m³): 25.4 million  Surface capture (m³): 69.5 million  Supply company (m³): 6.8 million  Stored Volume from Conventional Sources: 84.1 million m³</p> <p>Total: 108.9 million m³ of water captured for Vale production  Total volume of new water abstracted according to the region's water risk:</p> <p><b>No stress: 43.4 million m³</b>  Superficial: 33.2 million m³  Underground: 8.1 million m³  Supply company: 2.1 million m³  <b>Low: 32.0 million m³</b>  Superficial: 27.5 million m³  Underground: 1.8 million m³  Supply company: 2.7 million m³  <b>Medium: 9.3 million m³</b>  Superficial: 0.07 million m³  Underground: 7.5 million m³  Supply company: 1.8 million m³  <b>High: 0.6 million m³</b>  Superficial: 0.2 million m³  Underground: 0.4 million m³  <b>Critical: 14.2 million m³</b>  Superficial: 7.8 million m³  Underground: 6.4 million m³  <b>N/A: 1.7 million m³</b>  Superficial: 0.6 million m³  Underground: 1.0 million m³  Supply company: 0.1 million m³</p> <p>As for the total dissolved solids parameter, the concentration did not exceed 1.000 mg/L for surface water, groundwater, and drinking water in 2023.</p>	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.



**Notes:** In 2022, we prepared studies to verify the levels of water stress in the river basins where our operations are located. To this end, the indicator defined by the UN (6.4.2 Level of water stress) was adopted in the period from 2014 to 2021. This indicator considers the use of water by all users of the hydrographic basins, availability and ecological flows, using data public and available by the respective responsible bodies. In this way, factors such as the time interval considered, the climate, the vegetation, the scale of the territory, the use and occupation of the soil and the water demand have a direct impact on the results obtained. Between 2014 and 2021, the study period, critical drought events occurred in Brazil and, as a result, higher levels of water stress were observed in some locations. Despite the water scarcity events that occurred during this period, it was possible for us to operate due to the responsible management of the use of water resources congruent with our infrastructure. Finally, it is emphasized that the methodological change aimed to specify the stress conditions at the regional level, that is, this methodology makes it possible to understand the particularities of the watersheds.

Conventional Sources: These are surface fresh waters (rivers, lakes, canals, etc.), groundwater and water supplied by public supply concessionaires

## GRI 303-4 (2018)

**Description:** Water discharge

Year	Vale's Answer	Assurance
2020	<p>Disposal after effluent treatment: 29 million m<sup>3</sup>  Availability to the environment without use: 96 million m<sup>3</sup>  Availability to third parties and population: 39 million m<sup>3</sup>  Total volume of water discarded according to the water risk of the region:  Low: 26 million m<sup>3</sup>  low to medium: 0  Medium to high: 3 million m<sup>3</sup>  High: 0  Extremely high: 0</p>	Independently assured by Bureau Veritas Certification
2021	<p>Disposal after effluent treatment: 18.2 million m<sup>3</sup>  Availability to the environment without use: 73.6 million m<sup>3</sup>  Availability to third parties and population: 42.6 million m<sup>3</sup>  Total volume of water discarded according to the water risk of the region:  Low: 16 million m<sup>3</sup>  Low to medium: 0.4 million m<sup>3</sup>  Medium to high: 1.5 million m<sup>3</sup>  High: 0  Extremely high: 0</p>	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2022	<p>Disposal after effluent treatment: 40.3 million m<sup>3</sup>  Availability to the environment without use: 145.8 million m<sup>3</sup>  Availability to third parties and population: 112.7 million m<sup>3</sup></p> <p>Total volume of water discarded according to the water risk of the region:  <b>No stress:</b> 22.4 million m<sup>3</sup>  Release into surface water: 21.5 million m<sup>3</sup>  Launch at sea: 0.5 million m<sup>3</sup>  Other releases: 0.4 million m<sup>3</sup>  <b>Low: 14.5 million m<sup>3</sup></b>  Release into surface water: 11.6 million m<sup>3</sup>  Launch at sea: 0.1 million m<sup>3</sup>  Other releases: 2.7 million m<sup>3</sup>  <b>Medium: 0.3 million m<sup>3</sup></b>  Release into surface water: 0.1 million m<sup>3</sup>  Launch at sea: 0.3 million m<sup>3</sup>  <b>High: 0 million m<sup>3</sup></b>  <b>Critical: 2.7 million m<sup>3</sup></b>  Release into surface water: 2.6 million m<sup>3</sup>  Other releases: 0.1 million m<sup>3</sup>  <b>Not classified: 0.2 million m<sup>3</sup></b>  Release into surface water: 0.1 million m<sup>3</sup></p> <p>Regarding the quality standard of the effluent discharges, we follow the ICMM parameters described in the reporting of indicator 303-2, thus, the discharge refers to fresh water (total dissolved solids ≤1,000 mg/L) and other types of water (total dissolved solids &gt;1,000 mg/L), as defined by the GRI.</p>	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2023	<p>Disposal after effluent treatment: 41.1 million m<sup>3</sup>  Availability to the environment without use: 344.8 million m<sup>3</sup>  Availability to external use: 43.0 million m<sup>3</sup></p> <p>Total volume of water discarded according to the water risk of the region:  <b>No stress: 19.8 million m<sup>3</sup></b>  Release into surface water: 18.4 million m<sup>3</sup>  Release at sea: 0.9 million m<sup>3</sup>  Other releases: 0.5 million m<sup>3</sup>  <b>Low: 18.2 million m<sup>3</sup></b>  Release into surface water: 11.6 million m<sup>3</sup>  Release at sea: 1.6 million m<sup>3</sup>  Other releases: 5.0 million m<sup>3</sup>  <b>Medium: 0.2 million m<sup>3</sup></b>  Release into surface water: 0.2 million m<sup>3</sup>  <b>High: 0 million m<sup>3</sup></b>  <b>Critical: 2.6 million m<sup>3</sup></b>  Release into surface water: 2.3 million m<sup>3</sup>  Release into groundwater: 0.2 million m<sup>3</sup>  <b>Not classified: 0.08 million m<sup>3</sup></b>  Release into groundwater: 0.02 million m<sup>3</sup>  Other releases: 0.06 million m<sup>3</sup></p> <p>Regarding the quality standard of the effluent discharges, we follow the ICMM parameters described in the reporting of indicator 303-2, thus, the discharge refers to fresh water (total dissolved solids ≤1,000 mg/L) and other types of water (total dissolved solids &gt;1,000 mg/L), as defined by the GRI.</p>	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.

**Notes:** In 2022, we prepared studies to verify the levels of water stress in the river basins where our operations are located. To this end, the indicator defined by the UN (6.4.2 Level of water stress) was adopted in the period from 2014 to 2021. This indicator considers the use of water by all users of the hydrographic basins, availability and ecological flows, using data public and available by the respective responsible bodies. In this way, factors such as the time interval considered, the climate, the vegetation, the scale of the territory, the use and occupation of the soil and the water demand have a direct impact on the results obtained. Between 2014 and 2021, the study period, critical drought events occurred in Brazil and, as a result, higher levels of water stress were observed in some locations. Despite the water scarcity events that occurred during this period, it was possible for us to operate due to the responsible management of the use of water resources congruent with our infrastructure. Finally, it is emphasized that the methodological change aimed to specify the stress conditions at the regional level, that is, this methodology makes it possible to understand the particularities of the watersheds.

Water withdrawn and available to third parties refers to water collected for the purpose of supplying third parties, as communities near Vale's operations.  
Water withdrawn without use and returned to the environment is water collected that has not entered the production process and has not been used in any other way and has not been returned to the environment.

## GRI 303-5 (2018)

**Description:** Water consumption

Year	Vale's Answer	Assurance
2020	Water consumption = 145 million m <sup>3</sup> (collection intended for Vale production) - 29 million m <sup>3</sup> (disposal after treatment) Water consumption = 116 million m <sup>3</sup>	Independently assured by Bureau Veritas Certification
2021	Water consumption = 118.8 million m <sup>3</sup> (collection intended for Vale production) + 7.6 million m <sup>3</sup> (use of rainwater) - 18.2 million m <sup>3</sup> (discard after treatment) - 4.5 million m <sup>3</sup> (stored fresh water) Water consumption = 103.7 million m <sup>3</sup> 489.8 million m <sup>3</sup> of reused water, a reuse rate of 81.2% Total water consumption according to the region's water risk: Low: 75 million m <sup>3</sup> Low to medium: 17 million m <sup>3</sup> Medium to high: 2 million m <sup>3</sup> High: 2 million m <sup>3</sup> Extremely high: 0	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2022	Water consumption = 137.9 million m <sup>3</sup> (collection intended for Vale production) - 40.3 million m <sup>3</sup> (disposal after treatment) - 4.7 million m <sup>3</sup> (water sweet stored) Water consumption = 92.9 million m <sup>3</sup> 507 million m <sup>3</sup> of reused water, a reuse rate of 82% Total water consumption according to the region's water risk: No stress: 50.3 million m <sup>3</sup> Low: 19.0 million m <sup>3</sup> Medium: 9.7 million m <sup>3</sup> High: 1.8 million m <sup>3</sup> Critical: 11.0 million m <sup>3</sup> Not classified: 1.0 million m <sup>3</sup>	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2023	Water consumption = 108.9 million m <sup>3</sup> (collection intended for Vale production) - 41.1 million m <sup>3</sup> (disposal after treatment) Water consumption = 67.8 million m <sup>3</sup> 563 million m <sup>3</sup> of reused water, a reuse rate of 84% Total water consumption according to the region's water risk: No stress: 30.8 million m <sup>3</sup> Low: 13.8 million m <sup>3</sup> Medium: 9.1 million m <sup>3</sup> High: 0.6 million m <sup>3</sup> Critical: 11.6 million m <sup>3</sup> Not classified: 1.6 million m <sup>3</sup>	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.

**Notes:** The use of rainwater is considered in 2022 in the value of "water intended for use", as updated in the ICMM concept.

As of 2022, to calculate reuse, the stored volumes were subtracted from the volume of water withdrawn and volume of water reused. You can see in detail the formula used for the calculation in the basis of preparation. There was no recalculation for the 2021 values.

## GRI 304-1 (2016) e SASB EM-MM-160a.3

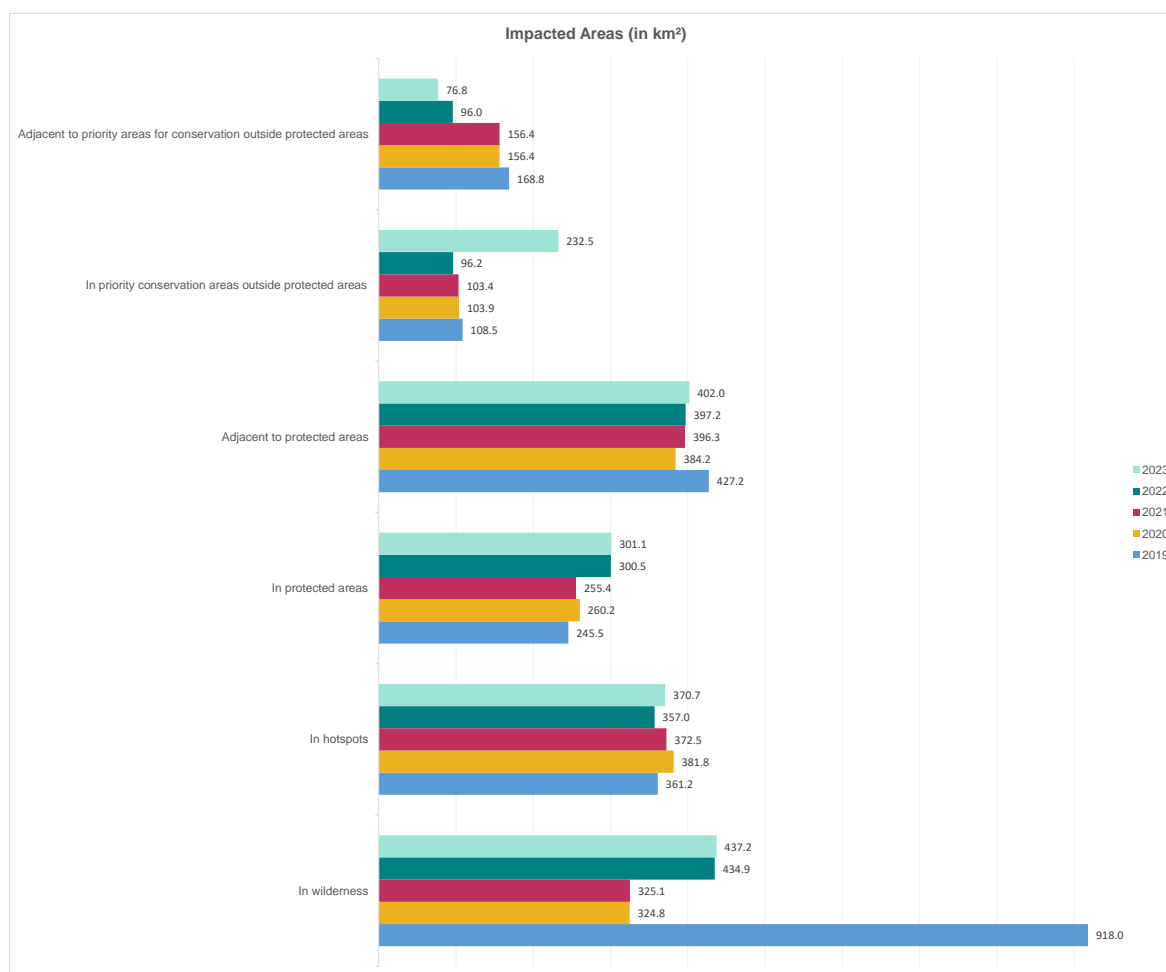
**GRI Description:** Operating units owned, leased or managed within or adjacent to environmental protection areas and areas of high biodiversity value located outside environmental protection areas

**SASB Description:** Percentage of (1) proven reserves and (2) probable reserves in or near sites with protected conservation status or habitat of threatened species

Year	Vale's Answer							Assurance
	Impacted Area (in ha)							
	Total	In wilderness	In hotspots	In protected areas	Adjacent to protected areas	In priority conservation areas outside protected areas	Adjacent to priority areas for conservation outside protected areas	
2019	138,923	91,804	36,121	24,549	42,721	10,854	16,880	Independently assured by SGS ICS Certificadora Ltda.
2020	81,839	32,482	38,177	26,024	38,419	10,389	15,636	Independently assured by Bureau Veritas Certification
2021	81,457	32,510	37,246	25,543	39,628	10,341	15,636	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2022	87,731	43,487	35,699	30,053	39,722	9,623	9,595	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2023	89,343	43,719	37,073	30,113	40,195	23,249	7,683	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.

Year	Vale's Answer							Assurance
	Impacted Area (in km²)							
	Total	In wilderness	In hotspots	In protected areas	Adjacent to protected areas	In priority conservation areas outside protected areas	Adjacent to priority areas for conservation outside protected areas	
2019	1389.2	918.0	361.2	245.5	427.2	108.5	168.8	Independently assured by SGS ICS Certificadora Ltda.
2020	818.3	324.8	381.8	260.2	384.2	103.9	156.4	Independently assured by Bureau Veritas Certification
2021	814.6	325.1	372.5	255.4	396.3	103.4	156.4	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2022	877.3	434.9	357.0	300.5	397.2	96.2	96.0	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2023	893.4	437.2	370.7	301.1	402.0	232.5	76.8	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.

**Notes:** The total area occupied by our operations (total impacted area) includes the areas of the pits currently licensed and under exploration, covering proven and probable reserves. It should be noted that currently the assessment of mineral resources and reserves takes into account the technical, economic, social and environmental points of view, and areas with legal restrictions, such as conservation units (UCs of Integral Protection and Private Reserves of Natural Heritage) , are excluded from the impact areas of these new pits and therefore are not considered as a reserve. This process complies with the new rules provided for in the SK-1300 Guide of the Securities and Exchanges Commission (SEC). Between 2021 and 2022, there was an increase in the Directly Affected Areas (ADAs in portuguese) of the projects, with a consequent increase in interference in the territories, resulting in variation in the impacted area in wilderness and in protected areas.



Total impacted area			
Corridor/ Complex	Operating Unit	In ha	In km²
Corridor north	Estrada de Ferro Carajás	10,069.97	100.70
Corridor north	Manganês do Azul	973.85	9.74
Corridor north	N4N5	6,546.80	65.47
Corridor north	Porto Ponta da Madeira	1,730.28	17.30
Corridor north	S11D	3,368.69	33.69

Corridor north	Serra Leste	453.19	4.53
Corridor southeast	Água Limpa	1,100.00	11.00
Corridor southeast	Alegria	711.18	7.11
Corridor southeast	Baú	261.00	2.61
Corridor southeast	Brucutu	2,607.00	26.07
Corridor southeast	Cauê	1,824.70	18.25
Corridor southeast	Complexo de Tubarão	1,205.87	12.06
Corridor southeast	Conceição	2,292.94	22.93
Corridor southeast	Estrada de Ferro Vitória a Minas	3797.96	37.98
Corridor southeast	Fábrica Nova	1,189.25	11.89
Corridor southeast	Fazendão	459.07	4.59
Corridor southeast	Itabira	430.08	4.30
Corridor southeast	Minas do Meio	1,292.29	12.92
Corridor southeast	Timbopeba	713.20	7.13
Corridor southeast	Pitangui (Fazendão)	10.62	0.11
Corridor southeast	Córrego do Meio	110.99	1.11
Corridor southeast	Miguel Congo	68.42	0.68
Corridor southeast	Antônio Pereira	4.87	0.05
Corridor southeast	Conta História	43.23	0.43
Corridor southeast	Gandarela	11.22	0.11
Corridor southeast	Batatinha	5.65	0.06
Corridor southeast	Capanema	518.22	5.18
Corridor southeast	Morro da Mina (Alegria)	24.45	0.24
Corridor southeast	Del Rey	44.19	0.44
Corridor southeast	Roça Grande	0.64	0.0064
Corridor southeast	Escorpião	12.07	0.12
Corridor southeast	Pé de Serra (Água Limpa)	7.51	0.075
Corridor southeast	Jacutinga (Água Limpa)	313.24	3.13
Corridor southeast	Cabral e Trindade	53.49	0.53
Corridor southeast	Gongo Soco	542.77	5.43
Corridor southeast	Mizael (Água Limpa)	26.78	0.27
Corridor south	Abóboras	703.05	7.03
Corridor south	Capão Xavier	170.16	1.70
Corridor south	Capitão do Mato	542.13	5.42
Corridor south	Galinheiro	1249.91	12.50
Corridor south	Gama	31.68	0.32
Corridor south	João Pereira	699.51	6.99
Corridor south	Mar Azul	257.83	2.58
Corridor south	Miguelão	41.45	0.41
Corridor south	Mutuca	320.74	3.21
Corridor south	Pico	402.10	4.02
Corridor south	Portos Sul	184.23	1.84
Corridor south	Sapecado	508.36	5.08
Corridor south	Segredo	1,320.99	13.21
Corridor south	Tamanduá	340.06	3.40
Corridor south	TOD	16.88	0.17
Corridor south	Vargem Grande	401.79	4.02
Corridor south	Viga	874.67	8.75
Corridor south	Serrinha	29.30	0.29
Corridor south	Santo Antônio (Fábrica)	4.39	0.04
Corridor south	Córrego do Feijão	438.45	4.38
Corridor south	Almas Norte (Fábrica)	1.98	0.02
Corridor south	Jangada	328.37	3.28
Corridor south	Águas Claras	374.76	3.75
Corridor south	Faria (Fábrica)	2.75	0.027
Base Metals	Igarapé Bahia	420.99	4.21
Base Metals	Onça Puma	4,763.20	47.63
Base Metals	Salobo	9,215.00	92.15
Base Metals	Sossego	2,391.89	23.92
Vale Canada/Ontario	Central Tailings	3,028.92	30.29
Vale Canada/Ontario	Coleman Mine	356.21	3.56
Vale Canada/Ontario	Copper Cliff Nickel Refinery	205.41	2.05
Vale Canada/Ontario	Copper Cliff South Mine	53.02	0.53
Vale Canada/Ontario	Copper Refinery	96.87	0.97
Vale Canada/Ontario	Crean Hill Mine	208.81	2.09
Vale Canada/Ontario	Creighton Mine	813.22	8.13
Vale Canada/Ontario	Frood Stobie	964.12	9.64

Vale Canada/Ontario	Garson Mine	111.16	1.11
Vale Canada/Ontario	Levack Mine	711.04	7.11
Vale Canada/Ontario	Mc Creedy West Mine	29.62	0.30
Vale Canada/Ontario	Port Colborne	140.18	1.40
Vale Canada/Ontario	Shebandowan Mine	847.63	8.48
Vale Canada/Ontario	Smelter Complex (Sudbury)	699.25	6.99
Vale Canada/Ontario	Totten Mine	19.60	0.20
Vale Canada/Ontario	Whistle Mine	60.17	0.60
Vale Canada/Manitoba	Birchtree Mine	37.91	0.38
Vale Canada/Manitoba	Pipe Lake Mine	416.03	4.16
Vale Canada/Manitoba	Soab North Mine	30.58	0.31
Vale Canada/Manitoba	Soab South Mine	42.66	0.43
Vale Canada/Manitoba	Thompson Mine	1,639.65	16.40
Vale Canada/Labrador NFL	Long Harbour	364.20	3.64
Vale Canada/Labrador NFL	Voiseys Bay	1,514.00	15.14
Vale China	Vale China	5.64	0.056
Vale Indonesia	PTVI	7,533.21	75.33
Vale Japão	Vale Japan	7.74	0.077
Vale Malaysia	Teluk Rubiah	224.25	2.24
Vale Manganese	Simões Filho	169.76	1.70
Vale Oman	VOPC	119.43	1.19
Vale Taiwan	Vale Taiwan	1.78	0.018
Vale UK	Clydach	28.40	0.284
Total		89,342.74	893.43

## GRI 304-2 (2016)

**Description:** Significant impacts of activities, products and services on biodiversity

Year	Vale's Answer	Assurance
2019	<p>Even though we are always looking for the best technologies and methods that allow the least interference in natural resources, operations directly or indirectly impact natural habitats and the biota associated with them, mainly due to changes in land use and vegetation cover, as well as in the physical characteristics of environments. These impacts result in suppression of vegetation and other environmental alterations that generate loss and alteration of habitats for species of flora and fauna.</p> <p>Regarding Brumadinho, the main impacts were the loss and fragmentation of natural habitats, alteration of aquatic and terrestrial environments, and in the levels of chemical elements, with consequent loss of specimens of native, domestic and exotic fauna and flora.</p>	Independently assured by SGS ICS Certificadora Ltda.
2020	<p>In 2020, our operations occupied approximately 818 km². Vale depends on natural resources and ecosystem services, such as water supply and climate regulation. At the same time, it generates impacts on biodiversity and on these services. This demonstrates the importance of natural capital for the business. Even though we are always looking for the best technologies and methods that allow the least interference in natural resources, the operations directly or indirectly impact natural habitats and the biota associated with them, mainly due to the conversion, loss and/or reduction of habitats, alteration in the air quality and specimen loss.</p>	Independently assured by Bureau Veritas Certification
2021	<p>Vale prioritizes risk analysis and adopts measures to prevent, mitigate, recover and offset impacts. In 2021, the area impacted by our operations accounted for 814.57 Km², part of our operations overlap and interface with areas of high value for biodiversity, such as hotspots and key areas for biodiversity, directly or indirectly impacting natural habitats and biota associated with them, mainly due to conversion, loss and/or reduction of habitats and loss of specimens. We remain committed to increasingly reducing our impacts, in addition to recovering and compensating the areas and habitats we affect, in line with our long-term goal of neutralizing impacts on biodiversity in new projects.</p>	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2022	<p>In 2022, the total area occupied by our operations accounted for approximately 88 thousand hectares, with around 85% of this area located in Brazil and Indonesia, in tropical forests of high value for biodiversity. Our main impacts are related to changes in land use and vegetation cover, with a direct consequence of localized suppression of flora individuals and reduction and/or alteration of habitats for fauna. For the most part, direct impacts are classified as reversible in the medium to long term and are caused outside of protected areas.</p>	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2023	<p>The total area impacted by our direct operations worldwide in 2023 represents approximately 89 thousand hectares. In Brazil and Indonesia, there are operations that interface with areas of high value for biodiversity. Some of our websites in Brazil have interference with protected areas – conservation units of sustainable use that, according to specific creation decrees, allow our activities within them. In 2023, a systematic assessment of our dependencies, impacts, risks and opportunities was carried out. The results obtained, both from this assessment and from the reporting of qualitative indicators in each of our operational areas, indicated that our most material impacts are associated with changes in vegetation cover and land use.</p>	-

## GRI 304-3 (2016)

**Description:** Habitats protected or restored

Year	Vale's Answer Restored and protected areas (in ha)						Assurance
	Area of total recovery	Area of permanent recovery	Area of provisional recovery	Area recovered in wilderness	Area recovered in hotspots	Protected area	
2019	1,180	992	188	300	890	852,500	Independently assured by SGS ICS Certificadora Ltda.
2020	1,919	1,698	220	360	1520	905,400	Independently assured by Bureau Veritas Certification

2021	2,030	1,820	210	350	1410	967,100	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2022	1,098	1,098	0	222	782	965,400	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2023	1,100	816	284	155	913	965,321	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.

Year	Vale's Answer Protected and recovered areas (in km²)						Assurance
	Area of total recovery	Area of permanent recovery	Area of provisional recovery	Area recovered in wilderness	Area recovered in hotspots	Protected area	
2019	11.8	9.9	1.9	3.0	8.9	8,525	Independently assured by SGS ICS Certificadora Ltda.
2020	19.2	17.0	2.2	3.6	15.2	9,054	Independently assured by Bureau Veritas Certification
2021	20.3	18.2	2.1	3.5	14.1	9,671	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2022	11.0	11.0	0.0	2.2	7.8	9,654	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2023	11.0	8.2	2.8	1.6	9.1	9,653	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.

Protected area	Location	Biome	Property	Area (ha)	Area (km²)
Total				965.321	9,653.2
National Forest of Carajás	Brazil (Pará)	Amazon rainforest	Partnership ICMBio <sup>1</sup>	391,004	3,910.0
National forest of Tapirapé-Aquiri	Brazil (Pará)	Amazon rainforest	Partnership ICMBio <sup>1</sup>	114,240	1,142.4
National Forest of Itacaiúnas	Brazil (Pará)	Amazon rainforest	Partnership ICMBio <sup>1</sup>	136,592	1,365.9
Biological reserve of Tapirapé	Brazil (Pará)	Amazon rainforest	Partnership ICMBio <sup>1</sup>	99,198	992.0
Environmental protection area of Igarapé do Gelado	Brazil (Pará)	Amazon rainforest	Partnership ICMBio <sup>1</sup>	23,269	232.7
National park of Campos Ferruginosos de Carajás	Brazil (Pará)	Amazon rainforest	Partnership ICMBio <sup>1</sup>	21,997	220.0
State Park ofCunhambebe	Brazil (Rio de Janeiro)	Atlantic forest	Partnership INEA <sup>2</sup>	38,053	380.5
Manument of Serra das Torres	Brazil (Espírito Santo)	Atlantic forest	Partnership IEMA	10,458	104.6
Biological reserve of Duas Bocas	Brazil (Espírito Santo)	Atlantic forest	Partnership IEMA	2,910	29.1
National forest of Goytacazes	Brazil (Espírito Santo)	Atlantic forest	Partnership ICMBio <sup>1</sup>	1,425	14.3
Botanical park of São Luís	Brazil (Maranhão)	Amazon rainforest	Own	110	1.1
Botanical parl of Tubarão	Brazil (Espírito Santo)	Atlantic forest	Own	30	0.3
Vale's Natural Reserve	Brazil (Espírito Santo)	Atlantic forest	Own	22,710	227.1
Biological Reserve of Sooretama	Brazil (Espírito Santo)	Atlantic forest	Partnership ICMBio <sup>1</sup>	27,800	278.0
Reservas particulares do patrimônio natural (RPPN) no Quadrilátero Ferrífero de Minas Gerais	Brazil (Minas Gerais)	Atlantic forest	Own	12,660	126.6
Protected area of quatro pequenas centrais hidrelétricas (PCHs)	Brazil (Minas Gerais)	Atlantic forest	Own	330	3.3
Ecological Center Vale Malásia (Vale Eco Center)	Malaysia	Sundaland	Own	289	2.9
Biological reserve of Augusto Ruschi	Brazil (Espírito Santo)	Atlantic forest	Partnership ICMBio <sup>1</sup>	3,598	36.0
Biological reserve of União	Brazil (Rio de Janeiro)	Atlantic forest	Partnership ICMBio <sup>1</sup>	7,756	77.6
Biological reserve of Mata Escura	Brazil (Minas Gerais)	Atlantic forest	Partnership ICMBio <sup>1</sup>	50,892	508.9

**Note:** Vale has been studying new protection alternatives to compose its 2030 Forest Goal, with a focus on learning and innovation. In 2022, a REDD+ project became part of this set, contributing to the protection of around 50,000 hectares.

[1] Source: Chico Mendes Institute for Biodiversity Conservation (ICMBio) (<http://www.icmbio.gov.br/brasil>) Ministry of the Environment.

[2] Source: State Environmental Institute (Inea), Government of Rio de Janeiro.

## GRI 304-4 (2016)

**Description:** IUCN Red List species and national conservation list species with habitats in areas affected by operations

Year	Vale's Answer Species on the IUCN Red List (2019) with habitats in areas affected by operations							Assurance
	little concern	Vulnerable	near threatened	In danger	critically endangered	conservation dependent	data deficiency	
2019	322	53	35	22	4	1	24	Independently assured by SGS ICS Certificadora Ltda.
2020	635	60	41	28	6	1	49	Independently assured by Bureau Veritas Certification
2021	1198	60	42	26	7	1	29	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2022	523	53	36	20	5	0	26	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2023	2323	75	79	59	13	0	41	-

Year	Vale's Answer Species on the national conservation list (MMA 2014) with habitats in areas affected by operations							Assurance
	Little concern	Vulnerable	Near threatened	In danger	Critically endangered	Conservation dependent	Data deficiency	
2019	0	50	0	47	14	0	6	Independently assured by SGS ICS Certificadora Ltda.
2020	0	73	0	57	12	0	2	Independently assured by Bureau Veritas Certification
2021	0	59	0	46	8	0	4	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2022	0	63	0	40	8	0	3	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2023	0	64	0	46	11	0	0	-

## GRI 305-1 (2016) e SASB EM-MM-110a.1

**GRI Description:** Direct (Scope 1) GHG emissions

**SASB Description:** Scope 1 gross global emissions, percentage covered by emission limitation regulations

Year	Vale's Answer Direct GHG emissions			Assurance
	Total Emission	Biogenic emissions	Biogenic removals	
2019	9.7 million of tCO <sub>2</sub> e	293.9 ktCO <sub>2</sub> e	28.6 ktCO <sub>2</sub> e	Independently assured by SGS ICS Certificadora Ltda.
2020	8.4 million of tCO <sub>2</sub> e	478.7 ktCO <sub>2</sub> e	35.6 ktCO <sub>2</sub> e	Independently assured by Bureau Veritas Certification
2021	8.7 million of tCO <sub>2</sub> e	443.5 ktCO <sub>2</sub> e	48.0 ktCO <sub>2</sub> e	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2022	8.6 million of tCO <sub>2</sub> e	286.4 ktCO <sub>2</sub> e	575.1 ktCO <sub>2</sub> e	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2023	9.4 million of tCO <sub>2</sub> e	375.5 ktCO <sub>2</sub> e	345.4 ktCO <sub>2</sub> e	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.

**Notes:** Information on the gases included in the calculation, as well as the rules, methodologies and calculation assumptions adopted can be found in Vale's response to the CDP Questionnaire. The calculation tool used is the CR360 System. Consolidation approach based on operational control. Global Warming Potential (GWP) of gases from IPCC AR4 by 2020 and AR5 from 2021. Emission factors from IPCC Guidelines for National Greenhouse Gas Inventories, National Inventory Reports for Canada and Japan, DEFRA Environmental Reporting Guidelines for the UK, Fourth IMO GHG Study for navigation, PBGHG Tool, etc. Although the information meets both standards (GRI and SASB), only the completeness of the GRI standard was independently ensured.

Links: [CDP Questionnaire](#)

## GRI 305-2 (2016)

**Description:** Energy indirect (Scope 2) GHG emissions

Vale's Answer			
Year	Emissões indiretas de GEE provenientes da aquisição de energia		Assurance
	Location-based	Marked-based	
2019	1.0 million of tCO2e	0.4 million of tCO2e	Independently assured by SGS ICS Certificadora Ltda.
2020	0.7 million of tCO2e	0.4 million of tCO2e	Independently assured by Bureau Veritas Certification
2021	1.2 million of tCO2e	0.3 million of tCO2e	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2022	0.6 million of tCO2e	0.3 million of tCO2e	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2023	0.6 million of tCO2e	0.3 million of tCO2e	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.

**Notes:** Consolidation approach based on operational control. The gases included in the calculations are CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O. The Standard adopted is the GHG Protocol Corporate Value Chain (Scope 3) Standard. Global Warming Potential (GWP) of gases from IPCC AR4 by 2020 and AR5 from 2021. Emission factors from the IPCC Guidelines for National Greenhouse Gas Inventories, Ecoinvent, DEFRA Environmental Reporting Guidelines for the United Kingdom, IMO for the navigation, etc

## GRI 305-3 (2016)

**Description:** Other indirect (Scope 3) GHG emissions

Vale's Answer			
Year	Other indirect GHG emissions		Assurance
	Other indirect GHG emissions	Biogenic emissions	
2019	486.6 million of tCO2e	2.7 ktCO2e	Independently assured by SGS ICS Certificadora Ltda.
2020	461.7million of tCO2e	3.5 ktCO2e	Independently assured by Bureau Veritas Certification
2021	470.7 million of tCO2e	9.2 ktCO2e	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2022	457.8 million of tCO2e	45.6 ktCO2e	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2023	451.2 million of tCO2e	37.0ktCO2e	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.

**Notes:** Consolidation approach based on operational control. The Standard adopted is the GHG Protocol Corporate Value Chain (Scope 3) Standard. Global Warming Potential (GWP) of gases from IPCC AR4 by 2020 and AR5 from 2021. Emission factors from the IPCC Guidelines for National Greenhouse Gas Inventories, Ecoinvent, DEFRA Environmental Reporting Guidelines for the United Kingdom, IMO for the navigation, etc. Scope 3 emissions have been recalculated since the 2018 base year due to the divestments of non-controlled companies: CSP (Companhia Siderúrgica de Pecém and MRN (Mineração Rio do Norte).

## GRI 305-4 (2016)

**Description:** GHG emissions intensity

Vale's Answer			Assurance
Year			
2019	24.2 kg CO <sub>2</sub> e per t MFe-eq		Independently assured by SGS ICS Certificadora Ltda.
2020	22.1 kg CO <sub>2</sub> e per t MFe-eq		Independently assured by Bureau Veritas Certification
2021	22.1 kg CO <sub>2</sub> e per t MFe-eq		Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2022	22.2 kg CO <sub>2</sub> e per t MFe-eq		Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2023	23.2 kg CO <sub>2</sub> e per t MFe-eq		Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.

**Notes:** Scope 1 and 2 emissions marked-based per ton of iron ore equivalent. The gases included and the standards and calculation tools adopted are the same used for the calculation of Scope 1 and 2. Production volumes of Vale's main products, such as pellets, nickel, copper and coal are converted to equivalent iron ore.



GRI 305-5 (2016)

Description: Reduction of greenhouse gas (GHG) emissions

Year	Vale's Answer	Assurance
2019	64.0 ktCO <sub>2</sub> e	Independently assured by SGS ICS Certificadora Ltda.
2020	103 ktCO <sub>2</sub> e	Independently assured by Bureau Veritas Certification
2021	78 ktCO <sub>2</sub> e	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2022	14 ktCO <sub>2</sub> e	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2023	25 ktCO <sub>2</sub> e	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.

Notes: Information about the gases included in the calculation, as well as the standards, methodologies and calculation assumptions adopted can be found in Vale's response to the CDP Questionnaire. The calculation tool used is the CR360 System. Consolidation approach based on operational control.

Links: [CDP Questionnaire](#)

GRI 305-6 (2016)

Description: Emissions of ozone-depleting substances (ODS)

Year	Vale's Answer	Assurance
2019	0.71 metric tons of ODS issued in the Year.	Independently assured by SGS ICS Certificadora Ltda.
2020	0.86 metric tons of ODS issued in the Year.	Independently assured by Bureau Veritas Certification
2021	0.09 metric tons of ODS issued in the Year.	-
2022	0.08 metric tons of ODS issued in the Year.	-
2023	0.07 metric tons of ODS issued in the Year.	-

Notes: For ODS, we consider Annexes C and E of the Montreal Protocol in addition to the share of HCFCs contained in gas blends. The main source of emission factors is the Handbook for the Montreal Protocol on Substances that Deplete the Ozone Layer.

GRI 305-7 (2016) e SASB EM-MM-120a.1

GRI Description: Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions

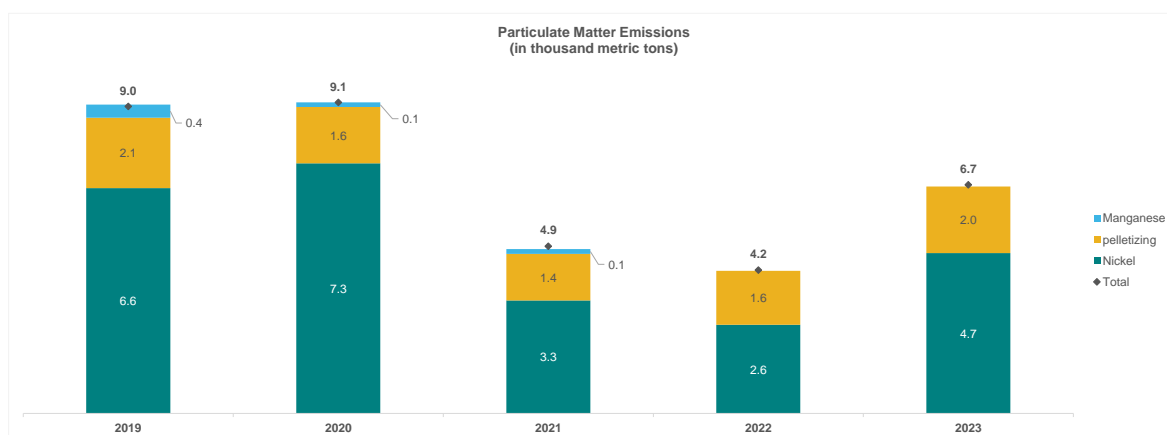
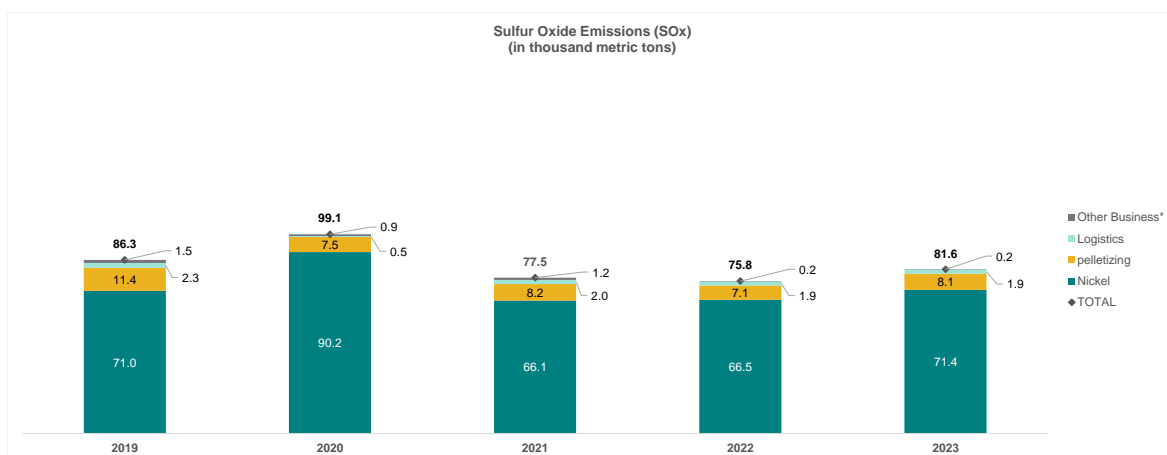
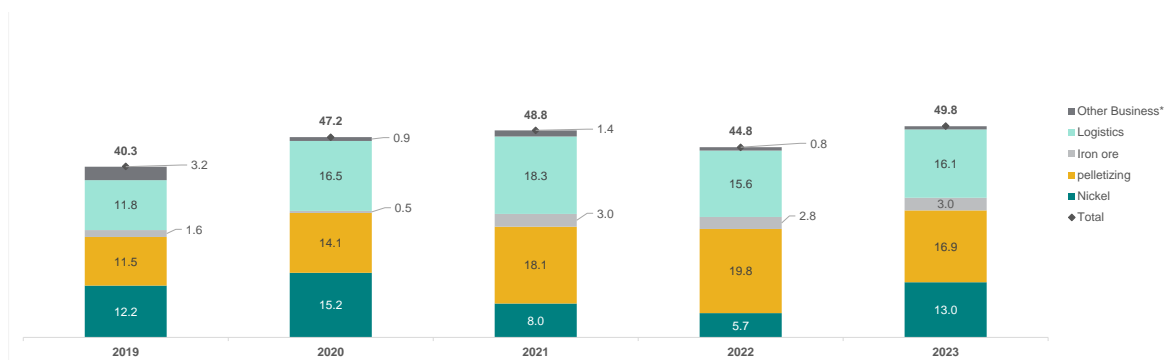
SASB Description: Atmospheric emissions of the following pollutants: (1) CO, (2) NOx (excluding N2O), (3) SOx, (4) particulate matter (PM10), (5) mercury (Hg), (6) lead (Pb), and (7) volatile organic compounds (VOCs)

Year	Vale's Answer			Assurance
	Atmospheric emissions			
	NOx	SOx	Material Particulado	
2019	40.3 thousand metric tons	86.3 thousand metric tons	9.0 thousand metric tons	Independently assured by SGS ICS Certificadora Ltda.
2020	47.2 thousand metric tons	99.1 thousand metric tons	9.1 thousand metric tons	Independently assured by Bureau Veritas Certification
2021	48.8 thousand metric tons	77.5 thousand metric tons	4.8 thousand metric tons	-
2022	44.7 thousand metric tons	75.7 thousand metric tons	4.2 thousand metric tons	-
2023	49.8 thousand metric tons	81.6 thousand metric tons	6.7 thousand metric tons	-

Note: The main references of emission factors used for SOx are resolutions of the National Agency of Petroleum, Natural Gas and Biofuels (ANP), Appendix A: U.S. Environmental Protection Agency Contacts (EPA) and for the United Kingdom the UK NAEI - National Atmospheric Emissions Inventory. For NOx, the Report on Vehicle Emissions in the State of São Paulo (CETESB) and AP 42, Fifth Edition (EPA) are used as references.

To compile the information, Vale uses data from direct measurement of emissions, calculation based on site-specific data and based on published emission factors. Although the information complies with both standards (GRI and SASB), only the completeness of the GRI standard was assured independently.

Nitrogen Oxide (NOx) emissions  
(in thousand metric tons)



## GRI 306-1 (2020)

**Description:** Waste generation and significant waste-related impacts

Year	Vale's Answer	Assurance
2022	Waste management at Vale identifies as significant aspects and impacts those related to the generation, storage, transport and disposal of waste, considering the scale of generation and dangerousness of waste, in a risk approach related to the probability and severity of planned and unplanned impacts. plans for these processes.	-
2023	Waste management at Vale identifies as significant aspects and impacts those related to the generation, storage, transportation and disposal of waste, considering the frequency of generation and hazard of waste, in a risk approach related to the frequency/probability and severity of the planned and unplanned impacts of these processes.	-

## GRI 306-2 (2020)

**Description:** Management of significant waste-related impacts

Year	Vale's Answer	Assurance
------	---------------	-----------

We adopted the following actions to control and minimize risks related to waste management processes and which must be included in the PGRSs of the units according to PGS-001719:

- Procedures for minimizing generation, prioritizing hazardous and non-hazardous waste of large generation;
- Traceability from generation to final destination, with documentation control;
- Adequate storage;

2022

- Valuation of waste in order to reduce its final disposal in landfills;
  - Appropriate destination, with environmental assessment of waste recipients, reducing risks related to improper disposal.
- In addition, all units have their own Waste Management Programs, where processes and the respective waste generated are surveyed. From this survey, a critical analysis is carried out to establish the priority, considering quantity and dangerousness. Among the initiatives identified in the operating units, we have:
- Regeneration of refrigeration oils in the maintenance process of heavy equipment, avoiding the generation of contaminated oil residue.
  - Initiatives to reduce packaging generation by supplying products in bulk.
  - Optimization of the maintenance of conveyor belts and off-road tires, increasing their useful life.

We adopted the following actions to control and minimize the risks related to waste management processes and that must be included in the PGRSs of the units according to PGS-001719 regulations:

- Procedures to minimize generation, prioritizing hazardous and non-hazardous waste of large generation;
- Reduction of waste hazards;
- Proper storage;

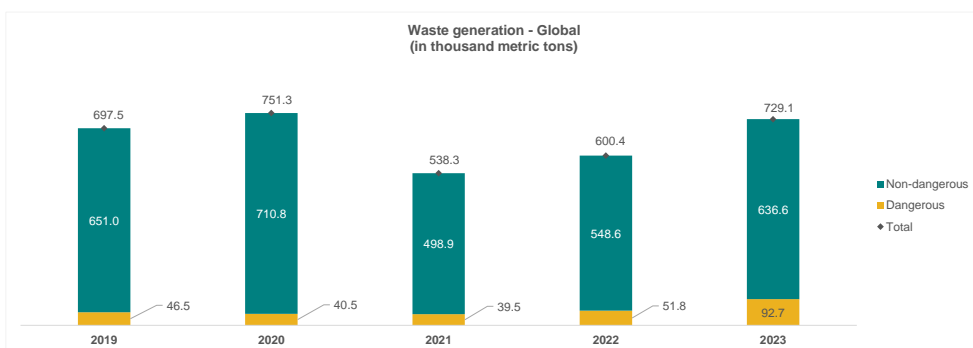
2023

- Traceability from generation to final destination, with documentation control;
  - Valorization of waste in order to reduce its final disposal in landfills;
  - Proper disposal, with environmental assessment of waste recipients, reducing the risks related to improper disposal.
- In addition, all units have their own Waste Management Programs, where the processes and their respective waste generated are surveyed. From this survey, a critical analysis is carried out to establish the priority, considering quantity and hazard. Among the initiatives identified in the operational units, we can mention:
- Regeneration of refrigeration oils in the maintenance process of heavy equipment, avoiding the generation of contaminated oil residue.
  - Initiatives to reduce the generation of packaging through the supply of products in bulk.
  - Optimization of the maintenance of conveyor belts and off-road tires, increasing the service life.
- And as circularity measures we can mention:
- Project to recover tot-bins used to supply liquid products to Vale, forwarding them to companies that recondition these packages and reinsert them into Vale's supply chain.
  - Processing of the oily sludge as re-refining, being inserted back into the chain, thus no longer being destined for co-processing.
  - Beginning of the use of the industrial thermal compost to compost the food waste generated in the restaurants of Carajás/PA and São Luis/MA and which are reused in the manufacture of fertilizers, reducing the volume of waste destined for the landfill.

### GRI 306-3 (2020)

Description: Waste generated

Year	Vale's Answer			Assurance
	Volume of Waste Generated (thousand metric tons)			
	Dangerous	Non-dangerous	Total	
2022	51.8	548.6	600.4	-
2023	92.7	636.3	729.1	-

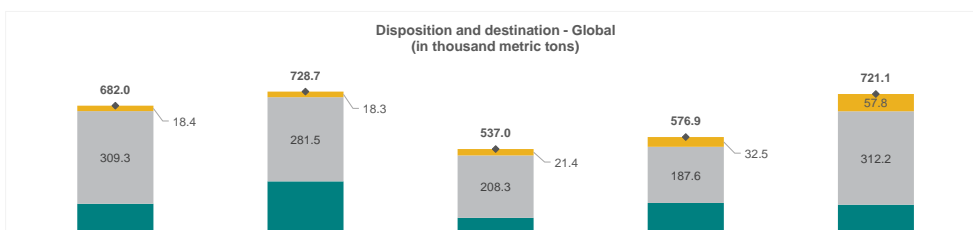


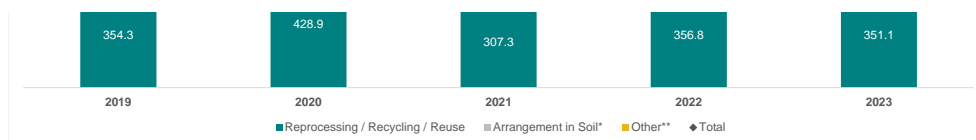
### GRI 306-4 e GRI 306-5 (2020)

Description GRI 306-4: Waste diverted from disposal

Description GRI 306-5: Waste directed to disposal

Year	Vale's Answer				Assurance
	Disposal and destination (in thousand metric tons)				
	Reprocessing / Recycling / Reuse	Arrangement in Soil	Other Methods	Total	
2022	356.8	187.6	32.5	576.9	-
2023	351.1	312.2	57.8	721.1	-





Note: \*Disposal on ground: External sanitary landfill, internal sanitary landfill, disposal in sterile piles and underground.  
 \*\* Others: Co-processing, incineration and biological treatment.

## GRI 308-1 (2016)

Description: New suppliers that were screened using environmental criteria

Year	Vale's Answer	Assurance
2019	100% of certified suppliers in supply categories considered critical by Vale's Environment have specific environmental documentation that is analyzed.	-
2020	68% of certified suppliers in supply categories considered critical by Vale's Environment have specific environmental documentation that is analyzed.	Independently assured by Bureau Veritas Certification
2021	61% of certified suppliers in supply categories considered critical by Vale's Environment have specific environmental documentation that is analyzed.	-
2022	48% of certified suppliers in supply categories considered critical by Vale's Environment have specific environmental documentation that is analyzed.	-
2023	58% of certified suppliers in supply categories considered critical by Vale's Environment have specific environmental documentation that is analyzed.	-

Note: The process is applied to 100% of suppliers (Brazil scope - legal companies with which Vale maintains a commercial relationship) certified in the supply categories considered critical by Vale's Environment.

