



Financial Statements

December 31, 2023

IFRS



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Report of independent registered public accounting firm

To the Board of Directors and Shareholders

Vale S.A.

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated statement of financial position of Vale S.A. and its subsidiaries (the "Company") as of December 31, 2023 and 2022, and the related consolidated income statement, statement of comprehensive income, statement of changes in equity and statement of cash flows for each of the three years in the period ended December 31, 2023, including the related notes (collectively referred to as the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of December 31, 2023, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2023 and 2022, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2023 in conformity with International Financial Reporting Standards as issued by the International Accounting Standards Board. Also, in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2023, based on criteria established in Internal Control - Integrated Framework (2013) issued by the COSO.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control over Financial Reporting. Our responsibility is to express opinions on the Company's consolidated financial statements and on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.



We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that: (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that: (i) relate to accounts or disclosures that are material to the consolidated financial statements; and (ii) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.



Provisions for de-characterization of the dam structures

As described in Note 27 (a) to the consolidated financial statements, the Company's provision for de-characterization of all its tailings dams built under the upstream method, certain "centerline structures" and dikes, located in Brazil was US\$ 3,451 million as of December 31, 2023, and additions to the provision for the year ended December 31, 2023 was US\$ 153 million. The provisions recorded are based on the estimation of costs to be incurred for each of the de-characterization projects that will last up to 15 years. Management applies significant judgment in developing the estimates for de-characterization of the dams structures including (i) volume of the waste to be removed based on historical data available and interpretation of the enacted laws and regulations; (ii) location availability for the tailings disposal; (iii) engineering methods and solutions; (iv) security levels; (v) productivity of the equipment used; (vi) advances in geological studies and new hydrological information; and (vii) discount rate update. In addition, as management has further disclosed, given the nature and uncertainties inherent in this type of provision, the amounts recognized and disclosed will be reassessed by the Company at each reporting period and may be adjusted significantly in future periods, as new facts and circumstances become known.

The principal considerations for our determination that performing procedures relating to the provisions for de-characterization of the dams structures is a critical audit matter are (i) the significant judgment by management, including the use of specialists, when developing the estimates of the total expected costs to carry out all de-characterization projects related to the dams, which in turn led to (ii) a high degree of auditor judgment, subjectivity, and effort in performing procedures and evaluating management's significant assumptions related to volume of the waste to be removed and engineering methods and solutions, and (iii) the audit effort involved the use of professionals with specialized skill and knowledge.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to management's estimates of the provision for de-characterization of the dams structures. The work of management's specialists was used in performing the procedures to evaluate the reasonableness of the engineering solutions and significant assumptions used by management related to volume of the waste to be removed and engineering methods to execute this removal. As a basis for using this work, the specialists' qualifications were understood and the Company's relationship with these specialists was assessed. The procedures performed also included evaluation of the methods and assumptions used by specialists and procedures to assess whether these were consistent with internal and external references, as well as evidence available or obtained in other areas of the audit. Additionally, these procedures included evaluating whether the assumptions related to volume of the waste to be removed and engineering methods and solutions were reasonable considering the information available according to the engineering phase of each project and the historic information gathered from the ongoing de-characterizations projects of the Company.



Tax litigation

As described in Note 28 to the consolidated financial statements, the Company has recognized provisions for tax litigations in the amount of US\$ 90 million as of December 31, 2023 and disclosed contingent liabilities related to tax litigation in the amount of US\$ 7,235 million, and US\$ 5,411 million related to uncertain income tax position under discussion with tax authorities, as described in Note 8 (e). The Company recognizes a provision for tax litigation in the consolidated financial statements for the resolution of pending litigation when the Company has a present obligation as a result of a past event and management determines that a loss is probable, and the amount of the loss can be reasonably estimated, with the support of Company's specialists. No provision for tax litigation is recognized in the consolidated financial statements for unfavorable outcomes when, after assessing the information available, (i) management concludes that it is not probable that a loss has been incurred in any of the pending litigation; or (ii) management is unable to estimate the loss or range of loss for any of the pending matters. In case of income tax pending litigations, management determines whether it is probable or not that taxation authorities will accept the uncertain tax treatment. If management concludes it is not probable that taxation authorities will accept the uncertain tax treatment, a provision for income tax is recognized. The Company also discloses the contingency in circumstances where management concludes: (i) no loss is probable or reasonably estimable, but it is reasonably possible that a loss may be incurred; or (ii) in case of income tax pending litigations, it is probable that the taxation authority will accept the uncertain tax treatment.

The principal considerations for our determination that performing procedures relating to tax litigation are a critical audit matter are (i) the significant judgments by management when assessing the likelihood of a loss being incurred and when determining whether a reasonable estimate of the loss or range of loss and possible outcomes for each tax litigation claim can be made, which in turn led to a high degree of auditor judgment, subjectivity and effort in evaluating management's assessment of the loss contingencies associated with litigation claims; and (ii) the audit effort involved the use of professionals with specialized skill and knowledge.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to management's evaluation of tax litigation claims, including controls over determining whether a loss is probable and whether the amount of loss can be reasonably estimated, or whether it is probable the taxation authority will not accept the income tax pending litigation, as well as financial statement disclosures. These procedures also included, among others, obtaining and evaluating the letters of audit inquiry with internal and external legal counsel, evaluating the reasonableness of management's assessment regarding whether unfavorable outcomes is reasonably possible or probable and reasonably estimable and evaluating the sufficiency of the Company's tax litigation contingencies disclosures. The work of Company's specialists was used in performing the procedures to evaluate the reasonableness of the estimates related to the tax litigation claims. As a basis for using this work, the specialists' qualifications and objectivity were understood, as well as the methods and assumptions used by them. The procedures also included an evaluation of the specialists' findings. In addition, professionals with specialized skills and knowledge were used to assist in the evaluation of the reasonableness of the estimate or range of loss and possible outcomes of the main tax litigation claims.



Liabilities related to associates and joint ventures

As described in Note 26 to the consolidated financial statements, the Company has recognized a provision related to the Samarco Mineração S.A. ("Samarco") dam failure in the amount of US\$4,427 million as of December 31, 2023, including additions to the provision for the year ended December 31, 2023, in the amount of US\$1,200 million. The Fundão tailings dam is owned by Samarco, a joint venture between Vale S.A. and BHP Billiton Brasil Ltda. ("BHPB"), where the failure was experienced in November, 2015. The Company and BHPB have assumed responsibility in a proportion of fifty percent each for the obligations generated that cannot be financially fulfilled by Samarco itself, the primary responsible party. The provision recorded is based on the estimation of cash outflows to be incurred and it requires the use of assumptions and estimates that can significantly change its value due to: (i) scope and cost of completing pre defined programs; (ii) potential future settlement agreement in respect to the Federal Public Prosecution Office claim; (iii) the extent to which Samarco will be able to directly fund future obligations; (iv) resolution of existing and potential legal claims; and (v) updates to the discount rate. In addition, as management has further disclosed, given the nature and uncertainties inherent in this type of provision, future expenditures may differ from the amounts currently provided and changes to key assumptions could result in a material impact to the amount of the provision in future reporting periods.

The principal considerations for our determination that performing procedures relating to the provisions related to the Samarco dam failure is a critical audit matter are (i) the significant judgment by management, including the use of legal advisors, when developing the estimates of the total expected cash outflows, which in turn led to (ii) a high degree of auditor judgment, subjectivity, and effort in performing procedures and evaluating management's significant assumptions, and (iii) the audit effort involved the use of professionals with specialized skill and knowledge.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to management's estimates of the provision related to the Samarco dam failure. The procedures also included, among others, obtaining confirmations and positions from the management's external and internal legal advisors involved in the related legal actions and in the negotiations for a potential settlement agreement, in addition to inquiries to the Company's executive directors. In addition, the procedures included evaluating the reasonableness of the models, the data, the application of discount rate and other assumptions used to form the provision estimate, with the involvement of our internal experts with specialized skills and knowledge, which also included sensitivity analysis of the main assumptions used and the impacts of their possible changes on the calculated provision. The procedures also included evaluating the accounting treatment adopted by the Company to recognize the provision and its movements in the year ended December 31, 2023, as well as financial statements disclosures.

Rio de Janeiro, February 22, 2024


PricewaterhouseCoopers
Auditores Independentes Ltda.

We have served as the Company's auditor since 2019.

Management's Report on Internal Control over Financial Reporting

The management of Vale S.A (Vale) is responsible for establishing and maintaining adequate internal control over financial reporting.

Vale's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. The company's internal control over financial reporting includes those policies and procedures that: (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of the effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, and that the degree of compliance with the policies or procedures may deteriorate.

Vale's management has assessed the effectiveness of the company's internal control over financial reporting as of December 31, 2023, based on the criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on such assessment and criteria, Vale's management has concluded that the company's internal control over financial reporting is effective as of December 31, 2023.

The effectiveness of the company's internal control over financial reporting as of December 31, 2023, has been audited by PricewaterhouseCoopers Auditores Independentes Ltda., an independent registered public accounting firm, as stated in their unqualified report which appears herein.

February 22th, 2024.

Eduardo de Salles Bartolomeo

Chief Executive Officer

Gustavo Duarte Pimenta

Chief Financial Officer and Investors Relations

Consolidated Income Statement

In millions of United States dollars, except earnings per share

		Year ended December 31,		
	Notes	2023	2022	2021
Continuing operations				
Net operating revenue	4(b)	41,784	43,839	54,502
Cost of goods sold and services rendered	5(a)	(24,089)	(24,028)	(21,729)
Gross profit		17,695	19,811	32,773
Operating expenses				
Selling and administrative	5(b)	(553)	(515)	(481)
Research and development		(723)	(660)	(549)
Pre-operating and operational stoppage	27	(450)	(479)	(648)
Other operating expenses, net	5(c)	(1,498)	(1,722)	(2,976)
Impairment reversal (impairment) and results on disposal of non-current assets, net	19	(266)	773	(426)
Operating income		14,205	17,208	27,693
Financial income	6	432	520	337
Financial expenses	6	(1,459)	(1,179)	(1,249)
Other financial items, net	6	(919)	2,927	4,031
Equity results and other results in associates and joint ventures	15 and 26	(1,108)	305	(1,271)
Income before income taxes		11,151	19,781	29,541
Income taxes	8(a)	(3,046)	(2,971)	(4,697)
Net income from continuing operations		8,105	16,810	24,844
Net income attributable to noncontrolling interests		122	82	108
Net income from continuing operations attributable to Vale's shareholders		7,983	16,728	24,736
Discontinued operations				
Net income (loss) from discontinued operations	16(l)	-	2,060	(2,376)
Loss attributable to noncontrolling interests		-	-	(85)
Net income (loss) from discontinued operations attributable to Vale's shareholders		-	2,060	(2,291)
Net income		8,105	18,870	22,468
Net income attributable to noncontrolling interests		122	82	23
Net income attributable to Vale's shareholders		7,983	18,788	22,445
Basic and diluted earnings per share from continuing operations	9			
Common share (US\$)		1.83	3.61	4.93
Basic and diluted earnings per share attributable to Vale's shareholders	9			
Common share (US\$)		1.83	4.05	4.47

The accompanying notes are an integral part of these financial statements.

Consolidated Statement of Comprehensive Income

In millions of United States dollars

	Notes	Year ended December 31,		
		2023	2022	2021
Net income		8,105	18,870	22,468
Other comprehensive income:				
Items that will not be reclassified to income statement				
Translation adjustments of the Parent Company		2,966	2,259	(2,174)
Retirement benefit obligations		(68)	269	475
Fair value adjustment to investment in equity securities		13	-	397
		2,911	2,528	(1,302)
Items that may be reclassified to income statement				
Translation adjustments of foreign operations		(522)	(1,306)	918
Net investment hedge	20	139	81	(118)
Cash flow hedge	20	(19)	19	3
Reclassification of cumulative translation adjustment to income statement	15 and 16	-	(4,830)	(4,749)
		(402)	(6,036)	(3,946)
Comprehensive income		10,614	15,362	17,220
Comprehensive income attributable to noncontrolling interests		125	80	21
Comprehensive income attributable to Vale's shareholders		10,489	15,282	17,199

Items above are stated net of tax and the related taxes are disclosed in note 8.

The accompanying notes are an integral part of these financial statements.

Consolidated Statement of Cash Flows

In millions of United States dollars

		Year ended December 31,		
	Notes	2023	2022	2021
Cash flow from operations	10(a)	17,252	18,762	33,414
Interest on loans and borrowings paid	10(c)	(743)	(785)	(693)
Cash received (paid) on settlement of derivatives, net	20(a)	567	(83)	(197)
Payments related to Brumadinho event	25	(1,330)	(1,093)	(1,388)
Payments related to de-characterization of dams	27	(458)	(349)	(338)
Interest on participative shareholders' debentures paid	22	(233)	(371)	(418)
Income taxes paid (including settlement program)		(1,890)	(4,637)	(4,385)
Net cash generated by operating activities from continuing operations		13,165	11,444	25,995
Net cash generated (used) by operating activities from discontinued operations	16(l)	-	41	(316)
Net cash generated by operating activities		13,165	11,485	25,679
Cash flow from investing activities:				
Capital expenditures	4(c)	(5,920)	(5,446)	(5,033)
Payments related to Samarco dam failure	26	(553)	(338)	(413)
Additions to investments		(19)	-	(42)
Proceeds (payments) from disposal of investments, net	10(b)	(139)	577	704
Dividends received from associates and joint ventures		204	219	190
Short-term investment		127	260	582
Other investing activities, net		(19)	145	(129)
Net cash used in investing activities from continuing operations		(6,319)	(4,583)	(4,141)
Net cash used in investing activities from discontinued operations	16(l)	-	(103)	(2,469)
Net cash used in investing activities		(6,319)	(4,686)	(6,610)
Cash flow from financing activities:				
Loans and borrowings from third parties	10(c)	1,950	1,275	930
Payments of loans and borrowings from third parties	10(c)	(658)	(2,300)	(1,927)
Payments of leasing	24	(233)	(224)	(215)
Dividends and interest on capital paid to Vale's shareholders	30(e)	(5,513)	(6,603)	(13,483)
Dividends and interest on capital paid to noncontrolling interest		(41)	(12)	(30)
Shares buyback program	30(c)	(2,714)	(6,036)	(5,546)
Acquisition of stake in VOPC	16(e)	(130)	-	-
Net cash used in financing activities from continuing operations		(7,339)	(13,900)	(20,271)
Net cash used in financing activities from discontinued operations	16(l)	-	(11)	(13)
Net cash used in financing activities		(7,339)	(13,911)	(20,284)
Net decrease in cash and cash equivalents		(493)	(7,112)	(1,215)
Cash and cash equivalents in the beginning of the year		4,736	11,721	13,487
Effect of exchange rate changes on cash and cash equivalents		69	138	(551)
Effect of transfer PTVI to non-current assets held for sale	16(b)	(703)	-	-
Cash and cash equivalents from subsidiaries sold, net		-	(11)	-
Cash and cash equivalents at end of the year		3,609	4,736	11,721

The accompanying notes are an integral part of these financial statements.

Consolidated Statement of Financial Position

In millions of United States dollars

	Notes	December 31, 2023	December 31, 2022
Assets			
Current assets			
Cash and cash equivalents	21	3,609	4,736
Short-term investments	21	51	61
Accounts receivable	11	4,197	4,319
Other financial assets	14	271	342
Inventories	12	4,684	4,482
Recoverable taxes	8(f)	900	1,272
Judicial deposits	28(d)	611	-
Other		444	314
		14,767	15,526
Non-current assets held for sale	16(b)	3,933	
		18,700	15,526
Non-current assets			
Judicial deposits	28(d)	798	1,215
Other financial assets	14	593	280
Recoverable taxes	8(f)	1,374	1,110
Deferred income taxes	8(b)	9,565	10,770
Other		1,257	1,019
		13,587	14,394
Investments in associates and joint ventures	15	1,872	1,798
Intangibles	17	11,631	10,238
Property, plant, and equipment	18	48,396	44,938
		75,486	71,368
Total assets		94,186	86,894
Liabilities			
Current liabilities			
Suppliers and contractors	13	5,272	4,461
Loans and borrowings	23	824	307
Leases	24	197	182
Other financial liabilities	14	1,676	1,672
Taxes payable	8(f)	1,314	470
Settlement program ("REFIS")	8(d)	428	371
Liabilities related to Brumadinho	25	1,057	944
Liabilities related to associates and joint ventures	26	837	1,911
De-characterization of dams and asset retirement obligations	27	1,035	661
Provisions for litigation	28	114	106
Employee benefits	29	964	930
Dividends payable		-	1,383
Other		376	493
		14,094	13,891
Liabilities associated with non-current assets held for sale	16(b)	561	
		14,655	13,891
Non-current liabilities			
Loans and borrowings	23	11,647	10,874
Leases	24	1,255	1,349
Participative shareholders' debentures	22	2,874	2,725
Other financial liabilities	14	3,373	2,843
Settlement program ("REFIS")	8(d)	1,723	1,869
Deferred income taxes	8(b)	870	1,413
Liabilities related to Brumadinho	25	2,003	2,368
Liabilities related to associates and joint ventures	26	3,590	1,410
De-characterization of dams and asset retirement obligations	27	6,694	6,520
Provisions for litigation	28	885	1,186
Employee benefits	29	1,381	1,260
Streaming transactions	7	1,962	1,612
Other		293	216
		38,550	35,645
Total liabilities		53,205	49,536
Equity			
Equity attributable to Vale's shareholders	30	39,461	35,867
Equity attributable to noncontrolling interests		1,520	1,491
Total equity		40,981	37,358
Total liabilities and equity		94,186	86,894

The accompanying notes are an integral part of these financial statements.