## GRI 308-2 (2016)

Description: Negative environmental impacts in the supply chain and actions taken

Year	Vale's Answer	Assurance
2019	Vale does not manage the information necessary to report this content.	-
2020	Vale does not manage the information necessary to report this content.	Independently assured by Bureau Veritas Certification
2021	Vale does not manage the information necessary to report this content.	-
2022	Vale does not manage the information necessary to report this content.	-
2023	Vale does not manage the information necessary to report this content.	-

## GRI - G4 MM1

Description: Amount of land (owned or leased, used for productive or extractive activities) altered or rehabilitated

Year	Vale's Answer Amount of land altered or rehabilitated (in km²)				Assurance
	Impacted areas (Opening balance)	Areas impacted in the Year	Areas undergoing permanent recovery in the Year	Impacted areas (Closing balance)	
2019	627.6	9.8	9.3	628.1	Independently assured by SGS ICS Certificadora Ltda.
2020	628.1	10.1	18.0	620.2	Independently assured by Bureau Veritas Certification
2021	620.2	10.1	18.0	612.3	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2022	612.3	8.9	10.9	610.3	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2023	610.3	13.9	8.1	616.1	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.

## GRI - G4 MM2

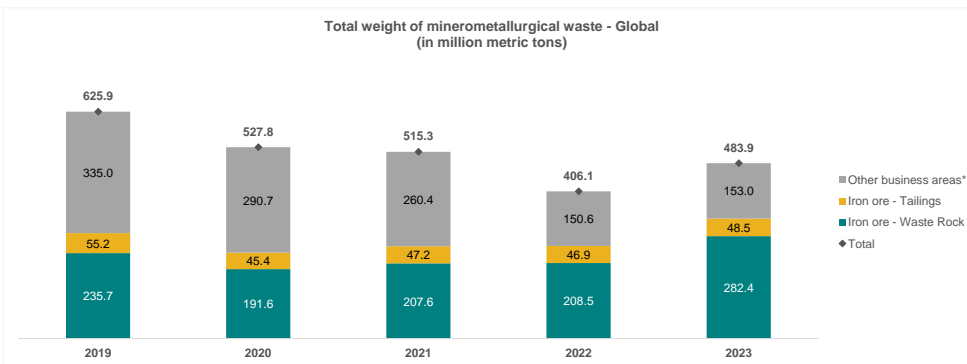
**Description:** Number and percentage of operational units that need planos for biodiversity management according to established criteria and number (percentage) of these units with planos in force

Year	Vale's Answer	Assurance
2019	<ul style="list-style-type: none"> <li>- 54 operating units analyzed;</li> <li>- 46 (85.2%) of the areas require a Biodiversity Management Plan;</li> <li>- 49 in total have already been implemented (including areas with more than one plan);</li> <li>- In only one unit, the required plan will still be implemented.</li> </ul>	Independently assured by SGS ICS Certificadora Ltda.
2020	<ul style="list-style-type: none"> <li>- 61 operating units analyzed;</li> <li>- 51 (83.62%) of the areas require a Biodiversity Management plan;</li> <li>- 58 in total have already been implemented (including areas with more than one plan);</li> <li>- In only one unit, the required plan will still be implemented.</li> </ul>	Independently assured by Bureau Veritas Certification
2021	<ul style="list-style-type: none"> <li>- 61 operating units analyzed;</li> <li>- 55 (88.5%) of the areas require a Biodiversity Management plan;</li> <li>- 47 in total have already been implemented (including areas with more than one plan);</li> <li>- 7 plans are being prepared and 1 is in the future proposal phase.</li> </ul>	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2022	<ul style="list-style-type: none"> <li>- 53 operational units analyzed;</li> <li>- 47 (88.7%) of the areas require a Biodiversity Management plan;</li> <li>- 48 in total have already been implemented (including areas with more than one plan);</li> <li>- 6 plans are being prepared and 3 are in the future proposal phase.</li> </ul>	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2023	<ul style="list-style-type: none"> <li>- 54 operational units analyzed;</li> <li>- 50 (92.6%) of the areas require a Biodiversity Management plan;</li> <li>- 56 in total have already been implemented (including areas with more than one plan);</li> <li>- 2 plans are being prepared and 2 are in the future proposal phase.</li> </ul>	-

## GRI - G4 MM3

**Description:** Total overburden, rocks, tailings and sludge and their associated risks

Year	Vale's Answer	Assurance
2019	<p>Total weight of mineral processing waste Iron ore Waste Rock: 235.7 million metric tons; Tailings: 55.2 million metric tons; other business 335 million metric tons of waste rock and tailings from coal mining, nickel, copper, manganese, slag (manganese and nickel alloy) and non-inert waste rock (nickel). Total: 625.9 million metric tons</p>	Independently assured by SGS ICS Certificadora Ltda.
2020	<p>Total weight of mineral processing waste Iron ore Waste Rock: 191.6 million metric tons; Tailings: 45.4 million metric tons; other business 290.7 million metric tons of waste rock and tailings from coal mining, nickel, copper, manganese, slag (manganese and nickel alloy) and non-inert waste rock (nickel). Total: 527.8 million metric tons</p>	Independently assured by Bureau Veritas Certification
2021	<p>Total weight of mineral processing waste Iron ore Waste Rock: 207.6 million metric tons; Tailings: 47.2 million metric tons; other business 260.4 million metric tons of waste rock and tailings from coal mining, nickel, copper, manganese, slag (manganese and nickel alloy) and non-inert waste rock (nickel). Total: 515.3 million metric tons</p>	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2022	<p>Total weight of mineral processing waste Iron ore Waste Rock: 208.5 million metric tons; Tailings: 46.9 million metric tons; other business 150.6 million metric tons of waste rock and tailings from coal mining, nickel, copper, manganese, slag (manganese and nickel alloy) and non-inert waste rock (nickel). Total: 406.1 million metric tons</p>	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2023	<p>Total weight of mineral processing waste <u>Iron ore</u> Waste Rock: 282.4 million metric tons; Tailings: 48.5 million metric tons; Other business* 153.0 million metric tons of waste rock and tailings from coal mining, nickel, copper, manganese, slag (manganese and nickel alloy) and non-inert waste rock (nickel). Total: 483.9 million metric tons</p>	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.



**Note:** Includes waste rock, tailings and slag from nickel, copper, manganese.  
Although the information meets both standards (GRI and SASB), only the completeness of the GRI standard was independently ensured.

## GRI - G4 MM10

Description: Number and percentage of operations with a plan to close activities.

Year	Vale's Answer			Assurance
	Number of operations	Number of operations with Closing Plan	% of operations with Closing Plan	
2019	56	56	100%	-
2020	56	56	100%	Independently assured by Bureau Veritas Certification
2021	55	55	100%	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2022	57	57	100%	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2023*	53	53	100%	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.

**Note:** the amounts referring to financial provisions for the decommissioning of assets can be verified in the company's financial statements. For 2022, the values can be found on page 77 of the IFRS, which can be downloaded from the download center on the Vale website.

\*There was a reduction in the number of operations compared to 2022 due to clusters of units.

## SASB - EM-MM-110a.2

Description: Discussion of the long and short term strategy or plan to manage Scope 1 emissions, emission reduction targets and a review of performance against these targets

Year	Vale's Answer	Assurance
2019	Vale aims to act actively to induce the neutrality of greenhouse gas emissions in the steel, metallurgical and shipping chains. In this context, the company's main commitment is to become carbon neutral in its operations (scopes 1 and 2) by 2050. To see Vale's 2030 agenda with its Climate Change target, please consult the 2019 Sustainability Report (p.42).	-
2020	Vale has invested efforts and resources to reduce greenhouse gas emissions and mitigate impacts related to climate change. The company has the following goals: (i) Become a carbon neutral mining company (Scopes 1 and 2) by 2050; (ii) Reduce absolute Scope 1 and 2 emissions by 33%, by 2030, in relation to the base year of 2017, in line with the Paris Agreement; (iii) Reduce Scope 3 net emissions by 15%, by 2035, compared to the base year of 2018; (iv) Consume 100% of electricity from renewable sources by 2025 in Brazil and, globally, by 2030; (v) Rehabilitate and protect an additional 500 thousand hectares by 2030. In 2020, total expenditure was USD 77 million, encompassing a series of initiatives. To guide the implementation and delivery of the commitments assumed in the area of climate change, Vale created the Low Carbon Forum, a group led by the CEO and composed of executive directors and their technical teams. In 2020, targets related to the Low Carbon theme represented 10% of the short-term variable compensation of employees, including the CEO and Executive Board. To achieve its commitment to reducing Scope 1 and 2 emissions, the company mapped, in 2020, more than 35 projects and uses the marginal abatement cost curve to prioritize the most efficient initiatives in terms of cost and potential for reducing emissions. emissions to be implemented. To check the Vale Carbon Neutra Strategy commitments, please consult the 2020 Integrated Report (p. 107)	-
2021	Vale's decarbonization strategy is public and based on a global policy. Vale understands the importance of providing transparency to the plan (roadmap) for delivering the targets assumed for reducing emissions and neutrality (Net-zero), which is why it has been disclosing information on the CDP since 2003, on the ESG Portal and, in 2021, published its first climate report. Our annual performance is evaluated by specialized institutions such as Sustainalytics, Climate Action 100+, RFC Ambrian, New Climate Institute and Carbon Market Watche and, in 2021, we received an "A-" rating, above the average of the mining sector, in the CDP assessment.	-
2022	Our goal of a 33% reduction of Scope 1 and 2 emissions by 2030 is intended to be aligned with the Paris Agreement goal of limiting global warming to less than 2°C and is based on 2017 emissions. The goal was established according to the SBTi methodology. To achieve our greenhouse gas emission reduction goals, we expect investments in our operations of between 4 and 6 billion dollars by 2030. In the medium and long term, we will aim to reduce GHG emissions at our operations seeking to increase by increasing the energy efficiency of processes and developing solutions based on the replacement of fossil energy sources by renewable alternatives. These may include the use of electricity and alternative fuels in trucks and locomotives, as well as the replacement of coal and other fossil fuels by renewable or low-carbon fuels in pelletizing and in our metallurgical processing. In 2017, Vale aligned with the Task Force on Climate-Related Financial Disclosures (TCFD) guidelines to understand, assess, govern and report on the impacts of the transition to a low-carbon economy and the physical impacts of climate change on our operations, and we continue to participate in existing major assessments. In 2022, we received an A- rating in the CDP Climate Change assessment for the third year in a row, an above average score for the mining sector. The CDP has updated its scoring methodology and added new questions to the document, which has made the assessment more rigorous as compared to previous years.	-

The first pillar of Vale's climate action is related to minimizing our operational emissions. We have a goal of reducing scope 1 and 2 emissions by 33% by 2030, in line with the Paris Agreement's goal of limiting the increase in global average temperature to less than 2 degrees Celsius. To achieve our commitment to reduce scope 1 and 2 emissions, we announced in 2021 that we will invest US\$4-6 billion by 2030. An important component to this reduction is achieving 100% renewable electricity consumption in our operations. We will do this in Brazil in just 4 years, by 2025, and globally, by 2030. To prioritize the most cost-effective initiatives to implement, the company has an annually updated marginal abatement cost curve (MACC). Our current portfolio of initiatives comprises more than 40 projects, prioritizing the most cost-competitive in an effort to achieve the 2030 target, based on a marginal abatement cost curve (MACC).

We are committed to the development and implementation of innovative low-carbon technologies, and about 50% of the commercial initiatives mapped out in our MACC are already entering the FEL stage.

In addition, about 80% of the mapped initiatives have positive NPV<sup>2</sup> at the shadow price of US\$ 50/tCO<sub>2</sub>e.

In 2022, our direct emissions, including fuels, industrial processes and other minor sources (Scope 1) and indirect market-based emissions related to the purchase of electricity (Scope 2) totaled 8.9 MtCO<sub>2</sub>e, a 27% reduction from the 2017 baseline. This reduction is mainly due to the decrease in production volumes compared to 2017.

However, an increase in production is expected in the near term, according to Vale's production and sales report, which could lead to an increase in emissions, given the current correlation between production volume and emissions. In the medium term, a drop in emissions is expected, in line with decarbonization efforts, which is related to the implementation of low-carbon initiatives by the PowerShift program.

In 2017, we aligned with the standards of the Task Force on Climate Change-Related Financial Disclosures (TCFD), aiming to understand, manage and report on the impacts of the transition to a low-carbon economy and the physical impacts of climate change on our operations, in addition to participating in the main existing assessments. In 2023, for the fourth year in a row, we received an A- rating in the CDP Climate Change assessment, a score above the mining industry average.

2023

## SASB - EM-MM-130a.1

Description: (1) Total Energy Consumed, (2) Percentage of Grid Electricity, (3) Percentage of Renewable Energy

Year	Vale's Answer	Assurance
2019	Renewable: 47 thousand TJ - this value corresponds to the Electric Energy Consumption (own and purchased generation) and represents 29.7% of the energy consumed in the Year 2019. non-renewable: 117 thousand TJ	-
2020	Renewable: 44 thousand TJ - this value corresponds to the Electric Energy Consumption (own and purchased generation) and represents 30.8% of the energy consumed in the Year of 2020. non-renewable: 99 thousand TJ	-
2021	Renewable: 45 thousand TJ - this value corresponds to the Electric Energy Consumption (own and purchased generation) and represents 30.7% of the energy consumed in the Year of 2021. non-renewable: 101 thousand TJ	-
2022	Renewable: 40 thousand TJ - this value corresponds to the Electric Energy Consumption (own and purchased generation) and represents 29.2% of the energy consumed in the Year of 2022. non-renewable: 97 thousand TJ	-
2023	Renewable: 45 thousand TJ - this value corresponds to the Electric Energy Consumption (own and purchased generation) and represents 30.5% of the energy consumed in the Year of 2023. non-renewable: 102 thousand TJ	-

## SASB - EM-MM-140a.1

Description: (1) Total water withdrawn, (2) Total water consumed, percentage of each in regions with High or Extremely High Baseline Water Stress

Year	Vale's Answer	Assurance
2019	Underground collection (m³): 37 million Surface capture (m³): 105 million Supply company (m³): 7 million Others (m³): 124 million Total: 237 million m³ of captured water Percentage of new water abstracted according to the region's water risk: Low: 95% Low to medium: 1% Medium to high: 3% High: 1% Extremely high: There was no uptake in regions with this risk.	-
2020	Underground collection (m³): 35 million Surface capture (m³): 103 million Supply company (m³): 6 million Total: 145 million m³ of water captured for Vale production Percentage of new water abstracted according to the region's water risk: Low: 90% Low to medium: 7% Medium to high: 2% High: 1% Extremely high: There was no uptake in regions with this risk.	-

Underground collection (m³): 42.8 million  
 Surface capture (m³): 69.8 million  
 Supply company (m³): 6.2 million  
 Stored fresh water: 4.5 million m³  
 Total freshwater abstraction for use (others): 0.9 million of m³  
 Total: 118.8 million m³ of water captured for Vale production  
 Total volume of new water abstracted according to the region's water risk:  
 Low: 95.8 million m³  
 Superficial: 66.8 million m³  
 Underground: 26 million m³  
 Supply company: 3 million of m³  
 Low to medium: 17.1 million m³  
 Surface: 2.1 million m³  
 Underground: 15 million m³  
 Medium to high: 3.2 million m³  
 Superficial: 0.178 million m³  
 Underground: 1.5 million m³  
 Supply company: 1.5 million of m³  
 High: 2 million m³  
 Supply company: 2 million of m³  
 Extremely high: 0

2021

Underground collection (m³): 28.1 million  
 Surface capture (m³): 78.4 million  
 Supply company (m³): 6.4 million  
 Stored fresh water: 4.7 million m³  
 Total: 137.9 million m³ of water captured for Vale production  
 Total volume of new water abstracted according to the region's water risk:  
**No stress: 52.5 million m³**  
 Superficial: 38.1 million m³  
 Underground: 12.5 million m³  
 Supply company: 1.9 million m³  
**Low: 33.4 million m³**  
 Superficial: 29.1 million m³  
 Underground: 1.5 million m³  
 Supply company: 2.8 million m³  
**Medium: 10.0 million m³**  
 Superficial: 0.05 million m³  
 Underground: 8.3 million m³  
 Supply company: 1.7 million m³  
**High: 1.9 million m³**  
 Superficial: 1.4 million m³  
 Underground: 0.5 million m³  
**Critical: 13.7 million m³**  
 Superficial: 9.0 million m³  
 Underground: 4.7 million m³  
**N/A: 1.2 million m³**  
 Superficial: 0.7 million m³  
 Underground: 0.5 million m³

2022

As for the total dissolved solids parameter, the concentration did not exceed 1.000 mg/L for surface water, groundwater, and drinking water in 2022.

Underground collection (m³): 25.4 million  
 Surface capture (m³): 69.5 million  
 Supply company (m³): 6.8 million  
 Stored Volume from Conventional Sources: 84.1 million m³  
 Total: 108.9 million m³ of water captured for Vale production  
 Total volume of new water abstracted according to the region's water risk:  
**No stress: 43.4 million m³**  
 Superficial: 33.2 million m³  
 Underground: 8.1 million m³  
 Supply company: 2.1 million m³  
**Low: 32.0 million m³**  
 Superficial: 27.5 million m³  
 Underground: 1.8 million m³  
 Supply company: 2.7 million m³  
**Medium: 9.3 million m³**  
 Superficial: 0.07 million m³  
 Underground: 7.5 million m³  
 Supply company: 1.8 million m³  
**High: 0.6 million m³**  
 Superficial: 0.2 million m³  
 Underground: 0.4 million m³  
**Critical: 14.2 million m³**  
 Superficial: 7.8 million m³  
 Underground: 6.4 million m³  
**N/A: 1.7 million m³**  
 Superficial: 0.6 million m³  
 Underground: 1.0 million m³  
 Supply company: 0.1 million m³

2023

As for the total dissolved solids parameter, the concentration did not exceed 1.000 mg/L for surface water, groundwater, and drinking water in 2023.

## SASB - EM-MM-140a.2

**Description:** Number of incidents of non-compliance associated with water quality licenses, standards and regulations

Year	Vale's Answer	Assurance
2019	In 2019, 8 incidents related to discharges of non-standard effluents and with consequent environmental impact of alteration of water quality were recorded.	-
2020	In 2020, 11 incidents related to non-standard effluent releases were recorded, with consequent environmental impact of changes in water quality.	-
2021	In 2021, 14 incidents related to non-standard effluent releases were recorded and with consequent environmental impact of changes in water quality.	-



2022	In 2022, 24 environmental incidents with an impact on the quality of water, soil and air were recorded.	-
2023	In 2023, 16 environmental incidents with an impact on the quality of water, soil and air were recorded.	-

#### SASB - EM-MM-150a.4

Description: Total weight of non-mineral waste generated

Year	Vale's Answer	Assurance
2022	The amount of non-mineral waste generated was 600.4 million metric tons.	-
2023	The amount of non-mineral waste generated was 729.1 million metric tons.	-

#### SASB - EM-MM-150a.5

Description: Total weight of tailings produced

Year	Vale's Answer	Assurance
2022	The total amount of tailings produced was 79.8 million metric tons.	-
2023	The total amount of tailings produced was 95.4 million metric tons.	-

#### SASB - EM-MM-150a.6

Description: Total weight of waste rock generated

Year	Vale's Answer	Assurance
2022	The total amount of waste rock generated was 293.6 million metric tons.	-
2023	The total amount of waste rock generated was 354.0 million metric tons.	-

#### SASB - EM-MM-150a.7

Description: Total weight of hazardous waste generated

Year	Vale's Answer	Assurance
2022	The total amount of hazardous waste generated was 53.5 thousand metric tons.	-
2023	The total amount of hazardous waste generated was 92.7 thousand metric tons.	-

#### SASB - EM-MM-150a.8

Description: Total weight of recycled hazardous waste

Year	Vale's Answer	Assurance
2022	The total weight of hazardous waste that was recycled was 21.3 thousand metric tons, being considered waste used in energy recovery, composting, reprocessing/recycling, re-refining, and reuse.	-
2023	The total weight of hazardous waste that was recycled was 42.8 thousand metric tons, being considered waste used in energy recovery, composting, reprocessing/recycling, re-refining, and reuse.	-

#### SASB - EM-MM-150a.9

Description: Number of significant incidents associated with hazardous materials and waste management

Year	Vale's Answer	Assurance
2022	In 2022 there were 4 significant incidents associated with hazardous materials and waste management, all identified as changes in soil quality.	-
2023	In 2023 there were 3 significant incidents associated with hazardous materials and waste management, all identified as changes in soil quality.	-

#### SASB - EM-MM-150a.10

Description: Description of waste and hazardous material management policies and procedures for active and inactive operations

Year	Vale's Answer	Assurance
2022	<p>We adopted the following actions to control and minimize risks related to waste management processes and which must be included in the PGRSs of the units according to PGS-001719:</p> <ul style="list-style-type: none"> <li>- Procedures for minimizing generation, prioritizing hazardous and non-hazardous waste of large generation;</li> <li>- Traceability from generation to final destination, with documentation control;</li> <li>- Adequate storage;</li> <li>- Valuation of waste in order to reduce its final disposal in landfills;</li> <li>- Appropriate destination, with environmental assessment of waste recipients, reducing risks related to improper disposal.</li> </ul> <p>In addition, all units have their own Waste Management Programs, where processes and the respective waste generated are surveyed. From this survey, a critical analysis is carried out to establish the priority, considering quantity and dangerousness. Among the initiatives identified in the operating units, we have:</p> <ul style="list-style-type: none"> <li>- Regeneration of refrigeration oils in the maintenance process of heavy equipment, avoiding the generation of contaminated oil residue.</li> <li>-Initiatives to reduce packaging generation by supplying products in bulk.</li> <li>-Optimization of the maintenance of conveyor belts and off-road tires, increasing their useful life.</li> </ul>	-

We adopted the following actions to control and minimize the risks related to waste management processes and that must be included in the PGRSs of the units according to PGS-001719 regulations:

- Procedures to minimize generation, prioritizing hazardous and non-hazardous waste of large generation;
- Reduction of waste hazards;
- Proper storage;
- Traceability from generation to final destination, with documentation control;
- Valorization of waste in order to reduce its final disposal in landfills;
- Proper disposal, with environmental assessment of waste recipients, reducing the risks related to improper disposal.

In addition, all units have their own Waste Management Programs, where the processes and their respective waste generated are surveyed. From this survey, a critical analysis is carried out to establish the priority, considering quantity and hazard. Among the initiatives identified in the operational units, we can mention:

- Regeneration of refrigeration oils in the maintenance process of heavy equipment, avoiding the generation of contaminated oil residue.
- Initiatives to reduce the generation of packaging through the supply of products in bulk.
- Optimization of the maintenance of conveyor belts and off-road tires, increasing the service life.

And as circularity measures we can mention:

- Project to recover tot-bins used to supply liquid products to Vale, forwarding them to companies that recondition these packages and reinsert them into Vale's supply chain.
- Processing of the oily sludge as re-refining, being inserted back into the chain, thus no longer being destined for co-processing.
- Beginning of the use of the industrial thermal compost to compost the food waste generated in the restaurants of Carajás/PA and São Luis/MA and which are reused in the manufacture of fertilizers, reducing the volume of waste destined for the landfill.

2023

## SASB - EM-MM-160a.1

**Description:** Description of environmental management policies and practices for active sites

Year	Vale's Answer	Assurance
2019	Throughout 2019, Vale maintained its activities in the Sustainability area, through initiatives to mitigate and compensate for the impacts of its activities, in addition to the development of environmental actions and the creation of value for communities. Vale adopts an integrated territory management approach, incorporating and applying concepts related to the Impact Mitigation Hierarchy (HMI) focusing on the management of risks and impacts, both potential and detected, considering important attributes of the territory and working for the continuous improvement of its Law Suit. Initiatives aimed at reducing atmospheric emissions, improving the disposal of its waste, improving the management of water resources and environmental conservation stand out.	-
2020	Vale depends on natural resources and ecosystem services, such as water supply and climate regulation. At the same time, it generates impacts on biodiversity and on these services. This demonstrates the importance of natural capital for the business. Management of the topic is based on the guidelines of the Sustainability Policy and prioritizes risk analysis, measures to prevent and mitigate impacts, neutralizing impacts on biodiversity, in addition to creating a positive environmental and social impact on the locations of operations. For more information, please access the 2020 Integrated Report.	-
2021	We remain committed to increasingly reducing our impacts, in addition to recovering and compensating the areas and habitats we affect, in line with our long-term goal of neutralizing impacts on biodiversity in new projects. We adopt an integrated territory management approach and, in the particular case of biodiversity, incorporating and applying concepts referring to the Impact Mitigation Hierarchy (HMI) in the search for a Neutral Net Impact (in English, No Net Loss) in the territories in which we operate. In the risk and impact management work, specific diagnoses are prepared, ranging from the planning of entry into new territories to the final design of projects, aiming to assess possible interference in areas of natural heritage, protected areas, as well as sensitive habitats and species. All expansions of operations and new projects are preceded by environmental impact studies in accordance with the rules and regulations of each country and region in which they operate. Information on Biodiversity Management plans, please consult the 2021 Integrated Report and the MM2 indicator in the "GRI - Environmental" tab.	-
2022	Aiming at integrating nature with our activities and our impacts, we work on different lines of action. The reduction and management of our impacts is the first front, seeking new technologies and methods that can avoid and reduce impacts on nature and, when this is not possible, recover and compensate. Biodiversity management in our operations and projects is based on the stages of the Impact Mitigation Hierarchy (HMI). All new projects located in areas of high value for biodiversity must start at the planning stage with a biodiversity risk assessment, culminating with the prioritization of attributes and the elaboration of a Biodiversity Action Plan. These guidelines are part of a normative document and are in line with our commitment to neutralize impacts in order to reduce the significant loss of biodiversity in new projects and expansions. In addition, all expansions of operations and new projects are preceded by environmental impact studies in accordance with the rules and regulations of each country and region in which they operate. Scientific research and innovation are essential to seek increasingly effective processes and methods to manage our impacts, recover areas and restore habitats, in addition to conserving increasingly significant and effective areas for the maintenance of habitats and species. Information on Biodiversity Management plans, please refer to the 2022 Integrated Report and the MM2 indicator in the "Environmental Data" tab.	-
2023	We have made public commitments to minimize them, through the adoption of more efficient and sustainable processes and new control technologies. We aim to go beyond the obligations set out in the legislation, in line with our global strategy to lead the transition to low-carbon mining. We have a special attention to reducing the impacts caused by atmospheric emissions on communities near operations. We adopt a mitigation hierarchy to predict and avoid impacts arising from changes in air quality or to minimize them, when it is not possible to avoid and, in cases where residual impacts remain, to compensate/neutralize the risks and impacts to workers, affected communities and the environment. We seek to reduce our emissions through a series of measures, such as improving control systems, testing dust suppressant products, and improving management processes, among others. The equipment used to monitor emissions and air quality makes it possible to act quickly in case of deviations. In compliance with environmental constraints, we also maintain and operate air quality monitoring networks in some operations and nearby communities. These initiatives support the adoption of control systems, monitoring plans and emissions management. Biodiversity is a cross-cutting theme when it comes to nature. We map our impacts by assessing the interface of our operations with areas of high value for biodiversity. This assessment supports the prioritization of our actions, focusing on the management of impacts and risks, as well as the mapping of opportunities. In 2019, Vale launched its 2030 agenda, which sets goals of reducing pressures on nature, reducing our emissions and capturing new water, as well as the pursuit of positive results beyond impact management. Among them are the Forest Goal – to recover and protect 500,000 hectares beyond our walls, and the Water Goal – to achieve a further 7% reduction in our specific water use, both by 2030. These are voluntary commitments, which go beyond our legal obligations and our borders, seeking to bring together economic development with environmental protection and well-being to the communities where we operate.	-

## SASB - EM-MM-160a.2

**Description:** Percentage of mine sites where acid rock drainage is present: (1) predicted to occur, (2) actively mitigated, and (3) under treatment or remediation

Year	Vale's Answer	Assurance
2019	Vale has some acid drainage processes in its operations, where risks are being managed and controlled. In addition to operational management, there is an integrated corporate action to anticipate critical issues and avoid/minimize environmental impacts at all stages of the projects' life cycle.	-
2020	Vale has some acid drainage processes in its operations, where risks are being managed and controlled. In addition to operational management, there is an integrated corporate action to anticipate critical issues and avoid/minimize environmental impacts at all stages of the projects' life cycle.	-

2021	<p>Vale has some acid drainage processes in its operations, where risks are being managed and controlled.</p> <p>Vale has initiatives to prevent and anticipate critical issues and prevent and minimize environmental impacts at all stages of the project's life cycle, as well as studies to fully understand the process of generating acid mine drainage and evolve towards more assertive solutions.</p> <p>In order to improve the risk management of this topic, Vale is developing corporate training in partnership with a University of Ouro Preto in the State of Minas Gerais to implement a guide for acid mine drainage and establish a technical group for a multidisciplinary approach. .</p>	-
2022	<p>Vale has some acid drainage processes at operational sites, where risks are being managed and controlled. Over the years, the sites in operation have adopted initiatives to prevent and control acid drainage, considering local realities.</p> <p>This year, Vale will publish a Global Acid Drainage Management Model. We will have a standardized approach for new projects and operational site, considering forecasting, prevention and mitigation throughout the production chain: Geology, Extraction, Mineral Processing, Geotechnics and Environment, in addition to stages such as dam decommissioning and mine closure. The implementation of this new process will be measured by a scale of maturity and adherence to the procedure.</p>	-
2023	<p>Vale implements several procedures related to acid drainage in its operations, with a focus on the management and control of associated risks. It currently has an internal normative standard that deals with the management of acid drainage in the company, based on the best national and international protocols. The operating sites adopt specific initiatives to prevent, manage and mitigate the potential generation of acid drainage, taking into account the particularities of each region. These actions are part of Vale's ongoing commitment to being a sustainable and safe mining company.</p> <p>Percentage of mine sites where there is acid drainage of rocks:</p> <p>(1) Predicted to occur: 33% (6 sites with potential out of 18)</p> <p>(2) actively mitigated: 83% (5 sites with mitigated DAM, out of 6 sites with potential)</p> <p>(3) undergoing treatment or remediation: 75% (3 sites with treatment or remediation measures from 4 with areas contaminated by DAM)</p>	-

#### SASB - EM-MM-540a.1

**Description:** Tailings storage facility inventory table: (1) facility name, (2) location, (3) ownership status, (4) operational status, (5) construction method, (6) maximum allowable capacity storage, (7) current amount of tailings stored, (8) consequence classification, (9) date of most recent independent technical review, (10) material discoveries, (11) mitigation measures, (12) preparedness plan and site-specific emergency response

Year	Vale's Answer	Assurance
2022	For information on dams, see the Dams tab on the ESG Portal.	-
2023	For information about Vale's Tailings Storage Structures, please visit the Vale Tailings Storage Facilities Information Portal	-
Links:	<p><a href="#">Vale Tailings Storage Facilities Information Portal: Iron Ore Solutions</a>      <a href="#">Vale Tailings Storage Facilities Information Portal: Metals for Energy Transition</a>      <a href="#">ESG Portal: Dams</a></p>	

#### SASB - EM-MM-540a.2

**Description:** Summary of tailings management systems and governance structure used to monitor and maintain the stability of tailings storage facilities

Year	Vale's Answer	Assurance
2022	For information about dam control and management, see the Dams tab in the ESG Portal	-
2023	For information about dam control and management, see the Dams tab in the ESG Portal.	-
Links:	<a href="#">Dams - ESG Portal</a>	

#### SASB - EM-MM-540a.3

**Description:** Approach to developing Emergency Preparedness and Response plans (EPRPs) for tailings storage facilities

Year	Vale's Answer	Assurance
2022	<p>In Brazil, all dams classified with high associated potential damage (DPA) have a technical document that defines immediate actions that should take place in case of emergency . The Emergency Action Plans for Mining Dams (PAEBM), developed according to legal criteria and filed with the Municipal and State Civil Defense bodies, determines that if emergency level 2 is reached, Vale must should undertake preventive relocation of the population located in Self-Rescue Zones to safe areas outside the floodplain.</p> <p>Vale has teams dedicated in implementing the PAEBMs. In order to ensure understanding of the actions outlined in the PAEBM and to clarify how to proceed in an emergency situation, Orientation Seminars/Public Meetings and emergency drills are held annually with the participation of communities located in the Self-Rescue Zones (ZAS) downstream of the dams, employees, civil defense agencies and municipalities. In 2022, 21 Orientation Seminars/Public Meetings and 17 external emergency drills were held.</p> <p>For further information see the dam control and management tab on the ESG Portal <a href="https://www.vale.com/web/esg/control-and-management-of-dams">https://www.vale.com/web/esg/control-and-management-of-dams</a></p>	-
2023	<p>The Emergency Action Plans for Mining Dams (PAEBM/PAE) are technical documents that define immediate actions in cases of emergency and aim to provide measures to minimize risks to communities and environmental impacts and cultural heritage. All of Vale's dams in Brazil, included in the National Dam Safety Policy (PNSB), as well as all dams included in the Minas Gerais State on Dam Safety (PESB), have PAEBM/PAE.</p> <p>Each plan is drawn up, developed, implemented and managed in accordance with the requirements of the law and the emergency guidelines of the civil protection and defence bodies. The PAEBMs are filed with the city halls and Civil Defenses (municipal and state) and are available for consultation by the external public here (insert link <a href="https://vale.com/pt/paebm">https://vale.com/pt/paebm</a>).</p> <p>In addition, Vale is committed to transparency, the dissemination of good practices in the sector and compliance with legislation. For this reason, we maintain a routine of dialogue with the communities about dam safety and risk prevention. In order for mining to be carried out safely, we carry out several prevention actions, such as emergency signals, drills, siren tests, public meetings and training. In 2023, we had:</p> <ul style="list-style-type: none"> <li>- 19 municipalities involved in PAEBM actions;</li> <li>- 25 external simulated exercises with the participation of the communities;</li> <li>- 32 orientation seminars/public meetings with communities;</li> <li>- 116 thousand people registered in emergency plans;</li> <li>- 16 thousand buildings visited in order to invite the population to participate in seminars and public meetings and other actions related to dam safety.</li> </ul>	-
Links:	<a href="#">Vale - PAEBM</a>	



## Social

Indicator	Description	Location
GRI 2-7	Employees	<a href="#">Social Data</a>
GRI 2-8	Workers who are not employees	<a href="#">Social Data</a>
GRI 401-1	New employee hires and employee turnover	<a href="#">Social Data</a>
GRI 401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	<a href="#">Social Data</a>
GRI 401-3	Parental leave	<a href="#">Social Data</a>
GRI 402-1	Minimum notice periods regarding operational changes	<a href="#">Social Data</a>
GRI 403-1	Occupational health and safety management system	<a href="#">Social Data</a>
GRI 403-2	Hazard identification, risk assessment and incident investigation	<a href="#">Social Data</a>
GRI 403-3	Occupational health services	<a href="#">Social Data</a>
GRI 403-4	Worker participation, consultation and communication on occupational health and safety	<a href="#">Social Data</a>
GRI 403-5	Worker training on occupational health and safety	<a href="#">Social Data</a>
GRI 403-6	Promotion of worker health	<a href="#">Social Data</a>
GRI 403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	<a href="#">Social Data</a>
GRI 403-8	Workers covered by an occupational health and safety management system	<a href="#">Social Data</a>
GRI 403-9	Work-related injuries	<a href="#">Social Data</a>
GRI 403-10	Work-related ill health	<a href="#">Social Data</a>
GRI 404-1	Average hours of training per year, per employee	<a href="#">Social Data</a>
GRI 404-2	Programs for upgrading employee skill and transition assistance programs	<a href="#">Social Data</a>
GRI 404-3	Percentage of employees receiving regular performance and career development reviews	<a href="#">Social Data</a>
GRI 405-1	Diversity of governance bodies and employees	<a href="#">Social Data</a>
GRI 405-2	Ratio of basic salary and remuneration of women to men	<a href="#">Social Data</a>
GRI 406-1	Incidents of discrimination and corrective actions taken	<a href="#">Social Data</a>
GRI 407-1	Operations and suppliers where the right to freedom of association and collective bargaining may be at risk	<a href="#">Social Data</a>
GRI 408-1	Operations and suppliers at significant risk for incidents of child labor	<a href="#">Social Data</a>
GRI 409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	<a href="#">Social Data</a>
GRI 410-1	Security personnel trained in human rights policies or procedures	<a href="#">Social Data</a>
GRI 411-1	Incidents of violation involving rights of indigenous peoples	<a href="#">Social Data</a>
GRI 413-1	Operations with local community engagement, impact assessments, and development programs	<a href="#">Social Data</a>
GRI 413-2	Operations with significant actual and potential negative impacts on local communities	<a href="#">Social Data</a>
GRI 414-1	New suppliers that were screened using social criteria	<a href="#">Social Data</a>
GRI 414-2	Negative social impacts in the supply chain and actions taken	<a href="#">Social Data</a>
GRI 415-1	Political contributions	<a href="#">Social Data</a>
GRI G4 MM4	Number of strikes and lockouts lasting more than one week, broken down by country	<a href="#">Social Data</a>
GRI G4 MM5	Total number of operations located in or adjacent to indigenous peoples' territories, and number and percentage of operations or locations where there are formal agreements with communities of indigenous peoples	<a href="#">Social Data</a>
GRI G4 MM6 e MM7	Number and description of significant conflicts relating to land use, customary rights of local communities and indigenous peoples, and the extent to which mechanisms for escalating demands and grievances were used to resolve these conflicts.	<a href="#">Social Data</a>
GRI G4 MM8	Number and percentage of operational areas where artisanal and small-scale mining occurs, including adjacent areas; the associated risks and actions taken to manage and mitigate them	<a href="#">Social Data</a>
GRI G4 MM9	Locations where resettlements took place, the number of households resettled in each and how their livelihoods were affected in the process	<a href="#">Social Data</a>
GRI G4 EM-MM-210a.1	Percentage of (1) proven reserves and (2) probable reserves in or near conflict areas	<a href="#">Social Data</a>
GRI G4 EM-MM-210a.2	Percentage of (1) proven reserves and (2) probable reserves on or near indigenous lands	<a href="#">Social Data</a>

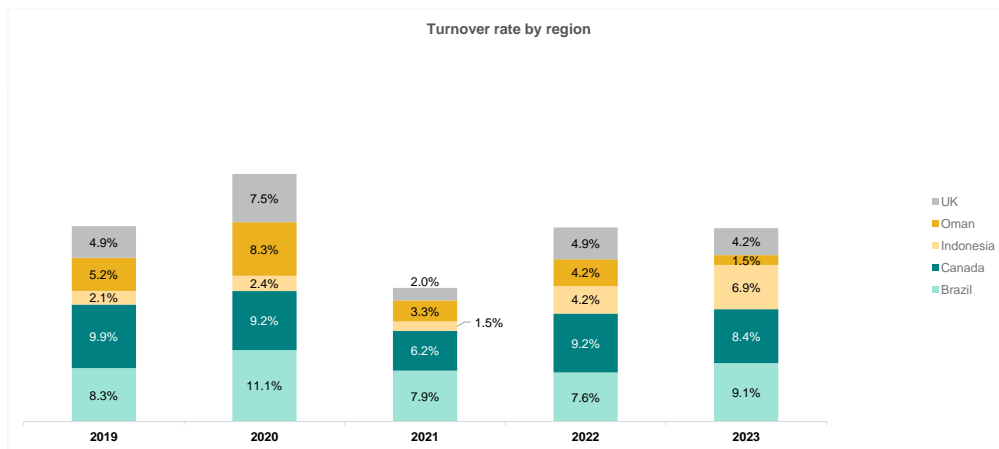
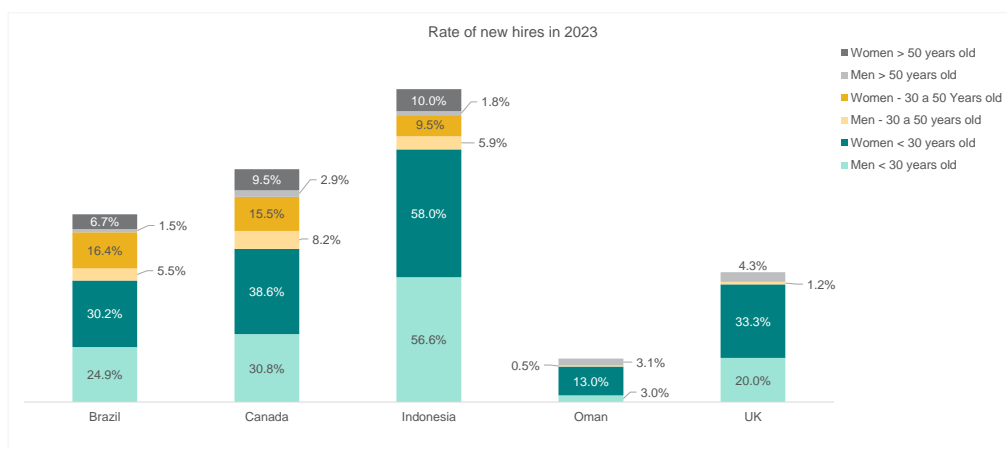
GRI G4 EM-MM-210a.3	Discussion of engagement processes and due diligence practices with respect to human rights, indigenous rights and operation in conflict areas	<a href="#">Social Data</a>
GRI G4 EM-MM-210b.1	Discussion of the process for managing risks and opportunities associated with community rights and interests	<a href="#">Social Data</a>
GRI G4 EM-MM-210b.2	Number and duration of non-technical delays	<a href="#">Social Data</a>
GRI G4 EM-MM-310a.1	Percentage of active workforce covered by collective bargaining agreements, broken down by US and foreign employees	<a href="#">Social Data</a>
GRI G4 EM-MM-310a.2	Number and duration of strikes and lockouts	<a href="#">Social Data</a>
GRI G4 EM-MM-320a.1	(1) Mine Safety and Health Administration (MSHA) total incidence rate, (2) fatality rate, (3) near miss frequency rate (NMFR), and (4) average hours of health, safety, and emergency response training emergencies for (a) full-time employers and (b) contract employees.	<a href="#">Social Data</a>

## Social

## GRI 401-1 (2016)

Description: New employee hires and employee turnover

Year	Vale's answer							Assurance
	Hires	Turnover rate by Gender		Turnover Rate by Age Group			Turnover rate	
	Total	Men	Women	Under 30 years old	Between 30 and 50 years old	Over 50 years old	Total	
2019	6,529	8.2%	12.1%	14.0%	7.0%	10.0%	9.0%	-
2020	9,187	9.3%	19.7%	20.7%	8.4%	12.6%	10.7%	-
2021	6,485	7.0%	14.5%	16.4%	7.0%	4.8%	8.2%	-
2022	4,912	5.2%	15.2%	14.1%	5.6%	8.7%	7.1%	-
2023	6,888	6.9%	15.3%	21.7%	7.1%	6.3%	8.8%	-



## GRI 401-2 (2016)

Description: Benefits provided to full-time employees that are not provided to temporary or part-time employees

Year	Vale's Answer	Assurance
2019	Medical and dental assistance is among the main benefits granted, as well as life insurance, private pension plan, personal accident insurance, transportation allowance, educational training and food allowance.	Independently assured by SGS ICS Certificadora Ltda.
2020	Medical and dental care is among the main benefits granted, as well as life insurance, private pension plan, personal accident insurance, transportation allowance, educational training, food allowance and housing subsidy (for employees located in remote areas).	Independently assured by SGS ICS Certificadora Ltda.

2021	Medical and dental assistance is among the main benefits granted, as well as life insurance, private pension, personal accident insurance, educational training, annual incentive plan and subsidy for the purchase of medicines.	-
2022	Medical and dental care is among the main benefits granted, as well as life insurance, private pension, personal accident insurance, educational training, annual incentive plan.	-
2023	<p>At Vale, medical and dental care is among the main benefits granted, as well as life insurance, private pension, personal accident insurance, educational training, annual incentive plan and subsidy for the purchase of medicines.</p> <p>For Brazil, Vale has a series of initiatives and benefits structured to promote a better quality of life and well-being of its employees.</p> <p>For the physical health care of Vale employees, we offer the benefits of Medical Assistance, Dental Assistance, Pharmacy Assistance, Vaccines, Benefits for PWDs, Incentive to physical activity, among others. Occupational health programs are also available, such as Chronic Management, Health Campaigns, Health Screenings, Fatigue and Ergonomics Program and Occupational Hygiene Program.</p> <p>For emotional health care, we offer Minas por Mentres: Vale's initiative that focuses on the prevention, promotion and rehabilitation of employees, and operates based on four major pillars: literacy, care, intervention and governance. Within this initiative, we have a series of employee support tools such as self-assessments in emotional health, proactive contact with psychologists, training of employees, leaders and health professionals on emotional health issues, psychoeducation materials, individual follow-ups of leaves, conversation circles, lectures, in addition to the benefits of Pharmacy, Psychology and Psychiatry Online Aid, the PAE (employee support program) and wellness apps.</p> <p>To take care of financial well-being, employees have programs and benefits for their organization in the short and long term, such as supplementary private pension, life insurance, funeral assistance, transportation, ergonomic assistance, food vouchers, meal vouchers and vacation loans. With a focus on promoting financial and social security education, it is made available by Valia, a platform where employees and their dependents can take financial profile tests and access learning paths according to their life context.</p> <p>Finally, in order to take care of social and family well-being, we will offer the stork program for pregnant women, extended maternity and paternity leave, daycare/nanny assistance, incentive to professional training, teleworking, Christmas benefits consisting of a basket and toy card.</p>	-

**Note:** In Brazil, benefits are offered to all own employees, including own employees for a fixed period (temporary) or part-time (4/6 hour shift). In some countries, such as Canada, there are differences in benefits for temporary employees or those who work part-time if the temporary contract is less than one year.

Benefits offered to employees, by work regime (2023)				
Benefits	Brazil		Canada	
	Permanent	Temporary	Permanent	Temporary
Health care	Offered	Offered	Offered	Not offered
Dental care	Offered	Offered	Offered	Not offered
Life Insurance	Offered	Offered	Offered	Not offered
Private Pension Plan	Offered	Offered	Offered	Not offered
Personal Accident Insurance	Offered	Offered	Offered	Not offered
Education	Offered	Offered	Offered	Not offered*
Annual Incentive Plan	Offered	Offered	Offered	Not offered
Subsidy for the purchase of medicines	Offered	Offered	Offered	Not offered

**Note:** \* Offered to some temporary employees if the company determines that training is required for the position.

### GRI 401-3 (2016)

**Description:** Parental leave

Year	Vale's Answer	Assurance
2019	In 2019, maternity and paternity leave complied with local legislation. The retention rates of employees who returned to work after maternity and paternity leave in Brazil were 95.6% and 88.5%, respectively. Still in Brazil, the company announced its adhesion to Empresa Cidadã, which extends maternity leave to 180 days and paternity leave to 20 days. With the extension of the license, the employees will be able to breastfeed their baby in those first 6 months of life.	Independently assured by SGS ICS Certificadora Ltda.
2020	The retention rates of employees returning to work after maternity and paternity leave in Brazil in 2020 were 100% and 99.6%, respectively.	Independently assured by Bureau Veritas Certification
2021	<p>The retention rates of employees returning to work after maternity and paternity leave in Brazil in 2021 were 98% for both leaves.</p> <p>Maternity leave:  Employees entitled in the reference year: 13,439  Employees who took maternity leave in the reference year: 498  Employees who returned to work after maternity leave ended: 487  Employees who returned to work after leave ended and remained employed twelve months after returning to work: 388</p> <p>Paternity leave:  Employees entitled in the reference year: 52,542  Employees who took leave in the reference year: 2012  Employees who returned to work after leave ended: 1,968  Employees who returned to work after leave ended and remained employed twelve months after returning to work: 2,110</p>	-
2022	<p>The retention rates of employees returning to work after maternity and paternity leave in Brazil in 2022 were 99% for both leaves.</p> <p>Maternity leave:  Female employees entitled in the reference year: 15,113  Female employees who took maternity leave in the reference year: 588  Female employees who returned to work after the end of maternity leave: 582  Female employees who returned to work after their leave ended and remained employed twelve months after their return to work: 471</p> <p>Paternity leave:  Male employees entitled in the reference year: 51,060  Male employees who took leave in the reference year: 1,713  Male employees who returned to work after the end of leave: 1,690  Male employees who returned to work after their leave ended and remained employed twelve months after their return to work: 2,048</p>	-

	The retention rates of employees returning to work after maternity and paternity leave in Brazil, in 2023, were 75% for maternity leave and 93% for paternity leave. Maternity leave: Female employees entitled in the reference year: 17,132 Female employees who took maternity leave in the reference year: 845 Female employees who returned to work after the end of maternity leave: 630 Female employees who returned to work after their leave ended and remained employed twelve months after their return to work: 603 Paternity leave: Male employees entitled in the reference year: 49,730 Male employees who took leave in the reference year: 1,740 Male employees who returned to work after the end of leave: 1,620 Male employees who returned to work after their leave ended and remained employed twelve months after their return to work: 1,539	-
--	--	---

## GRI 402-1 (2016)

**Description:** Minimum notice periods regarding operational changes

Year	Vale's Answer	Assurance
2019	Vale communicates about structural changes or changes in the company's processes four weeks in advance, on average. This minimum notification period is provided for in collective bargaining agreements of 33% of the projects that reported this information, in 2019.	Independently assured by SGS ICS Certificadora Ltda.
2020	Collective agreements entered into with all unions in Brazil establish the need to notify unions in advance of relevant operational changes. The agreements do not establish a minimum advance period for this communication, which may vary depending on the case. As an estimate, we work with 4 weeks on average. For countries like Canada, Oman and New Caledonia we also have an average of 4 weeks. Mozambique and Paraguay an average of 2 weeks. For the other countries where Vale is present, the average was not informed.	-
2021	Collective agreements entered into with all unions in Brazil establish the need to notify unions in advance of relevant operational changes. The agreements do not establish a minimum advance period for this communication, which may vary depending on the case. As an estimate, we work with 4 weeks on average. For countries like Canada, Oman and the United Kingdom we also have an average of 4 weeks. Mozambique, Malaysia and Paraguay an average of 2 weeks. For the other countries where Vale is present, the average was not informed.	-
2022	Collective agreements entered into with all unions in Brazil establish the need to notify unions in advance of relevant operational changes. The agreements do not establish a minimum advance period for this communication, which may vary depending on the case. As an estimate, we work with 4 weeks on average. For countries like Oman and the UK we also have an average of 4 weeks, for Canada an average of 5 weeks and for Malaysia an average of 2 weeks. For the other countries where Vale is present, the average was not informed.	-
2023	Collective agreements entered into with all unions in Brazil establish the need to notify unions in advance of relevant operational changes. The agreements do not establish a minimum advance period for this communication, which may vary depending on the case. As an estimate, for Brazil, we work with 4 weeks on average. For countries like Oman and the UK we also have an average of 4 weeks, for Canada an average of 5 weeks and for Malaysia an average of 2 weeks. For the other countries where Vale is present, the average was not informed.	-

## GRI 403-1 (2018)

**Description:** Occupational health and safety management system

Year	Vale's Answer	Assurance
2020	Vale's Health, Safety and Operational Risk management processes are part of the Vale Production System (VPS), which establishes policies, principles, criteria and procedures for managing hazards and risks, as well as for the environmental aspects and impacts arising from activities, products and services. The VPS is fully aligned with ISO standards for operational health and safety (SSO) and environmental management and contains technical, management and leadership requirements according to the PDCA model, based on the Planning (Plan) / Execution (Do) / Verification (Check) and Action (Act). The VPS is being implemented in 100% of the company by 2021.	Independently assured by Bureau Veritas Certification
2021	Vale's Health, Safety and Operational Risk management processes are part of the Vale Production System (VPS), which establishes policies, principles, criteria and procedures for managing hazards and risks, as well as for the environmental aspects and impacts arising from activities, products and services. The VPS was implemented at Vale following the guidelines of the standards: ISO 9001; ISO 14001; ISO 45001 and; ISO 31000. The VPS is fully aligned with the ISO 45001 standards, a norm relating to the operational health and safety (SSO) and environmental management system and contains technical, management and leadership requirements according to the PDCA model, based on the Planning stages (Plan) / Execution (Do) / Verification (Check) and Action (Act). The VPS is being implemented in 100% of the company and covers all workers (employees and third parties).	-
2022	Vale's Health, Safety and Operational Risk management processes are part of the Vale Production System (VPS), which establishes policies, principles, criteria and procedures for managing hazards and risks, as well as for the environmental aspects and impacts arising from activities, products and services. The VPS was implemented at Vale following the guidelines of the standards: ISO 9001; ISO 14001; ISO 45001 and; ISO 31000. The VPS is fully aligned with the ISO 45001 standards, a norm relating to the operational health and safety (SSO) and environmental management system and contains technical, management and leadership requirements according to the PDCA model, based on the Planning stages (Plan) / Execution (Do) / Verification (Check) and Action (Act). The VPS is being implemented in 100% of the company and covers all workers (employees and third parties).	-
2023	Vale's Health, Safety, Environment and Operational Risk (HSE) management processes are integrated with Vale's Production System (VPS) management system, which establishes policies, principles, criteria and procedures for the management of hazards, risks, as well as environmental aspects and impacts arising from the company's activities, products and services. The implementation of VPS at Vale follows the guidelines of ISO 9001, ISO 14001, ISO 45001 and ISO 31000. VPS is fully aligned to ISO 45001 and ISO 14001 standards, which covers the occupational health and safety (OHS) and environmental (AM) management system. This system incorporates technical, management and leadership requirements, following the PDCA model (Plan, Do, Check, Act). The implementation of VPS is underway in 100% of the company, covering all workers, both employees and contractors.	-

**Note:** As of 2020, Vale is following the GRI 403 Occupational Health and Safety (2018) standard.

## GRI 403-2 (2018)

**Description:** Hazard identification, risk assessment, and incident investigation

Year	Vale's Answer	Assurance
------	---------------	-----------



	<p>Vale uses a set of methodologies for Identifying Hazards and carrying out Risk Analyzes that are appropriate and applicable to its operations. Based on this process, Critical Controls are defined that aim to keep risks at acceptable levels, guaranteeing the safety and integrity of all employees, third parties and the community in which we operate. Between 2019 and 2020, an operational risk scan (HIRA) was updated, aimed at scenarios classified as Unwanted Material Events (MUE) - high consequence incidents - that require the highest level of attention, which can even be classified as a risk of business. Other highlights were the revisions of the RAC's (Requirements for Critical Activity) and the PTS (Safe Work Permit), with the objective of guaranteeing the best practices in carrying out the tasks considered critical. The quality of this process is accompanied by the governance structure, consisting of 3 independent lines of defense regarding the qualification process. Vale has a complete portfolio of resources aimed at training, qualification and certification required for the safe and effective execution of our operations. It covers all our employees and third parties, considering the degree of risk and complexity of the activities and meeting the minimum requirements for the function.</p> <p>For continuous improvement, the VPS system (Vale Production System) provides in its process an evaluation of the management model and results, where it is established that all processes must undergo self-evaluations and formal evaluations to identify opportunities for improvement in the use of the VPS and evaluate the achieved results. In addition to this point, external and internal audits are carried out in order to verify compliance with standards, certifications and legal requirements.</p>	
2020	<p>All own workers and collaborators are encouraged to proactively bring risk scenarios identified in their daily assignments to their supervisors and managers, in order to mitigate and control them. In cases where it is impossible to take these situations directly to the local person in charge, all employees and collaborators have access to the internal Whistleblower Channel, managed by the Ombudsman, where it is possible to anonymously report risk scenarios that may exist. In addition to this point, everyone has access to the internal Whistleblower Channel, managed by the Ombudsman, where an employee can, anonymously, inform risk scenarios that may exist.</p> <p>Vale has in its Health and Safety policy several documents and processes that advocate the protection of all workers and collaborators, such as the HIRA - Hazard Identification and Risk Analysis for Unwanted Material Events (MUEs), the guidelines for Risk Analysis of Tasks, guidelines for managing health, safety and environmental risks, corporate guidelines for preventing occupational risks, among others. We implemented the Golden Rules in 2019, a set of tangible and non-negotiable behaviors to minimize the main risks that can cause accidents with a high potential for severity in our company. Among these points is the right of refusal, in which any worker who feels that his/her integrity and that of his/her colleagues are at risk, can refuse to carry out a certain activity.</p> <p>Regarding the investigation of accidents that occurred, Vale, from 2019, defined the SOLOGIC methodology, based on a tree of causes, as official for accident analysis. This methodology became mandatory for all high potential events. In addition to this point, this methodology also defines the effectiveness of the proposed actions, considering the proposed control hierarchy, such as the HIRA - Hazard Identification and Risk Analysis for Undesired Material Events (MUEs), the Guidelines for Task Risk Analysis, among others.</p>	Independently assured by Bureau Veritas Certification
2021	<p>Vale uses a set of methodologies for Identifying Hazards and carrying out Risk Analyzes that are appropriate and applicable to its operations. Based on this process, Critical Controls are defined that aim to keep risks at acceptable levels, guaranteeing the safety and integrity of all employees, third parties and the community in which we operate. Among these methodologies, the HIRA stands out, which is characterized as a systematic and continuous assessment of operational risks, directed towards scenarios classified as Unwanted Material Events (MUE). Other highlights were the revisions of the RAC's (Requirements for Critical Activity) and the PTS (Safe Work Permit), with the objective of guaranteeing the best practices in carrying out the activities considered critical. See some of them below:</p> <ul style="list-style-type: none"> <li>• Hazard Identification and Risk Analysis (HIRA): mapping that identifies hazards and risk analysis, describes scenarios for accidents, existing protections and the criticality of risks to people, the environment, assets and the business;</li> <li>• Safe Work Permit (PTS): also called "Contract for Life", it is an operational security process with protocols and procedures that act as the last protection barrier before carrying out the activity;</li> <li>• Critical Activity Requirements (RAC): are intended to preserve people's lives during the execution of activities classified as critical. This categorization is based on the history of fatalities and serious accidents that occurred in the company and in the mining sector, including the risk of drowsiness;</li> <li>• Golden Rules: these are rules that meet the basic requirements for carrying out any activity at Vale and do not replace other health and safety requirements.</li> <li>• Exposure to health risks: global corporate guideline for the management and creation of programs to monitor and control the occupational health of employees, which include quantitative objectives for reducing health risk scenarios in the medium term.</li> </ul> <p>Vale has a process for identifying, recording, communicating, investigating and analyzing unwanted events. The SOLOGIC methodology, based on a tree of causes, is one of the recommended methodologies in this process, and mandatory for all high potential events. This process also provides for comprehensive actions and verification of the effectiveness of the proposed actions.</p> <p>Governance over the risk management process is made up of 3 independent lines of defense, with clearly defined roles and responsibilities for this management. Vale has a complete portfolio of resources aimed at training, qualification and certification required for the safe and effective execution of our operations. It covers all our employees and third parties, considering the degree of risk and complexity of the activities and meeting the minimum requirements for the function. For continuous improvement, the VPS system (Vale Production System) provides in its process an evaluation of the management model and results, where it is established that all processes must undergo self-evaluations and formal evaluations to identify opportunities for improvement in the use of the VPS and evaluate the achieved results. In addition to this point, external and internal audits are carried out in order to verify compliance with standards, certifications and legal requirements.</p> <p>All own workers and collaborators are encouraged to proactively bring risk scenarios identified in their daily assignments to their supervisors and managers, in order to mitigate and control them. In cases where it is impossible to take these situations directly to the local person in charge, all employees and collaborators have access to the internal Whistleblower Channel, managed by the Ombudsman, where it is possible to anonymously report risk scenarios that may exist.</p>	
2022	<p>Vale uses a set of methodologies for Identifying Hazards and carrying out Risk Analyzes that are suitable and applicable to its operations. Based on this process, Critical Controls are defined that aim to keep risks at acceptable levels, guaranteeing the safety and integrity of all employees, third parties and the community in which we operate. Among these methodologies, the HIRA stands out, which is characterized as a systematic and continuous assessment of operational risks, directed towards scenarios classified as Unwanted Material Events (MUE). Other highlights were the revisions of the RAC's (Requirements for Critical Activity) and the PTS (Safe Work Permit), with the objective of guaranteeing the best practices in carrying out the activities considered critical. See some of them below:</p> <ul style="list-style-type: none"> <li>• Hazard Identification and Risk Analysis (HIRA): mapping that identifies hazards and risk analysis, describes scenarios for accidents, existing protections and the criticality of risks to people, the environment, assets and the business;</li> <li>• Safe Work Permit (PTS): also called "Contract for Life", it is an operational security process with protocols and procedures that act as the last protection barrier before carrying out the activity;</li> <li>• Critical Activity Requirements (RAC): are intended to preserve people's lives during the execution of activities classified as critical. This categorization is based on the history of fatalities and serious accidents that occurred in the company and in the mining sector, including the risk of drowsiness;</li> <li>• Golden Rules: these are rules that meet the basic requirements for carrying out any activity at Vale and do not replace other health and safety requirements.</li> <li>• Exposure to health risks: global corporate guideline for the management and development of programs to monitor and control employees' occupational health, which includes quantitative objectives for reducing health risk scenarios in the medium term, as well as primary and secondary actions and tertiary in health with a focus on preventing work incapacity.</li> </ul> <p>Vale has a process for identifying, recording, communicating, investigating and analyzing unwanted events. The SOLOGIC methodology, based on a tree of causes, is one of the recommended methodologies in this process, and mandatory for all high potential events. This process also provides for comprehensive actions and verification of the effectiveness of the proposed actions.</p> <p>Governance over the risk management process is made up of 3 independent lines of defense, with clearly defined roles and responsibilities for this management. Vale has a complete portfolio of resources aimed at training, qualification and certification required for the safe and effective execution of our operations. It covers all our employees and third parties, considering the degree of risk and complexity of the activities and meeting the minimum requirements for the function. For continuous improvement, the VPS system (Vale Production System) provides in its process an evaluation of the management model and results, where it is established that all processes must undergo self-evaluations and formal evaluations to identify opportunities for improvement in the use of the VPS and evaluate the achieved results. In addition to this point, external and internal audits are carried out in order to verify compliance with standards, certifications and legal requirements.</p> <p>All own workers and collaborators are encouraged to proactively bring risk scenarios identified in their daily assignments to their supervisors and managers, in order to mitigate and control them. In cases where it is impossible to take these situations directly to the local person in charge, all employees and collaborators have access to the internal Whistleblower Channel, managed by the Ombudsman, where it is possible to anonymously report risk scenarios that may exist.</p>	

Vale uses a set of methodologies for identifying Hazards and carrying out Risk Analyses that are suitable and applicable to its operations. Based on this process, Critical Controls are defined that aim to keep risks at acceptable levels, guaranteeing the safety and integrity of all employees, third parties and the community in which we operate. Among these methodologies, the HIRA stands out, which is characterized as a systematic and continuous assessment of operational risks, directed towards scenarios classified as Unwanted Material Events (MUE). Other highlights were the revisions of the RAC's (Requirements for Critical Activity) and consolidation of the ART (Task Risk Analysis), PTS (Safe Work Permit) and Golden Rules processes. Here are some initiatives:

- Hazard Identification and Risk Analysis (HIRA): mapping that identifies hazards and risk analysis, describes scenarios for accidents, existing protections and the criticality of risks to people, the environment, assets and the business;
- Task Risk Analysis (ART): This process is applied to the entire Vale and used to identify the causes, consequences and control measures associated with the risk situations of the tasks. The ART precedes and is connected with the planning, standardization, and Safe Work Permit processes.
- Safe Work Permit (PTS): also called "Contract for Life", it is an operational security process with protocols and procedures that act as the last protection barrier before carrying out the activity;
- Critical Activity Requirements (RAC): are intended to preserve people's lives during the execution of activities classified as critical. This categorization is based on the history of fatalities and serious accidents that occurred in the company and in the mining sector, including the risk of drowsiness;
- Golden Rules: these are rules that meet the basic requirements for carrying out any activity at Vale and do not replace other health and safety requirements.

Exposure to health risks: global corporate guideline for the management and development of programs to monitor and control employees' occupational health, which includes quantitative objectives for reducing health risk scenarios in the medium term, as well as primary and secondary actions and tertiary in health with a focus on preventing work incapacity.

Vale has a process for identifying, recording, communicating, investigating and analyzing unwanted events. The SOLOGIC methodology, based on a tree of causes, is one of the recommended methodologies in this process, and mandatory for all high potential events. This process also provides for comprehensive actions and verification of the effectiveness of the proposed actions.

Governance over the risk management process is made up of 3 independent lines of defense, with clearly defined roles and responsibilities for this management. Vale has a complete portfolio of resources aimed at training, qualification and certification required for the safe and effective execution of our operations. It covers all our employees and third parties, considering the degree of risk and complexity of the activities and meeting the minimum requirements for the function. For continuous improvement, the VPS system (Vale Production System) provides in its process an evaluation of the management model and results, where it is established that all processes must undergo self-evaluations and formal evaluations to identify opportunities for improvement in the use of the VPS and evaluate the achieved results. In addition to this point, external and internal audits are carried out in order to verify compliance with standards, certifications and legal requirements.

All own workers and collaborators are encouraged to proactively bring risk scenarios identified in their daily assignments to their supervisors and managers, in order to mitigate and control them. In cases where it is impossible to take these situations directly to the local person in charge, all employees and collaborators have access to the internal Whistleblower Channel, managed by the Ombudsman, where it is possible to anonymously report risk scenarios that may exist.

**Note:** As of 2020, Vale is following the GRI 403 Occupational Health and Safety (2018) standard.

## GRI 403-3 (2018)

**Description:** Occupational health services

Year	Vale's Answer	Assurance
2020	<p>The functions of occupational health services that contribute to the identification and elimination of hazards and minimization of risks are carried out in order to prevent the occurrence of injury or illness or damage to quality of life and emotional health. These functions are performed through programs that identify environmental, organizational, and individual risk factors for injury or illness where risk control measures are also implemented to limit exposure to these risk factors. Employees and dependents have an emotional self-assessment tool, access to psychological support and health promotion services, and online psychotherapy. Coordinated actions aimed at preventing work disability and promoting the health of people with permanent disabilities and/or chronic diseases include education, encouraging healthy habits and preventing illness through early detection, treatment, rehabilitation and support in the work environment.</p> <p>The Ergonomics and Occupational Hygiene professionals who make up the Health teams are responsible for identifying health risks in work environments and managing risks by prioritizing and updating risk scenarios. In order to control these scenarios, they work with see and act solutions and, together with the leadership of the area, identify control solutions that aim to eliminate critical risk scenarios from the environment.</p>	Independently assured by Bureau Veritas Certification
2021	<p>The functions of occupational health services that contribute to the identification and elimination of hazards and minimization of risks are carried out in order to prevent the occurrence of injury or illness or damage to quality of life and emotional health. These functions are performed through programs that identify environmental, organizational, and individual risk factors for injury or illness where risk control measures are also implemented to limit exposure to these risk factors. Employees and dependents have an emotional self-assessment tool, access to psychological support and health promotion services, and online psychotherapy. Coordinated actions aimed at preventing work disability and promoting the health of people with permanent disabilities and/or chronic diseases include education actions, encouraging healthy habits and preventing illness through early detection, treatment, rehabilitation and support in the work environment</p> <p>The Ergonomics and Occupational Hygiene professionals who make up the Health teams are responsible for identifying health risks in work environments and managing risks by prioritizing and updating risk scenarios. In order to control these scenarios, they work with see and act solutions and, together with the leadership of the area, identify control solutions that aim to eliminate critical risk scenarios from the environment.</p> <p>All interventions aim to promote risk management measures associated with exposure to individual and collective risk factors for which we have health surveillance in place. Physicians, when evaluating each employee individually, can identify health effects not related to the mapped occupational risks and request investigation of the cause, providing feedback to occupational risk management. The multidisciplinary team supports actions focused on prevention, promotion, education and psychosocial support that increase effectiveness in reducing the loss of work capacity, increasing well-being, emotional health and productivity. The implemented predictive tool has the character of discovering behavioral patterns and risk factors, and may even anticipate them, being an important driver of greater probability of disabilities. Once these probabilities are followed, the performance of the multidisciplinary team becomes even more assertive.</p> <p>The management of data, indicators and results has been expanded and improved with the aid of software and advanced statistical tools to direct actions and prioritize more assertive strategies for the health of employees. Additionally, we are expanding and consolidating the multidisciplinary and multiprofessional approach with the active involvement of employees, leaders and HR teams in the search for collective solutions, in the work environment and in case management.</p>	-
2022	<p>Vale has expanded and improved the management of data, indicators and results with the aid of software and advanced statistical tools to direct actions and prioritize more assertive strategies for health services to VALE employees. We are expanding and consolidating the multidisciplinary and multiprofessional approach with the active involvement of employees, leaders and HR teams in the search for collective solutions, in the work environment and in the handling of individual cases.</p> <p>We act in the identification and prioritization of risks and health problems through the integrated analysis of legal requirements, strategic guidelines and risk profile related to the health of employees and the general population. Considering the identified and prioritized scenarios and risks, as well as the other health management processes, strategic guidelines are established, defining the triggers that will guide the preparation of health promotion plans and programs.</p> <p>All interventions aim to promote measures to manage risks associated with exposure to individual and collective risk factors for which we have health surveillance in place.</p> <p>Vale does not have a high incidence of occupational diseases due to the effectiveness of its programs for promoting health and preventing occupational diseases, which consist of monitoring and controlling the levels of risk agents in the work environment, resulting in satisfactory working conditions. The management and monitoring of exposure to biological and ergonomic risks, among others, and the controls of periodic health examinations based on risk management measures have contributed to the low rate of occupational diseases.</p>	-
2023	<p>Vale has expanded and improved the management of data, indicators and results with the help of advanced software and statistical tools to direct actions and prioritize more assertive strategies for health services to VALE employees, with multidisciplinary operations.</p> <p>We work in the identification and prioritization of health risks and injuries through the integrated analysis of legal requirements, strategic drivers and risk profile related to the health of employees and the general population. Considering the scenarios and risks identified and prioritized, as well as the other health management processes, the strategic drivers for health promotion programs are established.</p> <p>All actions aim to promote measures to manage risks associated with exposure, individual and collective risk factors for which we have health surveillance in place.</p> <p>The management and monitoring of exposure to biological, ergonomic, and other hazards, as well as the control of periodic health examinations based on risk management measures, has contributed to the low rate of occupational diseases. Vale does not have a high incidence of occupational diseases due to the effectiveness of its health promotion and occupational disease prevention programs and their monitoring, resulting in satisfactory working conditions.</p>	-

**Note:** As of 2020, Vale is following the GRI 403 Occupational Health and Safety (2018) standard.

## GRI 403-4 (2018)

**Description:** Worker participation, consultation and communication on occupational health and safety

Year	Vale's Answer	Assurance
2020	Vale's employees and third parties are consulted during the development, implementation and evaluation of the occupational health and safety management system. Currently, there is the SESMT (Specialized Service in Safety Engineering and Occupational Medicine) and CIPAs (Internal Accident Prevention Commission) in each of the locations where Vale is present, and in addition there are fatality prevention committees, RACs (Critical Activities Requirements) and risks. Monthly meetings of the Internal Commission for the Prevention of Occupational Accidents are held, where Vale employees and representatives of outsourced companies participate in discussions, receive information about accidents, risks in the work environment, prevention actions and have the opportunity to report unsafe conditions, liable to causing accidents in operations. CIPA members prepare an annual work plan that includes, among other actions, inspections in the areas and preparation of campaigns. Relevant information on health and safety at work is made available through communication channels for all employees and third parties, via the "Vale Informar" email or our intranet. In addition, some information is made available in the FMDS, visual management boards, health and safety bulletins. Formal local health and safety committees have their own charter and report to the corporate fatality prevention committee.	Independently assured by Bureau Veritas Certification
2021	Workers are involved in different processes related to the health and safety system, Vale employees and third parties are consulted during the development, implementation and evaluation of the health and safety at work management system. In each location where Vale is present, SESMT and local CIPAs are set up, in addition to fatality, RAC and risk prevention committees. Formal local health and safety committees have their own charter and report to the corporate fatality prevention committee.  Information on health and safety is available on the FMDS (meetings held in the areas to present and discuss problems and follow up on results), visual management charts, the "Vale Informar" e-mail, intranet and bulletins.	-
2022	All Vale workers are represented, in one way or another, by Vale's Health and Safety system. Employees are involved in different processes linked to the health and safety system, Vale employees and third parties are consulted during the development, implementation and evaluation of the health and safety at work management system. In each location where Vale is present, there are SESMT (Specialized Service in Safety Engineering and Occupational Medicine) and local CIPAs (Internal Accident Prevention Commission), fatality prevention committees, RACs (Critical Activities Requirements) and risks, in addition to involvement with health and safety committees, worker participation takes place through training, programs and health and safety campaigns, periodic consultations and audits/inspections, in some locations employees can report unsafe conditions via IRIS and participate in the DSSMA on a daily basis. Workers are encouraged to bring up problems experienced in their daily lives and discuss them with leadership. At that moment, the leader learns about the points and controls that are not working and generates corrective actions, feeding back the VPS (Vale Production System).  Information on health and safety is available on the FMDS (meetings held in the areas to present and discuss problems and follow up on results), visual management charts, the "Vale Informar" e-mail, intranet and bulletins. These forums take place at different intervals, ranging from weekly meetings (FMDS) to monthly meetings (Performance Meetings).	-
2023	All Vale workers are represented, in one way or another, by Vale's Health and Safety system.  Employees are involved in different processes linked to the health and safety system. Vale employees and third parties are consulted during the development, implementation and evaluation of the health and safety at work management system. In each location where Vale is present, there are SESMT (Specialized Service in Safety Engineering and Occupational Medicine) and local CIPAs (Internal Accident Prevention Commission), fatality prevention committees, RACs (Critical Activities Requirements) and risks, in addition to involvement with health and safety committees.  Worker participation takes place through training, programs and health and safety campaigns, periodic consultations and audits/inspections, in some locations employees can report unsafe conditions via IRIS and participate in the DSSMA on a daily basis. Workers are encouraged to bring up problems experienced in their daily lives and discuss them with leadership, exercising the key behavior of Open and Transparent Dialogue in the periodic meetings of routine management. At that moment, the leader learns about the points and controls that are not working and generates corrective actions, feeding back the VPS (Vale Production System).  Information on health and safety is available on the FMDS (meetings held in the areas to present and discuss problems and follow up on results), visual management charts, the "Vale Informar" e-mail, intranet and bulletins. These forums take place at different intervals, ranging from weekly meetings (FMDS) to monthly meetings (Performance Meetings).	-

**Note:** As of 2020, Vale is following the GRI 403 Occupational Health and Safety (2018) standard.

## GRI 403-5 (2018)

**Description:** Worker training on occupational health and safety

Year	Vale's Answer	Assurance
2020	There are several training courses offered both for Health and Safety professionals, as well as for task performers and their respective leaders. All training is managed by the Vale Education System - VES, which includes training on emergency response, risk identification and management and their respective mitigation controls. There are procedures (PGS 000791 - Guidelines for Competence, Training and Awareness) that guide on the need to identify training according to activities performed, which should result in the preparation of training and qualification matrices. The training follows some minimum criteria that aim to observe the adequacy of the training to the public involved and the scope of the operation, in accordance with corporate guidelines. There are basic training courses that are mandatory for the entire company, such as: introduction to the VPS, codes of ethics and conduct. From there, a training track is developed for the employee, according to their function.	Independently assured by Bureau Veritas Certification
2021	There are several training courses offered both for Health and Safety professionals, as well as for task performers and their respective leaders. All training is managed by the Vale Education System - VES, which includes training on emergency response, risk identification and management and their respective mitigation controls. There are procedures (PGS 000791 - Guidelines for Competence, Training and Awareness) that guide on the need to identify training according to activities performed, which should result in the preparation of training and qualification matrices. The training follows some minimum criteria that aim to observe the adequacy of the training to the public involved and the scope of the operation, in accordance with corporate guidelines. There are basic training courses that are mandatory for the entire company, such as: introduction to the VPS, codes of ethics and conduct. From there, a training track is developed for the employee, according to their function.	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2022	There are several training courses offered both for Health and Safety professionals, as well as for task performers and their respective leaders. All training is managed by the Vale Education System - VES, which includes training on emergency response, risk identification and management and their respective mitigation controls. There are procedures (PGS 000791 - Guidelines for Competence, Training and Awareness) that guide on the need to identify training according to activities performed, which should result in the preparation of training and qualification matrices. The Integrated Technical Training Model (MICT) was created to also assist in mapping and implementing training to ensure improvement in the performance of our employees in their functions. The training follows some minimum criteria that aim to observe the adequacy of the training to the public involved and the scope of the operation, in accordance with corporate guidelines. There are basic training courses that are mandatory for the entire company, such as: introduction to the VPS, codes of ethics and conduct. From there, a training track is developed for the employee, according to their function.	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2023	There are several training and qualifications offered both for Health and Safety professionals and for those performing the tasks and their respective leaders. All training is managed by the Vale Education System - VES, which includes training on emergency response, risk identification and management and their respective mitigation controls. There are procedures (PGS 000791 - Guidelines for Competence, Training and Awareness) that guide on the need to identify training according to activities performed, which should result in the elaboration of training and qualification matrices. The Integrated Technical Training Model (MICT) was created to also assist in the mapping and implementation of training to ensure improvement in the performance of our employees in their functions. The training complies with some minimum criteria that aim to observe the adequacy of the training to the public involved and the scope of the operation, according to corporate guidelines. There are basic onboarding skills that are mandatory for the entire company, such as: introduction to VPS, codes of ethics and conduct, combating harassment. From there, a training path is developed for the employee, according to their function. Some examples of safety training: Elaboration of task Risk Analysis; Insurance Work Permit; Training for the execution of critical activities (RACs).	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.

**Note:** As of 2020, Vale is following the GRI 403 Occupational Health and Safety (2018) standard.

## GRI 403-6 (2018)

**Description:** Promotion of worker health

Year	Vale's Answer	Assurance
2020	<p>In Brazil, all company employees and their legal dependents have access to medical and health services not related to work through the PASA self-managed health plan. In other countries where we operate, health plans are offered through outsourcing.</p> <p>The promotion of workers' health also occurs through health promotion programs, where both employers and third parties are eligible to participate. Throughout 2020, we carried out campaigns to promote health, such as flu vaccinations, an employee assistance program, a program for monitoring pregnant women, raising awareness about men's and women's health, a healthy lifestyle and emotional health. The campaigns were carried out both remotely, for those employees who are working from home, and in person, respecting all preventive measures against COVID-19. In response to the COVID-19 pandemic, Vale mobilized its health workforce for coordinated risk mitigation actions across all its operations globally. Such actions include continuous and intensive education for disease prevention, as well as tools for rapid detection and isolation of cases and contact tracing in operations. Through PASA, a specialized health team has offered support to employees and their dependents in Brazil to facilitate clinical screening and diagnostic investigation. Employees and dependents have an emotional self-assessment tool for self-knowledge and early screening, access to psychological and psychosocial support 24/7 and online psychotherapy.</p>	Independently assured by Bureau Veritas Certification
2021	<p>In Brazil, all company employees and their legal dependents have access to medical and health services not related to work through the PASA self-managed health plan. In other countries where we operate, health plans are offered through outsourcing.</p> <p>Throughout 2021, we carried out campaigns to promote health, such as flu vaccinations, an employee assistance program, a program to monitor pregnant women, awareness of men's and women's health, a healthy lifestyle and emotional health.</p> <p>We also launched VP-GO, a global program to promote healthy habits, which had over 18,000 people enrolled in all locations where the company has offices and/or operations. All participants who requested received the "MaxBuzz" at home free of charge, a smartwatch that monitored physical activity and sleep. The main event, Destination GO, was a nine-week fitness challenge. Participants competed with co-workers to see who took the most steps while virtually walking around the world.</p> <p>Before starting the challenge, each participant was asked to respond to the Health Check survey, which assessed seven aspects of well-being, from mental health to nutrition. After that, the participants received a personalized report with recommendations for actions to promote well-being to be carried out. Any physical activity such as walking, running, swimming, dancing were converted into steps through a physical activity monitor. Over four months, employees also had the opportunity to choose other challenges, such as Covid-19 prevention, healthy eating, emotional health, among others. The purpose of VP GO was to involve employees in a journey of learning and commitment to their well-being. Globally, a total of 4,269,751,953 steps were taken and a total of 2,134,876 miles were covered.</p> <p>In response to the COVID-19 pandemic, Vale mobilized its health workforce for coordinated risk mitigation actions across all its operations globally. Such actions include continuous and intensive education for disease prevention, as well as tools for rapid detection and isolation of cases and contact tracing in operations. Through PASA, a specialized health team has offered support to employees and their dependents in Brazil to facilitate clinical screening and diagnostic investigation. Employees and dependents have an emotional self-assessment tool for self-knowledge and early screening, access to psychological and psychosocial support 24/7 and online psychotherapy.</p>	-
2022	<p>In Brazil, all company employees and their legal dependents have access to medical and health services not related to work through the self-managed health plan AMS PASA. In other countries where we operate, health plans are offered through outsourcing.</p> <p>In Brazil, most of the services offered by the company are provided through PASA in Vitória, São Luis and Itabira. We also have hospitals in Carajás and Sorowako, Indonesia. Vale also has a Cassi health plan reciprocity partnership for employees who work in the remote model and who do not reside in the large poles where the PASA clinics are located.</p> <p>Medical and health services not related to work are not offered by Vale to non-employees, but they are eligible to participate in collective health promotion campaigns and SIPATs.</p> <p>Throughout 2022, we carried out campaigns to promote health, such as flu vaccinations, an employee assistance program, a program to monitor pregnant women, awareness of men's and women's health, a healthy lifestyle and emotional health.</p> <p>In response to the COVID-19 pandemic, Vale mobilized its health workforce for coordinated risk mitigation actions across all its operations globally. Such actions included continuous and intensive education for disease prevention, as well as tools for rapid detection and isolation of cases, as well as contact tracing in operations. A daily reporting process for employees (checklist) was implemented, in which their health status was reported on a daily basis. If the answers were positive to the symptoms of covid-19, as a protocol, the employee was not allowed to work in person and the local health team started monitoring the employee until he was released for work activities. We also rely on the work of PASA by providing a specialized health team to support employees and their dependents in Brazil to facilitate clinical screening and diagnostic investigation for necessary cases. As for mental health, employees and dependents have an emotional self-assessment tool for self-knowledge and early screening. If the screening detects the need for evaluation by a health professional, the service is offered to the employee or dependent who may or may not accept it. They also have 24/7 psychological and psychosocial support and online psychotherapy. We offer the traveler's health service for health guidance to employees who will be traveling internationally for work. Health promotion campaigns were carried out both remotely, for those employees who are at home office, and in person, respecting all preventive measures against COVID-19 (during the pandemic), and the health care services have telemedicine and telepsychology assistance via the AMS/PASA health plan.</p>	-
2023	<p>In Brazil, all employees and their legal dependents have access to non-work-related medical and health services through the AMS PASA self-managed health plan. In the other countries where we operate, health plans are offered through external contracting.</p> <p>In Brazil, most of the services offered by the company are provided through PASA in Vitória, São Luis and Itabira. We also have hospitals in Carajás and Sorowako, Indonesia. Vale also has the reciprocity partnership of the Cassi health plan for employees who work in the remote model and who do not live in the large centers where the PASA clinics are located, in addition to the accredited network in the national territory where Vale operates.</p> <p>Non-work-related medical and health services are not offered by Vale to employees who are not its own employees, but they are eligible to participate in collective health promotion campaigns and SIPATs.</p> <p>Throughout 2022, we carried out health promotion campaigns such as flu vaccination, employee assistance program, pregnancy monitoring program, awareness of men's and women's health, healthy lifestyle, and emotional health.</p>	-

**Note:** As of 2020, Vale is following the GRI 403 Occupational Health and Safety (2018) standard.

## GRI 403-7 (2018)

**Description:** Prevention and mitigation of occupational health and safety impacts directly linked by business relationships

Year	Vale's Answer	Assurance
2020	<p>Workplace Risk Prevention Programs and Occupational Health Medical Control Programs are in place in operations through which we manage risks, monitor work environments and biological monitoring, that is, the effects of exposure to agents on people, prevention training and functional capacity assessments. We use personal protective equipment intensively when other measures of a collective nature are not yet applicable, actions to replace materials and chemicals with safer ones.</p> <p>The purpose of the measures mentioned above is to identify possible risks to workers' health at an early stage in order to minimize or eliminate them, when possible.</p> <p>We have global guidelines for managing health risks involving Occupational Hygiene and Ergonomics, which aim to establish minimum requirements for managing these risks and a global corporate guideline that aims to establish guidelines for the management and development of programs to monitor health occupational health of employees as well as influencing the health management of controlled companies. In addition, we have established quantitative targets for reducing scenarios of exposure to agents that are harmful to health in the medium term, with the aim of making our work environments safer and healthier for all our workers.</p>	Independently assured by Bureau Veritas Certification

2021	<p>Workplace Risk Prevention Programs and Occupational Health Medical Control Programs are in place in operations through which we manage risks, monitor work environments and biological monitoring, that is, the effects of exposure to agents on people, prevention training and functional capacity assessments. We use personal protective equipment intensively when other measures of a collective nature are not yet applicable, actions to replace materials and chemicals with safer ones.</p> <p>The purpose of the measures mentioned above is to identify possible risks to workers' health at an early stage in order to minimize or eliminate them, when possible.</p> <p>We have global guidelines for managing health risks involving Occupational Hygiene and Ergonomics, which aim to establish minimum requirements for managing these risks and a global corporate guideline that aims to establish guidelines for the management and development of programs to monitor health occupational health of employees as well as influencing the health management of controlled companies. In addition, we have established quantitative targets for reducing scenarios of exposure to agents that are harmful to health in the medium term, with the aim of making our work environments safer and healthier for all our workers.</p>	-
2022	<p>Workplace Risk Prevention Programs and Occupational Health Medical Control Programs are in place in operations through which we manage risks, monitor work environments and biological monitoring, that is, the effects of exposure to agents on people, prevention training and functional capacity assessments. We use personal protective equipment intensively when other measures of a collective nature are not yet applicable, actions to replace materials and chemicals with safer ones.</p> <p>The purpose of the measures mentioned above is to identify possible risks to workers' health at an early stage in order to minimize or eliminate them, when possible.</p> <p>We have global guidelines for managing health risks involving Occupational Hygiene and Ergonomics, which aim to establish minimum requirements for managing these risks and a global corporate guideline that aims to establish guidelines for the management and development of programs to monitor health occupational health of employees as well as influencing the health management of controlled companies. In addition, we have established quantitative targets for reducing scenarios of exposure to agents that are harmful to health in the medium term, with the aim of making our work environments safer and healthier for all our workers.</p>	-
2023	<p>Workplace Risk Prevention Programs and Occupational Health Medical Control Programs are in place in operations, through which we manage risks, monitor work environments and biological monitoring, that is, the effects of exposure to agents on people, training for prevention and assessments of functional capacity. We work focused on eliminating risks, through actions to replace materials and chemicals with safer ones, in addition to defining and implementing collective measures to minimize them, however, when these measures are not possible, our employees and contractors use Personal Protective Equipment (PPE) intensively.</p> <p>We have global guidelines for the management of health risks involving the themes of Occupational Hygiene and Ergonomics, which aims to establish minimum requirements for the management of these risks, guidelines for the management and development of programs to monitor the occupational health of employees, as well as to influence the health management of the controlled companies.</p> <p>In addition, we have set quantitative targets for reducing scenarios of exposure to agents harmful to health in the medium term with the aim of making our work environments safer and healthier for all our workers.</p>	-

**Note:** As of 2020, Vale is following the GRI 403 Occupational Health and Safety (2018) standard.

## GRI 403-8 (2018)

**Description:** Workers covered by an occupational health and safety management system

Year	Vale's Answer	Assurance
2020	The Vale Management Model, known as VPS (Vale Production System), is Vale's current health and safety management system. The VPS is focused on results and provides for the deep and comprehensive implementation of policies and practices to enable safe and environmentally responsible operations and ensure the integrity of our assets. The VPS is composed of 3 dimensions: Leadership, Technical and Management, which have 17 elements. 100% of Vale's employees and third parties are covered by the VPS.	Independently assured by Bureau Veritas Certification
2021	The Vale Management Model, known as VPS (Vale Production System), is Vale's current health and safety management system. The VPS is focused on results and provides for the deep and comprehensive implementation of policies and practices to enable safe and environmentally responsible operations and ensure the integrity of our assets. The VPS is composed of 3 dimensions: Leadership, Technical and Management, which have 17 elements. 213,413 (100%) of Vale's employees and third parties are covered by the VPS, and 77,424 (36%) are covered by the system that has been internally audited, and 33,654 (14%) are covered by the externally audited system.	-
2022	The Vale Management Model, known as VPS (Vale Production System), is Vale's current health and safety management system. The VPS is focused on results and provides for the deep and comprehensive implementation of policies and practices to enable safe and environmentally responsible operations and ensure the integrity of our assets. The VPS is composed of 3 dimensions: Leadership, Technical and Management, which have 17 elements. 100% of Vale's employees and third parties are covered by the VPS and internal audits are carried out annually, with the objective of guaranteeing the implementation of the elements and requirements that compose them.	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2023	The Vale Management Model, known as VPS (Vale Production System), is Vale's current health and safety management system. The VPS is focused on results and provides for the deep and comprehensive implementation of policies and practices to enable safe and environmentally responsible operations and ensure the integrity of our assets. The VPS is composed of 3 dimensions: Leadership, Technical and Management, which have 17 elements. 100% of Vale's employees and third parties are covered by the VPS and internal audits are carried out annually, with the objective of guaranteeing the implementation of the elements and requirements that compose them.	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.

**Note:** From 2020 on, Vale is following the GRI 403 Occupational Health and Safety (2018) standard.

## GRI 403-9 (2018)

**Description:** Work-related injuries

Year	Vale's Answer	Assurance
2020	<p>Some of the dangers that caused or contributed to the occurrence of accidents at work were: mobile equipment operations, blocking, identification and zero energy, work at heights, protection of machines, lifting loads, light motor vehicles, electrical work, stability of soil. The procedures for the requirements of critical activities are being reviewed and several actions are being taken, such as the implementation of motion sensors in mobile equipment, drowsiness detection system, etc.</p> <p>Several procedures are being written and revised, together with the operational areas, in order to minimize the risk of accidents happening. There is also the implementation of the Safe Work Permit that helps to minimize these risks.</p>	Independently assured by Bureau Veritas Certification

In 2021, there were two cases of fatality at Vale, an employee and a third party.

Some of the dangers that caused or contributed to the occurrence of accidents at work were: mobile equipment operations, blocking, identification and zero energy, work at heights, protection of machines, lifting loads, light motor vehicles, electrical work, stability of soil. Occupational hazards were identified using Vale's Preliminary Risk Assessment (APR) methodology and Task Risk Assessment (ART) methodology. Process hazards were identified from HIRA assessments. Process Safety management at Vale is undergoing restructuring, where process risks are identified using a robust methodology, the HIRA. Next, Vale adopts the Critical Control Verification methodology, which takes into account the identification, implementation and monitoring of critical controls that prevent the materialization of risks, based on asset management. The elimination of sources of danger are prioritized whenever possible. And when such elimination is not possible or immediate, engineering controls are implemented.

Health and Safety management at Vale is aligned with the principles of the VPS - Vale Management System, which takes into account the identification, implementation and monitoring of controls (barriers) that prevent the materialization of risks. Elimination of sources of danger are prioritized whenever possible. And when such elimination is not possible or immediate, engineering controls are implemented. Vale has been working on a cultural transformation aimed at safety and risk management, and the Safety Transformation project is one of the levers that introduce the use of cutting-edge technology to eliminate or reduce risks in the work environment. Some examples are: the implementation of motion sensors in mobile equipment, drowsiness detection system, zero energy in electrical substations, etc.

**2021**

- Rate of deaths resulting from accidents at work
  - Own employees: 0.0064 (1 fatality)
  - Third parties: 0.004 (1 fatality)
- Rate of accidents at work with serious consequences (except deaths)
  - Own employees: 0.35 (54 occurrences)
  - Third parties: 0.412 (114 occurrences)
- Mandatory communication accident rate
  - Own employees: 4.08 (637 occurrences)
  - Third parties: 4.52 (1,243 occurrences)
- Number of hours worked
  - Own employees: 156,209,220
  - Third parties: 276,502,361

Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.

In 2022, there were five fatalities at Vale, in addition to 13 injuries with a high potential for fatality.

Some of the activities that were being carried out at the time of these accidents at work were: operations of mobile equipment, blocking, identification and zero energy, work at heights, protection of machines, lifting loads, light motor vehicles and electrical work. The main types of accidents at work were, both for own employees and third parties: wrist and hand injuries, insect bites and stings, head injuries, superficial injuries to the wrist and joint dislocation, sprains and strains. In addition to using the Preliminary Risk Assessment (APR) and Task Risk Assessment (ART) methodologies, used to identify occupational hazards associated with the activities to be carried out, Vale, in line with the principles of its Management System (VPS) , takes into account the identification, implementation and monitoring of controls that prevent the materialization of risks, with the objective of guaranteeing the functioning of such controls. The elimination of hazardous sources is prioritized and when this elimination is not possible or immediate, engineering controls are implemented. Vale has been working on a cultural transformation aimed at safety and risk management, and the Safety Transformation Program is one of the levers that introduce the use of cutting-edge technology to eliminate or reduce risks in the work environment with initiatives such as: the implementation of motion sensors in mobile equipment, drowsiness detection system, zero energy in electrical substations, etc.

**2022**

- Rate of deaths resulting from accidents at work
  - Own employees: 0.021 (3 fatalities)
  - Third parties: 0.0067 (2 fatalities)
- Rate of accidents at work with serious consequences (except deaths)
  - Own employees: 0.3015 (43 occurrences)
  - Third parties: 0.253 (75 occurrences)
- Mandatory communication accident rate
  - Own employees: 5.44 (776 occurrences)
  - Third parties: 3.48 (1,030 occurrences)
- Number of hours worked
  - Own employees: 142,636,980
  - Third parties: 296,363,078

Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.

In 2023, there were one fatality at Vale.

In addition to using the Preliminary Risk Assessment (PRA) and Task Risk Assessment (TRA) methodologies, used to identify occupational hazards associated with the activities to be carried out, Vale, in line with the principles of its Management System (VPS) , takes into account the identification, implementation and monitoring of controls that prevent the materialization of risks, with the objective of guaranteeing the functioning of such controls. The elimination of hazardous sources is prioritized and when this elimination is not possible or immediate, engineering controls are implemented. Vale has been working on a cultural transformation aimed at safety and risk management, and the Safety Transformation Program is one of the levers that introduce the use of cutting-edge technology to eliminate or reduce risks in the work environment with initiatives such as: the implementation of motion sensors in mobile equipment, drowsiness detection system, zero energy in electrical substations, etc.

**2023**

- Rate of deaths resulting from accidents at work
  - Own employees: 0.0068 (1 fatality)
  - Third parties: 0
- Rate of accidents at work with serious consequences (except deaths)
  - Own employees: 0.251 (37 occurrences)
  - Third parties: 0.1896 (62 occurrences)
- Mandatory communication accident rate
  - Own employees: 5.92 (876 occurrences)
  - Third parties: 3.508 (1,147 occurrences)
- Number of hours worked
  - Own employees: 147,394,080
  - Third parties: 326,936,368

Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.

**Note:** From 2020 on, Vale is following the GRI 403 Occupational Health and Safety (2018) standard.

The indices were calculated based on 1,000,000 hours worked and no employee or third party was excluded from reporting this indicator.

Occupational Injury Frequency Rate with Leave - LTIFR					
	2019	2020	2021	2022	2023
Vale	0.8	0.7	0.4	0.3	0.2
Brazil	0.6	0.4	0.4	0.3	0.2
Malaysia	2.3	0.5	0.4	0.4	0.7
Canada	1.5	2.3	0.6	0.7	0.6
Indonesia	0.1	0.1	0.2	0.1	0.1
Paraguay	0	1.7	0	0	-
Oman	0.2	0.2	0.2	0	0
UK	0	0	2.4	0	3.6

**Nota:** LTIFR = (Occupational Injuries with Leave / Man Hours Worked) \* 1,000,000

Recordable Occupational Injury Frequency Rate - TRIFR					
	2019	2020	2021	2022	2023
Vale	3.5	2.0	1.4	1.1	1.1
Brazil	2.7	1.2	1.1	0.9	0.9
Malaysia	3.2	0.5	0.4	0.6	1.7
Canada	11.6	7.5	6.6	4.9	4.2
Indonesia	0.5	0.6	0.7	0.7	0.3
Paraguay	3.4	1.7	0	0	-

Oman	1.1	0.7	0.6	0.5	0.3
UK	0	1.22	4.8	1.4	3.6

Nota: TRIFR = (Occupational Injuries / Man Hours Worked) \* 1,000,000

## GRI 403-10 (2018)

Description: Work-related ill health

Year	Vale's Answer	Assurance
2020	There were no deaths resulting from occupational diseases, but 409 occupational diseases of mandatory reporting were registered and the main diseases were: musculoskeletal diseases, traumas, injuries and intoxications. These numbers refer to Vale's own employees, health statistics on third-party employees are not managed by Vale, but by the contracted company. Hazards that present a risk of occupational diseases are identified through discussion with the technical teams in the operational areas, with identification of the most severe risks and with the highest number of exposed employees. All hazards whose measurement is above the NA (action level) are subject to contribution. Depending on the Operation's PPRA mapping.	Independently assured by Bureau Veritas Certification
2021	There were no deaths resulting from occupational diseases, but 259 occupational diseases of mandatory reporting were registered and the main diseases were: musculoskeletal diseases, traumas, injuries and intoxications. These numbers refer to Vale's own employees, health statistics on third-party employees are not managed by Vale, but by the contracted company. Hazards that present a risk of occupational diseases are identified through discussion with the technical teams in the operational areas, with identification of the most severe risks and with the highest number of exposed employees. All hazards whose measurement is above the NA (action level) are subject to contribution. Depending on the Operation's PPRA mapping.	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2022	In the last year, there were no deaths resulting from occupational diseases, but a total of 248 occupational diseases of mandatory reporting were registered. The main groups of diseases reported were: musculoskeletal, neurological and mental and behavioral disorders. Hazards that present a risk of occupational diseases are identified through discussion with the technical teams of the operational health areas, aiming to identify the most severe risks and with the highest number of exposed employees. All hazards measured above the NA (action level) require action to minimize risks to the collective health of employees. Vale has been working on several initiatives in the Health area in order to reduce the number of people on leave due to occupational illnesses, such as: Minas por Mentes – focus on emotional health –, Ergo Office – focus on adapting the work environment at home, Prevention of disability – focus on acting preventively in the management of employees' health on an individual basis, etc.	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2023	In the last year, there were no deaths resulting from occupational diseases, but a total of 204 occupational diseases of mandatory reporting were registered. The main groups of diseases reported were: musculoskeletal, neurological and mental and behavioral disorders. Hazards that present a risk of occupational diseases are identified through discussion with the technical teams of the operational health areas, aiming to identify the most severe risks and with the highest number of exposed employees. All hazards measured above the AL (action level) require action to minimize risks to the collective health of employees. Vale has been working on several initiatives in the Health area in order to reduce the number of people on leave due to occupational illnesses, such as: Minas por Mentes – focus on emotional health –, Ergo Office – focus on adapting the work environment at home, Prevention of disability – focus on acting preventively in the management of employees' health on an individual basis, etc.	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.

Note: As of 2020, Vale is following the GRI 403 Occupational Health and Safety (2018) standard.

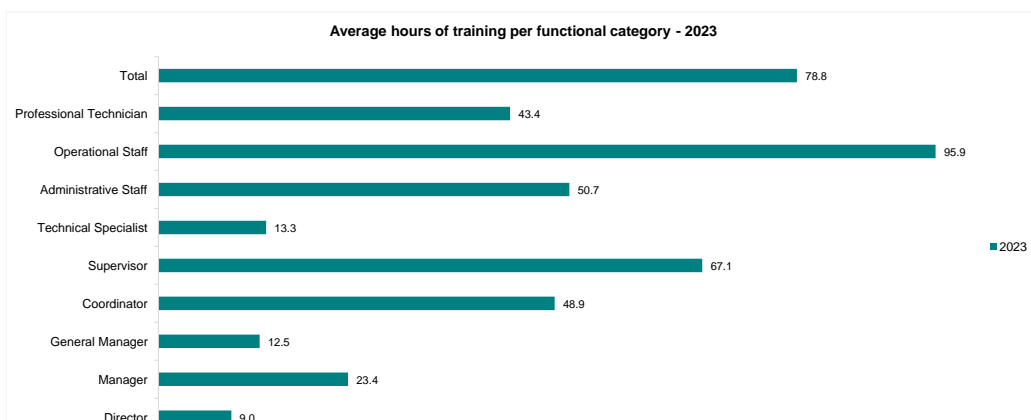
The total number of occupational diseases is calculated considering the number of employees on leave due to occupational diseases registered in 2022 and the number of employees who remain on leave in 2022 (number of employees on leave due to occupational diseases registered in previous years, but who remain on leave in 2022). Occupational diseases arising from accidents at work are also accounted for in the total number of occupational diseases. The data reported here is only about own employees, health statistics about third-party employees are managed by the contracting company.