Consolidated Statement of Changes in Equity

In millions of United States dollars

	Notes	Share capital	Capital reserve	Profit reserves	Treasury shares	Other reserves	Cumulative translation adjustments	Retained earnings	Equity attributable to Vale's shareholders	Equity attributable to noncontrolling interests	Consolidated shareholders' equity
Balance as of December 31, 2020		61,614	1,139	7,042	(2,441)	(2,056)	(29,554)	-	35,744	(923)	34,821
Net income		-	-	-	-	-	-	22,445	22,445	23	22,468
Other comprehensive income		-	-	758	-	886	(6,890)	-	(5,246)	(2)	(5,248)
Fair value reclassification of Mosaic shares	16(j)	-	-	-	-	(522)	-	522	-	-	-
Dividends and interest on capital of Vale's shareholders	30(d)	-	-	(4,296)	-	-	-	(8,368)	(12,664)	-	(12,664)
Dividends of noncontrolling interest		-	-	-	-	-	-	-	-	(25)	(25)
Acquisitions and disposals of noncontrolling interest	16(l)	-	-	-	-	(331)	-	-	(331)	1,761	1,430
Appropriation to undistributed retained earnings		-	-	14,599	-	-	-	(14,599)	-	-	-
Shares buyback program	30(c)	-	-	-	(5,546)	-	-	-	(5,546)	-	(5,546)
Share-based payment program	29(b)	-	-	-	-	63	-	-	63	-	63
Treasury shares canceled	30(b)	-	-	(2,401)	2,408	-	-	-	7	-	7
Balance as of December 31, 2021		61,614	1,139	15,702	(5,579)	(1,960)	(36,444)	-	34,472	834	35,306
Net income		-	-	-	-	-	-	18,788	18,788	82	18,870
Other comprehensive income		-	-	756	-	269	(4,531)	-	(3,506)	(2)	(3,508)
Dividends and interest on capital of Vale's shareholders	30(d)	-	-	(3,500)	-	-	-	(4,386)	(7,886)	-	(7,886)
Dividends of noncontrolling interest		-	-	-	-	-	-	-	-	(7)	(7)
Acquisitions and disposals of noncontrolling interest	16(l)	-	-	-	-	-	-	-	-	584	584
Appropriation to undistributed retained earnings		-	-	14,402	-	-	-	(14,402)	-	-	-
Shares buyback program	30(c)	-	-	-	(6,036)	-	-	-	(6,036)	-	(6,036)
Share-based payment program	29(b)	-	-	-	-	16	-	-	16	-	16
Treasury shares canceled	30(b)	-	-	(6,616)	6,635	-	-	-	19	-	19
Balance as of December 31, 2022		61,614	1,139	20,744	(4,980)	(1,675)	(40,975)	-	35,867	1,491	37,358
Net income		-	-	-	-	-	-	7,983	7,983	122	8,105
Other comprehensive income		-	-	1,495	-	(73)	1,084	-	2,506	3	2,509
Dividends and interest on capital of Vale's shareholders	30(d)	-	-	(437)	-	-	-	(3,744)	(4,181)	-	(4,181)
Dividends of noncontrolling interest		-	-	-	-	-	-	-	-	(37)	(37)
Acquisitions and disposals of noncontrolling interest	16(e)	-	-	-	-	3	-	-	3	(59)	(56)
Appropriation to undistributed retained earnings		-	-	4,239	-	-	-	(4,239)	-	-	-
Shares buyback program	30(c)	-	-	-	(2,714)	-	-	-	(2,714)	-	(2,714)
Share-based payment programs	29(b)	-	-	-	26	(29)	-	-	(3)	-	(3)
Treasury shares canceled	30(b)	-	-	(4,164)	4,164	-	-	-	-	-	-
Balance as of December 31, 2023		61,614	1,139	21,877	(3,504)	(1,774)	(39,891)	-	39,461	1,520	40,981

The accompanying notes are an integral part of these financial statements.

Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

1. Corporate information

Vale S.A. (the "Parent Company") is a public company headquartered in the city of Rio de Janeiro, Brazil. Vale's share capital consists of common shares, traded on the stock exchange.

In Brazil, Vale's common shares are listed on B3 under the code VALE3. The Company also has American Depositary Receipts (ADRs), with each representing one common share, traded on the New York Stock Exchange (NYSE) under the code VALE. Additionally, the shares are traded on LATIBEX under the code XVALO, which is an unregulated electronic market established by the Madrid Stock Exchange for the trading of Latin American securities. The Company's shareholding structure is disclosed in note 30.

Vale, together with its subsidiaries ("Vale" or the "Company"), is one of the world's largest producers of iron ore and nickel. The Company also produces iron ore pellets and copper. Nickel and copper concentrates contain by-products such as platinum group metals (PGM), gold, silver, and cobalt. Most of the Company's products are sold to international markets, through the Company's main trading Company, Vale International S.A. ("VISA"), a wholly owned subsidiary located in Switzerland.

The Company is engaged in greenfield mineral exploration in six countries, including Brazil, USA, Canada, Chile, Peru and Indonesia. It also operates extensive logistics systems in Brazil and other regions worldwide, including railways, maritime terminals, and ports integrated with mining operations. Additionally, the Company has distribution centers to support its iron ore shipments globally.

As part of its strategy, Vale also holds investments in energy businesses through associates and joint ventures to meet energy consumption needs through renewable sources.

The Company also used to produce and sell thermal and metallurgical coal until April 2022, when Vale concluded the sale of this operation. The results from the coal operation by the closing of the disposal process are presented in these financial statements as "discontinued operations". Further details in note 16(l).

The Company's operations are organized into two operational segments: "Iron Ore Solutions" and "Energy Transition Metals" (note 4).

Iron Ore Solutions – Comprise iron ore extraction and iron ore pellet production, as well as the north, south, and southeast transportation corridors in Brazil, including railways, ports and terminals linked to mining operations.

- **Iron ore:** Currently, Vale operates three systems in Brazil for the production and distribution of iron ore. The Northern System (Carajás, State of Pará, Brazil) is fully integrated and comprises three mining complexes and a maritime terminal. The Southeast System (Quadrilátero Ferrífero, Minas Gerais, Brazil) is fully integrated, consisting of three mining complexes, a railway, a maritime terminal, and a port. The Southern System (Quadrilátero Ferrífero, Minas Gerais, Brazil) consists of two mining complexes and two maritime terminals. In July 2022, the Company concluded the sale of the Midwestern System (note 16g).
- **Iron ore pellets:** Vale operates six pelletizing plants in Brazil and two in Oman.
- **Manganese:** In January 2022, the Company concluded the sale of its ferroalloy operations and, therefore, Vale is no longer a producer of manganese (note 16i).

Energy Transition Metals – Includes the production of nickel, copper and its by-products. In 2023, the Company transferred the assets related to this segment to a new entity, "Vale Base Metals Limited." In July 2023, Vale entered into agreements with Manara Minerals and Engine No. 1 to sell a minority stake in this business, in line with its strategy for this segment (notes 3 and 16c).

- **Nickel:** The Company's primary nickel operations are conducted by Vale Canada Limited ("Vale Canada"), which owns mines and processing plants in Canada and Indonesia and nickel refining facilities in the United Kingdom and Japan. In November 2023, the Company signed an agreement for the divestment of PT Vale Indonesia Tbk ("PTVI"), which will result in the loss of control over this operation (note 16b). Vale also has nickel operations in Onça Puma, located in the State of Pará.
- **Copper:** In Brazil, Vale produces copper concentrates at Sossego and Salobo in Carajás, State of Pará. In Canada, Vale produces copper concentrates and copper cathodes associated with its nickel mining operations in Sudbury (located in Ontario), Voisey's Bay (located in Newfoundland and Labrador), and Thompson (located in Manitoba).

Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

- **Cobalt, PGM, and other precious metals:** The ore extracted by Vale Canada in Sudbury yields cobalt, PGMs (Platinum Group Metals), silver, and gold as by-products, which are processed at refining facilities in Port Colborne, Ontario. In Canada, Vale Canada also produces refined cobalt at its Long Harbour facilities in Newfoundland and Labrador. The copper operations in Sossego and Salobo in Brazil also yield silver and gold as by-products.

2. Basis of preparation of financial statements

The consolidated financial statements of the Company ("financial statements") have been prepared and are presented in accordance with International Financial Reporting Standards ("IFRS") as issued by the International Accounting Standards Board ("IASB"). All relevant information for the preparation of these financial statements, and only this information, are presented and correspond to those used by the Company's Management.

The financial statements have been prepared on a historical cost basis and adjusted to reflect: (i) the fair value of certain financial assets and liabilities (including derivative instruments), as well as pension plans assets and (ii) assets impairment. Assets held for sale are measured at the lower of carrying amount and fair value less costs to sell.

These financial statements were authorized for issue by the Board of Directors on February 22, 2024.

a) New accounting standards and amendments

Amendments to IAS 12 – OECD Pillar Two Rules

In December 2021, the Organization for Economic Co-operation and Development ("OECD") released the Pillar Two model rules to reform international corporate taxation. Multinational economic groups within the scope of these rules are required to calculate their effective tax rate in each country where they operate, the "GloBE effective tax rate".

When the effective GloBE rate of any entity in the economic group, aggregated by jurisdiction where the group operates, is lower than the minimum rate defined at 15%, the multinational group must pay a supplementary amount of tax on profit, referring to the difference between its rate effective GloBE and the minimum tax rate.

In May 2023, the IASB made amendments to IAS 12 – Income Taxes, which provide a temporary relief from the requirement to recognize and disclose deferred taxes arising from enacted or substantively enacted tax law that implements the Pillar Two model rules.

For the Company, Pillar Two rules will be adopted from 2024 in the Netherlands, Switzerland, United Kingdom, Japan and Luxembourg. The Company has applied the temporary relief from the requirement to recognize and disclose deferred taxes related to Pillar Two effects and, therefore, there was no impact in these financial statements for the year ended December 31, 2023.

The Company is still assessing the impacts it may have on current income tax expenses for future reporting periods however, the Company currently does not expect any material impacts in its financial statements from the Pillar Two rules.

Amendments to IAS 12 – Deferred Tax related to Assets and Liabilities arising from a Single Transaction

The change is effective for annual years beginning on or after January 1, 2023, and requires the recognition of a deferred tax asset and a deferred tax liability when a single transaction generates taxable and deductible temporary differences at the same time. The adoption of the amendment did not result in any impact in the Company's financial position nor in the income statement. However, the Company started presenting separately both deferred tax asset and the deferred tax liability arising from decommissioning of assets, environmental obligations, and leasing as presented in note 8(b).

Other recently issued or amended accounting standards

Certain other new accounting standards, amendments and interpretations have been published that are not mandatory for December 31, 2023, reporting periods or have not materially impacted these financial statements. The Company did not early adopt any of these standards and does not expect them to have a material impact in future reporting periods.

Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

b) Principles of Consolidation

The Company's financial projections reflect the assets, liabilities and transactions of the Parent Company and its direct and indirect subsidiaries ("subsidiaries"). Intercompany balances and transactions, which include unrealized profits, are eliminated. A list of the most relevant companies, including subsidiaries, affiliates, joint ventures, and the financial policies applied in preparing the consolidated financial projections are described in note 15.

c) Functional currency and presentation currency

The financial statements of the Company and its associates and joint ventures are measured using the currency of the primary economic environment in which each entity operates ("functional currency"), in the case of the Parent Company it is the Brazilian real ("R\$"). For presentation purposes, these financial statements are presented in United States dollars ("US\$") as the Company believes that this is how international investors analyze the financial statements.

The income statement and cash flows statements of the Parent Company and its investees which have a functional currency other than US\$ are translated into US\$ at the average monthly exchange rate, the assets and liabilities are translated at the final rate and the other equity items are translated at the historical rate. All monetary exchange differences are recognized in comprehensive income as "Translation adjustments".

When a foreign operation is totally or partially disposed, the monetary exchange differences that were recorded in the equity are recognized in the income statement for the year, see accounting policy in note 15 of these financial statements.

The main exchange rates used by the Company to translate its foreign operations are as follows:

	Closing rate			Average rate		
	2023	2022	2021	2023	2022	2021
US Dollar ("US\$")	4.8413	5.2177	5.5805	4.9954	5.1655	5.3956
Canadian dollar ("CAD")	3.6522	3.8550	4.3882	3.7026	3.9705	4.3042
Euro ("EUR")	5.3516	5.5694	6.3210	5.4023	5.4420	6.3784

d) Critical accounting estimates and judgments

The preparation of financial statements requires the use of critical accounting estimates and Management also needs to exercise judgement in applying the Company's accounting policies.

The Company makes estimates about the future based on assumptions. Accounting estimates and judgments are continually evaluated and are based on management's experience and knowledge, information available at the date of the financial statements and other factors, including expectations of future events that are considered reasonable under the circumstances. Accounting estimates, by definition, will seldom equal the actual results.

The areas involving significant estimates or judgements or complexity, and of items which are more likely to be materially adjusted due to estimates and assumptions are presented in the following notes:

Note	Significant estimates and judgments
7	Streaming transactions
8	Deferred income taxes and uncertain tax positions
15	Consolidation
18	Mineral reserves and mines useful life
19	Impairment of non-current assets
20	Fair values estimate
25	Liabilities related to Brumadinho
26	Liabilities related to associates and joint ventures
27	Provision for de-characterization of dam structures and asset retirement obligations
28	Litigation
29	Employee post-retirement obligation

e) Material accounting policies

The material accounting policies applied in the preparation of these financial statements have been included in the respective notes and are consistent in all years presented.

Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

f) Financial information related to sustainability

The Company intends to integrate sustainability into its business through a comprehensive approach, based on systematic planning and execution, prioritizing risk and impact management as well as establishing a social, economic and environmental legacy.

The investments announced by the Company's and its strategy for sustainability initiatives were assessed in the context of the Company's critical accounting judgments and key estimates. Future changes in this strategy or in the global scenario may affect the Company's main estimates and may result in material impacts on the income statement and on assets and liabilities of the Company in future reporting periods.

Strategy	Impact on Financial Statements
Reduction of greenhouse gas ("GHG") emissions by increasing the energy efficiency of processes and development of solutions based on the substitution of fossil energy sources with renewable or lower emission intensity alternatives	<ul style="list-style-type: none">- Investing in subsidiaries, associates, and joint ventures- Expenses along the value chain to support decarbonization- Impairment of assets
Investment in renewable energy sources to reduce GHG emissions	<ul style="list-style-type: none">- Power Purchase Agreement ("PPA")- Property, plant, and equipment- Expenses along the value chain to support decarbonization
Limited use of high-integrity carbon credits to eventually meet the Scope 3 GHG emissions reduction target	<ul style="list-style-type: none">- Intangible- Expense of carbon credit- Investing in subsidiaries, associates, and joint ventures
Community safety	<ul style="list-style-type: none">- Liabilities related to Brumadinho- Provision for de-characterization of dam structures and asset retirement obligations- Liabilities related to associates and joint ventures
Support for small suppliers	<ul style="list-style-type: none">- Suppliers and contractors
Compensation programs aligned with Environmental, Social and Governance ("ESG") linked business strategy	<ul style="list-style-type: none">- Employee benefits

The main actions taken or announced to date, which have already resulted or will result in a direct impact on the Company's financial statements are described below. Other initiatives are detailed in the Integrated Report, made available at the Company's website, which were not incorporated by reference.

Environmental pillar

Climate changes

In a global context where extreme climate events are becoming more frequent and the average global temperature exceeds historical averages (according to the World Meteorological Organization - WMO), the mapping of these risks and their effects, as well as mitigation actions, becomes crucial for analyzing the Company's strategies. Similarly, governments and regulatory authorities are advancing and tightening their policies.

The Company intends to reduce greenhouse gas emissions from its operations, in line with the Paris Agreement objective of limiting global warming to well below 2°C (3.6 °F). The Company's strategy considers as main objectives:

- 33% reduction in absolute Scope 1 and 2 emissions by 2030 (based on the emissions from the year 2017) and 100% of electricity consumption from renewable sources by 2030 globally;
- Net zero Scope 1 and 2 emissions by 2050; and
- 15% net reduction by 2035 of indirect emissions in the value chain by 2035, aligned with the scenario of limiting global warming to 2°C.

Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

Decarbonization plan

The Company has a plan to meet the target for reducing Scopes 1 and 2 and expects to invest an amount ranging from US\$4 billion to US\$6 billion by 2030 to develop low carbon solutions, such as electrification, of the use of biofuels and the utilization of renewable energy. The current portfolio of initiatives encompasses over 40 projects, prioritizing the most cost-competitive initiatives to meet the 2030 target.

To increase renewable energy sources, in November 2022, the Company announced the operational start-up of the Sol do Cerrado solar project. In July 2023, the Company received the last authorization needed from the National Electric Energy Agency ("ANEEL") for the operation. As of December 31, 2023, the Property, plant, and equipment of Sol do Cerrado was US\$590 (R\$3.000 million).

The Company also has Power Purchase Agreements ("PPAs") with renewable energy suppliers, reducing its Scope 2 emissions. These supply contracts were entered into and continue to be held to own use and, therefore, it falls outside the scope of IFRS 9 – *Financial Instruments*. The PPAs are accounted for as executory contracts and the expenses are recorded as incurred.

Additionally, Vale has assessed its decarbonization goals considering the criteria for provision in accordance with IAS 37 – Provisions, Contingent Liabilities, and Contingent Assets and it did not record any provision since these commitments are not deemed a legal nor constructive obligation.

Carbon pricing

All investment decisions are subjected to analysis, considering the internal carbon price per ton of CO₂ equivalent. Vale adopts an internal price of US\$50/tCO₂e, established in accordance with the Carbon Pricing Leadership Coalition ("CPLC"). The internal carbon price is used in the decision-making process for resource allocation in the Company's current and capital projects.

Incorporating a cost for GHG in the feasibility analysis provides a clear demonstration of how these emissions can influence the evaluation of a project during the decision-making process. By assigning a direct financial consequence to emissions, portfolio projects can be assessed more holistically, considering the environmental impact alongside more traditional financial metrics. This practice, in addition to promoting investments in GHG reduction, also positions the Company for a scenario with more stringent regulations.

Aiming to incentivize the voluntary carbon market, Vale and the Algar Group signed an agreement for the purchase of high-integrity forest carbon credits until 2030. The agreement stipulated Vale's purchase of approximately 133.000 credits, equivalent to the protection of approximately 50.000 hectares of forest this year. Each carbon credit corresponds to one metric ton of carbon dioxide equivalent that was not emitted into the atmosphere, in the case of this forest protection project.

For each transaction, Vale assesses the business model concerning carbon credits for subsequent classification, recognition, and measurement of its asset. Carbon credits will be recorded as intangible assets and measured at cost in accordance with IAS 38 – *Intangible assets*. Carbon credits acquired for resale will be recorded as inventories and measured at fair value less costs to sell according to IAS 2 – *Inventories*. The Company also analyses whether there are embedded derivatives in the sale and purchase contracts of carbon credits as required by IFRS 9 – *Financial Instruments*. For the year ended December 31, 2023, the Company recorded expenses of US\$4 in relation to carbon credits.

Impact of transition risks related to climate changes on asset carrying values

During the development of its strategic plan, the Company assesses scenarios related to climate change and establishes the baseline to guide its business positioning, as well as to test resilience against other exploratory scenarios. The Company's approach to climate change is shaped by an analysis of global megatrends through a scenario-building tool. These scenarios not only provide insights into the future of mining but also influence commodity price forecasts, capital allocation, portfolio decisions, business strategies, and can be associated with the increase in global temperature.

In this context, the Company observes the persistence of the typical cycles in the mining industry over the coming decades, driven by an energy transition that unfolds asynchronously and unevenly across different sectors and regions. Vale conducted an analysis of the resilience of its product portfolio in the face of climate change scenarios, based on the International Energy Agency's scenarios.

Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

The potential financial impacts on the Company of climate change and the transition to a low carbon economy have been considered in the assessment of the Company's critical accounting estimates, which includes indicators of impairment, such as demand for the Company's commodities decreasing, due to policy, regulatory (including carbon pricing mechanisms), legal, technological, market or reputational responses to climate change.

The impairment test undertaken by the Company for these financial statements did not result in any asset impairment due to this matter. However, given the complexity of modeling, identification of additional risks, and the planning and execution of actions in response to identified risks, transition risks may result in material impacts on the Company's financial statements in future reporting periods.

Physical risk impacts related to climate changes on asset carrying values

The Company's operations are exposed to events related to climate change. Therefore, the Company assessed the potential impacts of physical risks related to climate change on the models used for the impairment testing of the assets, such as operational disruptions caused by increased frequency or severity of extreme weather events, and those related to chronic risks resulting from longer-term changes in climate patterns.

The Company did not identify any impairment indicators for assets in these financial statements due to the physical risks considered in the assessment. However, given the complexity of physical risk modeling and the ongoing nature of the Company's physical risk assessment process, the identification of additional risks or detailed development of the response to identified risks may result in material impacts on the Company's financial statements in future reporting periods.

Social pillar

Sustainable mining

- In March 2023, the Company started operations at the Gelado Project, which will produce pellet feed from the reutilization of tailings dam deposited at the site for almost four decades. As of December 31, 2023, the Company invested US\$50 (2022: US\$65) in capital investment in the Gelado Project to make the value chain increasingly sustainable. Due to the high quality of the pellets manufactured on-site, our steelmaking customers can reduce their carbon emissions compared to using lower-quality products.
- In June 2022, the Company announced the creation of an operation of Corporate Venture Capital ("Vale Ventures"), the objective is to invest approximately US\$100 in sustainable mining initiatives. The Company's objective is to acquire minority stakes in startups that are focused on decarbonization initiatives within the mining value chain, zero waste mining, energy transition metals and other technologies.

In 2023, Vale Ventures invested US\$19 in the acquisition of minority stakes. Among these investments are the transformative biology startup Allonia, LLC ("Allonia") and the Boston Electrometallurgical Company ("Boston Metal"), whose objective is developing technology focused on steel decarbonization.

Also in 2023, Vale Ventures invested US\$3 in venture capital funds, represented by Evok Fund II Limited Partnership ("Evok Innovations") and Cathay Innovation Global Fund III ("Cathay Innovation").

- The Company performs the filtration of tailings with its treatment for solid-state stacking, reducing or eliminating disposal in tailings dams. Tailings filtration plants began to be installed by Vale in 2019, with investments in dry stacking and processing systems totaling US\$144 in 2023 (2022: US\$305).
- The implementation and execution of future use projects, after the decommissioning, is not required by law. However, the Company has been studying a governance to assess the future use, considering its aptitudes, post-operational usage intention, socio-economic development of the community and the characteristics of the physical and biotic environments in which Vale operates. Any future commitments, if assumed by Vale, may result in material impact on the amount of the asset retirement obligation provision.
- In October 2022, the Company established the company Co-log Logística de Coprodutos S.A ("Agera") to develop and expand the Sustainable Sand business. Agera receives sand produced from the treatment of tailings generated by Vale's iron ore operations and promotes its commercialization and distribution. The new company also invests in research and development of new solutions for the product. The Company disbursed US\$1 in 2023, which is recorded as research and development expenses.

Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

Communities

- In 2023, the Company entered into a Cooperation and Commitment Agreement with the Krenak indigenous community to support initiatives focused on ethnodevelopment and education. In 2023, the Company disbursed US\$5, and these expenditures were directly recognized in the financial results as other operating expenses.
- In 2023, Vale continued the implementation of the Environmental Basic Plan with the indigenous communities Tupiniquim and Guarani, which includes initiatives for institutional and cultural strengthening, ethnodevelopment, and management. Examples include conducting project management courses, entrepreneurship workshops, biofertilizer production, coffee cultivation, tourism management, among other actions. In 2023, the Company disbursed US\$2, and these expenditures were directly recognized in the financial results as other operating expenses. Future expenses will be recorded in the period in which they occur.
- Three indigenous communities neighboring Vale's operations in have signed agreements for the development of their consultation protocols, or territorial and environmental management plans, or life plans: Kayapó in Pará, Ka'apor, and Guajajara from the Caru Indigenous Land in Maranhão, in line with the Company's Social Ambition. The Company disbursed US\$7 in 2023, and these expenditures were directly recognized in the financial results as other operating expenses. Future expenses will be recorded in the period in which they occur.
- To contribute with its suppliers' development, the Company has created a website with financial institutions aiming to enable small and medium suppliers to anticipate their receivables with better interest rates. As of December 31, 2023, the outstanding balances related to these suppliers were US\$ 221 (2022: US\$202).

Governance pillar

The Company intends to align compensation programs with the business strategy and to the objective of making Vale a safer company. Since 2020, the Company has been following new standards for executive compensation. For short-term compensation, at least 30% of performance targets are driven by ESG metrics and directly related to safety, risk management and sustainability goals, and for long-term compensation target is at least 25% of targets performance should be based on ESG metrics and health and safety (note 29).

3. Significant events and transactions related to 2023 financial statements

- **Acquisition of equity interest in Anglo American Minério de Ferro Brasil S.A. ("Anglo American Brasil")** – In February 2024 (subsequent event), the Company entered into an agreement for the acquisition of 15% interest in Anglo American Brasil of which Vale will contribute with Serra da Serpentina iron ore resources and a cash contribution of US\$157.5. The closing of the transaction is subject to the usual conditions precedent and is expected to occur in 2024. Further details are presented in note 16(a) of these financial statements.
- **Shareholders remuneration** – During 2023, the Company paid dividends and interest on capital to its shareholders in the amount of US\$5,513 (R\$27,759 million). On February 22, 2024 (subsequent event), the Board of Directors approved remuneration to its shareholders in the amount of US\$2,364 (R\$11,722 million). The total amount was approved as dividends and recorded in equity as "Additional remuneration reserve". The payment is expected in March 2024. Further details are presented in note 30(e) of these financial statements.
- **Provision related to the Samarco dam failure** – In December 2023, the Company reviewed its estimates of outflows to resolve all aspects of the reparation and compensation of the Samarco dam failure. As a result, the Company recognized an addition to the provision in the amount of US\$1,200, recorded in the income statement as "Equity results and other results in associates and joint ventures". Further details are presented in note 26(c) of these financial statements.
- **Divestment of PT Vale Indonesia Tbk ("PTVI")** – In November 2023, the Company signed a Heads of Agreement with PT Mineral Industri Indonesia ("MIND ID") and Sumitomo Metal Mining Co., Ltd. ("SMM") regarding the divestment obligation in PTVI, with completion expected in 2024 and subject to usual conditions precedent.

With the completion of the transaction, Vale will lose control over PTVI and it will account the investment through the equity method. Therefore, the carrying amount of this subsidiary is presented in these financial statements as "held for sale". Further details are presented in note 16(b) of these financial statements.

Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

- **Streaming transactions** – In November 2023, the first phase of the Salobo III expansion project was completed and Vale received US\$370 from Wheaton Precious Metals Corp ("Wheaton"). If Salobo's production reaches a processing capacity exceeding 35 million tons of copper per year by January 1, 2031, Vale will receive an additional amount estimated between US\$50 and US\$160, depending on the year such processing capacity is achieved. Further details are provided in note 7 of these financial statements.
- **Share buyback program** – In October 2023, the Board of Directors approved a new common shares buyback program, over 18 months, limited to a maximum of 150 million common shares or their respective ADRs, that aims to continue the previous share buyback program. During 2023, the Company repurchased 184,697,102 common shares or their respective ADRs, corresponding to the total amount of US\$2,714. Further details are presented in note 30(c) of these financial statements.
- **Strategic partnership on the Energy Transition Metals business** – In July 2023, the Company separately signed two agreements, one with Manara Minerals and the other with Engine No. 1, for the sale of a combined 13% equity interest in Vale Base Metals Limited, for the aggregated amount of US\$3.4 billion. These agreements shall be accounted for as an equity transaction with any result being recognized in shareholder's equity upon closing of the transaction. Further details are presented in note 16(c) of these financial statements.
- **Notes offering and bond tender offers** – In June 2023, Vale issued notes of US\$1,500, maturing in 2033. Of this amount, Vale redeemed notes in the total amount of US\$500, maturing in 2026, 2036 and 2039. As a result, Vale paid a premium of US\$22, recorded in the income statement and presented as "Bond premium repurchase" in note 6 – Financial results. Further details are presented in note 10(c) of these financial statements.
- **Reversal of deferred income tax related to the Renova Foundation** – In May 2023, the Company has entered, together with BHP Billiton Brasil Ltda. ("BHPB"), Samarco Mineração S.A. ("Samarco") and certain creditors of Samarco, into a binding agreement to setting the parameters of Samarco's debt restructuring that was implemented through a consensual restructuring plan.

Under the agreement, contributions made, from May 2023, by Vale and BHPB to the Renova Foundation will be converted into capital contributions to Samarco, which is primarily responsible for payments to the Foundation. Therefore, following the change in the procedure to provide these contributions, Vale will no longer deduct these cash outflows from its income tax computation, resulting in the reversal of the deferred tax asset in the amount of US\$1,078, recorded in the income statement as "Income taxes". Further details are presented in note 26(e) of these financial statements.

- **Sale of Companhia Siderúrgica do Pecém ("CSP")** – In March 2023, the Company completed the sale of its interest in CSP to ArcelorMittal Brasil S.A. The transaction has resulted in a net cash outflow for the Company in the amount of US\$67 and the reversal of the liability recorded in relation to the financial guarantee granted to CSP. Therefore, the completion of the transaction resulted in a gain of US\$31, recorded as "Equity results and other results in associates and joint ventures". Further details are provided in note 16(f) of these financial statements.

4. Information by business segment and geographic area

The segments are aligned with products and reflect the structure used by Management to evaluate the Company's performance. The responsible bodies for making operational decisions, allocating resources and evaluating performance are the Executive Committee and Board of Directors. Accordingly, the performance of the operating segments is assessed based on a measure of adjusted EBITDA, among other measures.

The Company's adjusted EBITDA is calculated based on the operating income or loss (i) increased by dividends received and interest from associates and joint ventures; excluding (ii) depreciation, depletion, and amortization; and (iii) impairment reversal (impairment) and results on disposal of non-current assets.

Due to the reorganization of assets and the governance established by the Company for the Energy Transition Metals segment (notes 15 and 16), the Company is reviewing the items currently included in the EBITDA under "Other", especially the expenditures related to general and administrative expenses, research and development, and the results from associates and joint ventures. As a result, starting from 2024, the Company will reclassify some of these items currently classified under "Other" to Iron Ore Solutions and Energy Transition Metals segments.

Notes to the Financial Statements

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In 2022, the Company allocated the financial information of the Midwestern System to “Other” as this operation was no longer analyzed by the chief operating decision maker as part of the performance of the Iron Ore Solutions business segment due to the binding agreement to sell this operation (note 16g). The comparative information was reclassified to reflect the revision in the allocation criteria.

Segment	Main activities
Iron Ore Solutions	Comprise the extraction and production of iron ore, iron ore pellets, other ferrous products, and its logistic related services.
Energy Transition Metals	Includes the extraction and production of nickel and its by-products (gold, silver, cobalt, precious metals and others), and copper, as well as its by-products (gold and silver).
Coal (discontinued operation)	Comprise the extraction and production of metallurgical and thermal coal and its logistic related services.
Other	Includes the revenue and cost of other products, services, research and development, investments in joint ventures and associates of other business and corporate expenses unallocated to the reportable segments, as well as the financial information related to Midwestern system and costs related to the Brumadinho event.

a) Adjusted EBITDA

		Year ended December 31,		
	Notes	2023	2022	2021
Iron ore (i)		14,888	15,670	26,471
Iron ore pellets		3,122	3,653	4,873
Other ferrous products and services		117	120	136
Iron Ore Solutions		18,127	19,443	31,480
Nickel		851	1,924	1,576
Copper		1,100	569	1,617
Energy Transition Metals		1,951	2,493	3,193
Other (ii)		(2,117)	(2,176)	(3,330)
Adjusted EBITDA from continuing operations		17,961	19,760	31,343
Depreciation, depletion and amortization		(3,070)	(3,171)	(3,034)
Impairment reversal (impairment) and results on disposal of non-current assets, net and other (ii)	16 and 19	(482)	773	(426)
Dividends received and interest from associates and joint ventures (iii)		(204)	(154)	(190)
Operating income		14,205	17,208	27,693
Equity results and other results in associates and joint ventures	15	(1,108)	305	(1,271)
Financial results	6	(1,946)	2,268	3,119
Income before income taxes		11,151	19,781	29,541

(i) Includes the reclassification of the EBITDA of Midwestern System from the Iron Ore Solutions segment to “Other” in the amounts of US\$77 and US\$109 for the years ended December 31, 2022 and December 31, 2021, respectively.

(ii) Includes adjustments of US\$216 for the year ended December 31, 2023, to reflect the performance of the streaming transactions at market prices.

(iii) In 2022, the Company received US\$65 in dividends from California Steel Industries related to the sale transaction of this investment, which was treated as part of the result of the transaction (note 16h) and, therefore, this amount was not included in the adjusted EBITDA.