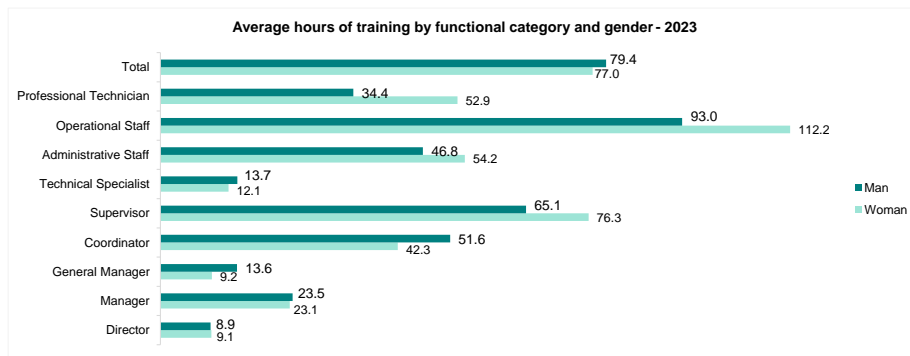
## GRI 404-1 (2016)

Vale's Answer						Assurance
Average total training hours						
Average total training hours	2019	2020	2021	2022	2023	
	50.4	50.5	63.3	75.8	78.8	-

Vale's Answer							Assurance
Year	Training hours per employee (annual average by leadership functional category)						
	Directors	General Manager	Manager	Coordinator	Supervisor	Technical Specialist	
2023	9.0	12.5	23.4	48.9	67.1	13.3	-

Vale's Answer				
Year	Hours of training per employee (annual average per staff category)			Assurance
	Operational Staff	Administrative Staff	Professional Technician	
2023	95.9	50.7	43.4	-





## GRI 404-2 (2016)

**Description:** Programs for upgrading employee skill and transition assistance programs

Year	Vale's Answer	Assurance
2019	Valer - Vale's Corporate University, has the main objective of developing professionals to meet the challenges of the business. Vale's educational model consists of Technical Tracks, Management and Leadership Track, Business Academies, Transversal Skills. With this segmentation, it is possible to reach, in a structured way, the three main audiences: operational technicians, specialist technicians and leaders, keeping the focus on training employees for current or future work processes and functions. In 2019, a total of approximately 16,000 employees, 22.4% of Vale's global workforce, were evaluated in the performance, career and succession process, including managers, supervisors, coordinators, specialists and staff. The other evaluations were carried out during the year 2020.	Independently assured by SGS ICS Certificadora Ltda.
2020	Through its Corporate University – Valer –, Vale has structured a portfolio of training and development actions for its various audiences, focused on technical, management and leadership skills, as well as transversal skills, related to themes central to the company's strategy. Company, such as security, Vale management model - VPS (Vale Production System), risk management and sustainability.	Independently assured by Bureau Veritas Certification
2021	Valer - Vale's Corporate University, has the main objective of developing professionals to meet the challenges of the business. Vale's educational model consists of Technical Trails, Business Academy and Leadership Academy. With this segmentation, it is possible to reach the three main audiences in a structured way: operational technicians, specialist technicians and leaders, keeping the focus on training for processes, work functions and key behaviors	-
2022	Valer - Vale's Corporate University, has the main objective of developing professionals to meet the challenges of the business. Vale's educational model consists of Technical Trails, Business Academy and Leadership Academy. With this segmentation, it is possible to reach the three main audiences in a structured way: operational technicians, specialist technicians and leaders, keeping the focus on training for processes, work functions and key behaviors. In addition to these training actions, development actions are available such as coaching, mentoring, job rotation, among others.	-
2023	The Valer Learning Ecosystem is composed of a set of interconnected elements, such as internal and external partners, communities, educational agents and technological platforms that support the development of employees and the generation of shared value with the community. Our learning solutions are designed based on Vale's strategic objectives and the specific needs of each audience, whether technical/functional or behavioral. Valer segments its operations into 5 main audiences: all employees and communities, future employees, operational technicians, specialists and leaders. For each audience, it offers solutions that include not only the traditional training format, but also learning solutions that take place from daily exchanges and practice. The focus is on the transfer of learning to the day-to-day work, so Valer meets not only the demands of development for the present, but also prepares Vale's workforce for the future.	-

## GRI 404-3 (2016)

**Description:** Percentage of employees receiving regular performance and career development reviews

Vale's Answer							Assurance
Percentage of own employees who received performance analysis							
	2019	2020	2021	2022	2023		
Total employees percentage							
	22.4%	64.9%	64.9%	86.1%	82.8%	-	

Vale's Answer							Assurance
Year	Percentage of own employees who received performance analysis						
	Directors	General Manager	Manager	Coordinator	Supervisor	Technical Specialist	
2023	88.9%	100.0%	97.3%	97.7%	98.0%	85.2%	-

Vale's Answer				Assurance
Year	Percentage of own employees who received performance analysis			
	Operational Staff	Administrative Staff	Professional Technician	
2023	78.2%	84.5%	92.0%	-







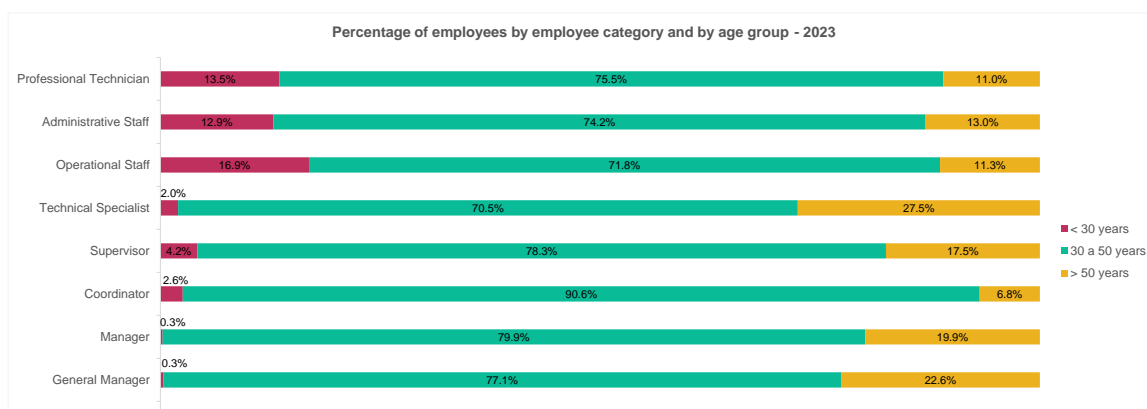
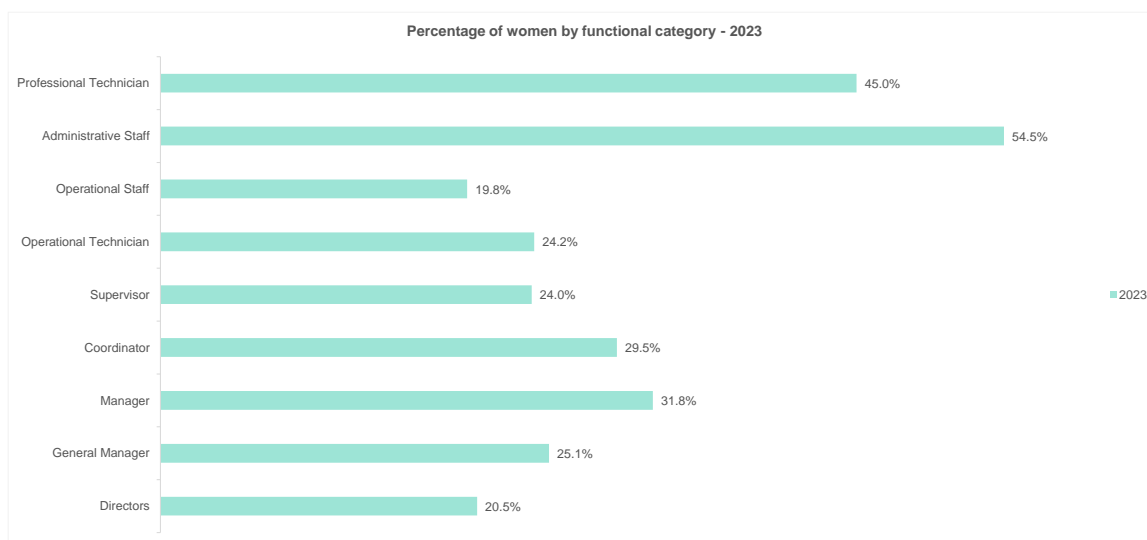
## GRI 405-1 (2016)

Description: Diversity of governance bodies and employees

Vale's Answer						
Percentage of women by leadership functional category						
Year	Directors	General Manager	Manager	Coordinator	Supervisor	Technical Specialist
2023	20.5%	25.1%	31.8%	29.5%	24.0%	24.2%

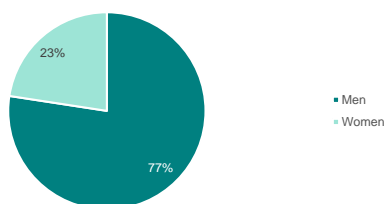
  

Percentage of women by staff category			
Year	Operational Staff	Administrative Staff	Professional Technician
2023	19.8%	54.5%	45.0%

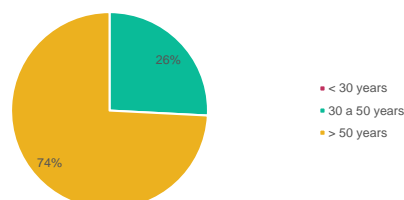




Percentage of individuals on governance bodies by gender - 2023



Percentage of individuals on governance bodies by age group - 2023



## GRI 405-2 (2016)

**Description:** Ratio of basic salary and remuneration of women to men

Year	Vale's Answer	Assurance
2019	Vale respects the local minimum wage defined by law and there is no difference in base wages between women and men who perform the same functions, as determined by the Human Resources Policy. Any variations result from different levels of seniority and maturity of employees in their functional category.	Independently assured by SGS ICS Certificadora Ltda.
2020	Vale respects the local minimum wage defined by law and there is no difference in base wages between women and men who perform the same functions, as determined by the Human Resources Policy. Any variations result from different levels of seniority and maturity of employees in their functional category.	Independently assured by Bureau Veritas Certification
2021	Vale respects the local minimum wage defined by law and there is no difference in base wages between women and men who perform the same functions, as determined by the Human Resources Policy. Any variations result from different levels of seniority and maturity of employees in their functional category.	-
2022	Vale respects the local minimum wage defined by law, and there is no significant difference in base salaries between women and men who perform the same functions, as determined by the Human Resources Policy. Any variations result from different levels of seniority and maturity of employees in their functional category.	-
2023	Vale pays no less than the legal minimum wage, and there is no significant* difference in remuneration between men and women in the same roles, as established in our Human Resources Policy. Any differences in compensation relate to employees' varying seniority levels and maturity in their positions.	-

**Note:** \*The current difference is a maximum of 4 percentage points more or less.

The data has no differentiation of important Operational Units, as these are the values referring to local purchases for the entire company. The reporting will be improved for the next cycles.

## GRI 406-1 (2016)

**Description:** Incidents of discrimination and corrective actions taken

Year	Vale's Answer	Assurance
2019	In 2019, 2 cases of discrimination were registered, both of which were analyzed by the company with their respective repair plans implemented, resulting in the dismissal of employees.	Independently assured by SGS ICS Certificadora Ltda.
2020	In 2020, 2 cases of discrimination were registered, both of which were analyzed by the company, resulting in the dismissal of employees.	Independently assured by Bureau Veritas Certification
2021	In 2021, 3 cases of discrimination were registered, being notified to the contracted company, employee dismissal, demobilization of outsourced employee, DSS on the subject of discrimination, among other actions.	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2022	In 2022, 8 cases of discrimination were confirmed by Vale's Whistleblower Channel. All these cases resulted in the application of disciplinary and preventive measures, which include dismissal of employees, demobilization of outsourced employees, holding conversation circles on the subject, among other actions. There is still 1 action plan in progress and 9 have already been implemented in the current period. Data related to cases of discrimination are frequently presented at senior management meetings and at the Audit and Conduct and Integrity Committees and are used as input for carrying out campaigns at the company related to diversity and inclusion issues.	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2023	In 2023, 8 cases of discrimination were registered, all cases were analyzed by the company, which resulted in dismissal of employees, demobilization of outsourced employees, training, feedback, HSD on the subject, among other actions. There are still 14 repair plans to be implemented and 13 plans have already been implemented in the current period, these plans aim to apply consequence measures according to the identified conduct, in addition to awareness actions in the areas with the realization of Health and Safety Dialogues (HSD) and training on the subject. Data related to cases of discrimination are frequently presented at meetings of the Audit and Compliance Board and the Conduct and Integrity Committee, and are used as inputs to carry out campaigns in the company related to diversity and inclusion.	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.

## GRI 407-1 (2016)

**Description:** Operations and suppliers where the right to freedom of association and collective bargaining may be at risk

Year	Vale's Answer	Assurance
2019	Three risk cases or incidents were identified in which the right to exercise freedom of association and collective bargaining may be being violated. All cases were reported from operations in the VNL - Valley Newfoundland & Labrador region. The measures taken were collective agreement procedures.	Independently assured by SGS ICS Certificadora Ltda.

2020	Four risk cases or incidents were identified in which the right to exercise freedom of association and collective bargaining may be being violated. All cases were reported from operations in the VNL - Valley Newfoundland & Labrador region. The measures taken were collective agreement procedures. Suppliers are committed to expected standards of behavior in accordance with Vale's Policies, and undertake, through contractual clauses, to provide dignified working conditions, including respect for freedom of association and collective bargaining. Vale's standard contractual draft also includes anti-corruption, Health, Safety and Environment (HSE) and Human Rights clauses.	Independently assured by Bureau Veritas Certification
2021	Four risk cases or incidents were identified in which the right to exercise freedom of association and collective bargaining may be being violated. All cases were reported from operations in the VNL - Valley Newfoundland & Labrador region. The measures taken were collective agreement procedures.	-
2022	Four risk cases or incidents were identified in which the right to exercise freedom of association and collective bargaining may be being violated. All cases were reported from operations in the VNL - Valley Newfoundland & Labrador region. The measures taken were collective agreement procedures.	-
2023	Four risk cases or incidents were identified in which the right to exercise freedom of association and collective bargaining may be being violated. All cases were reported from operations in the VNL - Valley Newfoundland & Labrador region. The measures taken were collective agreement procedures.	-

## GRI 408-1 (2016)

**Description:** Operations and suppliers at significant risk for incidents of child labor

Year	Vale's Answer	Assurance
2019	There was no record or complaint involving the company in child labor or young people exposed to hazardous work. Vale requires, through contractual clauses, that its suppliers prohibit child labor and any type of employment practice that may be interpreted as equivalent to forced or slave labor. Failure to comply with these clauses implies breach of contract. In order to detect these and other risks in contractors and suppliers, Vale establishes controls such as response and complaint listening channels, document analysis, field inspections, including interviews with workers. Contracts with suppliers have a clause committing to respect Human Rights and an obligation to respect Vale's Global Human Rights Policy and the Supplier Conduct Guide. The registration process for new suppliers checks for possible inappropriate conduct related to Human Rights.	Independently assured by SGS ICS Certificadora Ltda.
2020	In 2020, there was no record or complaint involving Vale in cases of child or slave labor, of young people exposed to hazardous work, forced or compulsory labor and human trafficking, in any of the Company's operations. Suppliers commit to expected standards of behavior in accordance with Vale's Policies, and undertake, through contractual clauses, to provide dignified working conditions, combat forced labor or labor analogous to slavery, child labor and sexual exploitation child abuse and not tolerate discrimination, respect freedom of association and collective bargaining.	Independently assured by Bureau Veritas Certification
2021	In its Global Human Rights Policy and Code of Conduct, Vale prohibits the use of child labor in its activities and in its suppliers and assesses and monitors this risk in all stages of the life cycle of its projects and operations, adopting measures preventive control measures such as: the Contract Management System (SGC) used to mobilize third parties, which establishes barriers for hiring minors under 18 years of age; for Vale employees in Brazil, minors under 18 are admitted in accordance with the Apprenticeship Law (Law 10097/2000 - Young Apprentice Program). In addition, Vale's suppliers are committed to expected standards of behavior in accordance with Vale's Policies, and are responsible, through contractual clauses, for combating child labor. The company does not maintain commercial relationships with suppliers that act in violation of its Supplier Code of Ethics and Conduct. Vale performs human rights due diligence on high-risk suppliers. Vale dedicates efforts to respect and promote the Human Rights of children and adolescents, prioritizing the fight against child sexual exploitation and child labor, establishing a continuous process of engagement with communities and suppliers in the areas of influence of the projects. As examples, Vale has a partnership and implements programs together with Childhood Brasil and acts through the Vale Foundation in structuring social programs, contributes to strengthening the public social protection network and acts directly with children and their families. In 2021, there was no record or report of incidents of child labor involving Vale's operations, but Vale still recognizes the fragility of the issue in its value chain and is working to minimize these impacts.	-
2022	In 2022, there was no record or report of confirmed occurrence of child labor involving Vale's operations and suppliers in the due diligence conducted. However, we recognize this risk as a critical theme in our iron ore and pellet, copper and nickel production and logistics operations in Brazil, nickel production in Canada and Indonesia, logistics in Malaysia, pelletizing in Oman, and in the Brumadinho repair works. Regarding suppliers, Vale considers the sectors listed as high risk or with the highest incidence of forced and child labor classified by Resolution N° 24 of the Ministry of Industry, Foreign Trade and Services, by the "Global Estimates of Modern Slavery" of highest risk and by the Secretary of Labor Inspection 2012 to 2020, and we act to prevent, monitor and manage such occurrences in our suppliers and operations.	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2023	The risk related to the possibility of child labor is mapped in the operations in Brazil, Indonesia and Malaysia; in projects in Brazil, Canada, Chile, Peru and Indonesia; and Brazilian and international suppliers, with emphasis on the following countries where Vale has operations and projects: Chile, China, UAE, Indonesia, Malaysia, Oman and Peru. The risk related to the possibility of young workers exposed to hazardous work is mapped in the operations in Brazil and Indonesia; in projects in Brazil, Indonesia, Chile and Peru; and Brazilian and international suppliers, with emphasis on the following countries where Vale has operations and projects: Chile, China, UAE, Indonesia, Malaysia, Oman and Peru.	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.

## GRI 409-1 (2016)

**Description:** Operations and suppliers at significant risk for incidents of forced or compulsory labor

Year	Vale's Answer	Assurance
2019	There was no record or complaint involving the company in child labor or young people exposed to hazardous work. Vale requires, through contractual clauses, that its suppliers prohibit child labor and any type of employment practice that may be interpreted as equivalent to forced or slave labor. Failure to comply with these clauses implies breach of contract. In order to detect these and other risks in contractors and suppliers, Vale establishes controls such as response and complaint listening channels, document analysis, field inspections, including interviews with workers. Contracts with suppliers have a clause committing to respect Human Rights and an obligation to respect Vale's Global Human Rights Policy and the Supplier Conduct Guide. The registration process for new suppliers checks for possible inappropriate conduct related to Human Rights.	Independently assured by SGS ICS Certificadora Ltda.
2020	In 2020, there was no record or complaint involving Vale in cases of child or slave labor, of young people exposed to hazardous work, forced or compulsory labor and human trafficking, in any of the Company's operations. Suppliers commit to expected standards of behavior in accordance with Vale's Policies, and undertake, through contractual clauses, to provide dignified working conditions, combat forced labor or labor analogous to slavery, child labor and sexual exploitation child abuse and not tolerate discrimination, respect freedom of association and collective bargaining.	Independently assured by Bureau Veritas Certification

2021	<p>In its Global Human Rights Policy and Code of Conduct, Vale prohibits the use of child labor in its activities and in its suppliers and assesses and monitors this risk in all stages of the life cycle of its projects and operations, adopting measures preventive control measures such as: the Contract Management System (SGC) used to mobilize third parties, which establishes barriers for hiring minors under 18 years of age; for Vale employees in Brazil, minors under 18 are admitted in accordance with the Apprenticeship Law (Law 10097/2000 - Young Apprentice Program). In addition, Vale's suppliers are committed to expected standards of behavior in accordance with Vale's Policies, and are responsible, through contractual clauses, for combating child labor. The company does not maintain commercial relationships with suppliers that act in violation of its Supplier Code of Ethics and Conduct. Vale performs human rights due diligence on high-risk suppliers.</p> <p>Vale dedicates efforts to respect and promote the Human Rights of children and adolescents, prioritizing the fight against child sexual exploitation and child labor, establishing a continuous process of engagement with communities and suppliers in the areas of influence of the projects. As examples, Vale has a partnership and implements programs together with Childhood Brasil and acts through the Vale Foundation in structuring social programs, contributes to strengthening the public social protection network and acts directly with children and their families.</p> <p>In 2021, there was no record or report of incidents of child labor involving Vale's operations, but Vale still recognizes the fragility of the issue in its value chain and is working to minimize these impacts.</p>	-
2022	<p>In 2022, there was no record or report of confirmed occurrence of forced or compulsory labor involving Vale's operations and suppliers in the due diligence conducted. However, we recognize this risk as a critical theme in our iron ore and pellet, copper and nickel production and logistics operations in Brazil, nickel production in Canada and Indonesia, logistics in Malaysia, pelletizing in Oman, and in the Brumadinho repair works. Regarding suppliers, Vale considers the sectors listed as high risk or with the highest incidence of forced and child labor classified by Resolution Nº 24 of the Ministry of Industry, Foreign Trade and Services, by the "Global Estimates of Modern Slavery" of highest risk and by the Secretary of Labor Inspection 2012 to 2020, and we act to prevent, monitor and manage such occurrences in our suppliers and operations.</p>	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2023	<p>The risk related to the possibility of forced or compulsory labor is mapped in operations in Brazil, Canada, Oman, Indonesia, Malaysia, Japan and Wales; in projects in Brazil, Indonesia, Canada, Chile and Peru; and Brazilian and international suppliers, with emphasis on the following countries where Vale has operations and projects: Chile, China, UAE, Indonesia, Malaysia, Oman and Peru.</p>	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.

## GRI 410-1 (2016)

**Description:** Security personnel trained in human rights policies or procedures

Year	Vale's Answer Percentage of security personnel trained in human rights		Assurance
	Own employees	Third party employees	
2019	29%	50%	Independently assured by SGS ICS Certificadora Ltda.
2020	63%	69%	Independently assured by Bureau Veritas Certification
2021	98%	79%	-
2022	100%	97%	-
2023	99%	100%	-

## GRI 411-1 (2016)

**Description:** Incidents of violation involving rights of indigenous peoples

Year	Vale's Answer	Assurance
2019	In 2019, there was a record of a case of violation of the rights of indigenous peoples in Brazil. The case was monitored by the Corporate Management for the Relationship with Indigenous Peoples and Tribal Peoples and is in the process of drawing up recovery and reparation plans together with the affected indigenous and tribal peoples.	Independently assured by SGS ICS Certificadora Ltda.
2020	There was a record of a case of violation of the rights of indigenous peoples in Brazil. This case is in the process of continuous analysis by the company, observing the procedures and determinations established in the Term of Adjustment of Conduct (TAC) entered into with the Federal Public Ministry (MPF/MG).	-
2021	There was no record of cases of violation of the rights of indigenous peoples.	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2022	There was a record of a case of violation of the rights of indigenous peoples in Brazil. This case is in the process of continuous monitoring by the company, as well as its performance, in compliance with the court decision deliberated in 2022.	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2023	In 2023, there were no new cases of violation of the rights of Indigenous Peoples in Brazil and international units. The cases reported in Brazil were from previous years and are ongoing. They are continuously monitored by the company, as well as its performance in compliance with judicial decisions already deliberated.	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.

**Note:** The records of cases of violation of rights of indigenous peoples, in Brazil, reported in the years 2019, 2020 and 2022 refer to the repair of damages related to the rupture of dam I of Córrego do Feijão, Brumadinho, related to indigenous people Pataxó (residents of the Naô Xohã village, in São Joaquim de Bicas (MG)).

## GRI 413-1 (2016)

**Description:** Operations with local community engagement, impact assessments, and development programs

Year	Vale's Answer	Assurance
------	---------------	-----------

2019	<p>In 2019, 53% of operations carried out social impact assessments and 68% environmental ones. In the same year, 71% of our operations implemented local development programs based on the needs of local communities, as well as 71% of them promoted committees or social dialogue groups. Around 76% of operations had stakeholder engagement plans.</p>	Independently assured by SGS ICS Certificadora Ltda.
2020	<p>In 2020, Vale internationalized the community relationship standards for all countries where the company has operations, except for Malaysia scheduled for 2021. This initiative made it possible to qualify the global management of social action - based on the integration of information - and promote greater transparency in area reports. Currently, Vale has mapped 1,726 local relationship communities, distributed as follows: Brazil – 1,215, Atlântico Norte – 32, Mozambique – 243, Malawi – 99, Peru – 46, Oman – 12, Indonesia – 74 and Chile – 05.</p> <p>In Brazil, according to data consolidated in October 2020, of the 1,215 local communities, distributed among 120 municipalities, 411 are priority communities for engagement. The company's goal is for all priority communities to have a Relationship Plan drawn up. In 2020, 236 of these priority communities had a plan, totaling 57% coverage.</p>	Independently assured by Bureau Veritas Certification
2021	<p>Currently, Vale has mapped 2,092 local relationship communities, 1,304 in Brazil, 80 in Canada, 355 in Mozambique, 163 in Malawi, 47 in Peru, 27 in Oman, 110 in Indonesia and 6 in Malaysia. To engage them, Vale seeks to establish structured dialogue spaces for the construction of Relationship Plans with Communities, whose principle is mobilization and social participation in the definition and prioritization of actions to be implemented in the territory.</p> <p>In 2021, in Brazil we had 411 priority communities for engagement, out of a total of 1,304 communities, distributed among 130 municipalities. During the period, 69% of the communities were covered by Relationship and Investment Plans and by 2030 our goal is to reach 100%. In 2021, 63% of operations carried out an assessment/monitoring of the project's socio-environmental impacts on local communities.</p> <p>As a result of projects and initiatives underway in 2021, more than 1.5 million direct beneficiaries were reached globally. In Brazil, 57% of the projects/initiatives were focused on job and income generation, 15% on education, 6% on Environmental Education, and the rest in areas such as security, social protection, health, culture, sport, among others.</p>	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2022	<p>Vale's social action is guided by international industry standards and constitutes a necessary foundation towards our Social Ambition. Our operating model is guided by the following guiding principles: transparency, active listening, social participation, engagement, social capacity, diversity and inclusion, adherence to international pacts and operational responsibility. The Model directs our actions throughout the life cycle of the projects, based on respect for Human Rights, which is a non-negotiable condition, where each employee or contractor must be attentive to avoid any type of violation. Respecting Human Rights is the basis that makes our model of social action strong and consistent, extending to all the company's activities. And the relationship, which is the means by which we build respect and trust with the communities and other stakeholders with whom we interact. It is through engagement with people, groups and institutions that we manage the effects of risks and impacts; we share our practices; and we learn how to be a better company every day, becoming a partner company in the development of territories.</p> <p>With the aim of engaging communities, Vale seeks to establish structured spaces for dialogue to build the Community Relationship Plans. The plans have as a principle the mobilization and social participation in the definition and prioritization of actions to be implemented in the territory. In addition, the structuring of the plan aims at sharing responsibilities between the company, the community and other social actors for local development.</p> <p>The Relationship Plans are monitored by the community relationship teams that have a systematic routine of participatory meetings to monitor the execution of actions, evaluating the adherence and effectiveness of the results with the community.</p> <p>Currently, Vale has mapped 1532 local relationship communities, 1,156 in Brazil, 82 in Canada, 52 in Andean America, 28 in Oman, 206 in Indonesia, 6 in Malaysia and 2 in Wales. To engage them, Vale seeks to establish structured dialogue spaces for the construction of Relationship Plans with Communities, whose principle is mobilization and social participation in the definition and prioritization of actions to be implemented in the territory.</p> <p>In the period, 78.8% of communities, with very high and high priority, were covered by Relationship Plans and our commitment is that 100% of these have a Relationship Plan implemented by 2026.</p> <p>As a result of projects and initiatives underway in 2021, more than 1.5 million direct beneficiaries were reached globally. In Brazil, 43% of the projects/initiatives were focused on job and income generation, 12% on education, 6% on Environmental Education, 7% on strengthening community institutions and 6% on environmental education.</p> <p>In 2022, 77% of operations carried out an assessment/monitoring of the project's socio-environmental impacts on local communities.</p>	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2023	<p>Vale's social performance is guided by the international standards of the sector and constitutes a necessary foundation towards our Social Ambition. Our operating model is guided by the following guiding principles: transparency, active listening, social participation, engagement, social capacity, diversity and inclusion, adherence to international best practices and operational responsibility. The Model directs our performance throughout the life cycle of the enterprises, based on respect for Human Rights, which is a non-negotiable condition, where each employee or contractor must be attentive to avoid any type of violation. Respecting Human Rights is the basis that makes our social action model strong and consistent, extending to all the company's activities. And the relationship, which is the means by which we build respect and trust with the communities and other stakeholders with whom we interact. It is by engaging with people, groups and institutions that we manage the effects of risks and impacts; we share our practices; And we learn how to be a better company every day, becoming a partner company in the development of territories.</p> <p>In order to engage communities, Vale seeks to establish structured spaces for dialogue for the construction of Community Relationship Plans. The plans are based on the principle of mobilization and social participation in the definition and prioritization of actions to be implemented in the territory. In addition, the structuring of the plan aims to share responsibilities between the company, the community and other social actors for local development.</p> <p>The Relationship Plans are monitored by the community relations teams, which have a systematic routine of participatory meetings to monitor the execution of the actions, evaluating the adherence and effectiveness of the results with the community.</p> <p>Currently, Vale has mapped 1,574 local relationship communities, 1,106 in Brazil, 82 in Canada, 53 in Andean America, 33 in Oman, 292 in Indonesia, 6 in Malaysia and 2 in Wales.</p> <p>In all, 88% of the 177 very high and high priority communities have been covered by Relationship Plans and our commitment is that 100% of these will have Relationship Plans implemented by 2026.</p> <p>As a result of the projects and initiatives underway in 2022/2023, more than 1.9 million direct beneficiaries were reached globally. In Brazil, 48% of the projects and initiatives were focused on job and income generation, 17% on strengthening community institutions, 13% on education and 6% on environmental education.</p> <p>In 2023, 91% of the operations carried out an assessment/monitoring of the project's social and environmental impacts on local communities.</p>	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.

## GRI 413-2 (2016)

**Description:** Operations with significant actual and potential negative impacts on local communities

Year	Vale's Answer	Assurance
2019	All activities carried out in operations carried out at Vale are supported by specific procedures aimed not only at carrying them out, but also at identifying hazards and associated risks, as well as defining critical controls that allow risks to be maintained at tolerable levels.	Independently assured by SGS ICS Certificadora Ltda.
2020	In 2020, Vale structured its risk assessment model, implementation will begin in 2021. During this structuring, the main significant negative impacts observed on local communities were: change in air quality due to the emission of non-toxic particulate matter, noise pollution (noise) and pressure on public education, health and safety services. The main potential impacts identified were the occurrence of accidents and pollution of natural resources due to accidental leaks.	Independently assured by Bureau Veritas Certification
2021	<p>Motivated by its Cultural Transformation process, Vale is reviewing the ways in which its activities impact society. One of the vectors of this review encompasses the theme of community safety, which involves the risk to people's physical integrity, as a result of Vale's presence in the territories.</p> <p>The challenge of expanding the security approach implies extending risk and impact management to communities. In this context, we are implementing a structured community safety process, including the execution of preventive actions, response to occurrences, crisis management, investigation of events and the implementation of actions to mitigate the risk of recurrence of events. The direct participation of communities in the process is evolving and tends to be more and more.</p> <p>Vale took on the practice of recording events regardless of fault or responsibility, transforming the analysis of these occurrences into lessons learned for actions to continuously improve operational safety in relation to communities. This understanding represents a change in the way Vale understands its role as a productive agent that induces transformations in the territory.</p> <p>The main significant negative impacts observed on local communities were: changes in air quality due to the emission of non-toxic particulate matter, noise pollution (noise) and pressure on public education, health and safety services. The main potential impacts identified were the occurrence of accidents involving community members and pollution of natural resources due to accidental leaks.</p>	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.

2022	<p>In line with its Cultural Transformation, Vale defined its key social performance indicator for 2022 linked to the Community Safety process. This process includes the monitoring and analysis of accidents that pose a risk, fatal or non-fatal, to the physical integrity of people, as a result of Vale's activity in the territories. As a result, the company had, in 2022, 8.7% fewer accidents compared to 2021 and a 32% reduction in total fatalities, with members of the community, resulting from Vale's presence.</p> <p>To achieve this result, the various operations put efforts into preventive actions, responding to incidents and investigating events, in addition to implementing actions to mitigate the risk of recurrence of events.</p> <p>The ferrous metal business, for example, carried out a robust plan to achieve the target, which began by evaluating the accidents that occurred in 2021, identifying the root causes, and then defining and implementing actions with the aim of mitigating the recurrence of cases in 2022. actions were monitored periodically and resulted in a 15.5% decrease in events in the board.</p> <p>These results represent a change in the way Vale understands its role as a productive agent that induces transformations in the territory.</p> <p>Complementing the year's analyzes and efforts, the company has been structuring Integrated Community Safety Plans for the territories in which it is present. These Plans integrate the necessary actions to incorporate the Community Safety perspective into Vale's operations and project activities, containing controls and initiatives that meet the Risk Management and Impact Management dimensions.</p> <p>The main significant negative impacts observed in the communities impacted by Vale's projects (Brazil and abroad) were: changes in the quality of water resources and air, due to the emission of particulate matter, sound pollution (noise) and vibration, flooding and accidents involving members of the community. In addition to these, for communities affected by mining activities in Brazil, the following significant impacts also stand out: risk of dam failure, landscape changes, pressure on public services and equipment, increased flow of vehicles (mobility) , change in the health conditions of the population, change in the job market and in goods and services, change in demographic dynamics and change in economic dynamics.</p> <p>The main potential impacts identified were the occurrence of accidents involving community members and pollution of natural resources due to accidental leaks.</p>	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2023	<p>Projects that have actual and potential negative impacts on communities that are located in Brazil, Canada, Malaysia and Indonesia. The main negative impacts identified for railways are: particulate emissions, noise and vibration; change in local mobility and risk of accidents. To manage these impacts, the following mitigation/compensation measures are implemented: monitoring of air quality, noise and vibration; environmental education; social communication and mobility actions. For ports, the following main impacts are identified: particulate emissions; interference in traffic due to the increase in the flow of vehicles near the project; restriction of access and use to the dredging channel; Suspension of material in the water during dredging. To manage these impacts, the following mitigation/compensation measures are implemented: air quality monitoring; environmental education; and social communication. For mining they are: particulate emission, noise and vibration; change in water dynamics; interference in traffic due to the increase in the flow of vehicles near the project; changing the socio-political dynamics of the region; and visual disturbance due to the alteration of the landscape. To manage these impacts, the following mitigation/compensation measures are implemented: monitoring of air quality, noise, vibration and water bodies; environmental education; social communication; mobility actions; support for territorial development; and monitoring of socioeconomic indicators. There are still some negative impacts that relate specifically to Indigenous Peoples and Traditional Communities: alteration of the dynamics of hunting, fishing, mobility; territorial pressure and alteration in the traditional way of life. To manage these impacts, the following mitigation/compensation measures are agreed with the communities and implemented: support for ethnodevelopment; Institutional strengthening; cultural strengthening, Territorial and Environmental Management and Protection.</p>	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.

## GRI 414-1 (2016)

**Description:** New suppliers that were screened using social criteria

Year	Vale's Answer	Assurance
2019	<p>Vale conducts a verification process of H&amp;S and Environment (SSM), integrity and Human Rights (eg modern slavery, among other critical issues) when the supplier completes the request to enter the Supplier List. Assessments are carried out on 100% of link 1 suppliers through a background check and the submission of documents, such as a self-declaration form, presenting the details of the supplier's SSM qualification. In Brazil, in each edition of the Dirty List, the entire supplier base is checked and if a legal or natural person is identified on the list, the contract is suspended.</p> <p>100% of suppliers (Brazil scope - companies and self-employed persons with whom Vale maintains a commercial relationship) are considered considering the lists of companies sanctioned by the Federal Government - CEIS, CEPIM and CNEP. Environmental document analysis is carried out and suppliers are registered through the certification process, which is the standard process for registering suppliers for approval of contracts.</p>	-
2020	<p>Upon registration at Vale, all suppliers undergo a risk analysis, which includes an assessment of Human Rights, Health and Safety and the Environment (HSE) and Integrity. In addition, the company encourages suppliers to implement compliance programs and follow the same guidelines in their production chains. At this stage, third-party due diligence is performed globally on 100% of new registered suppliers. The company periodically monitors, both in the certification and registration phase and throughout the supplier's life cycle, updates to the Blacklist of Slave Labor, cross-referencing the information with 100% of its supplier base in Brazil.</p> <p>100% of suppliers (Brazil scope - companies and self-employed persons with whom Vale maintains a commercial relationship) are analyzed considering the lists of companies sanctioned by the Federal Government - CEIS, CEPIM and CNEP. Environmental document analysis is carried out and suppliers are registered through the standard process for registering suppliers for approval of contracts.</p>	Independently assured by Bureau Veritas Certification
2021	<p>For all suppliers globally, third-party due diligence is applied, which evaluates various parameters such as history at Vale, negative media, checks on market compliance portals, among others, for the company and its partners.</p> <p>For suppliers in Brazil, for 100% of companies and self-employed workers with whom Vale maintains a commercial relationship, they are analyzed considering the lists of companies sanctioned by the Federal Government - CEIS, CEPIM and CNEP. Environmental document analysis is carried out and suppliers are registered through the standard process for registering suppliers for approval of contracts.</p>	-
2022	<p>For all suppliers globally, third-party due diligence is applied, which evaluates various parameters such as history at Vale, negative media, checks on market compliance portals, among others, for the company and its partners.</p> <p>For suppliers in Brazil, for 100% of companies and self-employed workers with whom Vale maintains a commercial relationship, they are analyzed considering the lists of companies sanctioned by the Federal Government - CEIS, CEPIM and CNEP. Environmental document analysis is carried out and suppliers are registered through the standard process for registering suppliers for approval of contracts.</p>	-
2023	<p>Vale's supplier registry verifies their condition with public agencies. Further consultation of public sanction lists may be applied in specific cases. It should be noted that all suppliers go through an analysis process, which includes Due Diligence and risk assessment.</p>	-

## GRI 414-2 (2016)

**Description:** Negative social impacts in the supply chain and actions taken

Year	Vale's Answer	Assurance
2019	<p>In order to identify and seek to minimize some possible negative social impacts, we have practices such as supplier registration requirements, signature of Vale's Code of Ethics and Conduct for the Supplier (in which the supplier undertakes to agree with Vale's values (as per example: promoting adequate working conditions for its employees, health and safety, complying with labor legislation, not agreeing with slave or child labor practices, among others), monitoring suppliers in compliance with the Global Anti-Corruption Program, in the level of financial risk ( avoiding breakages, ruptures, default by the supplier to its employees), crossing with blacklists of Slave Labor and blacklists of the Federal Government, compliance with environmental requirements, NACT (Nucleus for Service to Contracts with Third Parties).</p>	-

2020	<p>In 2020, Vale established a pilot process for managing Human Rights risks for suppliers in Brazil, assessing the criticality of its contracts under three aspects: supply segments; location of operation; and mobilized labor. It also assessed the vulnerability of its suppliers' management based on the response to a self-diagnosis questionnaire covering seven dimensions: policies and regulations; risk and impact management; whistleblower channel; working relationships and conditions; relationships with communities; supplier management; and diversity and inclusion.</p> <p>The result of this work culminated in the pilot performance of due diligence of suppliers considered critical from the perspective of Human Rights. An action plan is under development to address the identified risks.</p> <p>In Brazil, there is also the Third-Party Contract Assessment Center (NACT) which monitors selected suppliers in relation to Health and Safety issues and labor conditions</p>	Independently assured by Bureau Veritas Certification
2021	The main potential social impacts in the supply chain are associated with the social security and labor obligations of suppliers towards their employees and the working conditions to which these employees are exposed.	-
2022	The main potential social impacts in the supply chain are associated with the social security and labor obligations of suppliers towards their employees and the working conditions to which these employees are exposed.	-
2023	The main potential social impacts in the supply chain are associated with the social security and labor obligations of suppliers towards their employees and the working conditions to which these employees are exposed.	-

## GRI 415-1 (2016)

Description: Political contributions

Year	Vale's Answer	Assurance
2019	In accordance with Brazilian law, we do not make any contribution of any kind to political parties and/or politicians.	Independently assured by SGS ICS Certificadora Ltda.
2020	In accordance with Brazilian law, we do not make any contribution of any kind to political parties and/or politicians.	-
2021	In accordance with Brazilian law, we do not make any contribution of any kind to political parties and/or politicians.	-
2022	In accordance with Brazilian law, we do not make any contribution of any kind to political parties and/or politicians.	-
2023	In accordance with Brazilian law, we do not make any contribution of any kind to political parties and/or politicians.	-

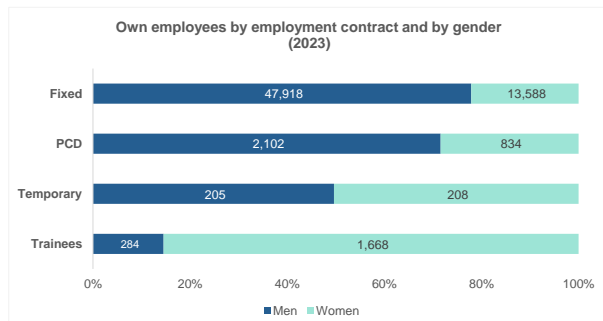
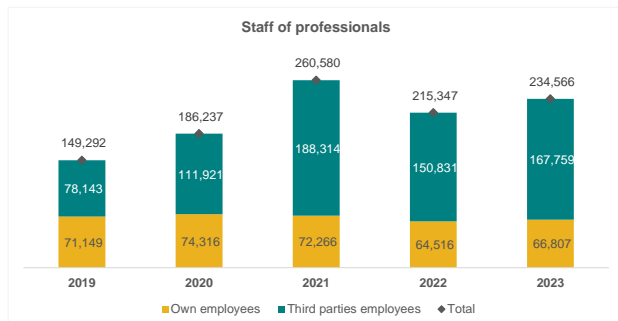
## GRI 2-7 e GRI 2-8

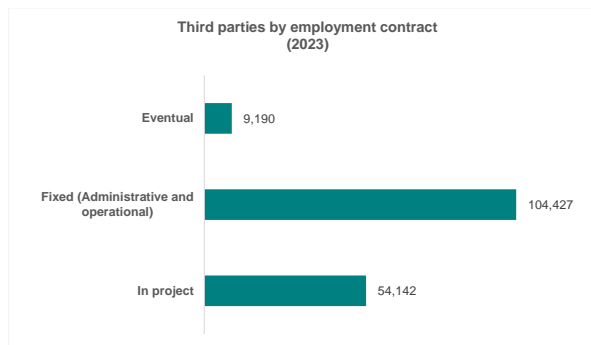
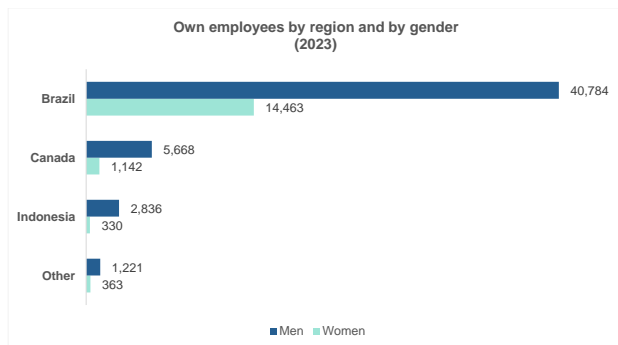
Description GRI 2-7: Employees

Description GRI 2-8: Workers who are not employees

Number of own employees by country				
Country	2020	2021	2022	2023
Brazil	58,249	55,067	53,341	55,247
Canada	6,166	6,443	6,561	6,810
Indonesia	3,082	3,040	3,023	3,166
Malaysia	389	392	360	377
Oman	637	611	597	594
Other	5,793	6,713	634	613
<b>Total</b>	<b>74,316</b>	<b>72,266</b>	<b>64,516</b>	<b>66,807</b>

Number of third parties employees by country				
Country	2020	2021	2022	2023
Brazil	90,877	161,924	136,467	152,977
Canada	4,617	4,311	4,633	1,946
Indonesia	6,499	7,515	7,278	10,639
Malaysia	730	909	916	964
Oman	686	1,140	1,115	1,016
Other	8,512	12,515	422	217
<b>Total</b>	<b>111,921</b>	<b>188,314</b>	<b>150,831</b>	<b>167,759</b>





## GRI - G4 MM4 e EM-MM-310a.2

**GRI Description:** Number of strikes and lockouts lasting more than one week, broken down by country

**Description SASB:** Number and duration of strikes and lockouts

Year	Vale's Answer	Assurance
2019	There was no notification of a strike or stoppage lasting more than a week.	Independently assured by SGS ICS Certificadora Ltda.
2020	There was no notification of a strike or stoppage lasting more than a week.	-
2021	In 2021, there was a strike at the Sudbury operation in Canada, lasting 2 months. Employees voted in favor of a strike on June 1, 2021, negotiations were carried out with the assistance of a facilitator, and ratification took place on August 1, 2021.	-
2022	There was no notification of a strike or stoppage lasting more than a week.	-
2023	There was no notification of a strike or stoppage lasting more than a week.	-

## GRI - G4 MM5 e SASB - EM-MM-210a.2

**GRI Description:** Total number of operations located in or adjacent to indigenous peoples' territories, and number and percentage of operations or locations where there are formal agreements with indigenous peoples' communities

**SASB Description:** Percentage of (1) proven reserves and (2) probable reserves on or near indigenous lands

Year	Vale's Answer	Assurance
2019	In 2019, Vale has relationships with 32 indigenous peoples (14 in Brazil and 18 in other countries) and 48 traditional communities (45 in Brazil - mostly quilombolas and coconut breakers, and 3 outside the country). In Brazil, 5 operations have an interface with indigenous territories - Onça Puma, Sossego, Salobo, EFC and EFVM; and 04 with an interface with traditional communities (quilombolas, artisanal fishermen and coconut breakers) - Fábrica Mine, Córrego do Feijão Mine and Ilha Gualaiba Terminal (TIG). Outside Brazil, 3 operations were located in or adjacent to indigenous peoples' territories (PTVI in Indonesia, VNC in New Caledonia and Sudbury in Canada). All operations have formal agreements signed with the indigenous peoples and communities present in these areas.	Independently assured by SGS ICS Certificadora Ltda.
2020	In 2020, Vale had 9 operations in Brazil and 3 outside Brazil with interface with traditional communities and indigenous peoples. In Brazil, 5 operations are adjacent to indigenous territories - Onça Puma, Sossego, Salobo, EFC and EFVM; and 04 with interface with traditional communities (quilombolas, artisanal fishermen and coconut breakers) - Barra do Riacho Railway Branch (EFVM), Córrego do Feijão Mine; Fábrica Mine, Gualaiba Island Terminal (TIG). Outside Brazil, 3 operations were located in or adjacent to indigenous peoples' territories (PTVI in Indonesia, VNC in New Caledonia and Sudbury in Canada). All operations have formal agreements signed with the indigenous peoples and communities present in these areas.	-
2021	In 2021, Vale had 4 operations in Brazil and 4 outside Brazil with interface with traditional communities and indigenous peoples. In Brazil, 8 operations are adjacent to indigenous territories - Ponta da Madeira Maritime Terminal, Carajás Complex, Itabira Complex, Fábrica Mine, TIG, CPBS, Onça Puma and Mineração Corumbá Complex. Outside Brazil, 3 operations were located in or adjacent to indigenous peoples' territories (Sudbury, Port Colborne and Voisey's Bay, Canada). All operations have formal agreements signed with the indigenous peoples and communities present in these areas.	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2022	In 2022, Vale had 12 operations in Brazil with interface with Traditional Communities and Indigenous Peoples (Reparação Brumadinho, EFC, Portos Norte, EFVM, CPBS, TIG, Salobo, Onça Puma, Serra Norte - Carajás and Serra Sul - S11D, Complexo Itabira and Paraopeba Complex). Outside Brazil, Vale had 4 operations with Indigenous Peoples and Traditional Communities (PTVI, Manitoba, Port Colborne and Sudbury). We have operations that have no formal agreement signed. However, there is some initiative in progress, be it PBA, ECQ, PRC, voluntary initiative or specific actions.	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2023	In 2023, Vale had 12 operations/processes in Brazil with an interface with Traditional Communities and Indigenous Peoples (Reparação Brumadinho, EFC, Portos Norte, EFVM, CPBS, TIG, Salobo, Onça Puma, Serra Norte - Carajás and Serra Sul - S11D, Itabira Complex and Paraopeba Complex). Outside Brazil, 06 Vale operations had an interface with Indigenous Peoples and Traditional Communities (PTVI, Thompson Complex, Port Colborne Refinery, Sudbury, Long Harbour Operations and Voisey's Bay Complex). Of the aforementioned total, 70% of the operations with an interface with Indigenous Peoples and Traditional Communities have formal agreements and the others have ongoing initiatives, whether they are projects/programs or actions to mitigate and/or compensate for impacts.	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.

**Note:** Although the information complies with both standards (GRI and SASB), only the completeness of the GRI standard has been independently assured.

## GRI - G4 MM6 e MM7 e SASB - EM-MM-210a.1



**Description:** Number and description of significant conflicts relating to land use, customary rights of local communities and indigenous peoples, and the extent to which mechanisms for escalating demands and grievances were used to resolve these conflicts.

Year	Vale's Answer	Assurance
2019	The main conflicts related to the irregular occupation of the company's areas are related to highly complex land contexts marked by historical disputes and lack of legal security in the regularization of properties due to the recent occupation of territories. For more details, see the 2019 Sustainability Report (p. 72).	Independently assured by SGS ICS Certificadora Ltda.
2020	Vale's operational units are installed in regions where land use disputes are part of the territorial context. Currently, Vale is managing the relationship with communities that occupy areas of the Company in four regions of Brazil, Mozambique and Indonesia, through preventive actions to disputes and with permanent dialogue with interested parties, especially public institutions, communities and social movements.	Independently assured by Bureau Veritas Certification
2021	Vale currently owns more than 9,000 properties in Brazil, corresponding to approximately 934,000 hectares. Of this total, 63% are operating areas and 37% are non-operating. Part of these areas are located in regions where land use disputes are part of the territorial context and require the company to manage the relationship with communities that have an interest in the company's areas, which occupy them for housing, carry out subsistence activities or for access to natural resources. The main issues related to land use disputes are found in the North region of Brazil, involving local communities and indigenous peoples. Of the total, around 45% of Vale's properties have some type of irregular occupation. Due to the criticality of the management of irregular occupations, a specific governance was established to bring more agility to analyzes and decision-making. As results already achieved, approximately 68 thousand hectares have already been sold, donated or leased.	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2022	Some of our projects and operations are located in regions where there are land use disputes. The main cases are related to the dependence of third parties on company land, either for habitation by local communities or for access to natural resources, and are located in the state of Pará, in the North region of Brazil. In the municipality of Canaã dos Carajás, areas neighboring the Southeast Pará Railroad branch demand the regularization of land rights for the properties, in exchange for Vale vacating the strip of land on seven properties occupied by 650 families. Negotiations are also underway with 554 families who occupy company properties set aside for the Cristalino Project, aimed at extracting copper and gold in southeastern Pará. In the area reserved for the project, other properties owned by the company were subject to police action coordinated by environmental agencies to demobilize illegal mining activities responsible for the contamination of water resources and damage to the environment. In Minas Gerais, part of the Xukuru-Kariri indigenous group living in areas granted by the Union in the municipalities of Caldas and Presidente Olegário, both in Minas Gerais, occupied a Vale property in Brumadinho, called Fazenda Bruma, with approximately 50 indigenous people distributed in 16 families. The Bruma Farm is an area acquired by the company for environmental compensation and to comply with the obligation to use the main lake, which has a mechanism for protecting exotic fish species, which requires daily monitoring and maintenance with risks if the proper inspections are not carried out, especially during the rainy season. The monitoring of this property is accompanied by the State Forestry Institute - IEF and AECOM. In addition, nearby, Vale has administrative structures and is also carrying out works related to the Temporary Animal Shelter Center. The aim is also to use the area for the protection of endangered species to preserve the Atlantic Forest and create an APP. Also in Brumadinho, indigenous people of the Kamaká Mongoió ethnic group, who were originally in the Guayra village in Esmeralda (MG), occupied a property owned by Vale, called Fazenda Córrego de Areia, also intended for environmental compensation, and have remained camped there ever since. Both conflicts have not yet been solved and, until December 2022, these lawsuits were in court, with Vale's intention to take back the occupied areas. In Sudbury, Canada, the traditional territory of the Atikameksheng Anishnawbek and Sagamok First Nations24 overlaps with the surroundings of Vale's operation. The relationship is at different stages of maturity with each indigenous people and is generally positive. However, the agreements with these communities need to be reviewed and updated, because since December 2021 conflict situations with these peoples have been registered. In 2022, meetings were held between Vale and the indigenous people's representatives with the objective of constructing the Impact Benefit Agreement (IBA) 25 that meets the interests of the community. This process remains under negotiation and has not impacted our operations to date.	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2023	The primary instances of land disputes involve third parties, Indigenous Peoples, and local communities. These groups are dependent on the land for shelter and livelihood. Vale strives to resolve conflicts amicably, prioritizing dialogue as a fundamental approach.  In Brazil, in the state of Pará, in Canaã dos Carajás, negotiations are ongoing with 544 families occupying company land dedicated to the Cristalino Project, as per the agreement formalized with social movements and the Pará Public Prosecutor's Office. In 2023, 124 extrajudicial settlements were formalized, 114 were ratified, and 85 lots were vacated.  In Minas Gerais, in 2022, the Xukuru-Kariri Indigenous People occupied a company property, Bruma Farm, in Brumadinho. Sixteen families live there, and the farm was acquired for environmental compensation purposes and to fulfill the obligation of using the main pond, which requires daily maintenance and monitoring by the State Forestry Institute (IEF) and Aecom (an independent external audit in the socio-environmental recovery process). Another Vale property in Brumadinho, Fazenda Córrego de Areia, also earmarked for environmental compensation, was occupied in 2021 by Kamaká Mongoió indigenous people from the south of Bahia. Both properties were acquired free and clear of any occupation or claims by indigenous or traditional communities. Legal proceedings for repossession are underway. Vale has been acting in compliance with the law and respecting the rights involved in both cases.	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.

**Note:** Although the information complies with both standards (GRI and SASB), only the completeness of the GRI standard has been independently assured.

## GRI - G4 MM8

**Description:** Number and percentage of operational areas with artisanal and small-scale mining, including adjacent areas; the associated risks and actions taken to manage and mitigate them

Year	Vale's Answer	Assurance
2019	In 2019, 17 occurrences of artisanal or small-scale mining were recorded inside or in the vicinity of the company's operations, in Moatize and Pará. All of them not legalized.	Independently assured by SGS ICS Certificadora Ltda.
2020	In 2020, a multidisciplinary internal group was established and the topic was included in the company's integrated business risk map. An initial georeferenced mapping using high-resolution satellite images of small-scale artisanal mining areas in southeastern Pará, Brazil, was carried out. Preliminary data will be refined throughout 2021 and 2022 along with the review of the engagement strategy with this audience.	Independently assured by Bureau Veritas Certification
2021	In 2020, a multidisciplinary internal group was established and the topic was included in the company's integrated business risk map. An initial georeferenced mapping using high-resolution satellite images of small-scale artisanal mining areas in southeastern Pará, Brazil, was carried out. Additional mappings were carried out, covering the state of Minas Gerais. The data has since been refined for purposes of reviewing the engagement strategy with this audience.	-
2022	In 2020, a multidisciplinary internal group was established and the topic was included in the company's integrated business risk map. An initial georeferenced mapping using high-resolution satellite images of small-scale artisanal mining areas in southeastern Pará, Brazil, was carried out. Additional mappings were carried out, covering the state of Minas Gerais. The data has since been refined for purposes of reviewing the engagement strategy with this audience.	-
2023	In 2020, a multidisciplinary internal group was established and the topic was included in the company's integrated business risk map. An initial georeferenced mapping using high-resolution satellite images of small-scale artisanal mining areas in southeastern Pará, Brazil, was carried out. Additional mappings were carried out, covering the state of Minas Gerais. The data has since been refined for purposes of reviewing the engagement strategy with this audience.	-

**Note:** In the event of verification of the existence of illegal mining in areas close to or within its area of operation, Vale involves the public authorities to take the necessary measures and, whenever possible, provides support for the activity to be regularized with to the responsible government agencies, proposing to contribute with the transfer of best practices.

## GRI - G4 MM9

**Description:** Locations where resettlements took place, the number of households resettled in each and how their livelihoods were affected in the process

Year	Vale's Answer	Assurance
2019	In 2019, the company's main initiative is the development of the Means of Life Restitution Program in Mozambique and Malawi to serve 15,500 families affected by the involuntary displacement resulting from the installation of the Nacala Corridor. Currently, the program serves 11,200 families through successful experiences in the regional agricultural sector.	Independently assured by SGS ICS Certificadora Ltda.
2020	In Brazil, in 2020, 671 families were assisted in the North (Maranhão and Pará) and South Systems (Espírito Santo and Minas Gerais). The mischaracterization of dams motivated assistance to 171 families in the municipalities of Rio Preto, Itabirito, Barão de Cocais, Mariana and Nova Lima, all located in the state of Minas Gerais. The involuntary removal of 34 families from irregular occupations in the EFVM domain, in the municipalities of Nova Era and Antonio Dias, in Minas Gerais, is underway on the Vitória à Minas Railroad (EFVM). Vale is committed to complying with existing agreements with communities resettled in the Involuntary Removal in Indonesia. Close to the Sorowako mine, Vale renovated 7 houses for residents of the Ledu-Ledu resettlement area, is improving the infrastructure to support	Independently assured by Bureau Veritas Certification
2021	In the year 2021, 805 families were involved in involuntary removal processes in Brazil. Of this total, 572 families are being assisted in this process due to works to de-characterize dams in Minas Gerais. On the Vitória-Minas Railroad, a dialogue was held to agree on assistance measures with families living in the railroad's right-of-way in the municipalities of Antonio Dias and Nova Era in Minas Gerais. Even in the case of eviction of the company's area, support is being made available to the 34 vulnerable families in obtaining new housing and restitution of their livelihoods in a new location. On the same railway, Vale carried out studies to promote the involuntary removal of 161 families for duplication and modernization of the railway section in Belo Horizonte. Also in Minas Gerais, in the municipality of Itabira, a diagnosis was made of 13 families to analyze the feasibility of involuntary removal for drainage works in the Pontal System. In northern Brazil, Vale carried out a socioeconomic diagnosis to learn about the reality of 25 families that will be assisted to make the duplication project for the road-rail bridge over the Tocantins River in the municipality of Marabá, state from Pará. In Mozambique, Vale promoted public consultations for the resettlement of 96 agricultural producers due to the construction of a new pipeline to supply the Carvão Moatize mine. During the same period, consultations were carried out public for the resettlement of another 171 families from the communities of Mphandwe and Ntchenga located in the future expansion area of the enterprise. After the communities chose the host area, Vale promoted a participatory process to design the resettlement project, which will have infrastructure that will also serve the host community. The model house was built by Vale and approved by the government and communities, with a built area of 70m². Vila de Cateme was built by Vale to accommodate the resettlement of 712 families from rural communities located where the Carvão Moatize Mine is currently located. On site, Vale maintains a social project for the agricultural and economic development for resettled families. At Fazenda Modelo, small producers receive training based on sustainable techniques for food production, whose revenue is reverted as income for the families, thus contributing to the restoration of their livelihoods.	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2022	In the year 2022, Vale involved 1,465 families in involuntary removal processes. Breakdown of Dam B1 in Brumadinho: Vale is providing assistance to families affected by the rupture of Dam B1 at the Córrego do Feijão Mine, with 40 families remaining in temporary care, while another 13 families have moved on to definitive care. Decharacterization of dams: Projects to decharacterize dams involved 412 families, all in Minas Gerais. Vale provides services to 374 families in the municipalities of Ouro Preto, Barão de Cocais, Nova Lima and Itabirito. In the municipality of Itabira, 38 families were registered, and at the end of 2022 they were awaiting the start of negotiations to vacate an area that will make the decommissioning of the Pontal System possible. Instability of geotechnical structures: The provided assistance to 3 families that had to leave their properties on an emergency basis due to instability of structures caused by the intensity of rainfall in the state of Minas Gerais. Regularization of company properties: In Brazil, 88 families mapped irregularly occupy areas of company domain. In Minas Gerais, in the municipalities of Antonio Dias and Nova Era, 35 families occupy the domain range, while in São Luis, Maranhão, another 52 families occupy a concession area neighboring the Ponta da Madeira Terminal. Vale is evaluating the feasibility of involuntary removal of these families. Impacts of operations and projects: Vale is serving 261 families in Indonesia arising from the resettlement projects of the Longi and Lembo South projects. In Brazil, another 648 families are involved in involuntary removal processes. In the state of Pará, the project to duplicate the bridge over the Tocantins River in Marabá required assistance to 36 families, a number that reflects the updating of the socioeconomic registry. In the municipality of Ourilândia do Norte, Vale concluded negotiations and provided definitive assistance to 56 families that were left over from the involuntary removal process carried out to install the Onça Puma Mine. In the state of Espírito Santo, 451 families have been mapped out in the first alternative location for the project to build the Anchieta branch of the Vitória-Minas Railroad (EFVM), while in Minas Gerais, another 70 families have been mapped out in the project to duplicate the railroad stretch in Belo Horizonte. Vale is seeking alternatives to reduce the number of families that could be affected by the installation of these two projects. In the municipality of Brumadinho, 39 families are being assisted as a result of the execution of the Reparation works.	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.
2023	In 2023, 1018 families were involved in forced relocation processes in Brazil. Of these, 171 received permanent care, and another 274 are receiving provisional care, with the right to adequate housing and income safeguarded by Vale. A total of 573 families were mapped through preliminary socioeconomic surveys to support alternatives that seek to minimize and avoid involuntary resettlement. In São Luis, Maranhão state, the findings of a socioeconomic assessment involving 52 families from the Praia do Boqueirão community were disclosed. In Ourilândia do Norte, Pará state, an agreement was reached with 35 families from the Madalena community to avoid resettlement. Also in Pará, in the municipality of Marabá, we provided care for 56 families living in the area necessary for the Tocantins Bridge Duplication Project. On the Vitória-to-Minas Railroad, the number of families impacted by the duplication project between Sabará and Capitão Eduardo was reduced from 70 to 39. On the same railroad, within the municipalities of Antônio Dias and Nova Era, the progression of negotiations for family support has been put on hold until government agencies approve the new right-of-way In Indonesia, 55 families encroached on a protected forest under the responsibility of PT Vale Indonesia (PTVI) and received financial compensation to vacate it. However, these families raise issues regarding the restoration of their livelihoods. PTVI is committed to finding a peaceful solution.	Independently assured by PricewaterhouseCoopers Auditores Independentes Ltda.

## SASB - EM-MM-210a.3

**Description:** Discussion of engagement processes and due diligence practices with respect to human rights, indigenous rights and operation in conflict areas

Year	Vale's Answer	Assurance
------	---------------	-----------

2019	<p>In 2019, Human Rights risk assessments were carried out in 55 of 67 operations, representing 82% of operations (11 projects that were suspended due to the dam decommissioning process and the company Biopalma, which underwent external due diligence, did not participate). This initial process contributed to the mapping of risks associated with the company's activities and allowed the identification of preventive and mitigating controls. Even though in the methodological adaptation phase, the operational areas have developed action plans that are being implemented from 2020. In addition to human rights risk assessments, Vale also carries out due diligence, as part of human rights management. It is important to highlight that mergers and acquisitions of new projects also undergo a verification/due diligence process.</p> <p>In 2019, three due diligence pilots were carried out related to operations and JVs and two pilots in suppliers with contracts in force with Vale.</p> <p>The company incorporates the theme of indigenous peoples and traditional communities across the various internal analysis processes on risk and viability of undertakings, effectively considering the rights and interests of these communities in decision-making. Vale has been working on improving its management strategy, with intense training of its own employees and third parties, with constant review of processes and development of planning tools and support for relationship actions with these stakeholders.</p> <p>Vale's guidelines are based on international commitments and references related to indigenous issues, based on the ICMM position on Mining and Indigenous Peoples, ILO Convention No. 169 and the United Nations Declaration on the Rights of Indigenous Peoples.</p>	-
2020	<p>In 2020, 100% of Vale's operations included their risks in the company's risk management system. The causes considered applicable by Vale's operations have preventive or mitigating control measures, or an action plan for reviewing existing controls or adopting new controls. In 2020, as part of Human Rights management, Vale developed a methodology for carrying out verification or due diligence processes.</p> <p>During the year, four types of operational due diligence were carried out - one in an operational complex (still in progress), another with critical suppliers (pilot project included the verification and evaluation of 15 suppliers), a third in the Brumadinho Repair process (MG) (expected to close in 2021), and another in more than 128 Vale lodgings in Pará, Maranhão and Minas Gerais. When the indigenous issue is material, it is considered in the due diligence.</p> <p>Vale incorporates the indigenous theme and that of traditional communities transversally in the various internal analysis processes on risk and viability of undertakings, effectively considering the rights and interests of these communities in decision-making.</p> <p>When planning its projects, it seeks to encourage the active participation of Indigenous Peoples and Traditional Communities in solving issues related to Vale's activities that generate risks and/or impacts on these populations, in line with the concept of Consultation and Free, Prior and Informed Consent (FPIC), as well as monitoring compliance with control and/or mitigation measures.</p> <p>Vale's relationship with indigenous peoples and traditional communities is in line with the main international commitments and standards, such as the ICMM declaration on Mining and Indigenous Peoples, Convention No. 169 of the International Labor Organization (ILO), and the United Nations Declaration on Rights of Indigenous Peoples.</p>	-
2021	In 2021, 100% of Vale's operations assessed the risk of human rights violations, periodically monitoring them along with other business risks. In addition, operations adopted prevention and mitigation control measures for these risks and carried out tests to ensure their effectiveness.	-
2022	In 2022, 10 human rights due diligences were completed, covering a total of 22 operations assessed by specialized external consultants in the Southeast and South corridors*, concluding the process in 100% of Vale's active operations in Brazil. The main results pointed to critical issues related to potential and real impacts on working conditions, sexual and moral harassment, discrimination and impacts on coexistence with the community.	-
2023	<p>Human Rights Due Diligence (HRDD) is an in-depth assessment of actual and potential impacts conducted by independent external experts on all critical operations and projects, in three- to five-year cycles. The integration of the results of the HRDD is also done through corrective actions of the operation, with monitoring and reporting on the treatment of the risks and impacts detected.</p> <p>In 2023, HRDD was completed in 100% of our operations in Brazil (including active, halted and de-characterized) and in the Iron Ore Solutions operation in Malaysia. The results of the HRDD carried out in Brazil pointed to challenges related to third-party working conditions, infrastructure and facilities management, property security, moral and sexual harassment, discrimination, and diversity and inclusion.</p>	-

**Note:** \*Corridor is a nomenclature used by Vale's operations in Brazil, considering activities from mine sites to port operations.

## SASB - EM-MM-210b.1

**Description:** Discussion of the process for managing risks and opportunities associated with community rights and interests

Year	Vale's Answer	Assurance
2019	<p>The relationship with communities is guided by Vale's Social Action model, built and implemented through the management of human rights processes, socio-environmental risks and impacts, community health and safety, involuntary removal, relations with local communities, relations with indigenous peoples and traditional communities, actions to support local development, socio-environmental investments and conflict management with communities.</p> <p>For more information, please consult the chapter "Commitment to people and human rights" of the 2019 Sustainability Report.</p>	-
2020	<p>In 2020, Vale internationalized the community relationship standards for all countries where the company has operations, except for Malaysia scheduled for 2021. This initiative made it possible to qualify the global management of social action - based on the integration of information - and promote greater transparency in area reports.</p> <p>For more information, please consult the 2020 Integrated Report.</p>	-
2021	<p>Vale's Social Action model is effective through the management of risks and impacts on communities and the promotion of a positive social legacy through territorial development, the promotion of human rights, the empowerment of communities and the strengthening of policies and public Management.</p> <p>This model is supported by the relationship with communities, which is based on gaining trust, active listening, a transparent posture, engagement in decision-making through participatory processes, and is guided by respect for Human Rights.</p> <p>Relationship with Communities is a strategic process for Vale's social action, and consists of establishing interactions and engagement with communities, as well as with other local actors in the territories where the company is present.</p> <p>With the aim of engaging communities, Vale seeks to establish structured dialogue spaces for the construction of Community Relationship Plans. The plans have as a principle the mobilization and social participation in the definition and prioritization of actions to be implemented in the territory. Furthermore, the structuring of the plan aims at sharing responsibilities between the company, the community and other social actors for local development.</p> <p>The Relationship Plans are monitored by the community relationship teams that have a systematic routine of participatory meetings to monitor the execution of actions, evaluating the adherence and effectiveness of the results with the community. This follow-up is recorded in the Stakeholders, Demands and Issues System (SDI).</p>	-
2022	<p>Our social action is guided by the international standards of the sector and constitutes a necessary foundation towards our Social Ambition.</p> <p>The operating model is guided by the following guiding principles: transparency, active listening, social participation, engagement, social capacity, diversity and inclusion, adherence to international pacts and operational responsibility. It directs our actions throughout the entire lifecycle of the projects, based on respect for Human Rights, which is a non-negotiable condition, where each employee or contractor must be attentive to avoid any type of violation.</p> <p>Respecting Human Rights is the basis that makes our model of social action strong and consistent, extending to all the company's activities. And the relationship, which is the means by which we build respect and trust with the communities and other stakeholders with whom we interact. It is through engagement with people, groups and institutions that we manage the effects of risks and impacts; we share our practices; and we learn how to be a better company every day, becoming a partner company in the development of territories.</p> <p>With the aim of engaging communities, we seek to establish structured dialogue spaces for the construction of Community Relationship Plans. The plans have as a principle the mobilization and social participation in the definition and prioritization of actions to be implemented in the territory. In addition, the structuring of the plan aims at sharing responsibilities between the company, the community and other social actors for local development.</p> <p>The Relationship Plans are monitored by the community relationship teams that have a systematic routine of participatory meetings to monitor the execution of actions, evaluating the adherence and effectiveness of the results with the community. Our commitment is that 100% of very high and high priority communities have a Relationship Plan implemented by 2026.</p> <p>Priority communities are those that affect and/or are affected by the company's activities. For the characterization of these communities, risk, impact and relationship indicators are evaluated, in addition to the analysis of socioeconomic aspects.</p>	-

We understand that we are part of and can contribute to the territories where we operate. In this sense, we have built our Social Ambition, in which we highlight the objective of being a partner company in the development of autonomous communities, engaged in topics relevant to humanity and committed to sustainable mining. Learn more about our Social Operations.

2023 Starting in 2023, we implemented a new integrated model to improve your local performance with communities, municipal governments, regulatory bodies, and other relationship stakeholders in Brazil. This involves identifying and mitigating risks and impacts of our operations, assessing the priorities of the communities where the company operates, and defining how we can contribute to the development of the regions where we operate. We have the challenge of integrating the agendas of these territories and stakeholders, implementing the action strategy, including territorial development programs that aim to strengthen local capacities and promote the development of these communities, together with the government and partners.

Links: [Social Performance](#)

## SASB - EM-MM-210b.2

Description: Number and duration of non-technical delays

Year	Vale's Answer	Assurance
2019	Vale does not have information on non-technical delays.	-
2020	Vale does not have information on non-technical delays.	-
2021	Vale does not have information on non-technical delays.	-
2022	Vale does not have information on non-technical delays.	-
2023	Vale does not have information on non-technical delays.	-

## SASB - EM-MM-310a.1

Description: Percentage of active workforce covered by collective bargaining agreements, broken down by US and foreign employees

Year	Vale's Answer	Assurance
2019	96% of Vale's own employees are covered by collective agreements.	-
2020	95.9% of Vale's own employees are covered by collective agreements.	-
2021	92% of Vale's own employees are covered by collective agreements.	-
2022	94% of Vale's own employees are covered by collective agreements.	-
2023	94% of Vale's own employees are covered by collective agreements.	-

## SASB - EM-MM-320a.1

Description: (1) MSHA (Mine Safety and Health Administration) total incidence rate, (2) fatality rate, (3) near miss frequency rate (NMFR), and (4) average hours of health, safety and health training emergency response for (a) full-time employers and (b) contract employees.

Year	Vale's Answer	Assurance
2019	<p>(1) Total Occupational Injury Frequency Rate (TRIFR): 3.46 Frequency Rate of Occupational Injuries with Leave: 0.81</p> <p>(2) Fatality rate: 0.77</p> <p>(3) n/a</p> <p>(4) Vale does not have information on the average number of hours spent on health and safety training by employees.</p>	-
2020	<p>(1) Total Occupational Injury Frequency Rate (TRIFR): 1.98 Frequency Rate of Occupational Injuries with Leave: 0.69</p> <p>(2) Fatality rate: 0.08</p> <p>(3) n/a</p> <p>(4) Vale has the obligation to train employees in regulatory standards, from the employee's entry into the company to the execution of their activities, as well as employees exposed to critical activities and HSE operational procedures. However, there is no information on the average number of hours spent on health and safety training by employees.</p>	-
2021	<p>(1) Total Occupational Injury Frequency Rate (TRIFR): 1.41 Frequency Rate of Occupational Injuries with Leave: 0.38</p> <p>(2) Fatality rate: 0.04</p> <p>(3) n/a</p> <p>(4) Vale has the obligation to train employees in regulatory standards, from the employee's entry into the company to the execution of their activities, as well as employees exposed to critical activities and HSE operational procedures. However, there is no information on the average number of hours spent on health and safety training by employees.</p>	-
2022	<p>(1) Total Occupational Injury Frequency Rate (TRIFR): 1.12 Frequency Rate of Occupational Injuries with Leave: 0.30</p> <p>(2) Fatality rate: 0.011</p> <p>(3) n/a</p> <p>(4) Vale has the obligation to train employees in regulatory standards, from the employee's entry into the company to the execution of their activities, as well as employees exposed to critical activities and HSE operational procedures. However, there is no information on the average number of hours spent on health and safety training by employees.</p>	-
2023	<p>(1) Total Occupational Injury Frequency Rate (TRIFR): 1.06 Frequency Rate of Occupational Injuries with Leave: 0.20</p> <p>(2) Fatality rate: 0.002</p> <p>(3) n/a</p> <p>(4) Vale has the obligation to train employees in regulatory standards, from the employee's entry into the company to the execution of their activities, as well as employees exposed to critical activities and HSE operational procedures. However, there is no information on the average number of hours spent on health and safety training by employees.</p>	-



## Frameworks

Framework	Location
ICMM Mineral Exploration Principles	<a href="#">ICMM Principles</a>
ICMM performance expectations	<a href="#">ICMM Report</a>
GRI Index (Global Reporting Initiative)	<a href="#">GRI index</a>
SASB Index (Sustainability Accounting Standards Board)	<a href="#">SASB index</a>
Task Force on Climate-Related Financial Disclosures (TCFD)	<a href="#">TCFD</a>
World Economic Forum (WEF)	<a href="#">WEF</a>
ICMM Social & Economic	<a href="#">ICMM Social &amp; Economic</a>
TNFD Index	<a href="#">TNFD Index</a>
Responsible Sourcing	<a href="#">Responsible Sourcing</a>
Swiss Code	<a href="#">Swiss Code</a>



## ICMM Mining Principles

Principle	Location
Principle 1: Ethical Business	<a href="#">ICMM Report</a>
Principle 2: Decision making	<a href="#">ICMM Report</a>
Principle 3: Human rights	<a href="#">ICMM Report</a>
Principle 4: Risk management	<a href="#">ICMM Report</a>
Principle 5: Health and safety	<a href="#">ICMM Report</a>
Principle 6: Environmental performance	<a href="#">ICMM Report</a>
Principle 7: Conservation of biodiversity	<a href="#">ICMM Report</a>
Principle 8: Responsible production	<a href="#">ICMM Report</a>
Principle 9: Social performance	<a href="#">ICMM Report</a>
Principle 10: Stakeholder Engagement	<a href="#">ICMM Report</a>

Access here more information about ICMM's Mining Principles

[illegible]



## GRI index

Indicator	Description	Location
GRI 2-7	Employees	<a href="#">Social Data</a>
GRI 2-8	Workers who are not employees	<a href="#">Social Data</a>
GRI 2-27	Compliance with laws and regulations	<a href="#">Economic Data</a>
GRI 201-1	Direct economic value generated and distributed	<a href="#">Economic Data</a>
GRI 201-2	Financial implications and other risks and opportunities due to climate change	<a href="#">Economic Data</a>
GRI 201-3	Defined benefit plan obligations and other retirement plans	<a href="#">Economic Data</a>
GRI 201-4	Financial assistance received from the government	<a href="#">Economic Data</a>
GRI 202-1	Ratios of standard entry level wage by gender compared to local minimum wage	<a href="#">Economic Data</a>
GRI 202-2	Proportion of senior management hired from the local community	<a href="#">Economic Data</a>
GRI 203-1	Infrastructure investments and services supported	<a href="#">Economic Data</a>
GRI 203-2	Significant Indirect Economic Impacts	<a href="#">Economic Data</a>
GRI 204-1	Proportion of spending on local suppliers	<a href="#">Economic Data</a>
GRI 205-1	Operations assessed for risks related to corruption	<a href="#">Economic Data</a>
GRI 205-2	Communication and training on anti-corruption policies and procedures	<a href="#">Economic Data</a>
GRI 205-3	Confirmed cases of corruption and actions taken	<a href="#">Economic Data</a>
GRI 206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	<a href="#">Economic Data</a>
GRI 207-1	Approach to tax	<a href="#">Economic Data</a>
GRI 207-2	Tax governance, control and risk management	<a href="#">Economic Data</a>
GRI 207-3	Stakeholder engagement and management of concerns related to tax	<a href="#">Economic Data</a>
GRI 302-1	Energy consumption within the organization	<a href="#">Environmental data</a>
GRI 302-2	Energy consumption outside the organization	<a href="#">Environmental data</a>
GRI 302-3	Energy intensity	<a href="#">Environmental data</a>
GRI 302-4	Reduction of energy consumption	<a href="#">Environmental data</a>
GRI 303-1	Interactions with water as a shared resource	<a href="#">Environmental data</a>
GRI 303-2	Management of water discharge-related impacts	<a href="#">Environmental data</a>
GRI 303-3	Water withdrawal	<a href="#">Environmental data</a>
GRI 303-4	Water discharge	<a href="#">Environmental data</a>
GRI 303-5	Water consumption	<a href="#">Environmental data</a>
GRI 304-1	Owned, leased or managed operating units within or adjacent to environmental protected areas and areas of high biodiversity value located outside environmental protected areas	<a href="#">Environmental data</a>
GRI 304-2	Significant impacts of activities, products and services on biodiversity	<a href="#">Environmental data</a>
GRI 304-3	Habitats protected or restored	<a href="#">Environmental data</a>
GRI 304-4	IUCN Red List species and national conservation list species with habitats in areas affected by operations	<a href="#">Environmental data</a>
GRI 305-1	Direct (Scope 1) GHG emissions	<a href="#">Environmental data</a>
GRI 305-2	Energy indirect (Scope 2) GHG emissions	<a href="#">Environmental data</a>
GRI 305-3	Other indirect (Scope 3) GHG emissions	<a href="#">Environmental data</a>
GRI 305-4	GHG emissions intensity	<a href="#">Environmental data</a>
GRI 305-5	Reduction of greenhouse gas (GHG) emissions	<a href="#">Environmental data</a>



GRI 305-6	Emissions of ozone-depleting substances (ODS)	<a href="#">Environmental data</a>
GRI 305-7	Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	<a href="#">Environmental data</a>
GRI 306-1	Waste generation and significant waste-related impacts	<a href="#">Environmental data</a>
GRI 306-2	Management of significant waste-related impacts	<a href="#">Environmental data</a>
GRI 306-3	Waste generated	<a href="#">Environmental data</a>
GRI 306-4	Waste diverted from disposal	<a href="#">Environmental data</a>
GRI 306-5	Waste directed to disposal	<a href="#">Environmental data</a>
GRI 308-1	New suppliers that were screened using environmental criteria	<a href="#">Environmental data</a>
GRI 308-2	Negative environmental impacts in the supply chain and actions taken	<a href="#">Environmental data</a>
GRI 401-1	New employee hires and employee turnover	<a href="#">Social Data</a>
GRI 401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	<a href="#">Social Data</a>
GRI 401-3	Parental leave	<a href="#">Social Data</a>
GRI 402-1	Minimum notice periods regarding operational changes	<a href="#">Social Data</a>
GRI 403-1	Occupational health and safety management system	<a href="#">Social Data</a>
GRI 403-2	Hazard identification, risk assessment and incident investigation	<a href="#">Social Data</a>
GRI 403-3	Occupational health services	<a href="#">Social Data</a>
GRI 403-4	Worker participation, consultation and communication on occupational health and safety	<a href="#">Social Data</a>
GRI 403-5	Worker training on occupational health and safety	<a href="#">Social Data</a>
GRI 403-6	Promotion of worker health	<a href="#">Social Data</a>
GRI 403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	<a href="#">Social Data</a>
GRI 403-8	Workers covered by an occupational health and safety management system	<a href="#">Social Data</a>
GRI 403-9	Work-related injuries	<a href="#">Social Data</a>
GRI 403-10	Work-related ill health	<a href="#">Social Data</a>
GRI 404-1	Average hours of training per year, per employee	<a href="#">Social Data</a>
GRI 404-2	Programs for upgrading employee skill and transition assistance programs	<a href="#">Social Data</a>
GRI 404-3	Percentage of employees receiving regular performance and career development reviews	<a href="#">Social Data</a>
GRI 405-1	Diversity of governance bodies and employees	<a href="#">Social Data</a>
GRI 405-2	Ratio of basic salary and remuneration of women to men	<a href="#">Social Data</a>
GRI 406-1	Incidents of discrimination and corrective actions taken	<a href="#">Social Data</a>
GRI 407-1	Operations and suppliers where the right to freedom of association and collective bargaining may be at risk	<a href="#">Social Data</a>
GRI 408-1	Operations and suppliers at significant risk for incidents of child labor	<a href="#">Social Data</a>
GRI 409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	<a href="#">Social Data</a>
GRI 410-1	Security personnel trained in human rights policies or procedures	<a href="#">Social Data</a>
GRI 411-1	Incidents of violation involving rights of indigenous peoples	<a href="#">Social Data</a>
GRI 413-1	Operations with local community engagement, impact assessments, and development programs	<a href="#">Social Data</a>
GRI 413-2	Operations with significant actual and potential negative impacts on local communities	<a href="#">Social Data</a>
GRI 414-1	New suppliers that were screened using social criteria	<a href="#">Social Data</a>
GRI 414-2	Negative social impacts in the supply chain and actions taken	<a href="#">Social Data</a>
GRI 415-1	Political contributions	<a href="#">Social Data</a>
GRI G4 MM1	Amount of land (owned or leased, used for productive or extractive activities) altered or rehabilitated	<a href="#">Environmental data</a>
GRI G4 MM2	Number and percentage of operational units that need biodiversity management plans according to established criteria and number (percentage) of these units with plans in force	<a href="#">Environmental data</a>
GRI G4 MM3	Total amount of overburden, tailings and sludge and their associated risks	<a href="#">Environmental data</a>
GRI G4 MM4	Number of strikes and lockouts lasting more than one week, broken down by country	<a href="#">Social Data</a>

GRI G4 MM5	Total number of operations located in or adjacent to indigenous peoples' territories, and number and percentage of operations or locations where there are formal agreements with communities of indigenous peoples	<a href="#">Social Data</a>
GRI G4 MM6 e MM7	Number and description of significant conflicts relating to land use, customary rights of local communities and indigenous peoples, and the extent to which mechanisms for escalating demands and grievances were used to resolve these conflicts.	<a href="#">Social Data</a>
GRI G4 MM8	Number and percentage of operational areas where artisanal and small-scale mining occurs, including adjacent areas; the associated risks and actions taken to manage and mitigate them	<a href="#">Social Data</a>
GRI G4 MM9	Locations where resettlements took place, the number of households resettled in each and how their livelihoods were affected in the process	<a href="#">Social Data</a>
GRI G4 MM10	Number and percentage of operations with plans to close activities.	<a href="#">Environmental data</a>



## SASB index

Indicator	Description	Location
SASB EM-MM-110a.1	Scope 1 gross global emissions, percentage covered by emission limitation regulations	<a href="#">Environmental data</a>
SASB EM-MM-110a.2	Discussion of the long-term and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets and a review of performance against these targets	<a href="#">Environmental data</a>
SASB EM-MM-120a.1	Atmospheric emissions of the following pollutants: (1) CO, (2) NOx (excluding N2O), (3) SOx, (4) particulate matter (PM10), (5) mercury (Hg), (6) lead (Pb), and (7) volatile organic compounds (VOCs)	<a href="#">Environmental data</a>
SASB EM-MM-130a.1	(1) total energy consumed, (2) percentage of grid electricity, (3) percentage of renewable energy	<a href="#">Environmental data</a>
SASB EM-MM-140a.1	(1) Total water withdrawn, (2) Total water consumed, percentage of each in regions with High or Extremely High Baseline Water Stress	<a href="#">Environmental data</a>
SASB EM-MM-140a.2	Number of incidents of non-compliance associated with water quality licenses, standards and regulations	<a href="#">Environmental data</a>
SASB EM-MM-150a.4	Total weight of non-mineral waste generated	<a href="#">Environmental data</a>
SASB EM-MM-150a.5	Total weight of tailings produced	<a href="#">Environmental data</a>
SASB EM-MM-150a.6	Total weight of waste rock generated	<a href="#">Environmental data</a>
SASB EM-MM-150a.7	Total weight of hazardous waste generated	<a href="#">Environmental data</a>
SASB EM-MM-150a.8	Total weight of recycled hazardous waste	<a href="#">Environmental data</a>
SASB EM-MM-150a.9	Number of significant incidents associated with hazardous materials and waste management	<a href="#">Environmental data</a>
SASB EM-MM-150a.10	Description of waste and hazardous materials management policies and procedures for active and inactive operations	<a href="#">Environmental data</a>
SASB EM-MM-160a.1	Description of environmental management policies and practices for active sites	<a href="#">Environmental data</a>
SASB EM-MM-160a.2	Percentage of mine sites where acid rock drainage is present: (1) predicted to occur, (2) actively mitigated, and (3) under treatment or remediation	<a href="#">Environmental data</a>
SASB EM-MM-160a.3	Percentage of (1) proven reserves and (2) probable reserves in or near sites with protected conservation status or threatened species habitat	<a href="#">Environmental data</a>
SASB EM-MM-210a.1	Percentage of (1) proven reserves and (2) probable reserves in or near conflict areas	<a href="#">Social Data</a>
SASB EM-MM-210a.2	Percentage of (1) proven reserves and (2) probable reserves on or near indigenous lands	<a href="#">Social Data</a>
SASB EM-MM-210a.3	Discussion of engagement processes and due diligence practices with respect to human rights, indigenous rights and operation in conflict areas	<a href="#">Social Data</a>
SASB EM-MM-210b.1	Discussion of the process for managing risks and opportunities associated with community rights and interests	<a href="#">Social Data</a>
SASB EM-MM-210b.2	Number and duration of non-technical delays	<a href="#">Social Data</a>
SASB EM-MM-310a.1	Percentage of active workforce covered by collective bargaining agreements, broken down by US and foreign employees	<a href="#">Social Data</a>
SASB EM-MM-310a.2	Number and duration of strikes and lockouts	<a href="#">Social Data</a>
SASB EM-MM-320a.1	(1) Mine Safety and Health Administration (MSHA) total incidence rate, (2) fatality rate, (3) near miss frequency rate (NMFR), and (4) average hours of health, safety, and emergency response training emergencies for (a) full-time employers and (b) contract employees.	<a href="#">Social Data</a>
SASB EM-MM-510a.1	Description of the management system for preventing corruption and bribery throughout the value chain	<a href="#">Economic Data</a>
SASB EM-MM-510a.2	Production in countries that have Transparency International's 20 lowest corruption perception scores	<a href="#">Economic Data</a>
SASB EM-MM-540a.1	Tailings storage facility inventory table: (1) facility name, (2) location, (3) ownership status, (4) operational status, (5) construction method, (6) maximum allowable storage capacity, (7) current amount of tailings stored, (8) consequence ranking, (9) date of most recent independent technical review, (10) material findings, (11) mitigation measures, (12) site-specific EPRP	<a href="#">Environmental data</a>
SASB EM-MM-540a.2	Summary of tailings management systems and governance structure used to monitor and maintain the stability of tailings storage facilities	<a href="#">Environmental data</a>
SASB EM-MM-540a.3	Approach to developing Emergency Preparedness and Response Plans (EPRPs) for tailings storage facilities	<a href="#">Environmental data</a>



## TCFD - Taskforce on Climate-Related Financial Disclosures

## 1. Governance - Transparency regarding the governance of risks and opportunities related to climate change

TCFD Recommendation: 1.1. Description of the supervision of the Board of Directors

Year	Vale's answer
2019	Sustainability Committee and Board of Directors responsible for validating and monitoring low carbon guidelines. "Governance" or "Sustainability Governance" chapter of the 2019 Sustainability Report; CDP question C1.1.
2020	Sustainability Committee and Board of Directors responsible for validating and monitoring low carbon guidelines. Compliance and Risk Committee incorporates climate into its analyses. "Governance" Chapter of the 2020 Integrated Report; CDP question C1.1.
2021	Sustainability Committee and Board of Directors responsible for validating and monitoring low carbon strategic guidelines. Compliance and Risk Committee incorporates climate into its analyses. "Governance" Chapter of the 2021 Integrated Report; CDP question C1.1.
2022	Sustainability Committee and Board of Directors responsible for validating and monitoring low carbon strategic guidelines. Compliance and Risk Committee incorporates climate into its analyses. Chapter "Governance" of the 2022 Integrated Report; CDP question C1.1.
2023	Sustainability Committee and Board of Directors responsible for validating and monitoring low carbon strategic guidelines. Compliance and Risk Committee incorporates climate into its analyses. Chapter "Governance" of the 2023 Integrated Report; CDP question C1.1.

TCFD Recommendation: 1.2. Role of executives in mapping and managing the agenda

Year	Vale's answer
2019	Low Carbon Forum, with monthly meetings to assess the unfolding and implementation of the Vale Carbon Neutral strategy. This forum is coordinated by the Sustainability and Institutional Relations Executive Board with support from the Executive Boards: Coal, Strategy and Mineral Exploration, Business Support, Ferrous, Base Metals and with the participation of the CEO and CFO of Vale. The meetings involve senior leadership and technical groups from the business and corporate areas. "Climate change and energy" chapter of the 2019 Sustainability Report; CDP question C1.2.
2020	Low Carbon Forum, with monthly meetings to guide the implementation and delivery of the commitments assumed through the Vale Carbon Neutra strategy. This forum consists of a group led by the CEO, and coordinated by the Sustainability Executive Board, with the participation of the Executive Directors and their technical teams. The meetings involve senior leadership and technical groups from the business and corporate areas. In 2020, goals related to the climate agenda represented 10% of the short-term variable compensation of employees, including the CEO and Executive Board. A target comprising indicators of greenhouse gas emissions, recovery and protection of forest areas, and assurance of renewable energy was also linked to the long-term remuneration of leadership. Sounding Panel, an advisory board within the Board of Directors comprised of global ESG experts. Chapter "Climate Change" and "Relationship with Stakeholders" of the 2020 Integrated Report; CDP questions C1.1 and C1.2.
2021	The Sustainability Vice-Presidency is the highest governance body for the topic of climate change. It is responsible for proposing policies, plans, projects and goals on climate change for approval by the Executive Committee, as well as implementing the general policies and guidelines established by the Board of Directors. It is also responsible for evaluating, monitoring and communicating to the Board of Directors the performance, risks and opportunities for Vale in relation to climate change. Also at the executive level, the company created the Low Carbon Forum, a group led by the CEO and composed of executive directors and their technical teams. The initiative reflects senior leadership engagement in the topic, helps monitor performance in relation to the commitments assumed, in addition to driving constant advances in Vale's climate agenda. Meetings take place monthly, with broad participation of leaders and technical teams that deal with the topic on a daily basis. In 2021, goals related to the climate agenda represent 5% of short-term compensation (from 10% related to Sustainability) for all Vale employees and 6% of long-term compensation (from 20% related to ESG) for all leadership, including the President and Executive Committee. A target comprising indicators of greenhouse gas emissions, recovery and protection of forest areas, and assurance of renewable energy was also linked to the long-term remuneration of leadership. The corporate areas, which work on climate change, and the operational areas, which implement the decarbonization strategy, also have goals linked to variable, additional and specific remuneration for implementing projects, managing emissions and/or managing risks associated with climate changes. Sounding Panel, an advisory board within the Board of Directors comprised of global ESG experts. Chapter "Climate Change" and "Relationship with Stakeholders" of the 2021 Integrated Report; CDP questions C1.1 and C1.2.
2022	The Sustainability Vice-Presidency is the highest governance body for the topic of climate change. It is responsible for proposing policies, plans, projects and goals on climate change for approval by the Executive Committee, as well as implementing the general policies and guidelines established by the Board of Directors. It is also responsible for evaluating, monitoring and communicating to the Board of Directors the performance, risks and opportunities for Vale in relation to climate change. Also at the executive level, the company created the Low Carbon Forum, a group led by the CEO and composed of executive directors and their technical teams. The initiative reflects senior leadership engagement in the topic, helps monitor performance in relation to the commitments assumed, in addition to driving constant advances in Vale's climate agenda. Meetings take place monthly, with broad participation of leaders and technical teams that deal with the topic on a daily basis. The variable compensation of Executive Committee members includes, among others, metrics focused on environmental, social and governance (ESG) issues, both in short-term and long-term compensation. Long-term compensation is applied to the entire leadership, including the president and Executive Committee. In the cycle starting in 2022, the portion referring to the greenhouse gas emissions targets accounts for 10% of the remuneration, making up with the Dow Jones Sustainability Performance Index - DJSI indicators and injuries registered with high potential (N2) the 25% referring to ESG. This goal is made up of indicators of greenhouse gas emissions (10%), Dow Jones Sustainability Index Performance - DJSI and registered injuries with high potential (N2). The corporate areas, which work on climate change, and the operational areas, which implement the decarbonization strategy, also have goals linked to variable, additional and specific remuneration for implementing projects, managing emissions and/or managing risks associated with climate changes. Sounding Panel, an advisory board within the Board of Directors comprised of global ESG experts. Chapter "Climate Change" and "Relationship with Stakeholders" of the 2022 Integrated Report; CDP questions C1.1 and C1.2.

2023	Our climate governance structure encompasses the Board of Directors (BoD), the Sustainability Committee that advises the BoD, the Executive Committee and leadership. Since 2021, we have established the Low Carbon Forum, where we periodically count on the participation of the C-Level and the Company's senior leaders in monitoring progress in relation to climate goals and global best practices. The initiative considers both the instances of technical-operational discussion and executive deliberation and supervision. Commitments to reducing GHG emissions are also linked to the long-term variable compensation of our executives, in line with the objectives for sustainable value creation across the company. More information about Vale's commitments can be found on the ESG Portal.
------	--

Links: [Vale - ESG Portal](#)

## 2. Strategy - Current and potential impacts on the company's business, strategy and financial planning

TCFD Recommendation: 2.1. Transparency regarding the risks and opportunities identified in the short, medium and long term.

Year	Vale's answer
2019	Preliminary, qualitative assessment of potential transitional and physical risks and low-carbon opportunities. The studies will be deepened throughout 2020 Chapter "Climate Change and Energy" of the 2019 Sustainability Report and CDP item C2.4, C2.5
2020	Transition climate risks: Regulatory and Legal (changes in policies to restrict emissions or requirements to adapt to the effects of climate change, imposing costs on issuers, litigation for non-compliance with policies to mitigate climate impacts); Technological (replacement of products and/or processes by more efficient and/or current technologies); Market (Changes in supply and demand due to alternative products); Reputation (Consumer and investor perception of the company's adherence to the transition to a low-carbon economy). Physical risks: Direct damage to assets and indirect impacts on the supply chain caused by floods, droughts, incidence of strong winds and increased incidence of lightning. The causes are related to climate change and the physical impacts are operational risks.
2021	Transition climate risks: Regulatory and Legal (changes in policies to restrict emissions or requirements to adapt to the effects of climate change, imposing costs on emitters, carbon pricing, litigation for non-compliance with policies to mitigate climate impacts); Technological (replacement of products and/or processes by more efficient and/or current technologies); Market (Changes in supply and demand due to alternative products); Reputation (Consumer and investor perception of the company's adherence to the transition to a low-carbon economy). Physical risks: Direct damage to assets and indirect impacts on the supply chain caused by floods, droughts, incidence of strong winds and increased incidence of lightning. The causes are related to climate change and the physical impacts are operational risks. 67% of Vale's assets were analyzed for exposure to physical risks arising from climate change. Publication of the Climate Change Report aligned with the TCFD in 2021. Implementation of the "Vale Climate Forecast" Methodology and mapping of physical risks for operations in Canada.
2022	Climate-related transition risks: Regulatory and Legal (changes in policies for restricting emissions or requiring adaptation to the effects of climate change, imposing costs on emitters, carbon pricing, litigation for non-compliance with policies to mitigate climate impacts); Technological (replacement of products and/or processes by more efficient and/or current technologies); Market (Changes in supply and demand due to alternative products); Reputation (Consumer and investor perception of the company's adherence to the transition to a low-carbon economy). Physical risks: Direct damage to assets and indirect impacts on the supply chain caused by floods, droughts, incidence of strong winds and increased incidence of lightning. The causes are related to climate change and the physical impacts are operational risks. Around 70% of Vale's assets were analyzed for exposure to physical risks arising from climate change. Implementation of the "Vale Climate Forecast" Methodology and mapping of physical risks for operations in the North Corridor including Ponta da Madeira Port Terminal, Carajás Railroad and Carajás region. For Canada, additional analyzes related to snowfall were carried out in the Long Harbor region.
2023	Climate-related transition risks: Regulatory and Legal (changes in policies to restrict emissions or require adaptation to the effects of climate change, imposing costs on emitters, carbon pricing, litigation for failure to achieve policies to mitigate climate impacts); Technological (replacement of products and/or processes with more efficient and/or current technologies); Market (Changes in supply and demand as a result of alternative products); Reputation (Consumers' and investors' perception of the company's adherence to the transition to a low-carbon economy). As part of global value chains, and new global policies related to climate change evolve, uncertainty and misalignment between national and regional governments, as well as sectoral actions, can impose significant financial impacts, especially when the principles of a fair transition are not considered. We continuously identify and monitor transition risks in the aforementioned categories and highlight: (i) the lack of incentives and technology transfer for the decarbonization of hard-to-abate sectors in developing and emerging economies, (ii) carbon leakage due to economic protectionism and significant increase in operating costs, (iii) reputational impact and climate litigation in the event of non-compliance with commitments, (iv) delay in the adoption of public policies related to the transition to a less intensive economy that may impact global commodity demand. Physical risks: Direct damage to assets and indirect impacts on the supply chain caused by floods, droughts, high winds, and increased incidence of lightning strikes. The causes are related to climate change and the physical impacts are operational risks. In the year 2023, the vulnerability analysis of the Hu'u capital project in Indonesia was conducted. In addition, the mapping of the Southern and Southeast Corridors of Brazil, including mines, processing, railways and ports, was initiated. The analysis of the financial impact of unmitigated risks will be finalised in 2024.

TCFD Recommendation: 2.2. Impact of identified themes on the portfolio and strategy

Year	Vale's answer
2019	Adoption of an ongoing internal carbon pricing (shadow price) of US\$50/tCO2e in line with what is needed to limit temperature increases to 2°C, to be integrated into the analysis of capital projects, current projects, budget cycle and strategic planning in 2020 "Climate change and energy" chapter of the 2019 Sustainability Report and CDP questions C2.4, C2.5
2020	Transition risks that could lead to increased costs, reduced market share and profitability. Physical risks eventually negatively impacting the company through operational interruption, increased costs and reduced revenues.
2021	Transition risks that could lead to increased costs, reduced market share and profitability. Physical risks eventually negatively impacting the company through operational interruption, increased costs and reduced revenues.
2022	Transition risks that could lead to increased costs, reduced market share and profitability and reputational impacts due to non-compliance with public commitments assumed, such as the goals for reducing Greenhouse Gases. Physical risks eventually negatively impacting the company through operational interruption, increased costs and reduced revenues.
2023	Transition risks that may lead to increased costs, reduced market share and revenue, impacting the company's market value, and reputational impacts due to non-compliance with public commitments such as Greenhouse Gas reduction targets. Physical risks negatively impacting the company, eventually, through operational disruption, increased costs, and reduced revenues.