		Year ended December 31,		
	Notes	2023	2022	2021
Adjusted EBITDA from discontinued operations (coal)		-	171	(189)
Depreciation, depletion and amortization		-	-	(69)
Impairment and results on disposals of non-current assets, net		-	(589)	(3,282)
Dividends received and interest from associates and joint ventures		-	-	(78)
Operating loss	16(l)	-	(418)	(3,618)
Equity results and other results in associates and joint ventures		-	-	(26)
Financial results		-	3,065	447
Derecognition of noncontrolling interest		-	(585)	-
Income (loss) before income taxes from discontinued operations (coal)	16(l)	-	2,062	(3,197)

Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

b) Net operating revenue by shipment destination

	Year ended December 31, 2023						
	Iron Ore Solutions			Energy Transition Metals			
			Other ferrous products and services	Nickel and other products			
	Iron ore	Iron ore pellets			Copper	Other	Total
China	20,641	2	–	642	292	–	21,577
Japan	2,356	279	1	583	–	–	3,219
Asia, except Japan and China	2,111	407	10	513	267	–	3,308
Brazil	1,370	1,684	502	63	–	136	3,755
United States of America	–	262	–	1,361	–	–	1,623
Americas, except United States and Brazil	1	398	1	456	41	–	897
Germany	244	55	2	458	592	–	1,351
Europe, except Germany	1,037	374	–	1,082	1,184	–	3,677
Middle East, Africa, and Oceania	–	2,342	–	35	–	–	2,377
Net operating revenue	27,760	5,803	516	5,193	2,376	136	41,784

	Year ended December 31, 2022						
	Iron Ore Solutions			Energy Transition Metals			
			Other ferrous products and services	Nickel and other products			
	Iron ore	Iron ore pellets			Copper	Other	Total
China	20,545	41	7	1,538	72	-	22,203
Japan	2,557	208	-	765	5	-	3,535
Asia, except Japan and China	2,028	393	13	484	154	47	3,119
Brazil	1,305	1,997	447	60	-	328	4,137
United States of America	-	218	-	1,425	-	-	1,643
Americas, except United States and Brazil	-	472	5	597	-	125	1,199
Germany	357	16	-	597	551	-	1,521
Europe, except Germany	1,396	317	-	1,126	997	-	3,836
Middle East, Africa, and Oceania	-	2,594	-	27	-	25	2,646
Net operating revenue	28,188	6,256	472	6,619	1,779	525	43,839

	Year ended December 31, 2021						
	Iron Ore Solutions			Energy Transition Metals			
			Other ferrous products and services	Nickel and other products			
	Iron ore (i)	Iron ore pellets			Copper	Other	Total
China	27,296	159	55	904	189	-	28,603
Japan	3,489	488	-	514	32	-	4,523
Asia, except Japan and China	2,998	515	23	592	373	-	4,501
Brazil	1,778	2,417	425	55	-	489	5,164
United States of America	23	369	-	1,151	-	-	1,543
Americas, except United States and Brazil	5	725	29	362	40	122	1,283
Germany	558	48	12	657	759	-	2,034
Europe, except Germany	2,175	194	4	1,126	1,197	-	4,696
Middle East, Africa, and Oceania	2	2,138	-	15	-	-	2,155
Net operating revenue	38,324	7,053	548	5,376	2,590	611	54,502

(i) Includes the reclassification of the revenues of Midwestern System from the Iron Ore Solutions segment to "Other" in the amounts of US\$231 and US\$377 for the years ended December 31, 2022 and December 31, 2021, respectively.

The revenue from a single customer from the Iron Ore Solutions segment amounted to US\$4,239, individually representing 10% of the Company's total revenue for the year ended December 31, 2023. In 2022 and 2021, no customer individually represented 10% or more of the Company's revenue.

Notes to the Financial Statements

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c) Assets by segment

	December 31, 2023				December 31, 2022			
	Iron Ore Solutions	Energy Transition Metals	Other	Total	Iron Ore Solutions	Energy Transition Metals	Other	Total
Investments in associates and joint ventures	1,349	–	523	1,872	1,296	–	502	1,798
Property, plant and equipment and intangibles	38,376	18,341	3,310	60,027	33,048	19,655	2,473	55,176
Capital expenditures								
Sustaining capital (i)	2,539	1,610	120	4,269	2,236	1,521	102	3,859
Project execution	1,219	358	74	1,651	866	338	383	1,587
	3,758	1,968	194	5,920	3,102	1,859	485	5,446

(i) According to the Company's shareholders remuneration policy, dividends are calculated based on 30% of the adjusted EBITDA less sustaining capital investments. The calculation also considered the investments made on the coal discontinued operation (note 16l), which was US\$38 for the year ended December 31, 2022.

d) Assets by geographic area

	December 31, 2023				December 31, 2022			
	Investments in associates and joint ventures	Intangible	Property, plant and equipment	Total	Investments in associates and joint ventures	Intangible	Property, plant and equipment	Total
Brazil	1,872	9,822	33,769	45,463	1,798	8,391	28,210	38,399
Canada	–	1,808	11,890	13,698	–	1,845	11,178	13,023
Americas, except Brazil and Canada	–	–	4	4	–	–	4	4
Indonesia (i)	–	–	59	59	–	1	2,731	2,732
China	–	1	14	15	–	1	19	20
Asia, except Indonesia and China	–	–	731	731	–	–	786	786
Europe	–	–	678	678	–	–	747	747
Oman	–	–	1,251	1,251	–	–	1,263	1,263
Total	1,872	11,631	48,396	61,899	1,798	10,238	44,938	56,974

(i) The reduction refers substantially to the reclassification of PTVI's assets presented in these financial statements as "held for sale" in accordance with IFRS 5 – *Non-current Assets Held for Sale and Discontinued Operations*.

Accounting policy

Revenue from sales – Revenue from sales is recognized when control of a good or service is transferred to a customer. Given the diverse shipping terms associated with Vale's sales, revenue may be recognized at various stages: (i) when the product is available at the loading port, (ii) upon loading onto the ship, (iii) at the port of discharge, or (iv) at the customer's warehouse.

A substantial portion of Vale's sales operates under Cost and Freight ("CFR") and Cost, Insurance, and Freight ("CIF") Incoterms. In these instances, where the Company provides shipping services after the transfer of control, such services are treated as a distinct performance obligation. A portion of the transaction price is allocated and recognized over time as the shipping services are rendered.

Typically, contract payment terms involve upfront payments or the utilization of letters of credit. These terms generally do not have a significant financing component. Occasionally, sale prices are provisionally set at the sale date, with subsequent adjustments based on market fluctuations or contractual terms until the final pricing date.

Revenue recognition is based on the estimated fair value of the total consideration receivable. The provisional pricing mechanism embedded in these sales arrangements is deemed to have the characteristics of a derivative. Consequently, the fair value of the final sale price adjustment is continuously reassessed, and any changes are recognized as operational revenue in the income statement.

Notes to the Financial Statements

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5. Costs and expenses by nature

a) Cost of goods sold, and services rendered

	Year ended December 31,		
	2023	2022	2021
Freight (i)	4,251	4,738	4,575
Services	4,131	3,614	2,878
Personnel	2,931	2,684	2,522
Depreciation, depletion and amortization	2,916	3,049	2,857
Materials	2,731	2,256	2,022
Acquisition of products	2,254	2,566	2,277
Fuel oil and gas	1,626	1,630	1,011
Royalties	1,286	1,268	1,370
Energy	781	719	639
Others	1,182	1,504	1,578
Total	24,089	24,028	21,729

(i) The reduction in freight costs in 2023 was mainly due to the decrease of the price of bunker fuel, which is included in the freight price.

Mineral Resources Inspection Fare ("TFRM") – Certain Brazilian states, including the Brazilian States of Minas Gerais, Pará and Maranhão, impose the TFRM, a fee calculated based on mineral production.

In 2021, through an administrative decree, the State of Pará increased the TFRM rate from one fiscal unit of US\$0.39 (R\$2.11) to three fiscal units of US\$2.07 (R\$11.19) per metric ton, updated annually and with immediate requirement. However, the Company did not adopt the new rate in 2021, based on the Principle of Anteriority, which establishes that the rate increase would become due from the year following the publication of the decree.

In 2022, the Company joined the “Programa Estrutura Pará”, which aims to promote infrastructure investments in the State of Pará and adopted the rate of three fiscal units prospectively. The program also establishes the conversion of 50% of TFRM payments into the execution of works of constructed assets will be delivered to society and, therefore, will not be owned by the Company. In 2023, the Company disbursed US\$451 related to TFRM (2022: US\$459).

b) Selling and administrative expenses

	Year ended December 31,		
	2023	2022	2021
Personnel	243	230	217
Services	154	142	124
Depreciation and amortization	47	41	42
Advertisement	26	22	27
Other	83	80	71
Total	553	515	481

c) Other operating expenses, net

	Notes	Year ended December 31,		
		2023	2022	2021
Expenses related to Brumadinho event	25	930	1,079	851
Expenses related to de-characterization of dams	27(a)	153	72	1,725
Asset decommissioning obligations	27(b)	5	23	121
Provision for litigations	28(a)	229	153	98
Profit sharing program		147	131	126
Disposals of materials and inventories		74	46	5
COVID-19 expenses		-	-	44
Other		(40)	218	6
Total		1,498	1,722	2,976

Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

6. Financial results

		Year ended December 31,		
	Notes	2023	2022	2021
Financial income				
Short-term investments		309	440	226
Other		123	80	111
		432	520	337
Financial expenses				
Loans and borrowings gross interest	10(c)	(744)	(612)	(671)
Capitalized loans and borrowing costs	10(d)	19	47	59
Interest on REFIS		(148)	(152)	(54)
Interest on lease liabilities	24	(62)	(64)	(63)
Bond premium repurchase	10(c)	(22)	(113)	(63)
Interest on accounts payable		(203)	(51)	(45)
Other		(299)	(234)	(412)
		(1,459)	(1,179)	(1,249)
Other financial items, net				
Foreign exchange and indexation gains (losses), net		(1,643)	(975)	132
Participative shareholders' debentures (i)	22	(179)	659	(716)
Financial guarantees (i)	32(b)	-	481	312
Derivative financial instruments, net	20	903	1,154	(23)
Reclassification of cumulative translation adjustments to the income statement	15(a) and 16	-	1,608	4,326
		(919)	2,927	4,031
Total		(1,946)	2,268	3,119

(i) Items reclassified in comparative to maintain consistency of disclosure.

Accounting policy

Transactions in foreign currencies are translated into the functional currency using the exchange rate effective on the date of the transaction. The foreign exchange gains and losses resulting from the translation at the exchange rates prevailing at the end of the year are recognized in the income statement as "financial income or expense". The exceptions are transactions related to qualifying net investment hedges, cash flow hedge or items that are attributable to the net investment in a foreign operation, for which gains, and losses are recognized as a component of other comprehensive income.

The accounting policies related to the other items of the financial result are shown in the notes, "15. Investments in associates and joint ventures", "22. Participative shareholders' debentures", "23. Loans, borrowing, cash and cash equivalents and short-term investments" and "24. Leases".

Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

7. Streaming transactions

a) Statement of Financial Position

	December 31, 2023			December 31, 2022		
	Current liabilities	Non-current liabilities	Total	Current liabilities	Non-current liabilities	Total
Gold streaming	68	1,521	1,589	53	1,184	1,237
Cobalt streaming	22	441	463	28	428	456
Total contract liabilities	90	1,962	2,052	81	1,612	1,693

b) Effects on the income statement

	Year ended December 31,		
	2023	2022	2021
Cobalt streaming	14	49	55
Gold streaming	134	37	43
Fixed revenue – Contract liabilities realized	148	86	98
Cobalt streaming	3	11	12
Gold streaming	93	74	82
Variable revenue – Additional payments received	96	85	94

Gold streaming

Vale have sold to Wheaton Precious Metals Corp. (“Wheaton”) an aggregate of (i) 75% of the by-product gold contained in concentrate from our Salobo copper mine, in Brazil, for the life of mine, and (ii) 70% of the by-product gold from our Sudbury nickel mines, in Canada, for 20 years. Regarding these streaming transactions:

Vale received upfront payments of (i) US\$1.9 billion in 2013, (ii) US\$900 in 2015 and (iii) US\$800 in 2016. Vale also receives ongoing payments of the lesser of US\$400 per ounce and the prevailing market price, for each ounce of gold that the Company deliver under the agreement.

As per the Salobo gold by-product stream purchase agreement, Vale was entitled to receive an additional cash payment if the Company expanded its capacity to process Salobo copper ores to more than 28 Mtpy before 2036. In March 2023, Vale agreed with Wheaton to amend this agreement to adjust the additional cash payment terms. These conditions are linked to the “Salobo III” project, which is the brownfield expansion of Salobo through the increase in copper processing capacity.

In November 2023, the first phase of the Salobo III expansion project was completed and Vale received US\$370, which was recorded in the streaming liability. If Salobo's production reaches a processing capacity exceeding 35 million tons of copper per year by January 1, 2031, Vale will receive an additional amount estimated between US\$50 and US\$160, depending on the year such processing capacity is achieved. In addition, Wheaton will be required to make annual payments between US\$5.1 and US\$8.5 from 2024 to 2034, as long as the Salobo complex continues to produce within certain copper grades.

Cobalt streaming

In June 2018, Vale sold to Wheaton and Cobalt 27 Capital Corp. (“Cobalt 27”) a combined 75% of the cobalt produced as a by-product at its Voisey's Bay mine from January 1, 2021, for the amount of US\$690. Vale also receives additional payments of 20%, in average, of cobalt prices upon delivery. In February 2021, the stream originally sold to Cobalt 27 was assigned to Anglo Pacific Group.

Notes to the Financial Statements

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Accounting policy

The Company bifurcates both streaming transactions in two identifiable components: (i) the sale of the mineral rights and (ii) extraction services.

Sale of mineral rights – The amount allocated to this component is recognized as revenue in the income statement when the Company transfers ownership of the mineral rights to the counterparty. The cost related to the component sold is recognized in the income statement at the same moment.

Extraction services – The Company recognizes contract liabilities in the event it receives payments from customers before a sale meets criteria for revenue recognition. Proceeds received under the terms of the streaming transaction allocated to this component are accounted for as “streaming transactions” and included within liabilities.

Contract liability is initially recognized at fair value, net of transaction costs incurred, and is subsequently carried at amortized cost and updated using the effective interest rate method. Contract liability is released to the income statement based on the units of production, that is, revenue is calculated based on volume produced compared to the total proved and probable reserves of gold or cobalt, which are reviewed and remeasured annually.

Critical accounting estimates and judgments

Defining the result on sale of mineral interest and the contractual liabilities portion of the streaming transaction it is required the use of critical accounting estimates including, but not limited to: (i) allocation of costs between the product and the by-product based on relative prices; (ii) expected margin for the independent components (sale of mineral rights and service for gold and cobalt extraction); and (iii) discount rates used to measure the present value of future inflows and outflows.

8. Taxes

a) Income tax reconciliation

The reconciliation of the taxes calculated according to the nominal tax rates and the amount of taxes recorded is shown below:

		Year ended December 31,		
	Notes	2023	2022	2021
Income before income taxes		11,151	19,781	29,541
Income taxes at statutory rate (34%)		(3,791)	(6,726)	(10,044)
Adjustments that affect the taxes basis:				
Tax incentives		1,071	1,247	2,826
Income tax benefit from interest on capital		789	556	260
Equity results		88	84	167
Addition of tax loss carryforward		409	899	663
Reclassification of cumulative adjustments to the income statement		–	547	1,471
Reversal of deferred income tax related to Renova Foundation	26(e)	(1,078)	–	–
Liabilities related to associates and joint ventures	26(c)	(404)	–	–
Other		(130)	422	(40)
Income taxes		(3,046)	(2,971)	(4,697)
Current tax		(1,375)	(2,020)	(5,663)
Deferred tax		(1,671)	(951)	966
Income taxes		(3,046)	(2,971)	(4,697)

b) Deferred income tax assets and liabilities

Tax loss carryforward does not expire in the Brazilian jurisdiction and their compensation is limited to 30% of the taxable income for the year. The local profits of foreign subsidiaries are also taxed in Brazil and there is no restriction on their offset against tax losses generated previously by the foreign entity.

Notes to the Financial Statements

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	Deferred tax assets		Deferred tax liabilities	
	Year ended December 31,		Year ended December 31,	
	2023	2022	2023	2022
Taxes losses carryforward	5,704	5,908	-	-
Temporary differences:				
Asset retirement obligations and other liabilities (i)	4,165	4,875	(807)	(714)
Fair value of financial instruments	735	839	-	-
Employee post-retirement obligation	478	411	-	-
Provision for litigation	306	364	-	-
Fair value of property, plant and equipment in business combination	-	-	(2,034)	(2,205)
Goodwill amortization	-	-	(575)	(518)
Other	723	397	-	-
	12,111	12,794	(3,416)	(3,437)
Financial position				
Assets	9,565	10,770	-	-
Liabilities	-	-	(870)	(1,413)

(i) Following the adoption of the amendment to IAS 12 – *Deferred Taxes related to Assets and Liabilities Arising from a Single Transaction*, the Company started disclosing separately the deferred tax assets and deferred tax liabilities arising from the decommissioning of assets, environmental obligations, and leases, which resulted in an increase of US\$807 in deferred tax assets and deferred tax liabilities. Comparative information was restated to reflect the effects of the adoption, resulting in an increase of US\$714 in deferred tax assets and deferred tax liabilities. Therefore, there has been no impact on the deferred tax balances recorded in the Company's financial statements.

The following table shows the changes in deferred tax assets and liability:

	Assets	Liabilities	Deferred taxes, net
Balance as of December 31, 2021	11,441	1,881	9,560
Taxes losses carryforward	(68)	-	(68)
Provision for asset retirement obligations and other liabilities	(488)	114	(602)
Fair value of financial instruments	(634)	-	(634)
Allocated goodwill	-	(607)	607
Other	(254)	-	(254)
Effect in income statement	(1,444)	(493)	(951)
Employee post-retirement obligation	(116)	-	(116)
Fair value of financial instruments	73	-	73
Other comprehensive income	(43)	-	(43)
Transfer between assets and liabilities	130	130	-
Translation adjustment	686	(77)	763
Sale of California Steel Industries	-	(28)	28
Balance as of December 31, 2022	10,770	1,413	9,357
Taxes losses carryforward	(609)	-	(609)
Provision for asset retirement obligations and other liabilities	(1,123)	86	(1,209)
Fair value of financial instruments	(168)	-	(168)
Allocated goodwill	-	(64)	64
Other	251	-	251
Effect in income statement	(1,649)	22	(1,671)
Employee post-retirement obligation	34	-	34
Fair value of financial instruments	32	-	32
Other comprehensive income	66	-	66
Transfer between assets and liabilities	(371)	(371)	-
Translation adjustment	749	19	730
Transfer to asset to held for sale	-	(213)	-
Balance as of December 31, 2023	9,565	870	8,482

c) Tax incentives

In Brazil, the Company has tax incentives to partially reduce the income tax generated by the operations conducted in the North region that includes iron ore, copper, and nickel. The incentive is calculated based on the taxable income of the incentive activity (tax operating income) and considers the allocation of tax operating income into different incentives applicable to different tranches of production during specified periods for each product, usually 10 years. In addition to these incentives, the income tax payable can be reduced by investing in the acquisition of new machinery and equipment, subject to subsequent approval by the Superintendence for the Development of the Amazon ("SUDAM").

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As determined by the Brazilian law, the tax savings obtained because of these incentives must be recorded in the retained earnings reserve in equity and cannot be distributed as dividends to shareholders.

The Company's tax incentives will mostly expire in 2024 and the last tax incentive is expiring in 2027. The effects on the income statement are presented as "tax incentives" in note 8(a).

d) Income taxes – Settlement program ("REFIS")

	December 31, 2023	December 31, 2022
Current liabilities	428	371
Non-current liabilities	1,723	1,869
REFIS liabilities	2,151	2,240
SELIC rate	11.75%	13.75%

The balance mainly relates to the settlement program of claims regarding the collection of income tax and social contribution on equity gains of foreign subsidiaries and affiliates from 2003 to 2012. This amount bears SELIC interest rate (Special System for Settlement and Custody) and will be paid in monthly installments until October 2028 and the impact of the SELIC over the liability is recorded under the Company's financial results (note 6).

e) Uncertain tax positions ("UTP")

The Company is engaged in administrative and judicial discussions with tax authorities in Brazil in relation to certain tax positions adopted by the Company for calculating income tax and social contribution on net income. The final determination is uncertain and depends on factors not controlled by the Company, such as changes in case law and changes in tax laws and regulations. The Company is subject to the assessment of income tax by local tax authorities in a range up to 10 years depending on jurisdiction where the Company operates.

The amount under discussion with the tax authorities is US\$5,408 as of December 31, 2023 (2022: US\$4,223), which includes the reduction of tax losses in the amount of US\$754 as of December 31, 2023 (2022: US\$564), if the tax authority does not accept the tax treatment adopted by the Company in relation to these matters.

	December 31, 2023			December 31, 2022		
	Assessed (i)	Not in dispute (ii)	Total	Assessed (i)	Not in dispute (ii)	Total
UTPs not recorded on statement of financial position (iii)						
Transfer pricing over the exportation of ores to a foreign subsidiary	2,144	3,010	5,154	1,190	2,592	3,782
Expenses of interest on capital	1,511	-	1,511	1,288	-	1,288
Proceeding related to income tax paid abroad	512	-	512	439	-	439
Goodwill amortization	606	190	796	578	223	801
Payments to Renova Foundation	167	536	703	29	530	559
Other	468	-	468	699	-	699
	5,408	3,736	9,144	4,223	3,345	7,568
UTPs recorded on statement of financial position						
Deduction of CSLL in Brazil	183	-	183	155	-	155
	183	-	183	155	-	155

(i) Includes the tax effects arising from the reduction of the tax losses and negative basis of the CSLL without fines and interest.

(ii) Includes the principal, without fines and interest.

(iii) Based on the assessment of its internal and external legal advisors, the Company believes that the tax treatment adopted for these matters will be accepted in decisions of the higher courts on last instance.

Transfer pricing calculation over the exportation of ores to a foreign subsidiary – The Company was assessed for the IRPJ and CSLL, for the years of 2015 and 2018 since the tax agent has disregarded the intermediation cost and other adjustments used in the calculation of the transfer pricing over the exportation of iron ore, pellets, manganese, and copper to its foreign controlled company. The Company is challenging these assessments at the administrative level and a decision is pending.

The Company maintains the method of calculating the transfer pricing, as it considers it to be the most appropriate tax treatment for interpreting the rules in force and applicable to the subject and is discussing the charges at the administrative level.

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The total amount in dispute is US\$1,630 as of December 31, 2023 (2022: US\$829), excluding the corresponding tax impact without fines and interests of US\$514 as of December 31, 2023 (2022: US\$361), totaling US\$2,144 (2022: US\$1,190). The amount involved for the fiscal years of 2019 to 2023, which are not in dispute, is US\$3,010 as of December 31, 2023 (2022: US\$2,592).

Expenses of interest on equity capital ("JCP") – Vale received assessments for the collection of IRPJ, CSLL and fines, on the grounds that the deduction of JCP was improper, referring to the base years of 2017 and 2018, due to failure to comply with the accrual basis and absence of individualized accounting credit per shareholder. The amount under discussion is US\$1,367 as of December 31, 2023 (2022: US\$1,154), excluding the corresponding tax impact without fines and interests of US\$144 as of December 31, 2023 (2022: US\$134), totaling US\$1,511 (2022: US\$1,288). The Company presented administrative defenses for these assessments and is awaiting a decision.

Proceeding related to income tax paid abroad – Vale received a tax assessment for the collection of US\$512 (2022: US\$439) due to the disregard of taxes paid abroad that were offset by the IRPJ debt in 2016. Tax authorities allege the Company has failed to comply with the applicable rules relating to the offset, in Brazil, of income taxes paid abroad. The Company had filed an administrative appeal, and a decision is pending.

Goodwill amortization – The Company received tax assessments for the collection of IRPJ and CSLL for the periods between 2013 and 2019, due to the disregard of the deduction of goodwill amortization expenses recorded in the acquisition of controlled companies, after its merger by the Company.

The Company is discussing the charges at the administrative level and the amount under discussion is US\$540 as of December 31, 2023 (2022: US\$517), excluding the corresponding tax impact without fines and interests of US\$66 as of December 31, 2023 (2022: US\$61), totaling US\$606 (2022: US\$578). The amount involved for the years 2020 to 2023, which are not assessed, is US\$190 (2022: US\$223).

Payments to Renova Foundation – The Company deducted payments made to Renova Foundation arising from the obligation entered into the Transaction and Conduct Adjustment Agreement ("TTAC") and from its subsidiary liability in the agreement when Samarco did not make these payments directly. Vale understands that the deduction of such expenses is adequate, since its liability is objective, arising from the obligation entered into in the TTAC and its status as a shareholder.

The mentioned payments were deducted until April 2023 when Vale entered into a binding agreement jointly with BHPB, Samarco, and certain creditors of Samarco, establishing the parameters for the restructuring of Samarco's debt. This restructuring was implemented through a consensual reorganization plan, which was approved by the Judicial Recovery Court in September 2023. According to the agreement, contributions made by Vale to the Renova Foundation from May 2023 onward will be converted into capital contributions to Samarco and, therefore, will no longer be deductible. Further details on Samarco's judicial recovery are provided in note 26(a) of these financial statements.

The Company received tax assessment notices for the periods 2016 to 2018, for the collection of IRPJ and CSLL on the grounds that expenses incurred with Renova Foundation were unduly deducted for allegedly not being considered necessary. The total amount assessed is US\$140 for the year ended December 31, 2023 (2022: US\$24), excluding the corresponding tax impact without fines and interests of US\$27 as of December 31, 2023 (2022: US\$5), totaling US\$167 (2022: US\$29). For the fiscal years 2019 to 2023, the amount not assessed is US\$536 (2022: US\$530).

Deduction of CSLL from the taxable income – In 2004, a definitive decision of the Superior Court of Justice ("STJ") granted to the Company the right to deduct the Social Contribution on Net Income ("CSLL") from the taxable base of the corporate income tax ("IRPJ"). The Federal Government filed a rescission action ("*ação rescisória*") in 2006, seeking to reverse the 2004 decision. In 2019, the Federal Court of Appeals ("TRF") upheld the rescission action and, although the decision was not final, the Company decided not to deduct the CSLL from the taxable income since then.

Meanwhile, the Federal Supreme Court ("STF") is judging two extraordinary appeals with impact to all taxpayers. These appeals are discussing how long a court decision related to a tax matter would remain valid if the STF had subsequently issued a contrary decision. Due to the developments of this matter in the STF during 2023 and based on the updated assessment of its legal advisors, the Company concluded that the tax treatment previously adopted will probably not be accepted by the tax authority and, therefore, it recognized a liability as "Taxes payable" for the year ended December 31, 2022. The amount for the year ended December 31, 2023, is US\$183 (2022: US\$155).

Non-incidence of IRPJ and CSLL on SELIC rate in the repetition of undue payment – In September 2021, the Federal Supreme Court ("STF") decided in a judgment with general repercussion, that the incidence of IRPJ and CSLL on amounts referring to the SELIC rate received as a result of repetition of tax overpayment is unconstitutional. After the publication of the decision of the leading case judgment with a conclusion favorable to the taxpayers, the Company recognized a gain of US\$34 in the income statement for the year ended December 31, 2021.

Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

f) Recoverable and payable taxes

	December 31, 2023			December 31, 2022		
	Current assets	Non-current assets	Current liabilities	Current assets	Non-current assets	Current liabilities
Value-added tax ("ICMS")	232	5	25	261	1	46
Brazilian federal contributions ("PIS" and "COFINS") (i)	355	1,010	615	690	740	35
Income taxes	302	358	429	309	369	221
Financial compensation for the exploration of mineral resources ("CFEM")	-	-	93	-	-	54
Other	11	1	152	12	-	114
Total	900	1,374	1,314	1,272	1,110	470

(i) In December 2023, a judicial decision was issued in a lawsuit related with Brazilian federal contributions ("PIS" and "COFINS"), which is fully guaranteed by a judicial deposit, determining the conversion of part of the judicial deposit to the Government, resulting in the reclassification of the amount to payable taxes. Further details are presented in note 28 of these financial statements.

ICMS included in PIS and COFINS computation tax base – Vale discussed the issue of the exclusion of ICMS from the taxable basis of the contribution to PIS and COFINS in two lawsuits filed before March 2017. One of the lawsuits includes the triggering events from March 2012 onwards and has a favorable definitive decision. This amount was calculated based on the assumption that the ICMS to be excluded from the taxable bases is the one paid. With the definition of the subject by the Federal Supreme Court in the leading case, with binding effects to all taxpayers, which determined that the ICMS to be excluded is the one highlighted in the invoices, the Company recognized an additional gain of US\$26 for the year ended December 31, 2021.

The lawsuit that covers the triggering events that occurred between December 2001 and February 2012, resulted in the recognition of a gain in the amount of US\$145 for the year ended December 31, 2021, of which US\$67 refers to the principal recorded as "Other operating expenses, net" and US\$78 refers to monetary restatement as "Other financial items, net", due to the favorable decision obtained by the Company and in line with the judgment of the Federal Supreme Court in the aforementioned leading case.

Accounting policy

The Brazilian corporate tax law requires the taxation of income generated by foreign subsidiaries, and as a result, the income tax charge is computed using the tax rate enacted at the end of the reporting period in Brazil. The impact of the income tax calculation in the consolidated financial statements is determined by applying the differential between the Brazilian income tax rate and the local income tax rate of each jurisdiction where the Company's subsidiaries operate and generate taxable income.

Management regularly assesses positions taken in tax returns concerning situations where applicable tax regulations are subject to interpretation. Provisions are recorded, as needed, based on expected amounts payable to tax authorities. Liabilities related to uncertain tax positions are recorded only when it is deemed, with a more-likely-than-not probability, that these positions will not withstand challenges, if any, from taxing authorities, based on input from internal and external legal advisors.

Deferred income taxes are recognized for temporary differences between the carrying amount and the tax basis of assets and liabilities, as well as tax losses carryforwards. However, deferred tax liabilities arising from the initial recognition of goodwill are not recognized. Additionally, deferred income tax is not accounted for if it arises from the initial recognition of an asset or liability in a transaction unrelated to a business combination that, at the time of the transaction, has no impact on accounting or taxable profit or loss. Offset of deferred tax assets and liabilities occurs when there is a legally enforceable right to offset current tax assets and liabilities, and when the deferred tax balances pertain to the same taxation authority.

Deferred tax assets resulting from tax losses and temporary differences are not recognized when it is not probable that future taxable profit will be available against which these differences and/or tax losses can be utilized.

Current and deferred tax is recognized in profit or loss unless it relates to items recognized in other comprehensive income or directly in equity. In such cases, the tax is also recognized in other comprehensive income or directly in equity, respectively.

Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

Critical accounting estimates and judgments

Deferred income tax – Significant judgements, estimates and assumptions are required to determine the amount of deferred tax assets that are recognized based on the likely timing and future taxable profits. Deferred tax assets arising from tax losses carryforward and temporary differences are recognized considering assumptions and projected cash flows. Deferred tax assets may be affected by factors including, but not limited to: (i) internal assumptions on the projected taxable income, which are based on production and sales planning, commodity prices, operational costs and planned capital costs; (ii) macroeconomic environment; and (iii) trade and tax scenarios.

Uncertain tax positions – The Company applies significant judgement in identifying uncertainties over income tax treatments, which could impact the consolidated financial statements. The Company operates in multiple jurisdictions where uncertainties arise in the application of complex tax regulations. The Company and its subsidiaries are subject to reviews of income tax filings and other tax payments, and disputes can arise with the taxing authorities over the interpretation of the applicable laws and regulations.

9. Basic and diluted earnings (loss) per share

The basic and diluted earnings (loss) per share are presented below:

	Year ended December 31,		
	2023	2022	2021
Net income attributable to Vale's shareholders			
Net income from continuing operations	7,983	16,728	24,736
Net income (loss) from discontinued operations	–	2,060	(2,291)
Net income	7,983	18,788	22,445
Thousands of shares			
Weighted average number of common shares outstanding	4,366,130	4,637,794	5,012,424
Weighted average number of common shares outstanding and potential ordinary shares	4,369,961	4,642,432	5,016,848
Basic and diluted earnings per share from continuing operations			
Common share (US\$)	1.83	3.61	4.93
Basic and diluted earnings (loss) per share from discontinued operations			
Common share (US\$)	–	0.44	(0.46)
Basic and diluted earnings per share			
Common share (US\$)	1.83	4.05	4.47

10. Cash flows reconciliation

a) Cash flow from operating activities

	Notes	Year ended December 31,		
		2023	2022	2021
Cash flow from operating activities:				
Income before income taxes		11,151	19,781	29,541
Adjusted for:				
Equity results and other results in associates and joint ventures	15	1,108	(305)	1,271
Impairment (impairment reversal) and results on disposal of non-current assets, net	19	266	(773)	426
Provisions related to Brumadinho	25	461	400	201
Provision for de-characterization of dams	27	153	72	1,725
Depreciation, depletion and amortization		3,070	3,171	3,034
Financial results, net	6	1,946	(2,268)	(3,119)
Changes in assets and liabilities:				
Accounts receivable	11	197	(325)	1,029
Inventories	12	(214)	45	(503)
Suppliers and contractors	13	637	495	251
Other assets and liabilities, net		(1,523)	(1,531)	(442)
Cash flow from operations		17,252	18,762	33,414

Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

b) Cash flow from investing activities

		Year ended December 31,		
	Notes	2023	2022	2021
Disbursement related to VNC sale	16(m)		-	(555)
Proceeds from disposal of Mosaic shares	16(j)		-	1,259
Cash received from the sale of California Steel Industries	16(h)	-	437	-
Cash received from the sale of Companhia Siderúrgica do Pecém	16(f)	1,082	-	-
Cash contribution to Companhia Siderúrgica do Pecém	16(f)	(1,149)	-	-
Cash received from the sale of Midwestern System	16(g)	-	140	-
Disbursement related to MRN sale	16(d)	(72)	-	-
Proceeds (payments) from disposal of investments, net		(139)	577	704

c) Reconciliation of debt to cash flows arising from financing activities

	Quoted in the secondary market	Debt contracts in Brazil	Debt contracts on the international market	Total
December 31, 2021	7,974	380	3,826	12,180
Additions	-	-	1,275	1,275
Payments (i)	(1,441)	(220)	(639)	(2,300)
Interest paid (ii)	(650)	(45)	(90)	(785)
Cash flow from financing activities	(2,091)	(265)	546	(1,810)
Effect of exchange rate	126	7	(55)	78
Interest accretion	488	158	87	733
Non-cash changes	614	165	32	811
December 31, 2022	6,497	280	4,404	11,181
Additions	1,500	-	450	1,950
Payments (i)	(542)	(50)	(66)	(658)
Interest paid (ii)	(454)	(24)	(265)	(743)
Cash flow from financing activities	504	(74)	119	549
Effect of exchange rate	19	20	(64)	(25)
Interest accretion	454	24	288	766
Non-cash changes	473	44	224	741
December 31, 2023	7,474	250	4,747	12,471

(i) Includes bond premium repurchase.