TCFD Recommendation: 2.3. Business resilience in the face of climate scenarios

Year	Vale's answer
2019	Initial exercise prepared in 2018 regarding EBITDA sensitivity to International Energy Agency scenarios, including 2°C scenario. Preliminary analyzes on physical risks of increased temperature and rainfall prepared by Instituto Tecnológico Vale. Sensitivity analysis to ongoing climate scenarios within the scope of the current Strategic Planning cycle, based on International Energy Agency scenarios. Chapter "Climate Change and Energy" of the 2019 Sustainability Report and CDP item C3.1

As the TCFD itself suggests, in 2020 Vale chose to use the International Energy Agency (IEA) scenarios, which are recognized by the industry and have international support. The different supply and demand behaviors in the three IEA scenarios result in changes in the dynamics of competitiveness that affect the long-term price of Vale's main commodities and its strategy. For the company, the Current Policy Scenario impacts, in part, its ability to generate value. In addition to greater exposure to physical risks, the Current Policies Scenario (CPS) does not consider the opportunity for growth in renewables, the electrification of transport and the need to decarbonize the steel industry, which are now fundamental parts of Vale's strategy. The Sustainable Development Scenario (SDS), in turn, creates an ecosystem that encourages the company's growth options and amplifies the relevance of its strategic pillars, namely, the transformation of base metals and the maximization of the flight-to-quality of iron ore. The coal asset is negatively impacted in the Stated Policies Scenario (STEPS) and SDS scenarios, but is not representative in the consolidated result. On the path towards carbon neutrality, Vale evaluated its asset portfolio and announced in early 2021 the divestment of the coal business, a strategy that is in line with the company's focus on prioritizing its core businesses and its ESG agenda. Under a variety of climate change scenarios, Vale's EBITDA performs in a range of 90% to 140% compared to the base case used in our strategic planning. This resilience is the result of a flexible portfolio, capable of adapting to different market conditions and which has a strategic positioning well aligned with the transition trends towards a low-carbon economy.

As the TCFD itself suggests, in 2020 the company carried out an analysis of the resilience of its portfolio to scenarios of climate change, based on International Energy Agency (IEA) scenarios, which are industry recognized and internationally supported. The different supply and demand behaviors in the three IEA scenarios result in changes in the dynamics of competitiveness that affect the long-term price of Vale's main commodities and its strategy. For the company, the Current Policy Scenario impacts, in part, its ability to generate value. In addition to greater exposure to physical risks, the Current Policies Scenario (CPS) does not consider the opportunity for growth in renewables, the electrification of transport and the need to decarbonize the steel industry, which are now fundamental parts of Vale's strategy. The Sustainable Development Scenario (SDS), in turn, creates an ecosystem that encourages the company's growth options and amplifies the relevance of its strategic pillars, namely, the transformation of base metals and the maximization of the flight-to-quality of iron ore. The coal asset is negatively impacted in the Stated Policies Scenario (STEPS) and SDS scenarios, but is not representative in the consolidated result. On the path towards carbon neutrality, Vale evaluated its portfolio of assets and announced in early 2021 the divestment of the coal business, which had its sale announced in December 2021. The responsible divestment of Moatize and CLN benefits communities and governments where these operations are located and provides a sustainable future for operations. At the same time, the divestment was in line with the company's focus on prioritizing its core businesses, its ESG agenda and a way to mitigate its exposure to transition risks. Under a variety of climate change scenarios, Vale's EBITDA performs in a range of 90% to 140% compared to the base case used in our strategic planning. This resilience is the result of a flexible portfolio, capable of adapting to different market conditions and which has a strategic positioning well aligned with the transition trends towards a low-carbon economy. In 2022, Vale will update its scenario analysis, adding a scenario in which the global temperature increase is limited to 1.5°C.

As the TCFD itself suggests, in 2020 the company carried out an analysis of the resilience of its portfolio to scenarios of climate change, based on International Energy Agency (IEA) scenarios, which are industry recognized and internationally supported. The different supply and demand behaviors in the three IEA scenarios result in changes in the dynamics of competitiveness that affect the long-term price of Vale's main commodities and its strategy. For the company, the Current Policy Scenario impacts, in part, its ability to generate value. In addition to greater exposure to physical risks, the Current Policies Scenario (CPS) does not consider the opportunity for growth in renewables, the electrification of transport and the need to decarbonize the steel industry, which are now fundamental parts of Vale's strategy. The Sustainable Development Scenario (SDS), in turn, creates an ecosystem that encourages the company's growth options and amplifies the relevance of its strategic pillars, namely, the transformation of base metals and the maximization of the flight-to-quality of iron ore. The coal asset is negatively impacted in the Stated Policies Scenario (STEPS) and SDS scenarios, but is not representative in the consolidated result. On the path towards carbon neutrality, Vale evaluated its portfolio of assets and announced in early 2021 the divestment of the coal business, which had its sale announced in December 2021. The responsible divestment of Moatize and CLN benefits communities and governments where these operations are located and provides a sustainable future for operations. At the same time, the divestment was in line with the company's focus on prioritizing its core businesses, its ESG agenda and a way to mitigate its exposure to transition risks. Under a variety of climate change scenarios, Vale's EBITDA performs in a range of 90% to 140% compared to the base case used in our strategic planning. This resilience is the result of a flexible portfolio, capable of adapting to different market conditions and which has a strategic positioning well aligned with the transition trends towards a low-carbon economy. In 2023, Vale will update its scenario analysis, adding a scenario in which the global temperature increase is limited to 1.5 °C and will also publish its second Climate Change report, following the recommendations and in line with the TCFD.

As the TCFD itself suggests, in 2020 the company carried out an analysis of the resilience of its portfolio to scenarios of climate change, based on International Energy Agency (IEA) scenarios, which are industry recognized and internationally supported. The different supply and demand behaviors in the three IEA scenarios result in changes in the dynamics of competitiveness that affect the long-term price of Vale's main commodities and its strategy. For the company, the Current Policy Scenario impacts, in part, its ability to generate value. In addition to greater exposure to physical risks, the Current Policies Scenario (CPS) does not consider the opportunity for growth in renewables, the electrification of transport and the need to decarbonize the steel industry, which are now fundamental parts of Vale's strategy. The Sustainable Development Scenario (SDS), in turn, creates an ecosystem that encourages the company's growth options and amplifies the relevance of its strategic pillars, namely, the transformation of base metals and the maximization of the flight-to-quality of iron ore. The coal asset was negatively impacted in the Stated Policies Scenario (STEPS) and SDS scenarios, but was not representative in the consolidated result. On the path towards carbon neutrality, Vale evaluated its portfolio of assets and announced in early 2021 the divestment of the coal business, which had its sale concluded in April 2022. The responsible divestment of Moatize and CLN benefits communities and governments where these operations are located and provides a sustainable future for operations. At the same time, the divestment was in line with the company's focus on prioritizing its core businesses, its ESG agenda and a way to mitigate its exposure to transition risks. Under a variety of climate change scenarios, Vale's EBITDA performs in a range of 90% to 140% compared to the base case used in our strategic planning. This resilience is the result of a flexible portfolio, capable of adapting to different market conditions and which has a strategic positioning well aligned with the transition trends towards a low-carbon economy.

### 3. Risk Management - Process of identification, assessment and management of corporate risks

TCFD Recommendation: 3.1. Process for mapping and assessing climate risks

Year	Vale's answer
2019	<p>The Instituto Tecnológico Vale regionalized (downscaling) the global warming models referenced by the Intergovernmental Panel on Climate Change (IPCC) for the Brazilian reality. This allowed Vale to identify changes in rainfall regimes and volumes and temperature variation for all operations in Brazil. The RCP 4.5 and 8.5 models were regionalized. From changes in rainfall and temperature patterns, it was possible to identify the main vulnerable assets and potential changes in the intensity and frequency of operational risks previously identified by the company's risk management process. "Climate change and energy" chapter of the 2019 Sustainability Report; CDP question 2.2</p>
2020	<p>1. Continuous monitoring: The Sustainability Department, through the Executive Management of Environmental Management, acting in the second line of defense, continuously monitors physical and transition risks, as well as opportunities in climate change.</p> <p>2. Identification of risks based on the business: Based on Vale's strategic planning, risks and opportunities are identified considering the risk management process itself and the monitoring of the regulatory framework on the subject.</p> <p>For example, the Instituto Tecnológico Vale regionalized (downscaling) the global warming models referenced by the Intergovernmental Panel on Climate Change (IPCC) for the Brazilian reality. This allowed Vale to identify changes in rainfall regimes and volumes and temperature variation for all operations in Brazil. The RCP 4.5 and 8.5 models were regionalized. Based on the Intergovernmental Panel on Climate Change (IPCC) scenario studies, Vale developed, in partnership with the Vale Technological Institute, the Vale Climate Forecast, a methodology for analyzing risks and opportunities related to climate change. The Vale Climate Forecast enables:</p> <ul style="list-style-type: none"> <li>• Very short and short term analysis and seasonal forecast for physical risks, with the main focus on preventing impacts on the operation and shipment of products;</li> <li>• Assessment of physical hazards and their long-term impacts to identify necessary investments in facilities – for climate change adaptation and/or mitigation.</li> </ul> <p>Chapter "Climate Change: Risks and Opportunities in Climate Change" of the 2020 Integrated Report; ESG Portal - Climate Change; CDP question 2.2.</p>

2021	At Vale, the identification and analysis of climate change risks are part of the company's corporate risk management process. The Executive Risk Committee – Sustainability, Institutional Relations and Reputation continuously monitors risks related to climate change and reports them to the Sustainability Committee. The main tools used at Vale to identify risks and opportunities arising from climate change are:
	<ol style="list-style-type: none"> <li>1. Analysis of climate change scenarios and Vale Climate Forecast, with robust methodologies for analyzing risks and opportunities related to climate change. For example, the Instituto Tecnológico Vale regionalized (downscaling) the global warming models referenced by the Intergovernmental Panel on Climate Change (IPCC) for the Brazilian reality. This allowed Vale to identify changes in rainfall regimes and volumes and temperature variation for all operations in Brazil. The RCP 4.5 and 8.5 models were regionalized. Based on the Intergovernmental Panel on Climate Change (IPCC) scenario studies, Vale developed, in partnership with the Vale Technological Institute, the Vale Climate Forecast, a methodology for analyzing risks and opportunities related to climate change. The Vale Climate Forecast enables: <ul style="list-style-type: none"> <li>• Very short and short term analysis and seasonal forecast for physical risks, with the main focus on preventing impacts on the operation and shipment of products;</li> <li>• Assessment of physical hazards and their long-term impacts to identify necessary investments in facilities – for climate change adaptation and/or mitigation.</li> </ul> </li> <li>2. Monitoring of the external environment, including new regulatory frameworks, emerging technologies, market dynamics and public policies – the company internally consolidates a Monthly Climate Intelligence Bulletin, which maps the most relevant news for the climate agenda.</li> <li>3. Engagement with stakeholders in the main industry forums, in order to monitor new positions, trends and regulations.</li> </ol> <p>Chapter "Climate Change: Risks and Opportunities in Climate Change" of the Integrated Report 2021; ESG Portal - Climate Change; CDP issue 2.2., Climate Change Report, 2021. Implementation of the "Vale Climate Forecast" methodology and mapping of operational risks for operations in Canada and the Northern Corridor.</p>

2022	At Vale, the identification and analysis of climate change risks are part of the company's corporate risk management process. The Executive Risk Committee – Sustainability, Institutional Relations and Reputation continuously monitors risks related to climate change and reports them to the Sustainability Committee. The main tools used at Vale to identify risks and opportunities arising from climate change are:
	<ol style="list-style-type: none"> <li>1. Analysis of climate change scenarios and Vale Climate Forecast, with robust methodologies for analyzing risks and opportunities related to climate change. For example, the Instituto Tecnológico Vale regionalized (downscaling) the global warming models referenced by the Intergovernmental Panel on Climate Change (IPCC) for the Brazilian reality. This allowed Vale to identify changes in rainfall regimes and volumes and temperature variation for all operations in Brazil. The RCP 4.5 and 8.5 models were regionalized. Based on the Intergovernmental Panel on Climate Change (IPCC) scenario studies, Vale developed, in partnership with the Vale Technological Institute, the Vale Climate Forecast, a methodology for analyzing risks and opportunities related to climate change. The Vale Climate Forecast enables: <ul style="list-style-type: none"> <li>• Very short and short term analysis and seasonal forecast for physical risks, with the main focus on preventing impacts on the operation and shipment of products;</li> <li>• Assessment of physical hazards and their long-term impacts to identify necessary investments in facilities – for climate change adaptation and/or mitigation.</li> </ul> </li> <li>2. Monitoring of the external environment, including new regulatory frameworks, emerging technologies, market dynamics and public policies – the company internally consolidates a Monthly Climate Intelligence Bulletin, which maps the most relevant news for the climate agenda.</li> <li>3. Engagement with stakeholders in the main industry forums, in order to monitor new positions, trends and regulations.</li> </ol> <p>Chapter "Climate Change: Risks and Opportunities in Climate Change" of the 2022 Integrated Report; ESG Portal - Climate Change; CDP question C2.2. and C3 and C3.3 Implementation of the "Vale Climate Forecast" methodology and mapping of operational risks for operations in Canada and the Northern Corridor. Internal publication in 2022 of the Normative Standard for the Management of Physical Risks related to Climate Change.</p>

2023	At Vale, the identification and analysis of climate change risks are part of the company's corporate risk management process. The Executive Risk Committee – Sustainability, Institutional Relations and Reputation continuously monitors risks related to climate change and reports them to the Sustainability Committee. The main tools used at Vale to identify risks and opportunities arising from climate change are:
	<ol style="list-style-type: none"> <li>1. Analysis of climate change scenarios and Vale Climate Forecast, with robust methodologies for analyzing risks and opportunities related to climate change. For example, the Instituto Tecnológico Vale regionalized (downscaling) the global warming models referenced by the Intergovernmental Panel on Climate Change (IPCC) for the Brazilian reality. This allowed Vale to identify changes in rainfall regimes and volumes and temperature variation for all operations in Brazil. The RCP 4.5 and 8.5 models were regionalized. Based on the Intergovernmental Panel on Climate Change (IPCC) scenario studies, Vale developed, in partnership with the Vale Technological Institute, the Vale Climate Forecast, a methodology for analyzing risks and opportunities related to climate change. The Vale Climate Forecast enables: <ul style="list-style-type: none"> <li>• Very short and short term analysis and seasonal forecast for physical risks, with the main focus on preventing impacts on the operation and shipment of products;</li> <li>• Assessment of physical hazards and their long-term impacts to identify necessary investments in facilities – for climate change adaptation and/or mitigation.</li> </ul> </li> <li>2. Monitoring of the external environment, including new regulatory frameworks, emerging technologies, market dynamics and public policies – the company internally consolidates a Monthly Climate Intelligence Bulletin, which maps themost relevant news for the climate agenda.</li> <li>3. Engagement with stakeholders in the main industry forums, in order to monitor new positions, trends and regulations.</li> </ol> <p>Chapter "Climate Change: Risks and Opportunities in Climate Change" of the 2023 Integrated Report; ESG Portal - Climate Change; CDP question C2.2. and C3 and C3.3 Implementation of the "Vale Climate Forecast" methodology and mapping of operational risks for operations in Canada and the Northern Corridor. Internal publication in 2022 of the Normative Standard for the Management of Physical Risks related to Climate Change.</p>

TCFD Recommendation: 3.2. Climate risk management process

Year	Vale's answer
2019	<p>The main climate risks are included in the company's risk management process. In addition, monitoring of the main risks is also communicated within the scope of the Low Carbon Forum. "Climate change and energy" chapter of the 2019 Sustainability Report; CDP question 2.2.</p>
2020	<p>The main climate risks are included in the company's risk management process, through analysis by the Executive Risk Committee and reporting to the Board of Directors. In addition, monitoring of the main risks is also communicated within the scope of the Low Carbon Forum.</p> <p>From changes in rainfall and temperature patterns, it was possible to identify the main vulnerable assets and potential changes in the intensity and frequency of operational risks previously identified by the company's risk management process.</p> <p>For transition risks, analyzes of the strategy's resilience, financial impacts, in the face of different Climate Change scenarios, were prepared, in addition to periodic regulatory monitoring. Carbon pricing is one of the internal tools for transition risk management. The use of the internal carbon price (shadow price) of US\$50/tCO2e is in line with what is necessary to limit the temperature increase to less than 2°C and is integrated into the economic-financial feasibility analyzes of capital projects and projects (sustaining), within the budgetary and strategic planning cycles from 2020 onwards.</p> <p>For physical risks, we developed an application to standardize short-term physical risk information in operations (Vale Climate Forecast app).</p> <p>Chapter "Climate Change: Risks and Opportunities in Climate Change" of the 2020 Integrated Report; ESG Portal - Climate Change; CDP question 2.2.</p>
2021	<p>The main climate risks are included in the company's risk management process, through analysis by the Executive Risk Committee and reporting to the Board of Directors. In addition, monitoring of the main risks is also communicated within the scope of the Low Carbon Forum.</p> <p>From changes in rainfall and temperature patterns, it was possible to identify the main vulnerable assets and potential changes in the intensity and frequency of operational risks previously identified by the company's risk management process.</p> <p>For transition risks, analyzes of the strategy's resilience, financial impacts, in the face of different Climate Change scenarios, were prepared, in addition to periodic regulatory monitoring. Carbon pricing is one of the internal tools for transition risk management. The use of an internal carbon price (shadow price) of US\$50/tCO2e is in line with what is necessary to limit the temperature increase to less than 2°C and with the recommendation of the Carbon Pricing Leadership Coalition (CPLC). Internal pricing is integrated into the decision-making process to guide our capital allocation, enabling and accelerating the transition to a carbon-neutral economy. It is integrated with the economic-financial feasibility analyzes of capital projects and current projects (sustaining), within the budgetary and strategic planning cycles from 2020 onwards.</p> <p>For physical risks, they are managed using the Vale Climate Forecast Methodology, which was implemented in 2021 in operations in Canada and the North Corridor. This risk mapping and identification process was then integrated into corporate risk management and evaluated according to their severity and probability of occurrence.</p> <p>Chapter "Climate Change: Risks and Opportunities in Climate Change" of the Integrated Report 2021; ESG Portal - Climate Change; CDP question 2.2. Climate Change Report, 2021.</p>



The main climate-related risks are included in the company's risk management process, through analysis by the Executive Risk Committee and reporting to the Board of Directors. The first line of defense is responsible for identifying and managing risks with the support of the company's Risk Management area. In addition, monitoring of the main risks is also communicated within the scope of the Low Carbon Forum.

From the implementation of the "Vale Climate Forecast" Methodology, which indicate changes in rainfall and temperature patterns, it was possible to identify the main vulnerable assets and potential changes in the intensity and frequency of operational risks previously identified by the company's risk management process.

For transition risks, analyses of the strategy's resilience, financial impacts, in the face of different Climate Change scenarios, were prepared, in addition to periodic regulatory monitoring.

2022

Carbon pricing is one of the internal tools for transition risk management. The use of an internal carbon price (shadow price) of US\$50/CO<sub>2</sub>e is in line with what is necessary to limit the temperature increase to less than 2°C and with the recommendation of the Carbon Pricing Leadership Coalition (CPLC). Internal pricing is integrated into the decision-making process to guide our capital allocation, enabling and accelerating the transition to a carbon-neutral economy. It is integrated with the economic-financial feasibility analyses of capital projects and current projects (sustaining), within the budgetary and strategic planning cycles from 2020 onwards.

For physical risks, they are managed via the Vale Climate Forecast Methodology, which was implemented in 2021 in operations in Canada and advanced with the analysis of the North Corridor. This risk mapping and identification process was then integrated into corporate risk management and evaluated according to their severity and probability of occurrence.

Chapter "Climate Change: Risks and Opportunities in Climate Change" of the 2022 Integrated Report; ESG Portal - Climate Change; CDP question 2.2.. Internal publication of Normative Standard for Management of Physical Risks related to Climate.

The main climate-related risks are embedded in the company's risk management process, through analyses by the Executive Risk Committee and reporting to the Board of Directors. The first line of defense is responsible for identifying and managing risks with the support of the company's Risk Management area. In addition, the monitoring of the main risks is also communicated within the framework of the Low Carbon Forum.

From the implementation of the "Vale Climate Forecast" Methodology, which indicates changes in rainfall and temperature patterns, it was possible to identify the main vulnerable assets and potential changes in the intensity and frequency of operational risks previously identified by the company's risk management process.

For transition risks, analyses of the strategy's resilience, financial impacts, in the face of different Climate Change scenarios, in addition to periodic regulatory monitoring, were prepared.

2023

Carbon pricing is one of the internal tools for managing transition risk. The use of the US\$50/CO<sub>2</sub>e shadow price is in line with what is needed to limit the temperature increase to below 2°C and with the recommendation of the Carbon Pricing Leadership Coalition (CPLC). The internal price is integrated into the decision-making process to guide our capital allocation, enabling and accelerating the transition to a carbon-neutral economy. It is integrated into the economic and financial viability analyses of capital projects and current projects (sustaining), within the budget and strategic planning cycles from 2020 onwards. Furthermore, in 2023, were adopted carbon price curves applicable to commodity pricing trends and premium calculations during the company's Strategic Planning Cycle.

For physical risks, they are managed via the Vale Climate Forecast Methodology, which has been implemented since 2021 and has already mapped the vulnerability of operations in Canada, the Northern Corridor and recently in the South and Southeast Corridors. The methodology was also deployed for the first time in a capital project located in Indonesia. This process of mapping and identifying risks was then integrated into corporate risk management and evaluated according to their severity and probability of occurrence.

Chapter "Climate Change: Risks and Opportunities in Climate Change" of the Integrated Report 2023; ESG Portal - Climate Change; CDP question 2.2.. Internal publication of the Normative Standard for the Management of Climate-related Physical Risks. Internal publication of the Annual Risk Management Report 2023.

### TCFD Recommendation: 3.3. Integration into the corporate risk management process

Year	Vale's answer
2019	Climate risks mapped by different areas within the scope of Corporate Risk Management (GRC), and included in the Operational and Business Risk matrices Regulatory and physical risks included in risk factors (20F). "Risk Management" chapter of the 2019 Sustainability Report.
2020	Climate risks mapped by different areas within the scope of Corporate Risk Management (GRC), and included in the Operational and Business Risk matrices Regulatory and physical risks included in risk factors (20F). Periodically, material risks and opportunities are presented to the Executive Risk Committee for analysis and quarterly reporting to the Board of Directors. The main results are also presented at the Low Carbon Forum. Chapter "Climate Change: Risks and Opportunities in Climate Change" of the 2020 Integrated Report.
2021	At Vale, the identification and analysis of climate change risks are part of the company's corporate risk management process. Climate risks mapped by the different areas within the scope of Corporate Risk Management (GRC), and included in the Operational and Business Risk matrices Regulatory and physical risks are included in the risk factors mentioned in the 20F report. Periodically, material risks and opportunities are presented to the Executive Risk Committee for analysis and quarterly reporting to the Board of Directors. The Executive Risk Committee – Sustainability, Institutional Relations and Reputation continuously monitors risks related to climate change and reports them to the Sustainability Committee. It operates in the second line of defense, continuously evaluating the process of managing the risks and opportunities of climate change. The main results are also presented at the Low Carbon Forum. Chapter "Climate Change: Risks and Opportunities in Climate Change" of the Integrated Report 2021. Publication of the report on Climate Change, 2021.
2022	At Vale, the identification and analysis of climate change risks are part of the company's corporate risk management process. Climate risks mapped by the different areas within the scope of Corporate Risk Management (GRC), and included in the Operational and Business Risk matrices Regulatory and physical risks are included in the risk factors mentioned in the 20F report. Periodically, material risks and opportunities are presented to the Executive Risk Committee for analysis and quarterly reporting to the Board of Directors. The Executive Risk Committee – Sustainability, Institutional Relations and Reputation continuously monitors risks related to climate change and reports them to the Sustainability Committee. It operates in the second line of defense, continuously evaluating the process of managing the risks and opportunities of climate change. The main results are also presented at the Low Carbon Forum. Chapter "Climate Change: Risks and Opportunities in Climate Change" of the Integrated Report 2022. CDP 2022 Questionnaire, Section TCFD - Business Strategy, C.3. Internal publication in 2022 of the Normative Standard with methodology for managing the Physical Risks of Climate Change at Vale.
2023	At Vale, the identification and analysis of climate change risks are part of the company's corporate risk management process. Climate risks are mapped by the different areas within the scope of Corporate Risk Management (GRC), and included in the Operational and Business Risk matrices. Regulatory and physical risks are included in the risk factors mentioned in the 20F report. Periodically, material risks and opportunities are presented to the Executive Risk Committee for analysis and quarterly reporting to the Board of Directors. The Executive Risk Committee – Sustainability, Institutional Relations and Reputation continuously monitors risks related to climate change and reports them to the Sustainability Committee. It operates in the second line of defense, continuously evaluating the process of managing the risks and opportunities of climate change. The main results are also presented at the Low Carbon Forum. Chapter "Climate Change: Risks and Opportunities in Climate Change" of the Integrated Report 2023. CDP 2023 Questionnaire, Section TCFD - Business Strategy, C.3. Internal publication in 2022 of the Normative Standard with methodology for managing the Physical Risks of Climate Change at Vale.

## 4. Metrics and Goals

### TCFD Recommendation: 4.1. Reporting of metrics used to monitor climate risks and opportunities

Year	Vale's answer
2019	<ul style="list-style-type: none"> <li>Absolute emissions and intensity;</li> <li>Energy consumption, intensity and energy matrix profile;</li> <li>Water and land use.</li> </ul> Chapters "Climate Change and Energy", "Biodiversity" and "Water Resources and Effluents" of the 2019 Sustainability Report; ESG Portal; CDP questions C5., C6., C7. and C8.
2020	<ul style="list-style-type: none"> <li>Absolute emissions and intensity;</li> <li>Energy consumption, intensity and energy matrix profile;</li> <li>Water and land use.</li> <li>Spending on reducing emissions totaled US\$ 81 million in 2020 alone and includes energy efficiency projects, renewable electricity, biofuels, electrification and innovative technologies.</li> </ul> Chapters "Climate Change: Greenhouse Gas (GHG) Emissions", "Climate Change: Energy and Energy Efficiency", "Biodiversity" and "Eco-Efficiency: Water Resources" of the 2020 Integrated Report; ESG Portal; CDP questions C5., C6., C7., C8 and C9.



2021	<ul style="list-style-type: none"> <li>• Absolute emissions and intensity;</li> <li>• Energy consumption, intensity and energy matrix profile;</li> <li>• Water and land use.</li> </ul> <p>- Percentage of assets analyzed to identify physical risks related to climate change, following the "Vale Climate Forecast" methodology, percentage of assets with high exposure to transition risks, percentage of assets with high exposure to climate opportunities.</p> <p>• Spending on reducing emissions totaled US\$ 187 million in 2021 alone and includes energy efficiency projects, renewable electricity, biofuels, electrification and innovative technologies.</p> <p>Chapters "Climate Change: Greenhouse Gas Emissions (GHG)", "Climate Change: Energy and Energy Efficiency", "Biodiversity" and "Eco-Efficiency: Water Resources" of the 2021 Integrated Report; ESG Portal; CDP questions C5., C6., C7., C8 and C9. Climate Change Report, 2021</p>
2022	<ul style="list-style-type: none"> <li>• Absolute emissions and intensity;</li> <li>• Energy consumption, intensity and energy matrix profile;</li> <li>• Water and land use.</li> </ul> <p>- Percentage of assets analyzed to identify physical risks related to climate change, following the "Vale Climate Forecast" methodology, percentage of assets with high exposure to transition risks, percentage of assets with high exposure to climate opportunities.</p> <p>• Spending on emissions reduction in 2022 totaled \$543 million, almost three times as much as in 2021, and covers energy efficiency projects, renewable electricity, biofuels, electrification, and innovative technologies.</p> <p>Chapters "Climate Change: Greenhouse Gas Emissions (GHG)", "Climate Change: Energy and Energy Efficiency", "Biodiversity" and "Eco-Efficiency: Water Resources" of the 2021 Integrated Report; ESG Portal; CDP questions C5., C6., C7., C8 and C9. Climate Change Report, 2021</p>
2023	<ul style="list-style-type: none"> <li>• Absolute emissions and intensity;</li> <li>• Energy consumption, intensity and energy matrix profile;</li> <li>• Water and land use.</li> </ul> <p>- Percentage of assets analyzed to identify physical risks related to climate change, following the "Vale Climate Forecast" methodology, percentage of assets with high exposure to transition risks, percentage of assets with high exposure to climate opportunities.</p> <p>• Spending on emissions reduction in 2022 totaled US\$ 543 million, almost three times as much as in 2021, and covers energy efficiency projects, renewable electricity, biofuels, electrification, and innovative technologies.</p> <p>Chapters "Climate Change: Greenhouse Gas Emissions (GHG)", "Climate Change: Energy and Energy Efficiency", "Biodiversity" and "Eco-Efficiency: Water Resources" of the 2023 Integrated Report; ESG Portal; CDP questions C5., C6., C7., C8 and C9. Climate Change Report, 2021</p>

**TCFD Recommendation: 4.2. Transparency regarding scope 1, 2 and 3 emissions.**

Year	Vale's answer
2019	Reporting of Scope 1, 2 and 3 emissions in the Sustainability Report, on the ESG Portal and in Vale's response to the CDP Questionnaire. Chapter "Climate Change: Performance" of the 2019 Sustainability Report; ESG Portal - Climate Change; CDP questions C5., C6. and C7.
2020	Reporting of Scope 1, 2 and 3 emissions in the Integrated Report, on the ESG Portal, in Vale's response to the CDP Questionnaire and in the ESG Databook. Chapter "Climate Change: Greenhouse Gas (GHG) Emissions" of the 2020 Integrated Report; ESG Portal - Climate Change; CDP questions C5., C6. and C7.
2021	Reporting of absolute Scope 1, 2 and 3 emissions in the Integrated Report, on the ESG Portal, in Vale's response to the CDP Questionnaire and in the ESG Databook. Reported emissions do not include any type of offsetting. Chapter "Climate Change: Greenhouse Gas (GHG) Emissions" of the 2021 Integrated Report; ESG Portal - Climate Change; CDP questions C5., C6. and C7.
2022	Reporting of absolute Scope 1, 2 and 3 emissions in the Integrated Report, on the ESG Portal, in Vale's response to the CDP Questionnaire and in the ESG Databook. Reported emissions do not include any type of offsetting. Chapter "Climate Change: Greenhouse Gas (GHG) Emissions" of Integrated Report 2022; ESG Portal - Climate Change; CDP questions C4, C5., C6. and C7.
2023	Reporting of absolute Scope 1, 2 and 3 emissions in the Integrated Report, on the ESG Portal, in Vale's response to the CDP Questionnaire and in the ESG Databook. Reported emissions do not include any type of offsetting. Chapter "Climate Change: Greenhouse Gas (GHG) Emissions" of Integrated Report 2023; ESG Portal - Climate Change; CDP questions C4, C5., C6. and C7.

**TCFD Recommendation: 4.3. Setting goals with clarity**

Year	Vale's answer
2019	<p>In December 2019, Vale assumed more ambitious goals in its climate agenda, with 2017 as the base year.</p> <ul style="list-style-type: none"> <li>• Become a zero net emissions mining company (Scopes 1 and 2) by 2050.</li> <li>• Reduce absolute Scope 1 and 2 emissions by 33%, by 2030, compared to the base year of 2017, in line with the Paris Agreement. This target was defined based on the calculation tool of the Science Based Target Initiative (SBTI), and is therefore compatible with an increase in global temperature of less than 2°C (scenario well below 2°C) and considered a target based on the science. For Scopes 1 and 2, no types of compensation are considered and the entire strategy is related to the reduction of internal emissions. This goal is linked to the variable remuneration of all Vale employees.</li> <li>• Consume 100% of electricity from renewable sources by 2025 in Brazil and, globally, by 2030;</li> <li>• Establish ambition to reduce scope 3 emissions.</li> <li>• Restore and protect an additional 500,000 hectares by 2030.</li> </ul> <p>"Global Sustainability Goals" and "Climate Change and Energy" chapters of the 2019 Sustainability Report; ESG Portal - Climate Change; CDP question 4.1.</p>
2020	<p>In addition to the goals announced in 2019, in 2020 Vale assumed the target of reducing net Scope 3 emissions by 15% by 2035, compared to the base year of 2018. The volume of reduction was defined based on the calculation tool of the Science Based Target Initiative (SBTI), the Absolute Contraction Approach method, so it is also considered a science-based target.</p> <p>"Advances in the 2030 Commitments" and "Climate Changes" chapters of the 2020 Integrated Report; ESG Portal - Climate Change; CDP question 4.1.</p>
2021	The goals remained the same as in 2019 and 2020.
2022	The goals remained the same as in 2019 and 2020.
2023	The goals remained the same as in 2019 and 2020.



## WEF - World Economic Forum

### Governance Purpose

**Metric:** Definition of purpose.

Year	Vale's answer
2020	Vale began to build a new culture, reflected in the phrase: learning together. Thus, the purpose was defined as: "We exist to improve life and transform the future. Together." Vale believes that mining is essential for the development of the world and only serves society by generating prosperity for everyone and taking care of the planet.
2021	Vale's purpose is: "We exist to improve life and transform the future. Together."
2022	Vale's purpose is: "We exist to improve life and transform the future. Together."
2023	Vale's purpose is: "We exist to improve life and transform the future. Together."

### Quality of the Board of Directors

**Metric:** Board composition.

Year	Vale's answer
2020	To learn about the composition of the board of directors and its characteristics, please access the Proxy Statement: <a href="http://www.vale.com/PT/investors/corporate-governance/notices-minutes-corporate-documents/atasEditaisDocumentosCorporativos/4.Proxy%20Statement%202021_PT.pdf">http://www.vale.com/PT/investors/corporate-governance/notices-minutes-corporate-documents/atasEditaisDocumentosCorporativos/4.Proxy%20Statement%202021_PT.pdf</a>
2021	To learn about the composition of the board of directors and its characteristics, please access the Proxy Statement: <a href="https://api.mziq.com/mzfilemanager/v2/d/53207d1c-63b4-48f1-96b7-19869fae19fe/ec478bc8-e308-2d7a-231e-860a858858d3?origin=1">https://api.mziq.com/mzfilemanager/v2/d/53207d1c-63b4-48f1-96b7-19869fae19fe/ec478bc8-e308-2d7a-231e-860a858858d3?origin=1</a>
2022	To learn about the composition of the board of directors and its characteristics, please access the Proxy Statement: <a href="https://api.mziq.com/mzfilemanager/v2/d/53207d1c-63b4-48f1-96b7-19869fae19fe/d1bca918-527d-94fa-315e-87dcf684a52b?origin=2">https://api.mziq.com/mzfilemanager/v2/d/53207d1c-63b4-48f1-96b7-19869fae19fe/d1bca918-527d-94fa-315e-87dcf684a52b?origin=2</a>
2023	To learn about the composition of the board of directors and its characteristics, please access the Proxy Statement.

Links: [Proxy Statement](#)

### Stakeholder involvement

**Metric:** Material topics that affect stakeholders.

Year	Vale's answer
2020	Relationship and engagement actions are carried out with the main stakeholders. It is part of Vale's commitment to identify opportunities to contribute to the achievement of global ESG goals adhered to the business, seeking partnerships, solutions and technologies for the challenges of sustainable development. To this end, Vale is committed to practicing active and integrated listening with its stakeholders in building a positive legacy for future generations, creating positive social, environmental and economic value throughout the entire mining life cycle. To access the methods and reasons for engagement of the main stakeholders, please access the 2020 Integrated Report (p. 55)
2021	Aware of its potential impact on society, Vale seeks to engage in dialogue and active listening with its stakeholders in order to build a positive legacy for future generations. In the Integrated Report (p.112), we publish relationship and engagement initiatives with the main stakeholders.
2022	Aware of its potential impact on society, Vale seeks to engage in dialogue and active listening with its stakeholders in order to build a positive legacy for future generations. In the Integrated Report (p.19 and 20), we publish relationship and engagement initiatives with the main stakeholders.
2023	Aware of its potential impact on society, Vale seeks to engage in dialogue and active listening with its stakeholders in order to build a positive legacy for future generations. In the Integrated Report (p.14 and 15), we publish relationship and engagement initiatives with the main stakeholders.

### Ethical Behavior

**Metric:** Anti-corruption

Year	Vale's answer
2020	Training on anti-corruption policies and procedures: - Senior governance: : In 2020, no specific training was carried out on anti-corruption rules for Vale's senior governance. Only follow-up meetings were held. Training for this audience was carried out in 2019 and will be repeated in 2021. - Employees: 74% participated in the global education action on anti-corruption rules in 2020. - Commercial partners: n/a Corruption cases confirmed during 2020: In 2020, 7 cases of private corruption were confirmed, in all cases employees were dismissed or punished. There was also the blocking of 3 suppliers after verification. There were no corruption-related lawsuits filed against the organization or its employees during the reporting period. For information on managing this issue, see the Vale 2020 Integrated Report.

2021	<p>Training on anti-corruption policies and procedures:</p> <ul style="list-style-type: none"> <li>- Senior governance: 74%</li> <li>- Employees: 89%</li> <li>- Commercial partners: n/a</li> </ul> <p>Corruption cases confirmed during 2021: In 2021, no cases of corruption involving public agents were identified. Through the company's Whistleblower Channel, 3 cases were identified that resulted in actions to terminate the employees involved. For information on managing the issue, see the Vale 2021 Integrated Report.</p>
2022	<p>Training on anti-corruption policies and procedures:</p> <ul style="list-style-type: none"> <li>- High governance: 91%</li> <li>- Employees: 93%</li> <li>- Commercial partners: n/a</li> </ul> <p>Corruption cases confirmed during 2022: In 2022, no cases of corruption involving public agents were identified. Through the company's Whistleblower Channel, 4 cases were identified that resulted in the dismissal of an employee and a notification to a third party. For information on the management of the topic, consult the Vale 2022 Integrated Report.</p>
2023	<p>Training on anti-corruption policies and procedures:</p> <ul style="list-style-type: none"> <li>- High governance: 91%</li> <li>- Employees: 96%</li> <li>- Commercial partners: n/a</li> </ul> <p>Corruption cases confirmed during 2023: In 2023, no cases of corruption involving public agents were identified. Through the company's Whistleblower Channel, 2 cases were identified that resulted in the dismissal of an employee and a demobilization of the contract during the investigation process for poor performance. For information on the management of the topic, consult the Vale 2023 Integrated Report.</p>

## Risk and Opportunity Supervision

**Metric:** Integrating risk and opportunity into the business process

Year	Vale's answer
2020	<p>The 2020 20-F Report details the company's risks of the following nature: Risks related to the failure of a dam; external risks; financial risks; legal, political, economic, social and regulatory risks; operational risks; health, safety, environmental and social risks; risks related to our mineral reserves; risks related to the corporate structure; risks relating to depository shares.</p> <p>Risks of another nature can also be found described in the 2020 Reference Form.</p>
2021	<p>The 2021 20-F Report details the company's risks of the following nature: Risks related to the failure of a dam; external risks; financial risks; legal, political, economic, social and regulatory risks; operational risks; health, safety, environmental and social risks; risks related to our mineral reserves; risks related to the corporate structure; risks relating to depository shares; risks related to the Covid-19 pandemic.</p> <p>Risks of another nature can also be found described in the 2021 Reference Form.</p>
2022	<p>In Report 20-F 2022, the company's risks of the following nature are detailed: Risks related to the rupture of a dam; external risks; financial risks; legal, political, economic, social and regulatory risks; operational risks; health, safety, environmental and social risks; risks related to our mineral reserves; risks related to the corporate structure; risks relating to depository shares; risks related to the Covid-19 pandemic.</p> <p>Risks of another nature can also be found described in the 2022 Reference Form.</p>
2023	<p>In Report 20-F 2023, the company's risks of the following nature are detailed: Risks related to the rupture of a dam; external risks; financial risks; legal, political, economic, social and regulatory risks; operational risks; health, safety, environmental and social risks; risks related to our mineral reserves; risks related to the corporate structure; risks relating to depository shares.</p> <p>Risks of another nature can also be found described in the 2023 Reference Form.</p> <p>Report 20-F and the Reference Form can be found in the "References" tab of this Databook.</p>

## Climate change

**Metric:** Greenhouse gas (GHG) emissions

Year	Vale's answer
2020	<p>Scope 1: 8.5 millions of tCO<sub>2</sub>e Scope 2 - Location-Based: 0.7 millions of tCO<sub>2</sub>e Scope 2 - Market-Based: 0.4 millions of tCO<sub>2</sub>e Scope 3: 486.8 million of tCO<sub>2</sub>e</p>
2021	<p>Scope 1: 8.7 millions of tCO<sub>2</sub>e Scope 2 - Location-Based: 1.2 millions of tCO<sub>2</sub>e Scope 2 - Market-Based: 0.3 millions of tCO<sub>2</sub>e Scope 3: 470.7 million of tCO<sub>2</sub>e</p>
2022	<p>Scope 1: 8.6 millions of tCO<sub>2</sub>e Scope 2 - Location-Based: 0.6 millions of tCO<sub>2</sub>e Scope 2 - Market-Based: 0.3 millions of tCO<sub>2</sub>e Scope 3: 457.6 million of tCO<sub>2</sub>e</p>
2023	<p>Scope 1: 9.4 millions of tCO<sub>2</sub>e Scope 2 - Location-Based: 0.6 millions of tCO<sub>2</sub>e Scope 2 - Market-Based: 0.3 millions of tCO<sub>2</sub>e Scope 3: 451.2 million of tCO<sub>2</sub>e</p>

Metric: TCFD Implementation

Year	Vale's answer
2020	<p>Vale contributed to the construction of the Task Force on Climate Related Financial Disclosures (TCFD) framework, an initiative of which it has supported since 2017.</p> <p>One of the commitments of the Vale Carbono Neutra strategy is a 15% reduction in net Scope 3 emissions, by 2035, compared to the base year of 2018. The volume of reduction was defined based on the calculation tool of the Science Based Target Initiative (SBTI), Absolute Contraction Approach method, so it is also considered a science-based goal.</p> <p>Reduce absolute Scope 1 and 2 emissions by 33%, by 2030, compared to the base year of 2017, in line with the Paris Agreement. This target was established based on the methodology defined by the Science Based Target Initiative (SBTI), and is therefore considered a science-based target, at a level compatible with an increase in global temperature of less than 2°C (scenario well below 2° W).</p>
2021	<p>Vale contributed to the construction of the Task Force on Climate Related Financial Disclosures (TCFD) framework, an initiative of which it has supported since 2017.</p> <p>One of the commitments of the Vale Carbono Neutra strategy is a 15% reduction in net Scope 3 emissions, by 2035, compared to the base year of 2018. The volume of reduction was defined based on the calculation tool of the Science Based Target Initiative (SBTI), Absolute Contraction Approach method, so it is also considered a science-based goal.</p> <p>Reduce absolute Scope 1 and 2 emissions by 33%, by 2030, compared to the base year of 2017, in line with the Paris Agreement. This target was established based on the methodology defined by the Science Based Target Initiative (SBTI), and is therefore considered a science-based target, at a level compatible with an increase in global temperature of less than 2°C (scenario well below 2° W).</p>
2022	<p>Vale contributed to the construction of the Task Force on Climate Related Financial Disclosures (TCFD) framework, an initiative of which it has supported since 2017.</p> <p>One of the commitments of the Vale Carbono Neutra strategy is a 15% reduction in net Scope 3 emissions, by 2035, compared to the base year of 2018. The volume of reduction was defined based on the calculation tool of the Science Based Target Initiative (SBTI), Absolute Contraction Approach method, so it is also considered a science-based goal.</p> <p>Reduce absolute Scope 1 and 2 emissions by 33%, by 2030, compared to the base year of 2017, in line with the Paris Agreement. This target was established based on the methodology defined by the Science Based Target Initiative (SBTI), and is therefore considered a science-based target, at a level compatible with an increase in global temperature of less than 2°C (scenario well below 2° W).</p>
2023	<p>Vale contributed to the construction of the Task Force on Climate Related Financial Disclosures (TCFD) framework, an initiative of which it has supported since 2017.</p> <p>One of the commitments of the Vale Carbono Neutra strategy is a 15% reduction in net Scope 3 emissions, by 2035, compared to the base year of 2018. The volume of reduction was defined based on the calculation tool of the Science Based Target Initiative (SBTI), Absolute Contraction Approach method, so it is also considered a science-based goal.</p> <p>Reduce absolute Scope 1 and 2 emissions by 33%, by 2030, compared to the base year of 2017, in line with the Paris Agreement. This target was established based on the methodology defined by the Science Based Target Initiative (SBTI), and is therefore considered a science-based target, at a level compatible with an increase in global temperature of less than 2°C (scenario well below 2° W).</p>

## Loss of nature

Metric: Land use and ecological sensitivity

Year	Vale's answer						
	Impacted Area (in km²)						
	Total	In wilderness	In hotspots	In protected areas	Adjacent to protected areas	In priority conservation areas outside protected areas	Adjacent to priority areas for conservation outside protected areas
2020	818.39	324.82	381.77	260.24	384.19	103.89	156.36
2021	814.57	325.1	372.46	255.43	396.28	103.41	156.36
2022	877.31	434.87	356.99	300.53	397.22	96.23	95.95
2023	893.4	437.2	370.7	301.1	402.0	232.5	76.8

**Note:** Notes: The total area occupied by our operations (total impacted area) includes the areas of the pits currently licensed and under exploration, covering proven and probable reserves. It should be noted that the assessment of mineral resources and reserves currently takes into account the technical, economic, social and environmental points of view, and areas with legal restrictions, such as conservation units (Full Protection UCs and Private Natural Heritage Reserves), are excluded from the impact areas of these new cavas and are therefore not considered a reserve. This process is in line with the new rules set out in the Securities and Exchanges Commission's (SEC) SK-1300 Guide. Between 2021 and 2022, there was an increase in the Directly Affected Areas (DAAs) of the projects, with a consequent increase in interference in the territories, resulting in a variation in the area impacted in wilderness and protected areas.

## Fresh Water Availability

Metric: Consumption and abstraction of water in areas of water stress

Year	Vale's answer
2020	<p>Underground collection (m³): 35 million</p> <p>Surface capture (m³): 103 million</p> <p>Supply company (m³): 6 million</p> <p>Total: 145 million m³ of water captured for Vale production</p> <p>Total volume of new water abstracted according to the region's water risk:</p> <p>Low: 131 million m³ (90%)</p> <p>Low to medium: 10 million m³ (7%)</p> <p>Medium to high: 3 million m³ (2%)</p> <p>High: 1 million m³ (1%)</p> <p>Extremely high: There was no uptake in regions with this risk.</p>

2021

Underground collection (m³): 42.8 million  
Surface capture (m³): 69.8 million  
Supply company (m³): 6.2 million  
Stored fresh water: 4.5 million m³  
Total freshwater abstraction for use (others): 0.9 million m³  
Total: 118.8 million m³ of water captured for Vale production  
Total volume of new water abstracted according to the region's water risk:  
Low: 95.8 million m³  
Superficial: 66.8 million m³  
Underground: 26 million m³  
Supply company: 3 million m³  
Low to medium: 17.1 million m³  
Superficial: 2.1 million m³  
Underground: 15 million m³  
Medium to high: 3.2 million m³  
Superficial: 0.178 million m³  
Underground: 1.5 million m³  
Supply company: 1.5 million m³  
High: 2 million m³  
Supply company: 2 million m³  
Extremely high: 0

2022

Underground collection (m³): 28.1 million  
Surface capture (m³): 78.4 million  
Supply company (m³): 6.4 million  
Stored fresh water: 4.7 million m³  
  
Total: 137.9 million m³ of water captured for Vale production  
Total volume of new water abstracted according to the region's water risk:  
  
**No stress: 52.5 million m³**  
Superficial: 38.1 million m³  
Underground: 12.5 million m³  
Supply company: 1.9 million m³  
**Low: 33.4 million m³**  
Superficial: 29.1 million m³  
Underground: 1.5 million m³  
Supply company: 2.8 million m³  
**Medium: 10.0 million m³**  
Superficial: 0.05 million m³  
Underground: 8.3 million m³  
Supply company: 1.7 million m³  
**High: 1.9 million m³**  
Superficial: 1.4 million m³  
Underground: 0.5 million m³  
**Critical: 13.7 million m³**  
Superficial: 9.0 million m³  
Underground: 4.7 million m³  
**N/A: 1.2 million m³**  
Superficial: 0.7 million m³  
Underground: 0.5 million m³

As for the total dissolved solids parameter, the concentration did not exceed 1.000 mg/L for surface water, groundwater, and drinking water in 2022.

2023

Underground collection (m³): 25.4 million  
Surface capture (m³): 69.5 million  
Supply company (m³): 6.8 million  
Stored Volume from Conventional Sources: 84.1 million m³  
  
Total: 108.9 million m³ of water captured for Vale production  
Total volume of new water abstracted according to the region's water risk:  
  
**No stress: 43.4 million m³**  
Superficial: 33.2 million m³  
Underground: 8.1 million m³  
Supply company: 2.1 million m³  
**Low: 32.0 million m³**  
Superficial: 27.5 million m³  
Underground: 1.8 million m³  
Supply company: 2.7 million m³  
**Medium: 9.3 million m³**  
Superficial: 0.07 million m³  
Underground: 7.5 million m³  
Supply company: 1.8 million m³  
**High: 0.6 million m³**  
Superficial: 0.2 million m³  
Underground: 0.4 million m³  
**Critical: 14.2 million m³**  
Superficial: 7.8 million m³  
Underground: 6.4 million m³  
**N/A: 1.7 million m³**  
Superficial: 0.6 million m³  
Underground: 1.0 million m³  
Supply company: 0.1 million m³

As for the total dissolved solids parameter, the concentration did not exceed 1.000 mg/L for surface water, groundwater, and drinking water in 2023.

## Dignity and Equality

Metric: Equal pay (%)

Year	Vale's answer
2020	The local minimum wage is respected by Vale and base salaries do not differ between men and women who perform the same function, in accordance with the Human Resources Policy. Variations may occur due to the levels of seniority and maturity in which employees fall

2021	The local minimum wage is respected by Vale and base salaries do not differ between men and women who perform the same function, in accordance with the Human Resources Policy. Variations may occur due to the levels of seniority and maturity in which employees fall
2022	Vale respects the local minimum wage defined by law, and there is no significant difference* in base salaries between women and men who perform the same functions, as determined by the Human Resources Policy. Any variations result from different levels of seniority and maturity of employees in their functional category.
2023	Vale respects the local minimum wage defined by law, and there is no significant difference* in base salaries between women and men who perform the same functions, as determined by the Human Resources Policy. Any variations result from different levels of seniority and maturity of employees in their functional category.