(ii) Classified as operating activities in the statement of cash flows.

Funding

- In September 2023, the Company contracted a loan of US\$150 with Citibank, indexed to Secured Overnight Financing Rate ("SOFR") with spread adjustments and maturing in 2028.
- In June 2023, Vale issued notes of US\$1,500 with a coupon of 6.125% per year, payable semi-annually, and maturing in 2033. The notes were sold at a price of 99.117% of the principal amount, resulting in a yield to maturity of 6.245%.
- In March 2023, the Company contracted a loan of US\$300 with the Industrial and Commercial Bank of China Limited, Panama Branch ("ICBC") indexed to SOFR with spread adjustments and maturing in 2028.
- In July 2022, the Company contracted the credit line of US\$150 with SMBC Bank indexed to SOFR with spread adjustments and maturing in 2027.
- In May 2022, the Company contracted a loan of US\$200 with MUFG Bank indexed to SOFR with spread adjustments and maturing in 2027.
- In January 2022, the Company contracted two loans of US\$425 with The Bank of Nova Scotia, indexed to SOFR with spread adjustments and maturing in 2027.

Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

Payments

- In June 2023, Vale redeemed notes with maturity date in 2026, 2036 and 2039, in the total amount of US\$500 and paid a premium of US\$22, recorded as "financial expenses" in the income statement for the year period ended December 31, 2023.
- In January 2023, the Company paid principal and interest of debentures, in the amount of US\$24.
- In August 2022, the Company settled its infrastructure debentures of the 2nd series, by a payment of US\$170.
- In June 2022, the Company repurchased US\$1,291 of its Bonds and paid a premium of US\$113, which has been recorded and is presented as "Other expenses" in the financial results for the year ended December 31, 2022.
- In January 2022, the Company prepaid US\$200 of a loan maturing in 2023 with The Bank of Nova Scotia.

d) Non-cash transactions

	Year ended December 31,		
	2023	2022	2021
Non-cash transactions:			
Additions to PP&E – capitalized loans and borrowing costs	19	47	59

11. Accounts receivable

	Notes	December 31, 2023	December 31, 2022
Receivables from contracts with customers			
Third parties			
Iron Ore Solutions		3,406	3,132
Energy Transition Metals		743	984
Other		3	35
Related parties	31	89	211
Accounts receivable		4,241	4,362
Expected credit loss		(44)	(43)
Accounts receivable, net		4,197	4,319

Provisionally priced commodities sales – The Company is mainly exposed to iron ore and copper price risk. The Company's primary exposure lies in iron ore and copper price risk. The determination of the final sales price for these commodities is based on the pricing period outlined in the sales contracts, typically occurring after the revenue recognition date. Consequently, the Company initially recognizes revenue using a provisional invoice. Subsequently, the receivables associated with provisionally priced products are measured at fair value through profit or loss (note 20). Any fluctuations in the value of these receivables are reflected in the Company's net operating revenue.

The sensitivity of the Company's risk related to the final settlement of provisionally priced accounts receivables is detailed below:

	Thousand metric tons	Provisional price (US\$/ton)	Variation	December 31, 2023
				Effect on Revenue (US\$ million)
Iron ore	29,594	139	+/- 10%	+/- 412
Copper	95	8,026	+/- 10%	+/- 76

Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

Accounting policy

Accounts receivable represent the aggregate amount receivable from the sale of products and services by the Company. Initially recognized at fair value, they are subsequently measured at amortized cost using the effective interest method, except for the component of provisionally priced commodities sales that are subsequently measured at fair value through profit or loss.

The Company applies the IFRS 9 – *Financial Instruments* simplified approach for measuring expected credit losses. This approach utilizes a lifetime expected loss allowance for all accounts receivable. A provision matrix, established by the Company, forms the basis for this measurement. The matrix incorporates historical credit loss experience, adjusted for forward-looking factors specific to the economic environment, and considers any financial guarantees associated with these accounts receivables.

12. Inventories

	December 31, 2023	December 31, 2022
Finished products		
Iron Ore Solutions	2,457	2,126
Energy Transition Metals	640	651
	3,097	2,777
Work in progress	567	800
Consumable inventory	1,159	1,010
Net realizable value provision (i)	(139)	(105)
Total of inventories	4,684	4,482

(i) In 2023, the effect of provision for net realizable value was US\$54 (2022: US\$44).

The cost of goods sold is presented in note 5(a).

Accounting policy

Inventories are stated at the lower of cost and net realizable value. Inventory production cost comprises variable and fixed costs, direct and indirect costs of production and are assigned to individual items of inventory based on weighted average costs method. At the end of the reporting period, net realizable value of inventories are assessed and a provision for losses on obsolete or slow-moving inventory may be recognized. The write-downs and reversals are recognized as "Cost of goods sold, and services rendered".

Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

13. Suppliers and contractors

	Notes	December 31, 2023	December 31, 2022
Third parties – Brazil		3,461	2,691
Third parties – Abroad		1,653	1,599
Related parties	31	158	171
Total		5,272	4,461

The Company has transactions with certain suppliers, which allows them to anticipate their receivables and the Company to extend its payment term within the short term, that is, during its operational cycle. The outstanding balance related to those transactions was US\$1,438 as of December 31, 2023 (December 31, 2022: US\$743), of which US\$221 (December 31, 2022: US\$202) relates to the structure created by the Company with the exclusive purpose of enabling small and medium suppliers to anticipate their receivables with better interest rates, in line with Company's social pillar.

Accounting policy

The Company assesses whether the payment term extension arrangement substantially modifies the original liability based on qualitative and quantitative aspects. If the original liability has been substantially modified, the Company derecognizes the original liability (suppliers) and recognizes a new financial liability (other financial liabilities), any gain/loss is recognized in income statement. If the original liability does not modify substantially, the original liability (suppliers) remains.

14. Other financial assets and liabilities

		Current		Non-Current	
	Notes	December 31, 2023	December 31, 2022	December 31, 2023	December 31, 2022
Other financial assets					
Restricted cash		-	-	4	77
Derivative financial instruments	20	271	342	544	196
Investments in equity securities (i)		-	-	45	7
		271	342	593	280
Other financial liabilities					
Derivative financial instruments	20	36	90	95	186
Other financial liabilities – Related parties	31(b)	290	400	-	-
Financial guarantees provided (ii)	32(b)	-	-	-	103
Liabilities related to the concession grant	14(a)	591	416	3,278	2,554
Contract liability and other financial liabilities (iii)		759	766	-	-
		1,676	1,672	3,373	2,843

(i) It mainly relates to a 2.66% noncontrolling interest in Boston Electrometallurgical Company, which aims to promote the development of a technology focused on reducing carbon dioxide emissions in steel production, and a 2.01% noncontrolling interest in Allonia LLC, a transformative biology startup.

(ii) In March 2023, the Company completed the sale of its interest in CSP and derecognized the financial guarantee granted by the Company.

(iii) Includes advances received from customers that meets the definition of contract liability described in IFRS 15 – *Revenue from Contracts with Customers* and other financial liabilities that meets the definition of a financial liability described in IAS 32 – *Financial Instruments: Presentation*.

Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

a) Liabilities related to the concession grant

In December 2020, the Company entered into an agreement with the Federal Government to continue operating its concessions of the Estrada de Ferro Carajás ("EFC") and Estrada de Ferro Vitória a Minas ("EFVM") for thirty years more, extending the maturity date from 2027 to 2057.

	Reference	December 31, 2022	Revision to estimates and new provisions	Monetary and present value adjustments	Disbursements	Consolidated	Discount rate		Remaining term of obligations
						December 31, 2023	December 31, 2023	December 31, 2022	
Payment obligation	(a.i)	954	55	176	(55)	1,130	11.04%	11.04%	34 years
Infrastructure investment	(a.ii)	2,016	719	267	(263)	2,739	5.17% - 5.54%	6.08% - 6.23%	8 years
		2,970	774	443	(318)	3,869			
Current liabilities		416				591			
Non-current liabilities		2,554				3,278			
Liabilities		2,970				3,869			

(a.i) Payment obligation

The Company will make payments for the concession grants in quarterly installments through the concession period. This obligation is updated annually by the readjustment index for monetary exchange ("IRT"), which was 4.82% for the year 2023 (2022: 6.47%), resulting in an addition to the provision of US\$55 for the year ended December 31, 2023.

In addition, the ANTT may require, at their discretion, further investments on the concession network. Furthermore, there is a requirement for the Company to complete a minimum percentage of certain investments by 2028. In these circumstances, discussions on the economic and financial rebalancing of the contracts will be required and depending on the result of the physical inventory review and if new investments are demanded, the carrying amount of grant payable may have a material impact in the future.

In January 2024 (subsequent event), the Company was notified by the Ministry of Transport related to the asset base of the railway network which, in the understanding of the Ministry of Transport, should be amortized until the end of the concession and should not reduce the value of the grant. The Ministry of Transport required the Company to present measures to recover any compensation from the public authorities for assets covered by this notification. The Company has presented its arguments and understands that the provisions recorded are adequate to comply with obligations related to the concession.

(a.ii) Infrastructure investment

Midwestern Integration Railroad ("FICO") - Construction of 383 km of FICO, between the municipalities of Mara Rosa, in Goiás, and Água Boa, in Mato Grosso. As of December 31, 2023, the Company has a provision in the amount of US\$1,584 (2022: US\$1,415). In 2023, the Company revised the estimates of cash disbursement for the execution of investments, mainly due to the anticipation of the moment of execution of part of these investments, resulting in the complement of the provision in the amount of US\$154 in the year ended December 31, 2023.

Infrastructure program - Comprises over 450 separate projects designed to improve safety and reduce trespass where the railways pass through urban areas. The program will benefit 25 and 33 municipalities intercepted by EFC and EFVM, respectively. In 2023, the Company made progress mainly in the maturity of projects associated with complementary infrastructure, as established in the concession renewal agreements, as well anticipated the timing of execution of part of the obligations, resulting in an addition to the provision in the amount of US\$565 in the year ended December 31, 2023.

West-East Integration Railway ("FIOL") - Acquisition and delivery of rails and sleepers, which the Federal Government will use for construction of section II of the FIOL, which will connect the municipalities of Caetité and Barreiras, in Bahia, and other miscellaneous obligations. In 2022, ANTT issued the definitive Discharge Term regarding the rails and sleepers acquired for FIOL, as established in an amendment to the EFVM concession contract. Therefore, this obligation was settled in 2022.

The construction of FICO and the execution of the Infrastructure Program are Vale's responsibility and changes in relation to the original budgets may materially change the balance of the provision in the future.

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Expressed in millions of United States dollar, unless otherwise stated

(a.iii) Guarantee

As of December 31, 2021, as a condition for signing the contracts, the Company contracted a guarantee. These insurance contracts guarantee compensation, up to the amount established in the policy, for any losses arising from non-compliance of the contractual obligations assumed by Vale in the concession contracts. The amount of insurance coverage is US\$236 as of December 31, 2023 (2022: US\$209) and the Company recorded financial expenses related to these contracts in the amount of US\$11 in 2023 (2022: US\$13).

Accounting policy

Concessions – Railway concessions liabilities consist of the following future payments discounted at present value: (i) fixed payments for the concession; (ii) amounts expected to be disbursed for constructing railways and infrastructure; (iii) cost of acquiring equipment to be made available for the granting authority; and (iv) other miscellaneous obligations that complement the early extension of the railway concessions agreement.

Grant payments are discounted using the regulatory weighted average cost of capital ("WACC"), which is the interest rate explicit in the concession agreement as determined by the ANTT, and payments related to other investment obligations are discounted at an incremental rate to reflect the time value of money, that is, a risk-free interest rate applicable to the economic environment in which the Company operates and with terms and conditions equivalent to the obligations assumed.

The amounts payable in relation to the concession granted accounted for as intangible in accordance with the accounting policy, disclosed in note 17.

Notes to the Financial Statements

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15. Investments in associates and joint ventures

	% ownership	December 31, 2022	Additions and capitalizations	Equity results in income statement	Dividends declared	Translation adjustment	Transfer to assets held for sale	Other	December 31, 2023
Associates and joint ventures									
Iron Ore Solutions									
Baovale Mineração S.A.	50.00	24	-	3	(2)	2	-	1	28
Companhia Coreano-Brasileira de Pelotização	50.00	80	-	17	(30)	6	-	-	73
Companhia Hispano-Brasileira de Pelotização	50.89	48	-	16	(18)	3	-	-	49
Companhia Ítalo-Brasileira de Pelotização	50.90	62	-	16	(20)	5	-	-	63
Companhia Nipo-Brasileira de Pelotização	51.00	145	-	39	(45)	11	-	-	150
MRS Logística S.A.	48.45	509	-	118	(28)	42	-	(1)	640
VLI S.A.	29.60	428	-	(108)	-	25	-	1	346
Samarco Mineração S.A. (note 26)	50.00	-	-	-	-	-	-	-	-
		1,296	-	101	(143)	94	-	1	1,349
Energy Transition Metals									
PT Kolaka Nickel Indonesia	18.30	-	-	-	-	-	(13)	13	-
		-	-	-	-	-	(13)	13	-
Others									
Aliança Geração de Energia S.A.	55.00	340	-	48	(60)	28	-	-	356
Aliança Norte Energia Participações S.A.	51.00	106	-	(8)	-	8	-	-	106
Other		56	1	3	-	5	-	(4)	61
		502	1	43	(60)	41	-	(4)	523
Equity results in associates and joint ventures		1,798	1	144	(203)	135	(13)	10	1,872
Other results in associates and joint ventures (notes 16 and 26) (i)		-	-	(1,252)	-	-	-	-	-
Equity results and other results in associates and joint ventures		1,798	1	(1,108)	(203)	135	(13)	10	1,872

(i) It mainly refers to the addition to the provision related to the Samarco dam failure (note 26) and other results related to investments disposals (note 16).

Notes to the Financial Statements

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Capital reduction in a foreign subsidiary – In August 2022, the Company approved a capital reduction in the amount of US\$1,500 of Vale International SA (“VISA”), a wholly-owned foreign subsidiary, leading to a reduction in the absolute value of the investment held by the Parent Company, which resulted in a gain of US\$1,543 due to the reclassification of the cumulative translation adjustments following our accounting policy for such nature of transaction, presented as “Other financial items, net” (note 6). The remaining balance of cumulative translation adjustments of VISA represents US\$4,906 as of December 31, 2023.

a) Summarized financial information

The summarized financial information about relevant associates and joint ventures for the Company are as follows. The stand-alone financial statements of those entities may differ from the financial information reported herein, which is prepared considering Vale’s accounting policies and using the most recent financial information available adjusted for the effects of significant transactions or events that occur between the date of the financial information and the date of the Company’s financial statements. The summarized financial information about Samarco is presented in note 26.

	December 31, 2023				
	Aliança Geração de Energia	Aliança Norte Energia Participações	Pelletizing plants (i)	MRS Logística	VLI S.A.
Current assets	120	–	374	954	935
Non-current assets	1,064	210	420	2,779	3,309
Total assets	1,184	210	794	3,733	4,244
Current liabilities	171	–	133	704	933
Non-current liabilities	365	2	1	1,709	2,143
Total liabilities	536	2	134	2,413	3,076
Equity	648	208	660	1,320	1,168
Net revenue	230	–	194	1,291	1,682
Net income (loss)	88	(15)	172	243	(366)

	December 31, 2022					
	Aliança Geração de Energia	Aliança Norte Energia Participações	CSP	Pelletizing plants (i)	MRS Logística	VLI S.A.
Current assets	140	–	827	497	387	760
Non-current assets	921	209	2,709	328	2,398	3,649
Total assets	1,061	209	3,536	825	2,785	4,409
Current liabilities	161	–	491	164	509	810
Non-current liabilities	282	1	2,450	1	1,219	2,153
Total liabilities	443	1	2,941	165	1,728	2,963
Equity	618	208	595	660	1,057	1,446
Net revenue	215	–	2,399	420	1,083	1,376
Net income (loss)	57	(13)	387	272	169	(29)

(i) Aggregated entities: Companhia Coreano-Brasileira de Pelotização, Companhia Hispano-Brasileira de Pelotização, Companhia Ítalo-Brasileira de Pelotização, and Companhia Nipo-Brasileira de Pelotização.

Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

b) Subsidiaries

The significant consolidated entities in each business segment are as follows:

	Location	Main activity/Business	% Ownership	% Voting capital	% Noncontrolling interest
Direct and indirect subsidiaries					
Companhia Portuária da Baía de Sepetiba	Brazil	Iron ore	100.0%	100.0%	0.0%
Minerações Brasileiras Reunidas S.A. ("MBR")	Brazil	Iron ore	100.0%	100.0%	0.0%
Salobo Metais S.A.	Brazil	Copper	100.0%	100.0%	0.0%
PT Vale Indonesia	Indonesia	Nickel	44.3%	44.3%	55.7%
Vale Base Metals Limited	United Kingdom	Holding	100.0%	100.0%	0.0%
Vale Holdings B.V.	Netherlands	Holding and research	100.0%	100.0%	0.0%
Vale Canada Limited	Canada	Nickel	100.0%	100.0%	0.0%
Vale International S.A.	Switzerland	Trading and holding	100.0%	100.0%	0.0%
Vale Malaysia Minerals Sdn. Bhd.	Malaysia	Iron ore	100.0%	100.0%	0.0%
Vale Oman Distribution Center LLC	Oman	Iron ore and pelletizing plant	100.0%	100.0%	0.0%
Vale Oman Pelletizing Company LLC	Oman	Pelletizing plant	100.0%	100.0%	0.0%

c) Noncontrolling interest

Summarized financial information

The summarized financial information, prior to the eliminations of the intercompany balances and transactions, about subsidiaries with material noncontrolling interest is as follows. The stand-alone financial statements of those entities may differ from the financial information reported herein, which is prepared considering Vale's accounting policies.

	December 31, 2023		
	PTVI (note 16b)	Other	Total
Current assets	885	-	-
Non-current assets	2,977	-	-
Related parties – Shareholders	83	-	-
Total assets	3,945	-	-
Current liabilities	221	-	-
Non-current liabilities	239	-	-
Related parties – Shareholders	-	-	-
Total liabilities	460	-	-
Equity	3,484	-	-
Equity (negative reserves) attributable to noncontrolling interests	1,599	(79)	1,520
Net income	207	-	-
Net income (loss) attributable to noncontrolling interests	144	(22)	122
Dividends paid to noncontrolling interests	33	8	41

	December 31, 2022			
	PTVI	Vale Oman Pelletizing (note 16e)	Other	Total
Current assets	853	84	-	-
Non-current assets	2,147	581	-	-
Related parties – Shareholders	113	81	-	-
Total assets	3,113	746	-	-
Current liabilities	183	96	-	-
Non-current liabilities	249	149	-	-
Related parties – Shareholders	-	297	-	-
Total liabilities	432	542	-	-
Equity	2,681	204	-	-
Equity (negative reserves) attributable to noncontrolling interests	1,492	61	(62)	1,491
Net income	181	29	-	-
Net income (loss) attributable to noncontrolling interests	101	9	(28)	82
Dividends paid to noncontrolling interests	-	12	-	12

Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

	December 31, 2021				
	PTVI	Vale Moçambique	Vale Oman Pelletizing	Other	Total
Current assets	771	420	92	-	-
Non-current assets	1,875	195	633	-	-
Related parties – Shareholders	82	6	25	-	-
Total assets	2,728	621	750	-	-
Current liabilities	174	224	97	-	-
Non-current liabilities	70	74	157	-	-
Related parties – Shareholders	-	12,072	296	-	-
Total liabilities	244	12,370	550	-	-
Equity (negative reserves)	2,484	(11,749)	200	-	-
Equity (negative reserves) attributable to noncontrolling interests	1,383	(587)	60	(21)	834
Net income	198	326	27	-	-
Net income (loss) attributable to noncontrolling interests	110	(85)	8	(10)	23
Dividends paid to noncontrolling interests	18	-	12	-	30

Accounting policy

Subsidiaries – The Company consolidates all entities over which it exercises control, defined as having both (i) exposure or rights to variable returns from its involvement and (ii) the ability to direct significant activities of the investee. Subsidiaries are fully consolidated from the acquisition date until the Company ceases to have control.

Transactions with noncontrolling interests – Investments held by other investors in Vale's subsidiaries are treated as noncontrolling interests ("NCI"). Transactions with NCI are treated as transactions with the Company's shareholders. For purchases or disposals of NCI, the difference between the consideration paid and the book value of the acquired portion of the subsidiary's net assets is directly recorded in equity under "Acquisitions and disposals of non-controlling interests."

Loss of control – When the Company ceases to have control, any interest retained in the entity is remeasured at its fair value, with the change in the carrying amount recognized in profit or loss. Amounts previously recognized in other comprehensive income are reclassified to the income statement.

Investments in associates and joint arrangements – Associates are entities over which the Company holds significant influence (typically 20% to 50% equity interest). If the equity interest in an associate decrease while retaining significant influence, a proportionate portion of the amounts previously recognized in other comprehensive income is reclassified to profit or loss as appropriate. Dilution gains and losses on associates are recognized in the income statement.

Joint arrangements are all entities over which the Company shares control with one or more parties. The classification of joint arrangement investments as joint operations or joint ventures depends on the contractual rights and obligations of each investor.

Joint operations are recorded in the financial statements to represent the Company's contractual rights and obligations. Accordingly, assets, liabilities, income and expenses related to the joint operation are individually recorded in the financial statements.

Interests in joint ventures are accounted for using the equity method, recognized initially at cost. The Company's investment in joint ventures includes identified goodwill from the acquisition, net of any impairment loss. The Company's interest in joint venture profits or losses is recognized in the income statement, and participation in changes in reserves is reflected in the Company's reserves. If the Company's interest in the losses of an associate or joint venture equals or exceeds the carrying amount of the investment, including any other receivables, additional losses are not recognized unless obligations or payments have been made on behalf of the joint venture.

In addition, the financial information used for associates and joint ventures to account for their impact in these financial statements may diverge from the stand-alone financial statements of those entities due to adjustments to Vale's accounting policy and variations in reporting periods.

Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

Cumulative translation adjustments – According to IAS 21, exchange differences arising from transactions and balances of foreign operations are recognized in other comprehensive income and accumulated in equity until the full or partial disposal of the operation. A "partial disposal" of an investment can be construed as (i) a reduction in the percentage of equity interest or (ii) a decrease in the absolute value of the investment through the reduction of the investee's capital, even if the investor's ownership percentage remains unchanged. Consequently, there exists an accounting policy choice concerning the definition of a partial disposal.

In alignment with its accounting policy, the Company has chosen to treat a capital reduction in an investment in a foreign operation under the absolute value approach as described in (ii) above. Consequently, the exchange differences initially recorded in equity are reclassified to the income statement in the same proportion as the reduction in the net investment held in the foreign operation.

Critical accounting estimates and judgments

In certain scenarios, judgment is necessary to determine whether, after considering all relevant factors, the Company exercises control, joint control, or significant influence over an entity. Significant influence includes situations involving collective control.

The Company holds the majority of the voting capital in five joint arrangements (Aliança Geração de Energia S.A., Aliança Norte Energia Participações S.A., Companhia Hispano-Brasileira de Pelotização, Companhia Ítalo-Brasileira de Pelotização, and Companhia Nipo-Brasileira de Pelotização). However, management has concluded that the Company lacks a sufficiently dominant voting interest to direct the activities of these entities. Consequently, these entities are accounted for using the equity method due to shareholder agreements where relevant decisions are shared with other parties.

Vale and Sumitomo Metal Mining Co. Ltd. ("SMM") jointly own a 44.3% and 15% equity interest in PT Vale Indonesia Tbk ("PTVI"), resulting in a total 59.3% interest in PTVI. Vale and SMM have a Shareholders' Agreement ("Block voting agreement"), stipulating that SMM will adhere to Vale's guidelines in decision-making on financial and operational matters crucial to PTVI's management. Consequently, the Company consolidates PTVI in its financial statements.

Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

16. Acquisitions and divestitures

Effects on the income statement

	Reference	Year ended December 31, 2023			
		Cumulative translation adjustments		Result of the transaction	
		Other financial items, net	Equity results and other results in associates and joint ventures	Impairment reversal (impairment) of non-current assets	Equity results and other results in associates and joint ventures
Mineração Rio do Norte	16(d)	-	-	-	(87)
Companhia Siderúrgica do Pecém	16(f)	-	-	-	31
		-	-	-	(56)

	Reference	Year ended December 31, 2022			
		Cumulative translation adjustments		Result of the transaction	
		Other financial items, net	Equity results and other results in associates and joint ventures	Impairment reversal (impairment) of non-current assets	Equity results and other results in associates and joint ventures
Companhia Siderúrgica do Pecém (i)	16(f)	-	-	-	(135)
Midwestern System	16(g)	37	-	1,121	-
California Steel Industries	16(h)	-	150	-	142
Manganese	16(i)	-	-	(10)	-
Other		28	-	-	(9)
		65	150	1,111	(2)
Discontinued operations (Coal)	16(l)	3,072	-	(589)	-
		3,137	150	522	(2)

(i) Includes impairment of the investment in the amount of US\$111 and a provision for accounts receivable with CSP in the amount of US\$24.

	Reference	Year ended December 31, 2021			
		Cumulative translation adjustments		Result of the transaction	
		Other financial items, net	Equity results and other results in associates and joint ventures	Impairment reversal (impairment) of non-current assets	Equity results and other results in associates and joint ventures
Midwestern System	16(g)	-	-	(78)	-
Vale Nouvelle-Calédonie	16(m)	1,132	-	(98)	-
Vale Shipping Holding	16(k)	771	-	-	-
Manganese	16(i)	-	-	(35)	-
Other		9	-	-	(75)
		1,912	-	(211)	(75)
Discontinued operations (Coal)	16(l)	424	-	(3,282)	-
		2,336	-	(3,493)	(75)

a) Acquisition of equity interest in Anglo American Minério de Ferro Brasil S.A. ("Anglo American Brasil") – In February 2024 (subsequent event), the Company entered into an agreement with Anglo American plc for the acquisition of 15% interest in Anglo American Brasi, company that currently owns the Minas-Rio complex ("Minas-Rio"), in Brazil. Under the terms agreed, Vale will contribute with Serra da Serpentina iron ore resources and a cash contribution of US\$157.5, subject to net debt and working capital variation adjustments at the closing date. Additionally, depending on the future iron ore prices, there may be an adjustment in the transaction price and the fair value adjustments of this mechanism will be recognized in the Company's income statements accordingly.

Following completion of the transaction, Vale will receive its pro-rata share of Minas-Rio production and the Company will also have an option to acquire an additional 15% shareholding in Minas-Rio. The option will be exercised at fair value, calculated at the time of exercise.

The closing of the transaction is subject to the usual conditions precedent and expected to occur in 2024. Upon completion of the transaction, Anglo American Brasil will be an associate of Vale and the investment will be accounted for under the equity method.

Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

b) PT Vale Indonesia Tbk ("PTVI") – PTVI has a Contract of Work with the government of Indonesia to operate its mining licenses, expiring in December 2025. To extend the period of the mining licenses beyond 2025, PTVI must meet certain requirements under the Contract of Work, including the commitment to meet a threshold of Indonesian participants in its shareholding structure.

In November 2023, the Company signed a Heads of Agreement with PT Mineral Industri Indonesia ("MIND ID") and Sumitomo Metal Mining Co., Ltd. ("SMM") regarding the divestment obligation of approximately 14% in PTVI. Therefore, MIND ID will become PTVI's largest shareholder, holding approximately 34% of the issued shares, with the Company and SMM holding approximately 33.9% and approximately 11.5%, respectively. The transaction's conclusion is expected in 2024 and is subject to customary closing conditions.

Thus, Vale will lose control over PTVI and will treat the investment held in PTVI through the equity method due to the significant influence it will retain on PTVI.

In addition, due to the current stage of this transaction, this investment was classified as an asset held for sale as it meets the "highly probable" criterion as defined in IFRS 5 – *Non-current Assets Held for Sale and Discontinued Operations*. As the fair value of PTVI is higher than the carrying value, no impairment loss was recorded in the income statement for the year ended December 31, 2023.

Therefore, at the closing of the transaction, the Company will recognize impacts resulting from (i) derecognition of net assets due to the deconsolidation of PTVI; (ii) derecognition of the non-controlling interest due to the deconsolidation of PTVI; (iii) remeasurement of the retained interest in the investee at the fair value; (iv) reclassification of the accumulated translation adjustments, recorded in equity to the income statement.

Effects on the balance sheet

		December 31, 2023 PTVI (held for sale)
	Notes	
Assets		
Cash and cash equivalents		703
Accounts receivable		20
Inventories		80
Taxes		117
Investments		13
Property, plant and equipment	18	2,792
Intangibles	17	69
Other assets		139
		3,933
Liabilities		
Suppliers and contractors		172
Other liabilities		389
		561
Net assets held for sale		3,372

c) Strategic partnership on the Energy Transition Metals business – In July 2023, the Company signed a binding agreement with Manara Minerals, a joint venture between Ma'aden and Saudi Arabia's Public Investment Fund, under which Manara Minerals will make an equity investment in Vale Base Metals Limited ("VBM"), the holding entity for Vale's Energy Transition Metals Business. At the same time, Vale and Engine No. 1 entered into another binding agreement for an equity investment in VBM.

As a result of both agreements, Manara Minerals and Engine No. 1 will hold a combined 13% equity interest in VBM for the consideration of approximately US\$3.4 billion, which will be contributed to VBM thereby diluting Vale to an 87% equity interest. Therefore, the Company will retain control over VBM and as a result this agreement will be accounted for in the Company's equity. The closing of the transaction is expected to take place in 2024, subject to conditions precedent, including the approval of the usual authorities.

d) Mineração Rio do Norte S.A. ("MRN") – In November 2023, Vale concluded the sale of its 40% interest in MRN, which has been impaired in full since 2021, to Ananke Alumina S.A. ("Ananke"), an associate of Norsk Hydro ASA. At closing of the transaction, Vale paid US\$72 to the buyer, resulting in a loss of US\$87 recorded in the income statement for the year ended December 31, 2023, as "Equity results and other results in associates and joint ventures".

e) Vale Oman Pelletizing Company LLC ("VOPC") – In February 2023, OQ Group exercised its option to sell its 30% noncontrolling interest held in VOPC, a subsidiary consolidated by the Company. In April 2023, the Company concluded the transaction and acquired the minority interest for US\$130, resulting in a gain of US\$3, recorded in equity, as "Acquisitions and disposals of noncontrolling interests", since it resulted from a transaction between shareholders. Upon closing, Vale owns 100% of VOPC's share capital.

Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

f) Companhia Siderúrgica do Pecém ("CSP") – In July 2022, the Company and the other shareholders of CSP signed a binding agreement with ArcelorMittal Brasil S.A. ("ArcelorMittal") for the sale of CSP. Following the terms of the agreement, the Company has impaired its investment in full, with an impact of US\$111 and recorded a provision for accounts receivable with CSP in the amount of US\$24, both recorded in the income statement for the year ended December 31, 2022.

In March 2023, the Company completed the sale of its interest in CSP to ArcelorMittal, for US\$1,082, which was fully used to prepay most of the outstanding net debt of US\$1,149. The remaining balance was settled by the shareholders and so Vale disbursed US\$67 upon completion of the transaction. The Company also derecognized its financial liability related to the guarantee granted to CSP, leading to a gain of US\$31 recorded as "Equity results and other results in associates and joint ventures" for the year ended December 31, 2023.

g) Midwestern System – In April 2022, the Company entered into an agreement with J&F Mineração ("J&F") for the sale of Vale's iron ore, manganese and logistics assets in the Centro-Oeste System, through equity interests in Mineração Corumbaense Reunida S.A., Mineração Mato Grosso S.A., International Iron Company, Inc. and Transbarge Navegación S.A.

The carrying amount of those assets were fully impaired in past years and the Company had a liability related to take-or-pay logistics contracts that were deemed onerous contracts under the Company's business model for the Midwestern System.

However, these offers received during the sale process of the assets represented an objective evidence of impairment reversal and the remeasurement of the existing provision, which led to a gain of US\$1,121 recorded as "Impairment reversal (impairment and disposals) of non-current assets, net", of which US\$214 relates to the property, plant and equipment and US\$916 is due to the onerous contract liability, partially offset by losses in working capital adjustments at the closing of the transaction in the amount of US\$9.

In July 2022, the Company completed the transaction and received US\$140. Following the disposal, the Company recorded a gain of US\$37 related to the reclassification of the cumulative translation adjustments from the equity to the income statement, recorded in "Other financial items, net".

h) California Steel Industries ("CSI") – In December 2021, the Company entered into a binding agreement with Nucor Corporation ("Nucor") for the sale of its 50% interest in CSI for US\$437. In February 2022, the Company concluded the sale and recorded a gain of US\$292 for the year ended December 31, 2022, as "Equity results and other results in associates and joint ventures", of which US\$142 relates to a gain from the sale and US\$150 is due the reclassification of the cumulative translation adjustments from the shareholders' equity to the income statement.

i) Manganese

Operations in Minas Gerais – In January 2022, the Company completed the sale of its ferroalloy operations in Barbacena and Ouro Preto and its manganese mining operations at Morro da Mina, in the state of Minas Gerais, to VDL Group ("VDL") for a total consideration of US\$40. As the Company had already adjusted the net assets to the fair value less cost of disposal, the closing did not result in an additional impact on the income statement for 2022 (2021: impairment of US\$25).