**Note:** \*A non-significant difference represents a variation of up to 2 percentage points more or less.

**Metric:** Diversity and inclusion (%)

Resposta Vale						
Percentual de mulheres por categoria funcional de liderança						
Ano	Diretores	Gerente Geral	Gerente	Coordenador	Supervisor	Especialista Técnico
2023	20.5%	25.1%	31.8%	29.5%	24.0%	24.2%

Percentual de mulheres por categoria funcional de staff			
Ano	Staff Operacional	Staff Administrativo	Técnico Profissional
2023	19.8%	54.5%	45.0%

**Metric:** Salary level (%)

Year	Vale's answer
2020	The local minimum wage is respected by Vale and base salaries do not differ between men and women who perform the same function, in accordance with the Human Resources Policy. The information on the proportion between the remuneration of the CEO and other Vale employees is subject to a specific confidentiality restriction: Vale does not disclose the amounts of wages paid.
2021	The local minimum wage is respected by Vale and base salaries do not differ between men and women who perform the same function, in accordance with the Human Resources Policy. The information on the proportion between the remuneration of the CEO and other Vale employees is subject to a specific confidentiality restriction: Vale does not disclose the amounts of wages paid.
2022	The local minimum wage is respected by Vale and base salaries do not differ between men and women who perform the same function, in accordance with the Human Resources Policy. The information on the proportion between the remuneration of the CEO and other Vale employees is subject to a specific confidentiality restriction: Vale does not disclose the amounts of wages paid.
2023	We pay 100% of our employees a living wage <sup>1</sup> , according to an external evaluation carried out in 2022. Deductions or restrictions on remuneration that could result in the employee being indebted to the company are prohibited.

**Note:** <sup>1</sup> Pay a living wage means providing the means for an individual/family to purchase the goods and services necessary to attain a basic standard of living (food, housing, education, transportation, leisure, culture, etc.) aligned with the social and cultural expectations of the community and/or country in which the individual is located.

**Metric:** Risk of incidence of child, forced or compulsory labor

Year	Vale's answer
2020	Regarding critical issues such as forced labor, child labor, child sexual exploitation and human trafficking, Vale establishes risk management at all stages of the life cycle of its projects. There is a special focus on respecting and promoting the Human Rights of children and adolescents and vulnerable groups. Upon registration at Vale, all suppliers undergo a risk analysis, which includes an assessment of Human Rights, Health and Safety and the Environment (HSE) and Integrity. In addition, the company encourages suppliers to implement compliance programs and follow the same guidelines in their production chains. At this stage, third-party due diligence is performed globally on 100% of new registered suppliers. Suppliers commit to expected standards of behavior in accordance with Vale's Policies, and undertake, through contractual clauses, to provide dignified working conditions, combat forced labor or labor analogous to slavery, child labor and sexual exploitation child abuse and not tolerate discrimination, respect freedom of association and collective bargaining. The company periodically monitors, both in the certification and registration phase and throughout the supplier's life cycle, updates to the Blacklist of Slave Labor, cross-referencing the information with 100% of its supplier base in Brazil. To this end, the Company prioritizes and establishes a continuous process of engagement with the communities in the areas of influence of the projects, implements partnerships with Childhood Brasil and InPacto with preventive and mitigating actions, acts through the Vale Foundation in structuring social programs, strengthens the public social protection network and works directly with children and their families. In 2020, there was no record or complaint involving Vale in cases of child or slave labor, of young people exposed to hazardous work, forced or compulsory labor and human trafficking, in any of the Company's operations.
2021	For critical issues, such as forced labor, child labor, sexual exploitation of children and adolescents and human trafficking, risk management processes are determined at all stages of the life cycle of Vale's projects. The mitigation of these risks also occurs through a continuous process of engagement with the communities, as well as through partnerships with Childhood Brasil and InPacto with preventive and mitigating actions. In 2021, there was no record or report of incidents of child or compulsory labor involving Vale's operations. But Vale still recognizes the fragility of the issue in its value chain and is working to minimize these impacts.
2022	For critical issues, such as forced labor, child labor, sexual exploitation of children and adolescents and human trafficking, risk management processes are determined at all stages of the life cycle of Vale's projects. The mitigation of these risks also occurs through a continuous process of engagement with the communities, as well as through partnerships with Childhood Brasil and InPacto with preventive and mitigating actions. In 2022, there was no record or report of incidents of child labor involving Vale's operations and suppliers. However, we recognize this risk as a critical issue in our operations in Brazil, Canada, Indonesia, Malaysia and Oman. Regarding suppliers, Vale considers the sectors listed as high risk or with the highest incidence of forced and child labor classified by Resolution No. and by the Department of Labor Inspection from 2012 to 2020 and we work to prevent, monitor and manage such occurrences in our suppliers and operations.

2023	<p>The risk related to the possibility of child labor is mapped in the operations in Brazil, Indonesia and Malaysia; in projects in Brazil, Canada, Chile, Peru and Indonesia; and Brazilian and international suppliers, with emphasis on the following countries where Vale has operations and projects: Chile, China, UAE, Indonesia, Malaysia, Oman and Peru. The risk related to the possibility of young workers exposed to hazardous work is mapped in the operations in Brazil and Indonesia; in projects in Brazil, Indonesia, Chile and Peru; and Brazilian and international suppliers, with emphasis on the following countries where Vale has operations and projects: Chile, China, UAE, Indonesia, Malaysia, Oman and Peru.</p> <p>And risk related to the possibility of forced or compulsory labor is mapped in operations in Brazil, Canada, Oman, Indonesia, Malaysia, Japan and Wales; in projects in Brazil, Indonesia, Canada, Chile and Peru; and Brazilian and international suppliers, with emphasis on the following countries where Vale has operations and projects: Chile, China, UAE, Indonesia, Malaysia, Oman and Peru.</p>
------	---

Health and wellness

Metric: Health and safety (%)	
Year	Vale's answer
2020	<p>In 2020 we had fatalities and lives changed at Vale, which shows that there is still a long way to go for us to be an effectively safe company. We recorded a total of 4 confirmed fatalities (rate of 0.051) among company employees, 1 of which were employees and 3 were outsourced. The number of accidents at work with serious consequences (excluding deaths) was 232 (rate of 18.36) and the number of accidents at work requiring mandatory reporting was 1,921 (rate of 147.53). The number of hours worked was 341,088,840.13 hours. The main types of accidents at work were: Fatality, Leave, Medical Restriction and Medical Treatment.</p> <p>In Brazil, all company employees and their legal dependents have access to medical and health services not related to work through the PASA self-managed health plan. In other countries where we operate, health plans are offered through outsourcing.</p>
2021	<p>In 2021, there were two cases of fatality at Vale, an employee and a third party.</p> <p>Some of the dangers that caused, or contributed to, the occurrence of accidents at work were: operations of mobile equipment, blocking, identification and zero energy, work at heights, protection of machines, lifting loads, light motor vehicles, work with electricity, soil stability.</p> <p>In Brazil, all company employees and their legal dependents have access to medical and health services not related to work through the PASA self-managed health plan. In other countries where we operate, health plans are offered through outsourcing.</p>
2022	<p>In 2022, there were five fatalities at Vale.</p> <p>Some of the activities that were being carried out at the time of these accidents at work were: operations of mobile equipment, blocking, identification and zero energy, work at heights, protection of machines, lifting loads, light motor vehicles and electrical work.</p> <p>In Brazil, all company employees and their legal dependents have access to medical and health services not related to work through the PASA self-managed health plan. In other countries where we operate, health plans are offered through outsourcing.</p>
2023	<p>In Brazil, all employees and their legal dependents have access to non-work-related medical and health services through the AMS PASA self-managed health plan. In the other countries where we operate, health plans are offered through external contracting.</p> <p>In Brazil, most of the services offered by the company are provided through PASA in Vitória, São Luis and Itabira.We also have hospitals in Carajás and Sorowako, Indonesia. Vale also has the reciprocity partnership of the Cassi health plan for employees who work in the remote model and who do not live in the large centers where the PASA clinics are located, in addition to the accredited network in the national territory where Vale operates.</p> <p>Non-work-related medical and health services are not offered by Vale to employees who are not its own employees, but they are eligible to participate in collective health promotion campaigns and SIPATs.</p> <p>2023 data:</p> <ul style="list-style-type: none"> <li>• Rate of deaths resulting from occupational accidents <ul style="list-style-type: none"> <li>Own employees: 0.0068(1 fatality)</li> <li>Third Party: 0</li> </ul> </li> <li>• Rate of occupational accidents with serious consequences (except deaths) <ul style="list-style-type: none"> <li>Own employees: 0.251 (37 occurrences)</li> <li>Third: 0.1896 (62 occurrences)</li> </ul> </li> <li>•Reporting Occupational Accident Rate <ul style="list-style-type: none"> <li>Own employees: 5.92 (876 occurrences)</li> <li>Third: 3,508 (1,147 occurrences)</li> </ul> </li> <li>•Number of hours worked <ul style="list-style-type: none"> <li>Own employees: 147,394,080</li> <li>Third Party: 326,936,368</li> </ul> </li> </ul>

Skills for the Future

Metric: Training provided (#)	
Year	Vale's answer
2020	The average total hours of training for Vale employees was 51 hours in 2020.
2021	The average total hours of training for Vale employees was 63 hours in 2021.
2022	The average total hours of training for Vale employees was 76 hours in 2022.
2023	The average total hours of training for Vale employees was 79 hours in 2023.

Creating Wealth and Employment

Metric: Net number of jobs created	
Year	Vale's answer

2020

Total hires: 9187  
Men: 6,114  
Women: 3,073  
Turnover rate: 10.7%  
Men: 9.3%  
Women: 19.7%  
By age group (%):  
Under 30: 20.7%  
Between 30 and 50: 8.4%  
Over 50: 12.6%  
By region (%):  
Brazil: 11.1%  
Mozambique: 15.8%  
Canada: 9.2%  
Indonesia: 2.4%

2021

Total hires: 6485  
Men: 3,731  
Women: 2,754  
Turnover rate: 8.2%  
Men: 7.0%  
Women: 14.5%  
By age group (%):  
Under 30: 16.4%  
Between 30 and 50: 7.0%  
Over 50: 4.8%  
By region (%):  
Brazil: 7.9%  
Mozambique: 6.3%  
Canada: 6.2%  
Indonesia: 1.5%

2022

Total hires: 4912  
Men: 1967  
Women: 2,945  
Turnover rate: 7.1%  
Men: 5.2%  
Women: 15.2%  
By age group (%):  
Under 30: 14.1%  
Between 30 and 50: 5.6%  
Over 50: 8.7%  
By region (%):  
Brazil: 7.6%  
Canada: 9.2%  
Indonesia: 4.2%

2023

Total hires: 6,888  
Men: 3,630  
Women: 3,258  
Turnover rate: 8.8%  
Men: 6.9%  
Women: 15.3%  
By age group (%):  
Under 30: 21.7%  
Between 30 and 50: 7.1%  
Over 50: 6.3%  
By region (%):  
Brazil: 9.1%  
Canada: 8.4%  
Indonesia: 6.9%

Metric: Net economic contribution

Year	Vale's answer
2020	Vale's economic contributions in 2020 are described in the "Economic Data" tab of this Databook, in the GRI 201-1 indicator.
2021	Vale's economic contributions in 2021 are described in the "Economic Data" tab of this Databook, in the GRI 201-1 indicator.
2022	Vale's economic contributions in 2022 are described in the "Economic Data" tab of this Databook, in the GRI 201-1 indicator.
2023	Vale's economic contributions in 2023 are described in the "Economic Data" tab of this Databook, in the GRI 201-1 indicator.

Metric: Financial investment contribution

Year	Vale's answer
2020	<p>1. Investment for capital expenditures in 2020 was US\$4.4 billion, including approximately US\$3.9 billion to sustain our existing operations and replacement projects and approximately US\$522 million for project execution.</p> <p>2. In 2020 there were no share repurchases.</p>
2021	<p>1. Investment for capital expenditures in 2021 was US\$5 billion, including approximately US\$4 billion to sustain our existing operations and replacement projects and approximately US\$999 million for project execution.</p> <p>2. On April 1, 2021, our Board of Directors approved a share buyback program limited to a maximum of 270,000,000 shares and their respective ADRs, representing up to 5.3% of the total number of shares outstanding on that date. This program was completed in November 2021 with the repurchase of all shares, corresponding to the amount of US\$5,281 million (R\$27,642 million), of which US\$2,273 million (R\$12,068 million) through wholly-owned subsidiaries and US\$ 3,008 (R\$15,574 million) directly by Vale S.A.</p>



2022	<p>1. Our investment guidance for capital expenditures in 2023 is approximately US\$6 billion and after 2023 our average estimated capital expenditures ranges between US\$6 billion and US\$6.5 billion per year. A principal amount of US\$160 million of our debt matures in 2023. We expect to incur a total amount of US\$3,486 million relating to the remediation and compensation in connection with the Brumadinho dam collapse, de-characterization of dams and contributions to Fundação Renova in 2023 and after 2023 our aggregate expected expenses with provision is US\$7,074 million. We have an aggregate principal amount of US\$1,910 million debt maturing between 2024 and 2026, and US\$8,964 million maturing after 2026. We expect that our existing cash and cash equivalents and our operating cash flows will be sufficient to satisfy our obligations due in 2023 and thereafter. We are constantly evaluating opportunities for additional cash generation. Finally, we are committed to continue the reduction in our costs and expenses, maintain our debt leverage and discipline in capital allocation.</p> <p>2. During 2022, the Company paid dividends and interest on capital to its shareholders in the amount of US\$6,615 millions. During 2022, the Company repurchased 357,442,577 common shares or their respective ADRs, corresponding to the total amount of US\$6,036 millions.</p>
2023	<p>1. Investments made in 2023 totaled US\$29.4 billion (US\$5.9 billion), in line with guidance, with US\$8.2 billion in capital projects and US\$21.2 billion in maintenance projects. Investments were 4.5% higher than in 2022, mainly due to higher investments in growth projects. By 2024, we expect to invest US\$6.5 billion of our production, support our low-carbon initiatives, and capture growth opportunities.</p> <p>2. By December 2023, we have completed 72% of our third share repurchase program, initiated in 2022, with the repurchase of 360.3 million shares (out of an anticipated total of 500 million shares), corresponding to a total value of \$5.46 billion. Of this total, approximately 181.7 million common shares and their respective ADRs were repurchased in the year, corresponding to a total value of US\$ 2.67 billion (R\$ 13.37 billion). In October 2023, we initiated a new share buyback program of up to 150 million shares, which will be implemented over an 18-month period. As of December 31, 2023, we have repurchased 3 million common shares and their respective ADRs, corresponding to a total amount of US\$ 44.1 million (R\$ 218 million).</p>

## Innovation in Better Products and Services

Metric: R&D expense rate (%)

Year	Vale's answer
2020	Through the adaptation of existing technologies in new ways or the development of new technologies and processes, in research and development (R&D) initiatives, Vale seeks to transform its business. Our research and development expenses amounted to US\$443 million in 2020, in line with the US\$443 million recorded in 2019.
2021	In 2021, research and development expenses totaled US\$ 549 million.
2022	Our research and development expenses totaled US\$ 660 million in 2022, a 20.2% increase from US\$549 million recorded in 2021, mainly due to projects of drilling and geology exploration and mineral exploration in all segments.
2023	Our research and development expenses totaled US\$ 723 million in 2023, a 9.5% increase from US\$ 660 million recorded in 2023.

## Community and Social Vitality

Metric: Total Tax Paid

Year	Vale's answer
2020	In 2020, Vale paid US\$5.7 billion in taxes and royalties. Most of this contribution – US\$4.9 billion – was paid in Brazil. The total includes all tax payments made during the 2020 fiscal year. In several jurisdictions in which we operate, Vale receives reimbursements from governments. In 2020, such reimbursements totaled \$800 million, and are not included in the total numbers reported above.
2021	The tax payment data can be consulted in the Fiscal Transparency Report
2022	The tax payment data can be consulted in the Fiscal Transparency Report
2023	The tax payment data can be consulted in the Fiscal Transparency Report.
Link:	<a href="#">Tax Transparency Report</a>



## Índice ICMM - Social and Economic Reporting

Indicador	Localização
1. Country-by-country reporting of business activities, revenues, profit and tax	<a href="#">Tax Transparency Report</a>
2. Workforce composition	<a href="#">Social Data</a>
3. Pay equality	<a href="#">Social Data</a>
4. Wage level	<a href="#">Economic Data</a>
5. Training provided	<a href="#">Social Data</a>
6. Local procurement	<a href="#">Economic Data</a>
7. Education and skills support	<p>Vale supports and implements several programs aimed at promoting education and skills development in local communities. In 2023, more than USD 12 million was invested in external education initiatives. Among the programs, the following stand out:</p> <p>The Literacy Trails project, present in 36 municipalities, joins forces with city halls, governments and reference institutions to develop actions that contribute to the improvement of the literacy process and education in a perennial and sustainable way. The project includes the training of educators, support for public management and the production and distribution of teaching materials.</p> <p>Throughout 2023, more than 4,300 education professionals were trained. In all, more than 197,000 students from 2,300 schools benefited, especially in the states of Pará and Maranhão.</p> <p>In the field of combating school exclusion, the Networked Territories project mapped, in 2023, about 6,400 children and adolescents out of school or at risk of dropping out of school in 14 municipalities where Vale operates, of which 6,264 had their ties with the school reestablished.</p>
8. Capacity and institution support	<p>Vale supports and implements several programs aimed at promoting education and skills development in local communities. In 2023, more than USD 12 million was invested in external education initiatives. Among the programs, the following stand out:</p> <p>The Literacy Trails project, present in 36 municipalities, joins forces with city halls, governments and reference institutions to develop actions that contribute to the improvement of the literacy process and education in a perennial and sustainable way. The project includes the training of educators, support for public management and the production and distribution of teaching materials.</p> <p>Throughout 2023, more than 4,300 education professionals were trained. In all, more than 197,000 students from 2,300 schools benefited, especially in the states of Pará and Maranhão.</p> <p>In the field of combating school exclusion, the Networked Territories project mapped, in 2023, about 6,400 children and adolescents out of school or at risk of dropping out of school in 14 municipalities where Vale operates, of which 6,264 had their ties with the school reestablished.</p>

More informations about the ICMM - Social and Economic Reporting can be found clicking [here](#)



## Task Force on Nature-related Financial Disclosures Index

Métrica	Localização
GHG emissions	<a href="#">GRI 305-1</a>
	<a href="#">GRI 305-2</a>
	<a href="#">GRI 305-3</a>
C 1.0 - Total spatial footprint	<a href="#">GRI 304-1</a>
	<a href="#">GRI 304-3</a>
	<a href="#">GRI G4 MM1</a>
C 2.1 - Wastewater discharged	<a href="#">GRI 303-4</a>
C 2.2 - Waste generation and disposal	<a href="#">GRI 306-3</a>
	<a href="#">GRI 306-4 e GRI 306-5</a>
	<a href="#">GRI G4 MM3</a>
C 2.4 - Non-GHG air pollutants	<a href="#">GRI 305-7</a>
C 3.0 - Water withdrawal and consumption from areas of water scarcity	<a href="#">GRI 303-3</a>
	<a href="#">GRI 303-5</a>

More informations about theTask Force on Nature-related Financial Disclosures can be found clicking [here](#)



## VALE OECD - Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas

The Copper Mark's Joint Due Diligence Standard and Responsible Minerals Initiative's (RMI) Cobalt Refiner Supply Chain Due Diligence Standard

### The Copper Mark

#### Copper Cliff Nickel Refinery - Joint Due Diligence Standard

OECD Due Diligence Guidance for Minerals – 5-Step Framework	Description of OECD Requirement	Action	Detailed Activities	Supporting Documents
Strong Management Systems	<ul style="list-style-type: none"> <li>- Adopt a policy for responsible mineral supply chains</li> <li>- Communicate policy to suppliers and incorporate due diligence expectations into contracts</li> <li>- Establish traceability or chain of custody system over mineral supply chain</li> </ul>	Vale Base Metals' Responsible Sourcing Policy Statement for Base Metals Minerals and Metals	In 2023, Vale Base Metals published the Responsible Sourcing Policy Statement for Base Metals Minerals and Metals, signed by the Base Metals Chief Corporate Affairs, Sustainability and Communications Officer.	<a href="#">Responsible Sourcing Policy Statement for Base Metals Minerals and Metals</a>
		Responsible Sourcing Practices: -Adopting a Collaborative and Multi-disciplinary Approach to Responsible Sourcing -Governing Responsible Sourcing Practices with a Policy Statement -Identifying and Managing Risks in the Supply Chain through Cross-Functional Teams -Providing Technical Oversight of Materials in Vale's Metallic Supply Chain -Training Employees and Contractors on Responsible Sourcing Practices	Vale Base Metals adopts a collaborative and multi-disciplinary approach to responsible sourcing practices. The Company's Responsible Sourcing Policy Statement governs its responsible sourcing practices. The Sustainability, Corporate Integrity, Commercial, Legal, and Procurement teams are responsible for identifying and managing risks associated with responsible sourcing. The teams ensure that due diligence processes are implemented to assess and mitigate risks in the supply chain. The Product Management and Material Management teams provide technical oversight of materials entering Vale's metallic supply chain. Employees and contractors involved in procurement and handling of these materials receive training to manage risks in Vale's processes.	
		Communication and Transparency: -Communicating Base Metal's Requirements to Suppliers -Ensuring Access to Vale's Listening-Response Mechanism	Base Metals communicates its requirements to suppliers and ensures that Vale's Supplier Code of Conduct is referenced in supplier contracts. Base Metals ensures that the public and contractors are aware of and understand how to access Vale's listening-response mechanism to register any concerns or grievances.	
		Due Diligence and Risk Mitigation: -Implementing a Risk Mitigation Approach to Ensure Responsible Sourcing Practices -Maintaining Transparency and Record-Keeping of Feed Suppliers -Ensuring Implementation of Responsible Sourcing Processes in Material Handling Teams -Complying with OECD Guidance to Mitigate Risks in Supply Chains -Conducting Third-Party Audit to Assess Vale's Risk Management -Assessing Feed Suppliers for Conflict-Affected and High-Risk Areas (CAHRA) and Undertaking Enhanced Due Diligence if Needed	Vale Base Metals employs a risk mitigation approach to ensure responsible sourcing practices throughout its supply chain. The company collaborates with its suppliers, actively monitors their performance, and maintains a zero-tolerance policy towards human rights violations and support of non-state armed groups. Vale Base Metals' responsible sourcing practices have yielded data that strengthens its due diligence efforts, identifying higher-risk feeds and prompting enhanced due diligence measures to mitigate those risks. By continuously refining its responsible sourcing practices, Vale Base Metals works towards creating a more sustainable and ethical supply chain that upholds its commitment to responsible mineral and metal sourcing. To ensure transparency of all feed suppliers from the mine of origin to downstream customers, Vale Base Metals maintains a comprehensive database and record-keeping system. The system includes a product registry, electronic ledger, and enterprise resource planning software. Vale Base Metals ensures that material handling teams within its operations understand and implement its responsible sourcing processes and work to ensure that only approved feed sources are used in its processes.	
Identify and Assess Risks in the Supply Chain	<ul style="list-style-type: none"> <li>- Identify and verify traceability or chain of custody information (e.g. mine of origin, trade routes, suppliers)</li> <li>- For red flag locations, suppliers or circumstances, undertake on-the-ground assessments to identify risks of contributing to conflict or serious abuses (ref Annex II Model Policy for risks)</li> </ul>	Risk-Based Assessments and Enhanced Due Diligence Practices	Vale Base Metals conducts annual risk-based assessments of metals and minerals suppliers aligned with the 5-Step Due Diligence framework defined in the OECD Guidance. The company conducts enhanced due diligence on suppliers based on results of risk assessments, including obtaining additional information from Third Parties and on-site assessments. Vale Base Metals complies with risk mitigation requirements defined in the OECD Guidance. The company undergoes a third-party audit to assess its risk management in its Base Metals minerals and metals supply chains. Vale Base Metals assessed 26 feed suppliers across its North Atlantic refineries for Conflict-Affected and High-Risk Areas (CAHRA) red flag risks. One supplier at Copper Cliff Nickel Refinery was identified as high-risk, and enhanced due diligence was undertaken, including immediate supplier engagement and a supplier site assessment conducted by a third-party auditor. No material findings were presented, and areas for governance improvement were identified. These results were shared with the site and the third-party trader. No supplier disengagement related to responsible sourcing risks occurred in 2023. In accordance with Vale Base Metals' policy statement that reserves the right to do so if deemed necessary.	
		Risk Mitigation Strategy	If anomalies are identified, Vale Base Metals performs a risk assessment to determine the appropriate management strategy. While mitigating the risk, the company may temporarily assign the contract, continue engagement, or implement measures for residual risks. Residual risk mitigation measures may include contractual clauses or conducting supplier site assessments.	
Manage Risks	Report identified risks to senior management and fix internal systems <ul style="list-style-type: none"> <li>- Disengage from suppliers associated with the most serious impacts</li> <li>- Mitigate risk, monitor and track progress</li> </ul>	Risk Mitigation, Compliance and Performance Monitoring of Suppliers	Vale Base Metals prioritizes compliance with risk mitigation requirements, which may include supplier disengagement, contract suspension, or continued sourcing from the supplier while monitoring the mitigation process. The company actively monitors supplier performance and compliance to ensure that identified risks are effectively managed and mitigated. Vale Base Metals tracks compliance and engages with suppliers regularly to ensure effective risk management and mitigation.	
		Risk Approach	Vale Base Metals reviews the material sourcing locations of suppliers against its defined list of Conflict-Affected and High-Risk Areas (CAHRAs) to identify any potential feed red flags. Through these assessments, the company identifies potential risks relating to conflict financing, human rights abuses, bribery, fraudulent misrepresentation of mineral origin, money laundering, and involvement with public or private security forces.	
Audit of Smelter / Refiner Due Diligence Practices	Smelters/refiners should participate in industry programs to have their due diligence practices audited against an audit standard aligned with OECD Guidance <ul style="list-style-type: none"> <li>- Prepare all documentation for audit (e.g. chain of custody or traceability documentation, risk assessment and management documentation for red flagged sources)</li> <li>- Allow auditors to access company documentation, and records.</li> <li>- Facilitate auditor access to sample of suppliers as appropriate.</li> <li>- Publish summary audit report with audit conclusions</li> </ul>	Copper Mark Joint Due Diligence Standard	Copper Cliff Nickel Refinery was assessed by The Copper Mark in 2022. Vale Base Metals achieved conformance in 2023.	<a href="#">Results of Vale's Copper Mark JDDS assessments.</a>
Publicly Report on Due Diligence	Annually describe all due diligence efforts (Steps 1-4), e.g. risk assessment & mitigation, with due regard for business confidentiality and other competitive or security concerns (e.g. supplier relationships, price information, or identities of whistle-blowers or sources should not be disclosed) <ul style="list-style-type: none"> <li>- Smelters should publish (a summary of) their independent audit report</li> <li>- Make report publicly available, in offices and / on company website</li> </ul>	Integrated Report and ESG Databook	Vale describes and publicly discloses its due diligence efforts inclusive of Steps 1-4 in the 2023 Integrated Report and in this ESG Databook.	

### Long Harbour Processing Plant

#### OECD Due Diligence Guidance for Minerals – 5-Step Framework

##### Description of OECD Requirement

##### Action

##### Detailed Activities

##### Supporting Documents

Vale Base Metals' Responsible Sourcing Policy Statement for Base Metals Minerals and Metals

In 2023, Vale Base Metals published the Responsible Sourcing Policy Statement for Base Metals Minerals and Metals, signed by the Base Metals Chief Corporate Affairs, Sustainability and Communications Officer.

[Responsible Sourcing Policy Statement for Base Metals Minerals and Metals](#)

		<p>Responsible Sourcing Practices:</p> <ul style="list-style-type: none"><li>-Adopting a Collaborative and Multi-disciplinary Approach to Responsible Sourcing</li><li>-Governing Responsible Sourcing Practices with a Policy Statement</li><li>-Identifying and Managing Risks in the Supply Chain through Cross-functional Teams</li><li>-Providing Technical Oversight of Materials in Vale's Metallic Supply Chain</li><li>-Training Employees and Contractors on Responsible Sourcing Practices</li></ul>	<p>Vale Base Metals adopts a collaborative and multi-disciplinary approach to responsible sourcing practices. The Company's Responsible Sourcing Policy Statement governs its responsible sourcing practices. The Sustainability, Corporate Integrity, Commercial, Legal, and Procurement teams are responsible for identifying and managing risks associated with responsible sourcing. The teams ensure that due diligence processes are implemented to assess and mitigate risks in the supply chain. The Product Management and Material Management teams provide technical oversight of materials entering Vale's metallic supply chain. Employees and contractors involved in procurement and handling of these materials receive training to manage risks in Vale's processes.</p>	
Strong Management Systems	<ul style="list-style-type: none"><li>- Adopt a policy for responsible mineral supply chains</li><li>- Communicate policy to suppliers and incorporate due diligence expectations into contracts</li><li>- Establish traceability or chain of custody system over mineral supply chain</li></ul>	<p>Communication and Transparency:</p> <ul style="list-style-type: none"><li>-Communicating Base Metal's Requirements to Suppliers</li><li>-Ensuring Access to Vale's Listening-Response Mechanism</li></ul>	<p>Base Metals communicates its requirements to suppliers and ensures that Vale's Supplier Code of Conduct is referenced in supplier contracts. Base Metals ensures that the public and contractors are aware of and understand how to access Vale's listening-response mechanism to register any concerns or grievances.</p>	
		<p>Due Diligence and Risk Mitigation:</p> <ul style="list-style-type: none"><li>-Implementing a Risk Mitigation Approach to Ensure Responsible Sourcing Practices</li><li>-Maintaining Transparency and Record–Keeping of Feed Suppliers</li><li>-Ensuring Implementation of Responsible Sourcing Processes in Material Handling Teams</li><li>-Complying with OECD Guidance to Mitigate Risks in Supply Chains</li><li>-Conducting Third-Party Audit to Assess Vale's Risk Management</li><li>-Assessing Feed Suppliers for Conflict-Affected and High-Risk Areas (CAHRA) and Undertaking Enhanced Due Diligence if Needed</li></ul>	<p>Vale Base Metals employs a risk mitigation approach to ensure responsible sourcing practices throughout its supply chain. The company collaborates with its suppliers, actively monitors their performance, and maintains a zero-tolerance policy towards human rights violations and support of non-state armed groups. Vale Base Metals' responsible sourcing practices have yielded data that strengthens its due diligence efforts, identifying higher-risk feeds and prompting enhanced due diligence measures to mitigate those risks. By continuously refining its responsible sourcing practices, Vale Base Metals works towards creating a more sustainable and ethical supply chain that upholds its commitment to responsible mineral and metal sourcing. To ensure transparency of all feed suppliers from the mine of origin to downstream customers, Vale Base Metals maintains a comprehensive database and record-keeping system. The system includes a product registry, electronic ledger, and enterprise resource planning software. Vale Base Metals ensures that material handling teams within its operations understand and implement its responsible sourcing processes and work to ensure that only approved feed sources are used in its processes.</p>	
Identify and Assess Risks in the Supply Chain	<ul style="list-style-type: none"><li>- Identify and verify traceability or chain of custody information (e.g. mine of origin, trade routes, suppliers)</li><li>- For red flag locations, suppliers or circumstances, undertake on-the-ground assessments to identify risks of contributing to conflict or serious abuses (ref Annex II Model Policy for risks)</li></ul>	<p>Risk-Based Assessments and Enhanced Due Diligence Practices</p>	<p>Vale Base Metals conducts annual risk-based assessments of metals and minerals suppliers aligned with the 5-Step Due Diligence framework defined in the OECD Guidance. The company conducts enhanced due diligence on suppliers based on the results of risk assessments, including obtaining additional information from Third Parties and on-site assessments. Vale Base Metals complies with risk mitigation requirements defined in the OECD Guidance. The company undergoes a third-party audit to assess its risk management in its Base Metals minerals and metals supply chains. Vale Base Metals assessed 26 feed suppliers across its North Atlantic refineries for red flag risks for Conflict-Affected and High-Risk Areas (CAHRA). One supplier at Copper Cliff Nickel Refinery was identified as high-risk, and enhanced due diligence was undertaken, including immediate supplier engagement and a supplier site assessment conducted by a third-party auditor. No material findings were presented, and areas for governance improvement were identified. These results were shared with the site and the third-party trader. No supplier disengagement related to responsible sourcing risks occurred in 2023, in accordance with Vale Base Metals' policy statement that reserves the right to do so if deemed necessary.</p>	
		<p>Risk Mitigation Strategy</p>	<p>If anomalies are identified, Vale Base Metals performs a risk assessment to determine the appropriate management strategy. While mitigating the risk, the company may temporarily assign the contract, continue engagement, or implement measures for residual risks. Residual risk mitigation measures may include contractual clauses or conducting supplier site assessments.</p>	
Manage Risks	<ul style="list-style-type: none"><li>- Report identified risks to senior management and fix internal systems</li><li>- Disengage from suppliers associated with the most serious impacts</li><li>- Mitigate risk, monitor and track progress</li></ul>	<p>Risk Mitigation , Compliance and Performance Monitoring of Suppliers</p>	<p>Vale Base Metals prioritizes compliance with risk mitigation requirements, which may include supplier disengagement, contract suspension, or continued sourcing from the supplier while monitoring the mitigation process. The company actively monitors supplier performance and compliance to ensure that identified risks are effectively managed and mitigated. Vale Base Metals tracks compliance and engages with suppliers regularly to ensure effective risk management and mitigation.</p>	
		<p>Risk Approach</p>	<p>Vale Base Metals reviews the material sourcing locations of suppliers against its defined list of Conflict-Affected and High-Risk Areas (CAHRAs) to identify any potential feed red flags. Through these assessments, the company identifies potential risks relating to conflict financing, human rights abuses, bribery, fraudulent misrepresentation of mineral origin, money laundering, and involvement with public or private security forces.</p>	
Audit of Smelter / Refiner Due Diligence Practices	<ul style="list-style-type: none"><li>- Smelters/refiners should participate in industry programs to have their due diligence practices audited against an audit standard aligned with OECD Guidance</li><li>- Prepare all documentation for audit (e.g. chain of custody or traceability documentation, risk assessment and management documentation for red flagged sources)</li><li>- Allow auditors to access company documentation, and records.</li><li>- Facilitate auditor access to sample of suppliers as appropriate.</li><li>- Publish summary audit report with audit conclusions</li></ul>	<p>Copper Mark Joint Due Diligence Standard</p>	<p>Long Harbour Processing Plant was assessed by The Copper Mark in 2022. Vale Base Metals achieved conformance in 2023.</p> <p><a href="#">Results of Vale's Copper Mark JDDS assessments.</a></p>	
Publicly Report on Due Diligence	<ul style="list-style-type: none"><li>- Annually describe all due diligence efforts (Steps 1-4), e.g. risk assessment &amp; mitigation, with due regard for business confidentiality and other competitive or security concerns (e.g. supplier relationships, price information, or identities of whistle-blowers or sources should not be disclosed)</li><li>- Smelters should publish (a summary of) their independent audit report</li><li>- Make report publicly available, in offices and / or on company website</li></ul>	<p>Integrated Report and ESG Databook</p>	<p>Vale describes and publicly discloses its due diligence efforts inclusive of Steps 1-4 in the 2023 Integrated Report and in this ESG Databook.</p>	
Ciydach Refinery				
OECD Due Diligence Guidance for Minerals – 5- Step Framework				
	Description of OECD Requirement	Action	Detailed Activities	Supporting Documents
		<p>Vale Base Metals' Responsible Sourcing Policy Statement for Base Metals Minerals and Metals</p>	<p>In 2023, Vale Base Metals published the Responsible Sourcing Policy Statement for Base Metals Minerals and Metals, signed by the Base Metals Chief Commercial Officer.</p>	<p><a href="#">Responsible Sourcing Policy Statement for Base Metals Minerals and Metals</a></p>
		<p>Responsible Sourcing Practices:</p> <ul style="list-style-type: none"><li>-Adopting a Collaborative and Multi-disciplinary Approach to Responsible Sourcing</li><li>-Governing Responsible Sourcing Practices with a Policy Statement</li><li>-Identifying and Managing Risks in the Supply Chain through Cross-functional Teams</li><li>-Providing Technical Oversight of Materials in Vale's Metallic Supply Chain</li><li>-Training Employees and Contractors on Responsible Sourcing Practices</li></ul>	<p>Vale Base Metals adopts a collaborative and multi-disciplinary approach to responsible sourcing practices. The Company's Responsible Sourcing Policy Statement governs its responsible sourcing practices. The Sustainability, Corporate Integrity, Commercial, Legal, and Procurement teams are responsible for identifying and managing risks associated with responsible sourcing. The teams ensure that due diligence processes are implemented to assess and mitigate risks in the supply chain. The Product Management and Material Management teams provide technical oversight of materials entering Vale's metallic supply chain. Employees and contractors involved in procurement and handling of these materials receive training to manage risks in Vale's processes.</p>	
Strong Management Systems	<ul style="list-style-type: none"><li>- Adopt a policy for responsible mineral supply chains</li><li>- Communicate policy to suppliers and incorporate due diligence expectations into contracts</li><li>- Establish traceability or chain of custody system over mineral supply chain</li></ul>	<p>Communication and Transparency:</p> <ul style="list-style-type: none"><li>-Communicating Base Metal's Requirements to Suppliers</li><li>-Ensuring Access to Vale's Listening-Response Mechanism</li></ul>	<p>Base Metals communicates its requirements to suppliers and ensures that Vale's Supplier Code of Conduct is referenced in supplier contracts. Base Metals ensures that the public and contractors are aware of and understand how to access Vale's listening-response mechanism to register any concerns or grievances.</p>	

		<p>Due Diligence and Risk Mitigation: -Implementing a Risk Mitigation Approach to Ensure Responsible Sourcing Practices -Maintaining Transparency and Record-Keeping of Feed Suppliers -Ensuring Implementation of Responsible Sourcing Processes in Material Handling Teams -Complying with OECD Guidance to Mitigate Risks in Supply Chains -Conducting Third-Party Audit to Assess Vale's Risk Management -Assessing Feed Suppliers for Conflict-Affected and High-Risk Areas (CAHRA) and Undertaking Enhanced Due Diligence if Needed</p>	<p>Vale Base Metals employs a risk mitigation approach to ensure responsible sourcing practices throughout its supply chain. The company collaborates with its suppliers, actively monitors their performance, and maintains a zero-tolerance policy towards human rights violations and support of non-state armed groups. Vale Base Metals' responsible sourcing practices have yielded data that strengthens its due diligence efforts, identifying higher-risk feeds and prompting enhanced due diligence measures to mitigate those risks. By continuously refining its responsible sourcing practices, Vale Base Metals works towards creating a more sustainable and ethical supply chain that upholds its commitment to responsible mineral and metal sourcing. To ensure transparency of all feed suppliers from the mine of origin to downstream customers, Vale Base Metals maintains a comprehensive database and record-keeping system. The system includes a product registry, electronic ledger, and enterprise resource planning software. Vale Base Metals ensures that material handling teams within its operations understand and implement its responsible sourcing processes and work to ensure that only approved feed sources are used in its processes.</p>	
Identify and Assess Risks in the Supply Chain	<p>- Identify and verify traceability or chain of custody information (e.g. mine of origin, trade routes, suppliers) - For red flag locations, suppliers or circumstances, undertake on-the-ground assessments to identify risks of contributing to conflict or serious abuses (ref Annex II Model Policy for risks)</p>	Risk-Based Assessments and Enhanced Due Diligence Practices	<p>Vale Base Metals conducts annual risk-based assessments of metals and minerals suppliers aligned with the 5-Step Due Diligence framework defined in the OECD Guidance. The company conducts enhanced due diligence on suppliers based on results of risk assessments, including obtaining additional information from Third Parties and on-site assessments. Vale Base Metals complies with risk mitigation requirements defined in the OECD Guidance. The company undergoes a third-party audit to assess its risk management in its Base Metals minerals and metals supply chains. Vale Base Metals assessed 26 feed suppliers across its North Atlantic refineries for Conflict-Affected and High-Risk Areas (CAHRA) red flag risks. One supplier at Copper Cliff Nickel Refinery was identified as high-risk, and enhanced due diligence was undertaken, including immediate supplier engagement and a supplier site assessment conducted by a third-party auditor. No material findings were presented, and areas for governance improvement were identified. These results were shared with the site and the third-party trader. No supplier disengagement related to responsible sourcing risks occurred in 2023, in accordance with Vale Base Metals' policy statement that reserves the right to do so if deemed necessary.</p>	
		Risk Mitigation Strategy	<p>If anomalies are identified, Vale Base Metals performs a risk assessment to determine the appropriate management strategy. While mitigating the risk, the company may temporarily assign the contract, continue engagement, or implement measures for residual risks. Residual risk mitigation measures may include contractual clauses or conducting supplier site assessments.</p>	
	Manage Risks	<p>Report identified risks to senior management and fix internal systems - Disengage from suppliers associated with the most serious impacts - Mitigate risk, monitor and track progress</p>	<p>Risk Mitigation, Compliance and Performance Monitoring of Suppliers</p>	<p>Vale Base Metals prioritizes compliance with risk mitigation requirements, which may include supplier disengagement, contract suspension, or continued sourcing from the supplier while monitoring the mitigation process. The company actively monitors supplier performance and compliance to ensure that identified risks are effectively managed and mitigated. Vale Base Metals tracks compliance and engages with suppliers regularly to ensure effective risk management and mitigation.</p>
		Risk Approach	<p>Vale Base Metals reviews the material sourcing locations of suppliers against its defined list of Conflict-Affected and High-Risk Areas (CAHRAs) to identify any potential feed red flags. Through these assessments, the company identifies potential risks relating to conflict financing, human rights abuses, bribery, fraudulent misrepresentation of mineral origin, money laundering, and involvement with public or private security forces.</p>	
Audit of Smelter / Refiner Due Diligence Practices	<p>Smelters/refiners should participate in industry programs to have their due diligence practices audited against an audit standard aligned with OECD Guidance - Prepare all documentation for audit (e.g. chain of custody or traceability documentation, risk assessment and management documentation for red flagged sources) - Allow auditors to access company documentation, and records. - Facilitate auditor access to sample of suppliers as appropriate. - Publish summary audit report with audit conclusions</p>	Copper Mark Joint Due Diligence Standard	<p>Clydach Refinery was assessed by The Copper Mark in 2022. Vale Base Metals achieved conformance in 2023.</p> <p><a href="#">Results of Vale's Copper Mark JDDS assessments.</a></p>	
Publicly Report on Due Diligence	<p>Annually describe all due diligence efforts (Steps 1-4), e.g. risk assessment &amp; mitigation, with due regard for business confidentiality and other competitive or security concerns (e.g. supplier relationships, price information, or identities of whistle-blowers or sources should not be disclosed) - Smelters should publish (a summary of) their independent audit report - Make report publicly available, in offices and / or on company website</p>	Integrated Report and ESG Databook	<p>Vale describes and publicly discloses its due diligence efforts inclusive of Steps 1-4 in the 2023 Integrated Report and in this ESG Databook.</p>	
The Responsible Minerals Initiative - Cobalt Refiner Supply Chain Due Diligence Standard				
Port Colborne Refinery				
OECD Due Diligence Guidance for Minerals – 5-Step Framework	Description of OECD Requirement	Action	Detailed Activities	Supporting Documents
Strong Management Systems	<p>- Adopt a policy for responsible mineral supply chains - Communicate policy to suppliers and incorporate due diligence expectations into contracts - Establish traceability or chain of custody system over mineral supply chain</p>	Vale Base Metals' Responsible Sourcing Policy Statement for Base Metals Minerals and Metals	<p>In 2023, Vale Base Metals published the Responsible Sourcing Policy Statement for Base Metals Minerals and Metals, signed by the Base Metals Chief Corporate Affairs, Sustainability and Communications Officer.</p>	<a href="#">Responsible Sourcing Policy Statement for Base Metals Minerals and Metals</a>
		Responsible Sourcing Practices: -Adopting a Collaborative and Multi-disciplinary Approach to Responsible Sourcing -Governing Responsible Sourcing Practices with a Policy Statement -Identifying and Managing Risks in the Supply Chain through Cross-Functional Teams -Providing Technical Oversight of Materials in Vale's Metallic Supply Chain -Training Employees and Contractors on Responsible Sourcing Practices	<p>Vale Base Metals adopts a collaborative and multi-disciplinary approach to responsible sourcing practices. The Company's Responsible Sourcing Policy Statement governs its responsible sourcing practices. The Sustainability, Corporate Integrity, Commercial, Legal, and Procurement teams are responsible for identifying and managing risks associated with responsible sourcing. The teams ensure that due diligence processes are implemented to assess and mitigate risks in the supply chain. The Product Management and Material Management teams provide technical oversight of materials entering Vale's metallic supply chain. Employees and contractors involved in procurement and handling of these materials receive training to manage risks in Vale's processes.</p>	
		Communication and Transparency: -Communicating Base Metals' Requirements to Suppliers -Ensuring Access to Vale's Listening-Response Mechanism	<p>Base Metals communicates its requirements to suppliers and ensures that Vale's Supplier Code of Conduct is referenced in supplier contracts. Base Metals ensures that the public and contractors are aware of and understand how to access Vale's listening-response mechanism to register any concerns or grievances.</p>	
		Due Diligence and Risk Mitigation: -Implementing a Risk Mitigation Approach to Ensure Responsible Sourcing Practices -Maintaining Transparency and Record-Keeping of Feed Suppliers -Ensuring Implementation of Responsible Sourcing Processes in Material Handling Teams -Complying with OECD Guidance to Mitigate Risks in Supply Chains -Conducting Third-Party Audit to Assess Vale's Risk Management -Assessing Feed Suppliers for Conflict-Affected and High-Risk Areas (CAHRA) and Undertaking Enhanced Due Diligence if Needed	<p>Vale Base Metals employs a risk mitigation approach to ensure responsible sourcing practices throughout its supply chain. The company collaborates with its suppliers, actively monitors their performance, and maintains a zero-tolerance policy towards human rights violations and support of non-state armed groups. Vale Base Metals' responsible sourcing practices have yielded data that strengthens its due diligence efforts, identifying higher-risk feeds and prompting enhanced due diligence measures to mitigate those risks. By continuously refining its responsible sourcing practices, Vale Base Metals works towards creating a more sustainable and ethical supply chain that upholds its commitment to responsible mineral and metal sourcing. To ensure transparency of all feed suppliers from the mine of origin to downstream customers, Vale Base Metals maintains a comprehensive database and record-keeping system. The system includes a product registry, electronic ledger, and enterprise resource planning software. Vale Base Metals ensures that material handling teams within its operations understand and implement its responsible sourcing processes and work to ensure that only approved feed sources are used in its processes.</p>	

Identify and Assess Risks in the Supply Chain	<ul style="list-style-type: none"><li>- Identify and verify traceability or chain of custody information (e.g. mine of origin, trade routes, suppliers)</li><li>- For red flag locations, suppliers or circumstances, undertake on-the-ground assessments to identify risks of contributing to conflict or serious abuses (ref Annex II Model Policy for risks)</li></ul>	Risk-Based Assessments and Enhanced Due Diligence Practices	<p>Vale Base Metals conducts annual risk-based assessments of metals and minerals suppliers aligned with the 5-Step Due Diligence framework defined in the OECD Guidance.</p> <p>The company conducts enhanced due diligence on suppliers based on results of risk assessments, including obtaining additional information from Third Parties and on-site assessments.</p> <p>Vale Base Metals complies with risk mitigation requirements defined in the OECD Guidance.</p> <p>The company undergoes a third-party audit to assess its risk management in its Base Metals minerals and metals supply chains.</p> <p>Vale Base Metals assessed 26 feed suppliers across its North Atlantic refineries for Conflict-Affected and High-Risk Areas (CAHRAs) red flag risks.</p> <p>One supplier at Copper Cliff Nickel Refinery was identified as high-risk, and enhanced due diligence was undertaken, including immediate supplier engagement and a supplier site assessment conducted by a third-party auditor. No material findings were presented, and areas for governance improvement were identified. These results were shared with the site and the third-party trader.</p> <p>No supplier disengagement related to responsible sourcing risks occurred in 2023, in accordance with Vale Base Metals' policy statement that reserves the right to do so if deemed necessary.</p>	
		Risk Mitigation Strategy	<p>If anomalies are identified, Vale Base Metals performs a risk assessment to determine the appropriate management strategy.</p> <p>While mitigating the risk, the company may temporarily assign the contract, continue engagement, or implement measures for residual risks.</p> <p>Residual risk mitigation measures may include contractual clauses or conducting supplier site assessments.</p>	
Manage Risks	<p>Report identified risks to senior management and fix internal systems</p> <ul style="list-style-type: none"><li>- Disengage from suppliers associated with the most serious impacts</li><li>- Mitigate risk, monitor and track progress</li></ul>	Risk Mitigation , Compliance and Performance Monitoring of Suppliers	<p>Vale Base Metals prioritizes compliance with risk mitigation requirements, which may include supplier disengagement, contract suspension, or continued sourcing from the supplier while monitoring the mitigation process.</p> <p>The company actively monitors supplier performance and compliance to ensure that identified risks are effectively managed and mitigated.</p> <p>Vale Base Metals tracks compliance and engages with suppliers regularly to ensure effective risk management and mitigation.</p>	
		Risk Approach	<p>Vale Base Metals reviews the material sourcing locations of suppliers against its defined list of Conflict-Affected and High-Risk Areas (CAHRAs) to identify any potential feed red flags.</p> <p>Through these assessments, the company identifies potential risks relating to conflict financing, human rights abuses, bribery, fraudulent misrepresentation of mineral origin, money laundering, involvement with public or private security forces, and workers' health and safety (including mental health).</p>	
Audit of Smelter / Refiner Due Diligence Practices	<p>Smelters/refiners should participate in industry programs to have their due diligence practices audited against an audit standard aligned with OECD Guidance</p> <ul style="list-style-type: none"><li>- Prepare all documentation for audit (e.g. chain of custody or traceability documentation, risk assessment and management documentation for red flagged sources)</li><li>- Allow auditors to access company documentation, and records.</li><li>- Facilitate auditor access to sample of suppliers as appropriate.</li><li>- Publish summary audit report with audit conclusions</li></ul>	Responsible Minerals Initiative (RMI) Cobalt Refiner Standard	Vale's Port Colborne Refinery achieved certification with the Responsible Minerals Initiative's Cobalt Refiner Due Diligence Standard in 2023. The certification will be renewed in Q2 2024.	<a href="#">RMIs Conformant Cobalt Refiner List</a>
Publicly Report on Due Diligence	<p>Annually describe all due diligence efforts (Steps 1-4), e.g. risk assessment &amp; mitigation, with due regard for business confidentiality and other competitive or security concerns (e.g. supplier relationships, price information, or identities of whistle-blowers or sources should not be disclosed)</p> <ul style="list-style-type: none"><li>- Smelters should publish (a summary of) their independent audit report</li><li>- Make report publicly available, in offices and / or on company website</li></ul>	Integrated Report and ESG Databook	<p>Vale describes and publicly discloses its due diligence efforts inclusive of Steps 1-4 in the 2023 Integrated Report and in this ESG Databook.</p>	



### Swiss Code of Obligations - Report and Due Diligence

(C) Due diligence and reporting in relation to minerals and metals from conflict-affected areas, and child labour	External Links
<p>The Ordinance on Due Diligence and Transparency in relation to Minerals and Metals from Conflict-Affected Areas and Child Labor (DDTrO) provisions (Swiss Code) requires companies to prepare and publish an annual report on compliance with due diligence obligations with respect to child labor. The Swiss Code lists exemptions based on compliance with internationally recognised equivalent regulations (Art. 9). Vale adheres to the internationally recognised equivalent regulations as per listed in Annex 2 of the Swiss Code.</p> <p>Vale considers child labor as a salient human rights issue. Below follows information on Vale's human rights due diligence process and links which cover the adherence to the internationally recognised regulations.</p> <p>Vale has policies that establish our commitments and expectations from our activities, supplies, and business partners who are expected to know and guide their conduct in line with the best international Human Rights practices and principles established in the following Vale policies:</p> <ul style="list-style-type: none"><li>• <b>Code of Conduct;</b></li><li>• <b>Human Rights Policy;</b></li><li>• <b>Principles of Conduct for Third Parties</b></li></ul> <p>Vale Human Rights Due Diligence (HRDD) process considers the elements laid out in the ILO-IOE Child Labour Guidance Tool for Business to help prevent and mitigate negative impacts, including child labour impacts: i.e. policy commitment, assessment of child labor impacts, taking action on findings, tracking performance, communicating (child labor) performance (GRI 408), stakeholder engagement on child labor, and having established grievance mechanisms to receive and treat reports.</p> <p>All of Vale's operations conduct human rights risk assessments and child labor is one of the salient issues evaluated. The appropriate preventive and mitigating controls on the theme are adopted as a result of the assessments. Vale also conducts external Human Rights Due diligence (HRDD) that evaluates potential and real impacts, considering in its methodology the main aspects laid out in the ILO Child Labor Guidance. Other relevant documents:</p> <ul style="list-style-type: none"><li>• <b>Human Rights Guide;</b></li><li>• <b>Human Rights Training for Vale Employees and Contractors;</b></li><li>• <b>Human Rights and Decent Work Guide;</b></li><li>• <b>Guide to Preventing and Combating Sexual Exploitation of Children and Adolescents;</b></li></ul> <p>As per the Human Rights Policy, Vale also conducts human rights due diligence within its supply chain. The process starts with the classification of the level of the risk of our suppliers, which drives the mitigation actions. This involves an self-assessment questionnaires, which covers child labor risks, training sessions where the theme is covered, desktop and on-the-ground inspection, and the adoption of action plans to address any impact or vulnerability identified. The suppliers implement the action plan which is monitored by Vale. Vale's supplier management system requires child labor clauses in all contracts and background check for suppliers that have reasonable suspicion of child labor practices.</p> <p>On partnerships and engagement, Vale Foundation's projects and initiatives are developed and structured on the themes of Education, Basic Health, Productive Inclusion, and Social Protection, and include five Knowledge Stations. Some of the projects are Doing Sciences, Educational Territories, Knowledge Station, Literacy Trails, Literary Routes and Networks</p> <p><b>Networked Territories.</b> These projects are implemented in the territories in which Vale operates and support the company's efforts on the combat of Child labor and sexual exploitation. Vale also holds a partnership with <b>Childhood Brazil</b>, with initiatives to prevent child sexual exploitation across Brazil and <b>InPacto</b> (Instituto Pacto Nacional pela Erradicação do Trabalho Escravo) which works in the fight against child labor, especially in supply chain.</p> <p>Vale's grievance mechanism is available to all stakeholders, including workers and contractors, and the mechanism is structures to receive reports on human rights salient issues including those related to risk of child labor, child sexual exploitation, and forced labor. To access the page - <b>Grievance Mechanism Link</b></p>	<a href="#">Code of Conduct</a>
	<a href="#">Human Rights Policy</a>
	<a href="#">Principles of Conduct for Third Parties</a>
	<a href="#">Human Rights Guide</a>
	<a href="#">Human Rights Training for Vale Employees and Contractors</a>
	<a href="#">Human Rights and Decent Work Guide (Portuguese)</a>
	<a href="#">Guide to Preventing and Combating Sexual Exploitation of Children and Adolescents (Portuguese)</a>
	<a href="#">Network Territories</a>
	<a href="#">Childhood Brazil</a>
	<a href="#">Inpacto</a>
	<a href="#">Grievance Mechanism</a>



## Preparation Base for the Integrated Report 2023

We present the Integrated Report (IR) 2023 Preparation Base, whose function is to share with readers definitions and details of concepts adopted for reporting part of Vale's non-financial content, referring to the GRI Standards and to identify the assured contents for the 2023 Integrated Report, as well as exceptions or changes in the limits and reporting period. The report of these contents is published in the documents Integrated Report (IR) 2023 and ESG Databook 2023.

In the GRI Content Index of Vale's Integrated Report (IR) 2023, on pages 102 to 109, the location of each of the material contents for reporting can be found. In addition to the mandatory indicators, Vale presents in the ESG Databook the GRI G4 Mining and Metals sector indicators and others such as ICMM, SASB and TCFD, and the reporting of the other GRI Standards content applicable to the sector, even if not considered material.

The GRI Standards published up to December 2021 were considered.

GRI content	Description	Detailing the criteria	Assured Indicators	Exceptions in limits and reporting period	Changes in limits and criteria since the last report	Justification for changes in limits and criteria since the last report
2-6	Activities, value chain and other business relationships	For Vale, relevant business relationships are relationships treated within a concept of materiality, which considers qualitative aspects (linked to the company's "core" businesses such as the production of iron ore, pellets, nickel and copper, including logistical systems for distribution of products) and quantitative aspects.  In addition, "significant changes" are considered to be changes in the capital structure, acquisition of new businesses, implementation of new projects/operations, portfolio optimization, among others. The company seeks to simplify its operations flow, allowing continuous focus on its main assets and risk reduction.	No	There were no exceptions	There was no change	Not applicable
2-7	Employees	For reporting this indicator, the following are considered by Vale: - President, executive directors, directors, executive managers, managers, coordinators and career leaders technique - Assigned (they are accounted for in the employee's home company) - Fly-in/fly-out (they are accounted for in the company in which the employee is paid) - Expatriates: - STA - are accounted for in the employee's home company - LTA - are accounted for in the employee's destination company - Employees allocated in the structure of the Board, who do not occupy the role of Director (e.g. secretaries and assistants) - Paid leave/leavers - Other employees with contracts for an indefinite period - Employees in a special situation (e.g. employees in trade unions) - Trainees - Other employees with fixed-term contracts - PwD - Young apprentices The following are not counted: Unpaid leave/leavers; Counselors; Young apprentices with a workload of 4 hours/daily.  The data is compiled through the MDM (monthly updated internal file that represents the workforce) with the necessary Workforce classifications. The numbers considered are from the closing of the year 2022.  Definition of the concepts adopted by the organization for: - "Permanent employees": employees for an indefinite period, trainees and people with disabilities; - "Temporary employees": employees for a specific period; - "Non-guaranteed hours employees": employees who are not guaranteed a minimum or fixed number of hours of work per day, week or month, but who may need to make themselves available for work as required. - "Full-time": employees with exclusive dedication, according to minimum criteria established to characterize this integrality, which may vary according to the country; - "Part-time": employees working part-time, according to minimum criteria established to characterize this partiality, which may vary according to the country; - "Significant fluctuations": organizational movements of great impact, such as demobilizations, new businesses, operational ramp up, etc.	No	There were no exceptions	There was no change	Not applicable
2-8	Workers who are not employees	Vale understands as "significant fluctuations" organizational movements of great impact, such as demobilizations, new businesses, operational ramp up, etc. The number of outsourced employees in 2021 was adjusted, reflecting the expansion of the concept of "outsourced workers" which, in 2022, began to include outsourced employees with occasional, short-term work in Brazil.	No	There were no exceptions	There was no change	Not applicable
2-16	Communication of critical concerns	Vale understands as "critical concerns" those concerns about the negative potential of the organization, its commercial conduct in its operations and in its business relationships and its impacts on stakeholders (community), raised through complaint mechanisms and other processes. The company also considers as critical concerns the manifestations and accusations received through the various listening channels and social media.	Yes	The limit is Vale Global and the period refers to the reference year in the Integrated Report.	There was no change	Not applicable
2-1	Organizational details	Not applicable.	No	There were no exceptions in limit or period. The limit is always Vale Global and the period refers to the reference year in the Integrated Report.	There was no change	Not applicable
2-2	Entities included in the organization's sustainability reporting	Not applicable.	No	There were no exceptions in limit or period. The limit is always Vale Global and the period refers to the reference year in the Integrated Report.	There was no change	Not applicable
2-3	Reporting period, frequency and contact point	Not applicable.	No	There were no exceptions in limit or period. The limit is always Vale Global and the period refers to the reference year in the Integrated Report.	There was no change	Not applicable
2-4	Restatements of information	Not applicable.	No	There were no exceptions in limit or period. The limit is always Vale Global and the period refers to the reference year in the Integrated Report.	There was no change	Not applicable
2-5	External assurance	Not applicable.	Yes	There were no exceptions in limit or period. The limit is always Vale Global and the period refers to the reference year in the Integrated Report.	There was no change	Not applicable

2-9	Governance structure and composition	All members of the Board of Directors are elected for the same two-year term at the annual shareholders' meeting, may be re-elected and are subject to removal at any time. Members of the Fiscal Council are elected by our shareholders for one-year terms. The terms of the members of the Audit Committee expire at the end of the term of office of the members of the Board of Directors or upon removal approved by the Board of Directors, in accordance with the bylaws of the Audit Committee. Our bylaw provides for the appointment of executive officers for three-year terms and provides for a Board of Directors comprised of 11 to 13 members and an alternate member.	No	There were no exceptions	There was no change	Not applicable
2-10	Nomination and selection of the highest governance body	Not applicable.	No	There were no exceptions in limit or period. The limit is always Vale Global and the period refers to the reference year in the Integrated Report.	There was no change	Not applicable
2-11	Chair of the highest governance body	Not applicable.	No	There were no exceptions in limit or period. The limit is always Vale Global and the period refers to the reference year in the Integrated Report.	There was no change	Not applicable
2-12	Role of the highest governance body in overseeing the management of impacts	Not applicable.	No	There were no exceptions in limit or period. The limit is always Vale Global and the period refers to the reference year in the Integrated Report.	There was no change	Not applicable
2-13	Delegation of responsibility for managing impacts	Not applicable.	No	There were no exceptions in limit or period. The limit is always Vale Global and the period refers to the reference year in the Integrated Report.	There was no change	Not applicable
2-14	Role of the highest governance body in sustainability reporting	Not applicable.	No	There were no exceptions in limit or period. The limit is always Vale Global and the period refers to the reference year in the Integrated Report.	There was no change	Not applicable
2-15	Conflicts of interest	The concept adopted by Vale for "conflict of interest" is when an individual acts for their own benefit or to benefit family members, close people, shareholders, suppliers or government officials, regardless of whether Vale benefits, harms or not. Conflict of interest management is the subject of Vale's policy for transactions between related parties, with rules and principles to ensure conditions of transparency and independence in transactions with related parties and other situations in which there are potential conflicts of interest.	No	There were no exceptions	There was no change	Not applicable
2-17	Collective knowledge of the highest governance body	Not applicable.	No	There were no exceptions in limit or period. The limit is always Vale Global and the period refers to the reference year in the Integrated Report.	There was no change	Not applicable
2-18	Evaluation of the performance of the highest governance body	Not applicable.	No	There were no exceptions in limit or period. The limit is always Vale Global and the period refers to the reference year in the Integrated Report.	There was no change	Not applicable
2-19	Remuneration policies	Not applicable.	No	There were no exceptions in limit or period. The limit is always Vale Global and the period refers to the reference year in the Integrated Report.	There was no change	Not applicable
2-20	Process to determine remuneration	<p>The compensation components at Vale are:</p> <ul style="list-style-type: none"> <li>- Base salary: value received for the work performed and which is fixed according to the degree of complexity and seniority for the performance of the function.</li> <li>- Short-term variable remuneration.</li> <li>- Amount received annually by the employee, subject to the celebration or renewal of annual programs, the achievement of goals and the financial performance of Vale. In Brazil, the modality applied to short-term variable compensation is PLR – Profit Sharing, in compliance with its specific legislation.</li> <li>- Long-term variable remuneration for Leadership: <ul style="list-style-type: none"> <li>• Consisting of two programs that use the price of Vale's common shares as a basis and that can generate payments according to the achievement of established performance indicators.</li> <li>• Each program lasts for at least 3 years and has specific eligibility rules defined globally, with peculiarities or exceptions.</li> <li>• The implementation of programs is subject to annual approval by the Board of Directors.</li> </ul> </li> </ul>	No	There were no exceptions	There was no change	Not applicable
2-21	Annual total compensation ratio	Information subject to specific confidentiality restriction: Vale does not disclose the amounts of wages paid.	No	There were no exceptions	There was no change	Not applicable
2-22	Statement on sustainable development strategy	Not applicable.	No	There were no exceptions in limit or period. The limit is always Vale Global and the period refers to the reference year in the Integrated Report.	There was no change	Not applicable
2-23	Policy commitments	"The precautionary principle" for Vale means protection against the main risks that may adversely and significantly impact the objectives outlined by the Company's senior management, its reputation, as well as its financial and operating results. page 220 - Reference Form. Our risk governance structure is based on the Risk Management Policy, whose main objective is: (i) to support the strategic planning, budget and sustainability of our business; (ii) strengthen the capital structure and asset management of our business, including management concepts and assumptions based on potential risk in operations, maintenance of assets and logistical modes; (iii) strengthen our governance practices, based on lines of defense model; (iv) using the ISO 31000, ISO 55000 and COSO-ERM standards as references for risk management; (v) Adoption of RBPS (Risk Based Process Safety) as an operational safety management system; (vi) The measurement and monitoring of our potential risks, on a consolidated basis, considering the effect of diversification, when applicable, of our entire business; (vii) establish a specialized structure for specific and independent performance, as Second Line of Defense Specialist, in the assessment of potential operational risks, including geotechnical risks; and (viii) assessing the impact of new investments, acquisitions and divestitures on our risk map and risk tolerance.	No	There were no exceptions	There was no change	Not applicable
2-24	Embedding policy commitments	Not applicable.	No	There were no exceptions in limit or period. The limit is always Vale Global and the period refers to the reference year in the Integrated Report.	There was no change	Not applicable
2-25	Processes to remediate negative impacts	Not applicable.	No	There were no exceptions in limit or period. The limit is always Vale Global and the period refers to the reference year in the Integrated Report.	There was no change	Not applicable
2-26	Mechanisms for seeking advice and raising concerns	Not applicable.	Yes	There were no exceptions in limit or period. The limit is always Vale Global and the period refers to the reference year in the Integrated Report.	There was no change	Not applicable

2-27	<p>The definitions for significant cases are, for the corporate themes Brazil:</p> <p><b>Labor</b></p> <p>To determine the significant cases of non-compliance with labor laws and regulations that resulted in the application of fines or non-monetary sanctions, the following criteria are adopted: (i) criteria based on value: cases in which monetary sanctions were applied in lawsuits with a possible + probable prognosis equal or higher than R\$ 4 million (same cutoff used to define relevant labor lawsuits for SARBOX), collective actions and public civil actions; (ii) criteria based on materiality: processes that give rise to image risks to Vale and/or its subsidiaries, even if a monetary penalty of less than R\$4 million has been applied or a non-monetary penalty has been applied (same non-monetary relevance parameter adopted by the reference form). For the purposes of reporting items (i) and (ii), the sanctions applied in the reference year must be considered.</p> <p><b>Environmental</b></p> <p>To determine significant cases of non-compliance with environmental laws and regulations, the following criteria are adopted: (i) value-based criterion: cases in which a monetary penalty with a possible + probable prognosis equal to or higher than R\$ 5 million was applied (the same cutoff used to define relevant environmental cases, which corresponds to 10% of the maximum amount foreseen in the legislation for fines applicable to environmental administrative violations); (ii) materiality criterion: cases in which the imputed illicit conduct is typified in the Environmental Crimes Law (Law 9.605/1998), even if a monetary sanction with an amount of less than R\$ 5 million has been applied or if a non-monetary sanction has been applied; and (iii) specifically for non-monetary sanctions, all non-monetary sanctions applied in the reporting year must be reported, with the exception of warnings, which, as expressly provided for in Brazilian environmental law, are applicable to "administrative offenses that are less harmful to the environment" (therefore, not significant).</p> <p><b>Regulatory</b></p> <p>Strategic sanctions are those resulting from non-compliance with legal obligations or contracts held with the Public Authorities (concessions or authorizations), and that may result in relevant restrictions to Vale's (and controlled companies') rights or interference in operations. Materiality criteria for monetary sanctions: cases in which a monetary sanction of more than R\$ 10,000,000.00 has been applied;</p> <p><b>LGPD</b></p> <p>- Significant cases will be those that have been judicialized and whose claims discuss fines applied by the Brazilian Authority (ANPD). The cut-off value for these cases will be the same as that defined and applied to lawsuits of a civil nature with possible and/or probable prognosis within the year of reference of the form</p> <p>- Will be considered the collective or public civil lawsuits (Brazil), regardless of the amount involved, whose prognosis is in the possible and/or probable loss reference year of the form Fonte Espader (or any other system of control of lawsuits that is used by the legal department of the company)</p> <p>- Administrative processes instituted by the Data Protection Authority in the reference year of the form (Global), whose privacy incident has necessarily required/implied communication of the incident to the data subjects, in view of image/reputational effects</p> <p>- Administrative processes that have been judged and sanctions or fines have been applied by the Data Protection Authority (Global) in the year of reference of the form, having as cut-off value an amount equal to or greater than R\$ 5 million.</p> <p><b>Mining</b></p> <p>For the determination of significant cases of non-compliance with the mining legislation, the following criteria are adopted: (i) criteria based on value: cases in which a monetary penalty was applied with a possible + probable prognosis equal to or higher than R\$ 10,000,000.00 (ten million reais), equivalent to 1% (one percent) of the maximum amount foreseen in the mining legislation; (ii) class actions and public civil actions with a probable prognosis equal to or higher than R\$ 10,000,000.00 (ten million Reals), provided they arise from non-compliance with the mining legislation; (iii) materiality criterion: cases in which the alleged illicit conduct is criminally typified, even if a monetary penalty of less than R\$ 10,000,000.00 was applied or a non-monetary penalty was applied; (iv) materiality criterion: cases in which the alleged illicit conduct entails image risk for Vale.</p> <p>Infringements related to serious mine, pile or dam accidents or those that may lead to unwanted loss of the Mining Right.</p> <p><b>Tax</b></p> <p>In view of the reformulation in the reporting standards for the Sustainability Report, for which cases of non-compliance with laws and regulations in general must be reported, which now include any and all regulations applicable to the company, in which fines and non-monetary sanctions were applied, the following criteria were adopted for the Tax and Social Security Litigation: inform the cases in which the fine or sanction imposed (i) is typified in the Tax Crime Law (Law 8.137/1990) or (ii) may impact the Company either operationally, socially or reputationally.</p> <p><b>Civil</b></p> <p>To determine the significant cases of non-compliance with civil and maritime laws and regulations, which resulted in the application of fines or non-monetary sanctions, the following criteria are adopted: (i) criterion based on the value: cases in which a monetary sanction was applied in lawsuits with a possible + probable prognosis equal to or higher than R\$ 5 million (the same cutoff used to define the relevant civil and maritime lawsuits of SARBOX), in popular actions, class actions and public civil actions; and (ii) criterion of materiality: lawsuits that give rise to image risks to Vale and/or its subsidiaries, even if a monetary penalty of less than R\$ 5 million has been applied or a non-monetary penalty has been applied (same non-monetary relevance parameter adopted by the reference form). For the purposes of reporting items (i) and (ii), the sanctions applied in the reference year must be considered.</p> <p><b>CADE, Economic Sanctions, anti-corruption and Intellectual Property:</b></p> <p>Any fine or sanctioning activity</p> <p>The definitions for significant cases by country, except Brazil, are:</p> <p><b>Malaysia</b></p> <p>(A) Non-compliance with environmental laws and regulations:</p> <ul style="list-style-type: none"> <li>- Instances for which fines of MYR100,000 or more have been imposed;</li> <li>- Instances where the alleged regulatory violation is also considered a crime under the Environmental Crimes Act, regardless of the amount and type of penalty;</li> <li>- All non-monetary sanctions that resulted in the suspension or interdiction of the company's activities or operations or the withdrawal of licenses.</li> </ul> <p>(B) Failure to comply with tax laws and regulations:</p> <ul style="list-style-type: none"> <li>- Instances where the alleged regulatory violation is also considered a crime under the Tax Crimes Act;</li> <li>- The alleged regulatory violation may have a negative impact on the company's operations and reputation.</li> </ul> <p>(C) Non-compliance with competition and economic sanctions laws and regulations</p> <ul style="list-style-type: none"> <li>- All non-compliance cases for which fines or non-monetary sanctions were incurred are considered significant due to the sensitivity of these matters.</li> </ul> <p>(D) Regional / national &amp;/or international repercussions involving the media / media &amp; government authorities, investors, customers, social groups &amp; unions (reputational):</p> <ul style="list-style-type: none"> <li>- All cases of involvement and/or exposure to the media/media &amp; government authorities, investors, customers, social groups &amp; unions, causing negative impact on the company's operations and reputation.</li> <li>- All cases of involvement and/or exposure to the media / government authorities, investors, customers, social groups &amp; unions, impacting share price &amp; credit rating.</li> </ul> <p><b>Indonesia</b></p> <p>Undesirable event that impacts our ability to run the business, therefore any undesirable event or non-compliance with laws and regulations that leads to a real impact in all dimensions under very critical categories will be considered as significant:</p> <p>(A) People: More than 1 fatality of people in the community whose cause is related to an inefficiency in Vale's operational process.</p> <p>(B) Environment: Environmental impact of great magnitude, with municipal or regional impact, that requires the mobilization of internal and/or external resources, corrective and/or compensatory measures that do little to mitigate the negative effects. The affected environment does not restore its integrity. Remedial measures over 3 years. Situation that may cause a penalty of a restrictive nature (suspension, closure or embargo of operations).</p> <p>(C) Social and Human Rights: Damage to individual or collective assets or activities in more than one region, indigenous peoples or traditional community with remedies that can be achieved in more than 10 years and/or irreparable damage to relevant national cultural assets and/or damage to global cultural assets or relevance.</p> <p>Occurrence of slave labor, child labor, human trafficking, child sexual exploitation at Vale's direct contractors and subcontractors or at Vale.</p> <p>(D) Reputational: National and/or international repercussions with intense involvement of media and government authorities, investors, customers, social groups and unions, causing great impact/commotion. May reach strategic objectives and the company's mission. Impact on stock price and credit rating. Conviction of NGOs. Revocation of operating license and more difficulty in negotiating new license. Mass demonstration in multiple locations.</p> <p>(E) Finance: &gt; US\$ 500M</p> <p><b>Canada and Japan</b></p> <p>Any fines, penalties, convictions or damage awards in excess of \$10,000 per instance imposed on the Company by a court relating to Health and Safety, Environment, People, Society and Business Affairs, as defined below.</p> <p>"Health and Safety" refers to health and safety laws and regulations relating to the workplace and industrial operations. Environmental refers to laws and regulations relating to the regulation of soil, groundwater and air, and administrative compliance related to permits, approvals, authorizations or licenses for use or operation. People refers to laws and regulations concerning the Company and its employees. Business Affairs refers to laws and regulations relating to antitrust, anti-corruption and royalties or contractual payments due to the government, community organizations or indigenous groups. Society refers to laws and regulations related to the Company's operational impact on the community.</p> <p><b>Oman</b></p> <ul style="list-style-type: none"> <li>- Occurrences for which fines of US\$100,000.00 or more are imposed.</li> <li>- Occurrences where the alleged violation is also considered a crime.</li> <li>- Occurrences that result in or may (likelihood of possible or probable loss) result in the suspension, closure, interdiction, or significant restriction of the company's activities/operations.</li> <li>- Occurrences that result in or may (likelihood of possible or probable loss) result in the revocation of significant licenses/grants and/or increased difficulty in negotiating new significant licenses/grants.</li> <li>- Occurrences of local, national and/or international repercussions, with the involvement of the media, government authorities, investors, customers, social groups and/or unions, with negative impact on the Company's reputation.</li> <li>- Occurrences involving corruption, sanctions or anti-competitive practices.</li> </ul>	Yes	There were no exceptions in limit or period. The limit is always Vale Global and the period refers to the reference year in the Integrated Report.	There was no change	Not applicable
------	---	-----	--	---------------------	----------------

2-28	Membership associations	Not applicable.	No	There were no exceptions in limit or period. The limit is always Vale Global and the period refers to the reference year in the Integrated Report.	There was no change	Not applicable
2-29	Approach to stakeholder engagement	Not applicable.	Yes	There were no exceptions in limit or period. The limit is always Vale Global and the period refers to the reference year in the Integrated Report.	There was no change	Not applicable
2-30	Collective bargaining agreements	<p>For reporting this indicator, the following are considered by Vale:</p> <ul style="list-style-type: none"> <li>- President, executive directors, directors, executive managers, managers, coordinators and career leaders technique</li> <li>- Assigned (accounted for in the employee's home company)</li> <li>- Fly-in/fly-out (they are accounted for in the company in which the employee is paid)</li> <li>- Expatriates:</li> <li>- STA - are accounted for in the employee's home company</li> <li>- LTA - are accounted for in the employee's destination company</li> <li>- Employees allocated in the structure of the Board, who do not occupy the role of Director (e.g. secretaries and assistants)</li> <li>- Paid leave/leavers</li> <li>- Other employees with contracts for an indefinite period</li> <li>- Employees in a special situation (e.g. employees in trade unions)</li> <li>- Trainees</li> <li>- Other employees with fixed-term contracts</li> <li>- PwD</li> <li>- Young apprentices</li> <li>- Interns</li> </ul> <p>The following are not counted: Unpaid leave/leavers; Counselors; Young apprentices with a workload of 4 hours/daily.</p>	No	There were no exceptions	There was no change	Not applicable
3-1	Process to determine material topics	Not applicable.	Yes	There were no exceptions in limit or period. The limit is always Vale Global and the period refers to the reference year in the Integrated Report.	There was no change	Not applicable
3-2	List of material topics	Not applicable.	Yes	There were no exceptions in limit or period. The limit is always Vale Global and the period refers to the reference year in the Integrated Report.	There was no change	Not applicable
3-3	Management of material topics	Not applicable.	No	There were no exceptions in limit or period. The limit is always Vale Global and the period refers to the reference year in the Integrated Report.	There was no change	Not applicable
201-1	Direct economic value generated and distributed	The DVA is prepared in accordance with CPC 09 and all companies consolidated by Vale are included.	No	There were no exceptions	There was no change	Not applicable
201-2	Financial implications and other risks and opportunities due to climate change	<p>For Vale, substantial changes related to risks and opportunities presented by climate change mean critical risks with losses above US\$ 1 billion, this concept is also used in the CDP and DSI reports.</p> <p>Vale adopts, as reported in the CDP, that from USD 1 billion would be a significant financial impact for Vale (even included in Vale's risk matrix), and risks that contain this financial impact would be Business Risks. The costs of the measures taken to manage the risks or opportunities are realized in accordance with the budget for the reporting year.</p> <p>Vale considers as short term the period of up to 5 years; medium term, from 5 to 10 years; and long term, over 10 years.</p>	No	There were no exceptions	There was no change	Not applicable
201-3	Defined benefit plan obligations and other retirement plans	Not applicable.	No	There were no exceptions in limit or period. The limit is always Vale Global and the period refers to the reference year in the Integrated Report.	There was no change	Not applicable
201-4	Financial assistance received from government	Not applicable.	No	There were no exceptions in limit or period. The limit is always Vale Global and the period refers to the reference year in the Integrated Report.	There was no change	Not applicable
202-1	Ratios of standard entry level wage by gender compared to local minimum wage	<p>For reporting this indicator, the following are considered by Vale:</p> <ul style="list-style-type: none"> <li>- President, executive directors, directors, executive managers, managers, coordinators and career leaders technique</li> <li>- Assigned (accounted for in the employee's home company)</li> <li>- Fly-in/fly-out (they are accounted for in the company in which the employee is paid)</li> <li>- Expatriates:</li> <li>- STA - are accounted for in the employee's home company</li> <li>- LTA - are accounted for in the employee's destination company</li> <li>- Employees allocated in the structure of the Board, who do not occupy the role of Director (e.g. secretaries and assistants)</li> <li>- Paid leave/leavers</li> <li>- Other employees with contracts for an indefinite period</li> <li>- Employees in a special situation (e.g. employees in trade unions)</li> <li>- Trainees</li> <li>- Other employees with fixed-term contracts</li> <li>- PwD</li> <li>- Young apprentices</li> <li>- Interns</li> </ul> <p>The following are not counted: Unpaid leave/leavers; Counselors; Young apprentices with a workload of 4 hours/daily.</p> <p>Vale considers as "other workers" those who are not its own employees, that is, third parties.</p> <p>At Vale, a "significant portion" of employees refers to the number of employees earning the minimum wage. However, Vale pays wages above the minimum wage, as established in the wage floor defined in the Labor Agreements.</p> <p>To calculate the proportion between the lowest salary and the minimum salary, the lowest salary in the company is</p>	No	There were no exceptions.	There was no change	Not applicable
202-2	Proportion of senior management hired from the local community	Not applicable.	No	There were no exceptions in limit or period. The limit is always Vale Global and the period refers to the reference year in the Integrated Report.	There was no change	Not applicable

203-1	Infrastructure investments and services supported	<p>With regard to investments in infrastructure and support services, Vale adopts as "significant" all amounts invested in social and environmental initiatives, that is, socio-environmental investments, related to infrastructure and support services.</p> <p>In the context of investments, the company adopts the following concepts:</p> <ul style="list-style-type: none"> <li>- "positive impacts": the result of the action that generates an improvement for the community or for the environment, with the aim of preserving it.</li> <li>- "negative impacts": the result of the action that generates some damage to the community or environment.</li> <li>- "relevant impacts": defined according to the severity matrix, applied only to negative impacts.</li> </ul>	Yes	There were no exceptions	There was no change	Not applicable
203-2	Significant indirect economic impacts	<p>The concept adopted for "significant indirect economic impacts" at Vale are the concepts provided for in the norms and regulations of socio-environmental licensing processes in Brazil and abroad, when applicable. In Brazil, for example, the guidelines of Conama Resolution 1/86 are followed, regarding the analysis of environmental impacts; the classification of direct and indirect impacts seeks to follow the guidelines of this resolution, with direct impacts resulting directly from its activities, and indirect impacts resulting from secondary effects, resulting from direct impacts, descriptions that have been adopted by most environmental studies of Vale's licensing processes. As for the significance of impacts, in addition to the recommendations contained in the aforementioned resolution, among other guidelines relevant to socio-environmental assessment processes, Vale uses the impact severity table, an impact whose classification is above the moderate level can be considered significant, according to the description in the severity table and the efforts and measures necessary to prevent or mitigate its effects.</p> <p>Among the main significant indirect economic impacts identified in socio-environmental studies, there are some examples: increased pressure on public infrastructure (health, education, security, social protection and housing); road system overload; alteration of the daily life of the population, in the social and cultural relations constructed and uncomfortable for the population; generation of expectations regarding employability and business; strengthening of community organization and social development; generation of opportunities and new businesses, among others.</p>	No	There were no exceptions	There was no change	Not applicable
205-1	Operations assessed for risks related to corruption	<p>At Vale, the following definitions are adopted:</p> <ul style="list-style-type: none"> <li>- "Business": refers to the type of product or service provided by the company.</li> <li>- "Corridor": refers to one or more Logistics Complexes and Corridors, which may have one or more Businesses and several addresses.</li> <li>- "Complex": refers to one or more Operating Units. It may have a single gatehouse or several gatehouses and may or may not have more than one Business contained within the site.</li> <li>- "Operations": refers to a single location used by the organization for the production, storage and/or distribution of its goods and services, and/or to carry out administrative activities related to operational activities. Within a single operation, there may be multiple assets with multiple production lines, warehouses, administrative offices, or other activities.</li> </ul> <p>"Significant Risks": all risks classified as "High" or "Very High" in Vale's risk matrix. Risk: the effect of uncertainty on the objectives, where: effect is a deviation from the expected (positive and/or negative) and uncertainty is the state, even if partial, of lack of information regarding the understanding or knowledge of the event, their impacts or frequency/probability. Risk consists of three interrelated components: cause -&gt; event -&gt; impact. It is also expressed in terms of a combination of the impacts of the event or a change in circumstances, and the associated frequency/probability of occurrence. The Risk Matrix is the combination of frequency/probability and severity of events distributed in their respective scales. According to its quadrant in the Risk Matrix, each event will have its risk classification and its priority classified as Very High, High, Medium or Low and treatment models.</p> <p>For events of Very Critical severity, with the potential to permanently interrupt the business, these must be monitored regardless of any probability criteria.</p>	Yes	There were no exceptions	There was no change	Not applicable
205-2	Communication and training about anti-corruption policies and procedures	<p>The numbers reported in this indicator refer only to the reporting period, unless otherwise specified.</p> <p>The concept adopted by the company for "communication of anti-corruption policies and procedures" considers: for members of Vale's top leadership, email communication about the company's anti-corruption rules and participation in the actions of the Ethics Week and in accountability meetings of the Ethics &amp; Compliance Program; for other employees, there is communication via e-mails about the company's anti-corruption rules and procedures.</p> <p>The basis of anti-corruption training is made up of the ethics and compliance program assigned to all Vale employees and senior leadership and third parties who represent, act on behalf of or for the benefit of Vale. This training consists of: an educational video on Vale's anti-corruption rules; specific and targeted training on the Anti-Corruption Rules of Vale's Ethics &amp; Compliance Program; and completing the annual Conflict of Interest form. All accounting is done by the number of individuals who carry out activities at Vale and are recorded in specific systems for this purpose, such as the VES (Vale's online training system).</p> <p>The concept of "business partners" adopted at Vale comprises: any entities (associations, institutions, organizations, etc.) with which Vale and/or its subsidiaries carry out some type of commercial, technical, social or institutional partnership, among others, who are not configured as a customer or supplier.</p> <p>For reporting this indicator, the following are considered by Vale:</p> <ul style="list-style-type: none"> <li>- President, executive directors, directors, executive managers, managers, coordinators and career leaders technique</li> <li>- Assigned (accounted for in the employee's home company)</li> <li>- Fly-in/fly-out (they are accounted for in the company in which the employee is paid)</li> <li>- Expatriates:</li> <li>- STA - are accounted for in the employee's home company</li> <li>- LTA - are accounted for in the employee's destination company</li> <li>- Employees allocated in the structure of the Board, who do not occupy the role of Director (e.g. secretaries and assistants)</li> <li>- Paid leave/leavers</li> <li>- Other employees with contracts for an indefinite period</li> <li>- Employees in a special situation (e.g. employees in trade unions)</li> <li>- Trainees</li> <li>- Other employees with fixed-term contracts</li> <li>- PwD</li> <li>- Young apprentices</li> <li>- Interns</li> </ul> <p>The following are not counted: Unpaid leave/leavers; Counselors; Young apprentices with a workload of 4 hours/daily.</p> <p>The stratification of the employees' functional category considers the type of employment contract or level of the employee in the company and is composed of:</p> <ul style="list-style-type: none"> <li>- Chief Executive Officer</li> <li>- Executive Director</li> <li>- Director</li> <li>- Executive Manager</li> <li>- Manager/Coordinator</li> <li>- Supervisor</li> <li>- Technical specialist</li> <li>- Staff</li> </ul> <p>In Base Metals, additionally, there is the Superintendent hierarchical level, which is positioned between the Manager and the Supervisor.</p>	Yes	There were no exceptions	There was no change	Not applicable

205-3	Confirmed incidents of corruption and actions taken	<p>We know that corruption happens when someone gives, promises, offers or authorizes favors or Something of Value, directly or indirectly, to influence a decision, to gain an undue advantage or to obtain or retain business, which may occur in the public or private sphere. Vale has zero tolerance for bribery and corruption and does not protect those who use this practice, whether an employee, administrator or supplier. We have an Ethics &amp; Compliance Program, with clear governance, guidelines and rules on corruption, which include periodic training, monitoring and management of consequences, taking care not to obstruct any inspection activity related to this topic.</p> <p>We handle complaints in an impartial and serious manner. When deciding to make one, provide as much information as possible to prove it, enabling a fair and balanced assessment. When a report is made, an entire corporate structure is mobilized to conduct the investigation and, if necessary, hold those involved accountable. Under no circumstances will there be breach of confidentiality, intimidation or retaliation against the whistleblower. Confirmed cases are those in which information from complaints is confirmed after investigations are completed.</p> <p>There are three risks related to corruption in Vale's consolidated risk map. They are: (1) Public Agent Corruption; (2) Liabilities from unlawful acts related to corruption due to corporate operations; (3) Undue influence during the investigation process, related to corruption, conducted by public bodies.</p> <p>In total, 17 controls are related to Vale's anti-corruption rules, of which six are classified as key controls:</p> <ul style="list-style-type: none"> <li>• Socio-environmental investments;</li> <li>• Donations and sponsorships;</li> <li>• Suppliers in general;</li> <li>• High risk suppliers;</li> <li>• Recruitment of public agents;</li> <li>• Trainings.</li> </ul> <p>These controls are replicated for 41 risk owners (1st Line of Defense), who must carry out a closer monitoring in their areas, in view of Vale's risk methodology, based on the three lines of defense.</p> <p>For reporting this indicator, the following are considered by Vale:</p> <ul style="list-style-type: none"> <li>- President, executive directors, directors, executive managers, managers, coordinators and career leaders technique</li> <li>- Assigned (accounted for in the employee's home company)</li> <li>- Fly-in/fly-out (they are accounted for in the company in which the employee is paid)</li> <li>- Expatriates:</li> <li>- STA - are accounted for in the employee's home company</li> <li>- LTA - are accounted for in the employee's destination company</li> <li>- Employees allocated in the structure of the Board, who do not occupy the role of Director (e.g. secretaries and assistants)</li> <li>- Paid leave/leavers</li> <li>- Other employees with contracts for an indefinite period</li> <li>- Employees in a special situation (e.g. employees in trade unions)</li> <li>- Trainees</li> <li>- Other employees with fixed-term contracts</li> <li>- PhD</li> <li>- Young apprentices</li> <li>- Interns</li> </ul> <p>The following are not counted: Unpaid leave/leavers; Counselors; Young apprentices with a workload of 4 hours/daily.</p>	Yes	There were no exceptions	There was no change	Not applicable
206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	<p>The main references in the management of the antitrust issue used to compose the basis of judicial actions are the guidelines and decisions of the jurisdictions in the regions where Vale operates, highlighting the decisions of the Administrative Council for Economic Defense in Brazil and the guidelines issued by the antitrust authorities of the European Community.</p> <p>Vale considers the record of critical antitrust and unfair competition events and the results of these processes to be "main results".</p>	No	There were no exceptions	There was no change	Not applicable
303-1	Interactions with water as a shared resource	Not applicable.	No	There were no exceptions in limit or period. The limit is always Vale Global and the period refers to the reference year in the Integrated Report.	There was no change	Not applicable
303-2	Management of water discharge-related impacts	Not applicable.	No	There were no exceptions in limit or period. The limit is always Vale Global and the period refers to the reference year in the Integrated Report.	There was no change	Not applicable
303-3	Water withdrawal	<p>The company measures information on "dissolved solids" through data collected in the Credit360 system, through direct responses from the operating units.</p> <p>To define the water stress regions, the indicator defined by the UN (6.4.2 Level of water stress) was adopted in the period from 2014 to 2021. This indicator considers the use of water by all users of the river basins, availability and ecological flows, using public data available from the respective responsible bodies. In this way, factors such as the time interval considered, the climate, the vegetation, the scale of the territory, the use and occupation of the soil and the water demand have a direct impact on the results obtained. The Water Stress Level in the Watershed is calculated by the equation:</p> $WS = [Qwd / (Qav - Qref)] \times 100 \text{ [\%]}, \text{ which:}$ <p>Qwd: Total flow rate of water withdrawn in the basin  Qav: Average total flow rate of available water  Qref: Reference Flow Rate"</p> <p>*According to applicable law</p> <p>The classification Criterion follows the parameter below:</p> <p>No Stress: WS &lt; 25%  Low: 25% ≤ WS &lt; 50%  Medium: 50% ≤ WS &lt; 75%  High: 75% ≤ WS &lt; 100%  Critical: WS ≥ 100%</p> <p>Vale, as a member of the International Council on Mining and Metals (ICMM), carries out an annual self-assessment of the company's assets and corporate areas, globally, following the 10 ICMM Mining Principles:</p> <ul style="list-style-type: none"> <li>- Principle 1: Ethical business;</li> <li>- Principle 2: Decision making;</li> <li>- Principle 3: Human rights;</li> <li>- Principle 4: Risk management;</li> <li>- Principle 5: Health and safety;</li> <li>- Principle 6: Environmental performance;</li> <li>- Principle 7: Conservation of biodiversity;</li> <li>- Principle 8: Responsible production;</li> <li>- Principle 9: Social performance;</li> <li>- Principle 10: Stakeholder involvement.</li> </ul> <p>The data may contain estimates considering specifics of the operations.</p>	Yes	For the mapping of water stress areas, exceptions were considered for the EFVM and EFC railways, projects and the Repair Board	There was no change	Not applicable

303-4	Water discharge	<p>To define the water stress regions, the indicator defined by the UN (6.4.2 Level of water stress) was adopted in the period from 2014 to 2021. This indicator considers the use of water by all users of the river basins, availability and ecological flows, using public data available from the respective responsible bodies. In this way, factors such as the time interval considered, the climate, the vegetation, the scale of the territory, the use and occupation of the soil and the water demand have a direct impact on the results obtained. The Water Stress Level in the Watershed is calculated by the equation:</p> $WS = [Qwd / (Qav - Qref)] \times 100 \%$ , which: Qwd: Total flow rate of water withdrawn in the basin Qav: Average total flow rate of available water Qref: Reference Flow Rate" *According to applicable law	Yes	For the mapping of water stress areas, exceptions were considered for the EFVM and EFC railways, projects and the Repair Board	There was no change	Not applicable
303-5	Water consumption	<p>To define the water stress regions, the indicator defined by the UN (6.4.2 Level of water stress) was adopted in the period from 2014 to 2021. This indicator considers the use of water by all users of the river basins, availability and ecological flows, using public data available from the respective responsible bodies. In this way, factors such as the time interval considered, the climate, the vegetation, the scale of the territory, the use and occupation of the soil and the water demand have a direct impact on the results obtained. The Water Stress Level in the Watershed is calculated by the equation:</p> $WS = [Qwd / (Qav - Qref)] \times 100 \%$ , which: Qwd: Total flow rate of water withdrawn in the basin Qav: Average total flow rate of available water Qref: Reference Flow Rate" *According to applicable law	Yes	For the mapping of water stress areas, exceptions were considered for the EFVM and EFC railways, projects and the Repair Board	There was no change	Not applicable
304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	<p>Own, leased or managed operating unit - these are Vale's operating areas, mines, ports, railways, power plants, industrial complexes, etc.;</p> <p>Environmental protection areas - "Protected Area is a clearly defined and recognized geographical space, with a specific objective and managed by effective means, whether legal or otherwise, to achieve long-term conservation of nature, with ecosystem services and associated Cultural values." (IUCN, 2008) - IUCN and SNUC categories of protected areas are used to address the protection value of areas.</p> <p>Areas of high value for biodiversity - are areas internationally recognized as of great importance for conservation due to their high biological, ecological, social or cultural values - areas that maintain a high concentration of endangered and/or endemic species, key evolutionary processes – e.g. Hotspots, Wilderness Areas, Key Biodiversity Areas, Ramsar Sites, Priority Areas for Conservation.</p>	Yes	There were no exceptions	In 2023, Vale Taiwan's assets were divested, and therefore removed from the scope of the 304-1 indicator.	Due to the divestment in Vale Taiwan's assets.
304-2	Significant impacts of activities, products and services on biodiversity	<p>For Vale, "significant direct and indirect impacts" are those that cause significant changes in the habitats and populations of species. The impacts raised and evaluated in the studies/assessments of environmental impacts carried out to compose the licensing processes of the operational areas and new projects are reported. The significance of the impact consists of the final interpretation of the intensity of the impact based on the correlation of evaluation criteria related to the reversibility, scope and magnitude of the impact.</p>	No	There were no exceptions	There was no change	Not applicable

304-3	Habitats protected or restored	<p>The independent external experts who support the protection and recovery processes and outcomes are consultants and researchers from partner research institutions. The independent external experts who assess the protection and recovery processes are the environmental agencies responsible for authorizing and issuing licenses, as well as researchers who may be consulted for these assessments.</p> <p>Vale uses the definition given by the International Union for Conservation of Nature (IUCN) through its Guidelines for Applying Protected Area Management Categories (IUCN, 2008), which defines "protected area" as "a clearly defined geographic space, recognized, dedicated and managed, through legal or other effective means, to achieve long-term conservation of nature with associated ecosystem services and cultural values". This definition is in line with that of the Convention on Biological Diversity (CBD, 1992, Article 2). Therefore, to consolidate the indicator, the categories of the IUCN system of protected areas are used or their adaptations to the legislation of the countries where Vale operates, if any.</p> <p>Vale does not consolidate "restored areas" in this indicator due to the inherent difficulties in establishing parameters to assess whether a given area or set of areas has been effectively restored.</p>	Yes	There were no exceptions	There was no change	Not applicable
304-4	IUCN Red List species and national conservation list species with habitats in areas affected by operations	<p>The collection system data library is updated periodically. The last update took place at the end of 2019, considering the last update of the IUCN list available on the website.</p> <p>In the case of national lists, the lists of endangered fauna and flora species published in 2014 by the MMA were used.</p>	No	There were no exceptions	There was no change	Not applicable
401-1	New employee hires and employee turnover	<p>New hires: TOTAL number of employees hired in the period / TOTAL number of own employees</p> <p>Turnover: Number of own employees who left the company in the period / TOTAL number of own employees</p> <p>The period considered is the year in question in the Integrated Report.</p> <p>For reporting this indicator, the following are considered by Vale:</p> <ul style="list-style-type: none"> <li>- President, executive directors, directors, executive managers, managers, coordinators and career leaders technique</li> <li>- Assigned (accounted for in the employee's home company)</li> <li>- Fly-in/fly-out (they are accounted for in the company in which the employee is paid)</li> <li>- Expatriates:</li> <li>- STA - are accounted for in the employee's home company</li> <li>- LTA - are accounted for in the employee's destination company</li> <li>- Employees allocated in the structure of the Board, who do not occupy the role of Director (e.g. secretaries and assistants)</li> <li>- Paid leave/leavers</li> <li>- Other employees with contracts for an indefinite period</li> <li>- Employees in a special situation (e.g. employees in trade unions)</li> <li>- Trainees</li> <li>- Other employees with fixed-term contracts</li> <li>- PwD</li> <li>- Young apprentices</li> <li>- Interns</li> </ul> <p>The following are not counted: Unpaid leave/leavers; Counselors; Young apprentices with a workload of 4 hours/daily.</p>	No	There were no exceptions	There was no change	Not applicable
401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	<p>For reporting this indicator, the following are considered by Vale:</p> <ul style="list-style-type: none"> <li>- President, executive directors, directors, executive managers, managers, coordinators and career leaders technique</li> <li>- Assigned (accounted for in the employee's home company)</li> <li>- Fly-in/fly-out (they are accounted for in the company in which the employee is paid)</li> <li>- Expatriates:</li> <li>- STA - are accounted for in the employee's home company</li> <li>- LTA - are accounted for in the employee's destination company</li> <li>- Employees allocated in the structure of the Board, who do not occupy the role of Director (e.g. secretaries and assistants)</li> <li>- Paid leave/leavers</li> <li>- Other employees with contracts for an indefinite period</li> <li>- Employees in a special situation (e.g. employees in trade unions)</li> <li>- Trainees</li> <li>- Other employees with fixed-term contracts</li> <li>- PwD</li> <li>- Young apprentices</li> <li>- Interns</li> </ul> <p>The following are not counted: Unpaid leave/leavers; Counselors; Young apprentices with a workload of 4 hours/daily.</p>	No	There were no exceptions	There was no change	Not applicable
401-3	Parental leave	<p>For reporting this indicator, the following are considered by Vale:</p> <ul style="list-style-type: none"> <li>- President, executive directors, directors, executive managers, managers, coordinators and career leaders technique</li> <li>- Assigned (accounted for in the employee's home company)</li> <li>- Fly-in/fly-out (they are accounted for in the company in which the employee is paid)</li> <li>- Expatriates:</li> <li>- STA - are accounted for in the employee's home company</li> <li>- LTA - are accounted for in the employee's destination company</li> <li>- Employees allocated in the structure of the Board, who do not occupy the role of Director (e.g. secretaries and assistants)</li> <li>- Paid leave/leavers</li> <li>- Other employees with contracts for an indefinite period</li> <li>- Employees in a special situation (e.g. employees in trade unions)</li> <li>- Trainees</li> <li>- Other employees with fixed-term contracts</li> <li>- PwD</li> <li>- Young apprentices</li> <li>- Interns</li> </ul> <p>The following are not counted: Unpaid leave/leavers; Counselors; Young apprentices with a workload of 4 hours/daily.</p>	No	There were no exceptions	There was no change	Not applicable
403-1	Occupational health and safety management system	<p>For reporting this indicator, the following are considered by Vale:</p> <ul style="list-style-type: none"> <li>- President, executive directors, directors, executive managers, managers, coordinators and career leaders technique</li> <li>- Assigned (accounted for in the employee's home company)</li> <li>- Fly-in/fly-out (they are accounted for in the company in which the employee is paid)</li> <li>- Expatriates:</li> <li>- STA - are accounted for in the employee's home company</li> <li>- LTA - are accounted for in the employee's destination company</li> <li>- Employees allocated in the structure of the Board, who do not occupy the role of Director (e.g. secretaries and assistants)</li> <li>- Paid leave/leavers</li> <li>- Other employees with contracts for an indefinite period</li> <li>- Employees in a special situation (e.g. employees in trade unions)</li> <li>- Trainees</li> <li>- Other employees with fixed-term contracts</li> <li>- PwD</li> <li>- Young apprentices</li> <li>- Interns</li> </ul> <p>The following are not counted: Unpaid leave/leavers; Counselors; Young apprentices with a workload of 4 hours/daily.</p>	No	There were no exceptions	There was no change	Not applicable