Operations in Bahia – In 2020, the Company decided to shut down the Simões Filho operation, located in the State of Bahia, the plant was part of Vale Manganês business and produced manganese ferroalloy. In 2022, the Company signed a binding agreement with Minas Ligas for a partial sale of the assets of this plant for US\$11, which resulted in an impairment loss of US\$10 for the year ended December 31, 2022 (2021: US\$10).

j) The Mosaic Company ("Mosaic") – The Company held 34.2 million common shares of Mosaic, the financial instrument was measured at fair value through other comprehensive income. Thus, changes in the fair value of this investment were accumulated in the Company's equity. In November 2021, the Company sold the entire investment of Mosaic shares for the total amount of US\$1,259 and the amount US\$522 was reclassified from other reserves to retained earnings reserve and, therefore, did not result in an impact on the income statement for the year ended December 31, 2021.

k) Vale Shipping Holding Pte. Ltd ("VSH") – In October 2021, the Company approved the liquidation of VSH, its wholly-owned subsidiary that owned and operated the Company's vessels. In November 2021, VSH made a repayment of capital to VISA and, as a result, the Company recognized a gain of US\$771 for the year ended December 31, 2021, presented as "Other financial items, net" arising from the reclassification of cumulative translation adjustments that was recorded in the Company's equity to the income statement.

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I) Discontinued operations (Coal) – The Company had metallurgical and thermal coal mining and processing operations through Vale Moçambique S.A. (“Vale Moçambique”) which was a company controlled by Vale, that had a non-controlling interest held by Mitsui & Co. Ltd. (“Mitsui”). Coal products were transported from the Moatize mine to the maritime terminal by the Nacala Logistics Corridor (“NLC”), which was a joint venture between Vale and Mitsui. The NLC’s main assets were the railways and port concessions located in Mozambique and Malawi.

As part of the sustainable mining strategic agenda, the Company announced in 2021 its intention to divest from coal assets. To achieve this objective, it was necessary to carry out the corporate reorganization through the acquisition of the interests held by Mitsui in these assets, which, upon completion, allowed an agreement with Vulcan Minerals, for the sale of all coal assets. Following the signing of the agreement in December 2021, the Company started to treat coal as a discontinued operation.

Acquisition of non-controlling interest in Vale Moçambique

On June 22, 2021, the Company acquired 15% interest held by Mitsui in Vale Moçambique for an immaterial consideration, which resulted in a loss of US\$331 (R\$1,666 million) due to the negative reserves of Vale Moçambique at the conclusion of the transaction. This transaction with non-controlling interests was recognized in the equity as “Acquisition and disposal of non-controlling interest”. After the acquisition of the interests previously held by Mitsui, the Company held 95% of the share capital of Vale Moçambique and the remaining interest was held by the government of Mozambique.

Business combinations – NLC

The Company also concluded the acquisition of NLC’s control in June 2021, through the disbursement of US\$2,517 to settle NLC’s loans with third parties (“Project Finance”), satisfying all conditions for acquiring the additional 50% held by Mitsui. Therefore, the Company started consolidating the NLC’s assets and liabilities on its statement of financial position.

Following the closing, the Company assessed the fair value of the acquired business, resulting in a loss of US\$771 on the fair value of the loans receivable from NLC, presented as “Impairment and disposals of non-current assets, net” in the loss of discontinued operations for the year ended December 31, 2021. The loss recognized was due to the decrease in the long-term price assumption for both metallurgical and thermal coal as well as the reduction in the expected production to reflect the operational challenges to reach the ramp-up of the coal business.

The fair values of identifiable assets acquired, and liabilities assumed as a result of the NLC’s acquisition were as follows:

	June 22, 2021
Acquired assets	
Cash and cash equivalents	172
Inventory, recoverable tax, and other assets	423
Intangibles	2,219
Property, plant, and equipment	1,363
Assumed liabilities	(158)
Net identifiable assets acquired	4,019
Fair value adjustments (i)	(1,590)
Total identifiable net assets at fair value	2,429
Pre-existing relation (Loans receivable from NLC)	859
Loss on pre-existing relation	(771)
	2,517
Cash consideration	2,517
(-) Balances acquired	
Cash and cash equivalents	172
Net cash outflow	2,345

(i) Of this amount, US\$441 was allocated to property, plant, and equipment and US\$791 was allocated to intangible and the remaining amount was allocated to other assets.

Fair value adjustments

Following the decision to divest from the coal segment, the Company initiated interactions with potential interested parties in acquiring these assets, and the negotiations that were underway at the time, resulted in the decision to provision in full the book value of these assets, mainly due to the difficulties to prove the expected productivity levels of metallurgical coal and thermal coal, due to the delays that occurred to implement the mining plan and the strategy for the plant to reach the ramp-up of the asset. The Company recorded the impact of US\$2,511 in the net income from discontinued operations for the year ended December 31, 2021, presented as “Impairment and disposal of non-current assets”.

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Binding agreement with Vulcan Resources ("Vulcan")

In December 2021, the Company entered into a binding agreement with Vulcan Resources (formerly Vulcan Minerals) for the sale of these assets. Under the sale agreement Vulcan has committed to pay the gross amount of US\$270, in addition of a 10-year royalty agreement subject to certain mine production and coal price conditions and so, due to the nature and uncertainties related to the measurement of these royalties, gains will be recognized as incurred.

In April 2022, the transaction was completed, and the Company recorded a net income from discontinued operations of US\$2,060 for the year ended December 31, 2022, which is mainly driven by the reclassification of the cumulative translation adjustments of US\$3,072, from the equity to the income statement, which was partially offset by the derecognition of noncontrolling interest of US\$585 due to the deconsolidation of the coal assets. Additionally, until the closing of the transaction, the Company recorded losses of US\$589 due to the impairment of assets acquired in the period and working capital adjustments.

Net income and cash flows from discontinued operations

	Year ended December 31,		
	2023	2022	2021
Net income from discontinued operations			
Net operating revenue	-	448	1,083
Cost of goods sold and services rendered	-	(264)	(1,386)
Operating expenses	-	(13)	(33)
Impairment and results on disposals of non-current assets, net	-	(589)	(3,282)
Operating loss	-	(418)	(3,618)
Cumulative translation adjustments (i)	-	3,072	-
Derecognition of noncontrolling interest	-	(585)	-
Financial results, net	-	(7)	447
Equity results in associates and joint ventures	-	-	(26)
Income (loss) before income taxes	-	2,062	(3,197)
Income taxes	-	(2)	821
Net income (loss) from discontinued operations	-	2,060	(2,376)
Loss attributable to noncontrolling interests	-	-	(85)
Net income (loss) attributable to Vale's shareholders	-	2,060	(2,291)

(i) In 2021, the Company assessed that its Australian subsidiaries (part of the coal business), which were no longer operational, were considered "abandoned" under IAS 21 – *The Effects of Changes in Foreign Exchange Rates* and, therefore, the Company recognized a gain related to the cumulative translation adjustments in the amount of US\$424, which was reclassified to the net income as "Other financial items, net".

	Year ended December 31,		
	2023	2022	2021
Cash flow from discontinued operations			
Operating activities			
Income (loss) before income taxes	-	2,062	(3,197)
Adjustments:			
Equity results in associates and joint ventures	-	-	26
Depreciation, amortization and depletion	-	-	69
Impairment and results on disposals of non-current assets, net	-	589	3,282
Derecognition of noncontrolling interest	-	585	-
Financial results, net	-	(3,065)	(447)
Decrease in assets and liabilities	-	(130)	(49)
Net cash generated (used) by operating activities	-	41	(316)
Investing activities			
Additions to property, plant and equipment	-	(38)	(194)
Acquisition of NLC, net of cash	-	-	(2,345)
Disposal of coal, net of cash	-	(65)	-
Other	-	-	70
Net cash used in investing activities	-	(103)	(2,469)
Financing activities			
Payments	-	(11)	(13)
Net cash used by financing activities	-	(11)	(13)
Net cash used by discontinued operations	-	(73)	(2,798)

Notes to the Financial Statements

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m) Vale Nouvelle-Calédonie S.A.S. ("VNC") – In December 2020, the Company signed a binding put option agreement to sell its interest in VNC for an immaterial consideration to Prony Resources consortium. With the final agreement signed in March 2021, the Company recorded a loss in the amount of US\$98, presented as "Impairment reversal (impairment and disposals) of non-current assets, net" in the income statement for the year ended December 31, 2021. The Company also recorded a gain of US\$1,132 due to the cumulative translation adjustments reclassification from the equity to the income statement as "Other financial items, net".

Accounting policy

Business combinations – The acquisition method of accounting is used to account for all business combinations, irrespective of whether equity instruments or other assets are acquired. The consideration transferred for acquiring a subsidiary comprises (i) the fair values of the assets transferred; (ii) assumed liabilities of the acquired business; (iii) equity interests issued to the Company; (iv) the fair value of any asset or liability resulting from a contingent consideration arrangement; and (v) the fair value of any pre-existing equity interest in the subsidiary.

Identifiable assets acquired, and liabilities and contingent liabilities assumed in a business combination are, with limited exceptions, initially measured at their fair values on the acquisition date. The Company recognizes any noncontrolling interest in the acquired entity on an acquisition-by-acquisition basis, either at fair value or at the noncontrolling interest's proportionate share of the acquired entity's net identifiable assets.

Discontinued operations – The designation as a discontinued operation occurs either upon disposal or when the operation meets the criteria for classification as held for sale if this condition is met earlier. A discontinued operation refers to a component of a Company's business that encompasses cash flows and operations distinguishable from the remainder of the Company, representing a significant separate line of business or geographical area of operations.

The results of discontinued operations are presented in a single amount in the income statement, including the post-tax results of these operations, net of any impairment loss. Cash flows related to operating, investing, and financing activities of discontinued operations are disclosed in a separate note.

Upon classifying an operation as discontinued, the income statements for prior periods are restated as if the operation had been discontinued since the beginning of the comparative period.

Any noncontrolling interest associated with a group disposal held for sale is presented in equity and is not reclassified in the statement of financial position.

Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

17. Intangibles

	Goodwill	Concessions	Software	Research and development project	Total
Balance as of December 31, 2021	3,208	5,223	86	494	9,011
Additions	-	1,087	39	-	1,126
Disposals	-	(13)	-	-	(13)
Amortization	-	(229)	(43)	-	(272)
Translation adjustment	(19)	366	5	34	386
Balance as of December 31, 2022	3,189	6,434	87	528	10,238
Cost	3,189	7,808	564	528	12,089
Accumulated amortization	-	(1,374)	(477)	-	(1,851)
Balance as of December 31, 2022	3,189	6,434	87	528	10,238
Additions	-	1,013	53	6	1,072
Disposals	-	(14)	-	-	(14)
Amortization	-	(251)	(41)	-	(292)
Transfer to held for sale (PTVI)	(68)	-	(1)	-	(69)
Translation adjustment	142	507	6	41	696
Balance as of December 31, 2023	3,263	7,689	104	575	11,631
Cost	3,263	9,394	634	575	13,866
Accumulated amortization	-	(1,705)	(530)	-	(2,235)
Balance as of December 31, 2023	3,263	7,689	104	575	11,631

a) Concessions – Includes the EFC and EFVM operating concession agreements (note 14a).

b) Goodwill – Includes the goodwill derived from acquisition of iron ore and nickel businesses and the goodwill from the incorporation of Valepar into Vale in 2017, which was recognized on the acquisition of Vale controlling interest by Valepar based on the expected future returns of the ferrous segment. The Company has not recognized the deferred taxes over the goodwill since there are no differences between the tax basis and accounting basis. Annually, the Company assesses the impairment of this asset, or more frequently when an indication of impairment is identified (note 19).

c) Research and development project – Refers to in-process research and development projects and patents identified in the business combination of New Steel Global N.V. acquired in 2019. The intangible assets of research and development are not subject to amortization until the operational phase is reached. Thus, the Company annually assesses the impairment of this asset, or more frequently when an indication of impairment is identified (note 19).

Accounting policy

Intangibles are carried at acquisition cost, net of accumulated amortization and impairment charges.

The estimated useful lives are as follows:

	Useful life
Railway concessions	5 to 37 years
Research and development project	19 years
Software	5 years

Notes to the Financial Statements

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18. Property, plant, and equipment

Consolidated									
Notes	Building and land	Facilities	Equipment	Mineral properties	Railway equipment	Right of use assets	Other	Constructions in progress	Total
Balance as of December 31, 2021	8,137	7,232	4,743	7,742	2,334	1,537	2,484	7,722	41,931
Additions (i)	-	-	-	-	-	77	-	5,496	5,573
Disposals	(22)	(24)	(19)	(3)	(7)	-	(2)	(144)	(221)
Assets retirement obligation 27(b)	-	-	-	(562)	-	-	-	-	(562)
Depreciation, depletion and amortization	(409)	(478)	(700)	(436)	(160)	(185)	(301)	-	(2,669)
Impairment reversal	56	34	64	39	-	-	21	-	214
Transfer to asset held for sale – Midwestern System	(56)	(34)	(64)	(39)	-	-	(21)	-	(214)
Translation adjustment	308	340	102	(131)	159	26	43	39	886
Transfers	899	972	858	502	149	-	408	(3,788)	-
Balance as of December 31, 2022	8,913	8,042	4,984	7,112	2,475	1,455	2,632	9,325	44,938
Cost	16,027	12,819	11,647	16,405	4,099	2,120	5,899	9,325	78,341
Accumulated depreciation	(7,114)	(4,777)	(6,663)	(9,293)	(1,624)	(665)	(3,267)	-	(33,403)
Balance as of December 31, 2022	8,913	8,042	4,984	7,112	2,475	1,455	2,632	9,325	44,938
Additions (i)	-	-	-	-	-	74	-	6,368	6,442
Disposals	(35)	(11)	(15)	(7)	(13)	-	(8)	(131)	(220)
Assets retirement obligation 27(b)	-	-	-	324	-	-	-	-	324
Depreciation, depletion and amortization	(462)	(517)	(736)	(446)	(168)	(190)	(323)	-	(2,842)
Transfer to asset held for sale	(670)	-	(759)	(791)	(41)	(8)	(2)	(521)	(2,792)
Translation adjustment	578	574	214	286	187	28	138	541	2,546
Transfers	1,795	1,151	762	447	172	-	47	(4,374)	-
Balance as of December 31, 2023	10,119	9,239	4,450	6,925	2,612	1,359	2,484	11,208	48,396
Cost	17,381	14,858	10,326	15,663	4,435	2,208	5,391	11,208	81,470
Accumulated depreciation	(7,262)	(5,619)	(5,876)	(8,738)	(1,823)	(849)	(2,907)	-	(33,074)
Balance as of December 31, 2023	10,119	9,239	4,450	6,925	2,612	1,359	2,484	11,208	48,396

(i) The additions are mainly related to the expansion of the Voisey's Bay mine and the Salobo III project, Sol do Cerrado (solar energy plant) and the execution of the Capanema project. It also includes capitalized interest.

For more details regarding right of use and lease liability see note 24.

Accounting policy

Property, plant, and equipment are recorded at the cost of acquisition or construction, net of accumulated depreciation and impairment charges.

Mineral properties developed internally are determined by (i) direct and indirect costs attributed to build the mining facilities, (ii) financial charges incurred during the construction period, (iii) depreciation of other fixed assets used during construction, (iv) estimated decommissioning and site restoration expenses, and (v) other capitalized expenditures during the development phase (phase when the project demonstrates its economic benefit to the Company, and the Company has ability and intention to complete the project).

The depletion of mineral properties is determined based on the ratio between production and total proven and probable mineral reserves.

Property, plant and equipment, other than mineral properties are depreciated using the straight-line method based on the estimated useful lives, from the date on which the assets become available for their intended use and are capitalized, except for land which is not depreciated.

The estimated useful lives are as follows:

	Useful life
Buildings	3 to 50 years
Facilities	3 to 50 years
Equipment	3 to 40 years
Wagons	30 to 45 years
Railway equipment	5 to 37 years
Vessels	20 to 25 years
Other	2 to 50 years

Notes to the Financial Statements

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The residual values and useful lives of assets are reviewed each reporting period and adjusted if necessary.

Expenditures and stripping costs

(i) Research and development expenditures – Expenditures on mining research are accounted for as operating expenses and recorded as “Research and development” in the income statement, until the effective proof of economic feasibility and commercial viability of a given field can be demonstrated. From then on, the expenditures incurred are capitalized as mineral properties.

(ii) Expenditures on feasibility studies, new technologies and others research – The Company also conducts feasibility studies for many businesses which it operates including researching new technologies to optimize the mining process. After these costs are proven to generate future benefits to the Company, the expenditures incurred are capitalized.

(iii) Maintenance costs – Significant industrial maintenance costs, including spare parts, assembly services, and others, are recorded in property, plant and equipment and depreciated through the next programmed maintenance overhaul.

(iv) Stripping Costs – The cost associated with the removal of overburden and other waste materials (“stripping costs”) incurred during the development of mines, before production takes place, are capitalized as part of the depreciable cost of the mineral properties. These costs are subsequently amortized over the useful life of the mine.

Post-production stripping costs are included in the cost of inventory, except when a new project is developed to permit access to a significant ore deposit. In such cases, the cost is capitalized as a non-current asset and is amortized during the extraction of the ore deposits, over the useful life of the ore deposits.

Critical accounting estimates and judgments

Mineral reserves – The estimates of proven and probable reserves are regularly evaluated and updated. These reserves are determined using generally accepted geological estimates. The calculation of reserves requires the Company to make assumptions about expected future conditions that are uncertain, including future ore prices, exchange rates, inflation rates, mining technology, availability of permits and production costs. Changes in assumptions could have a significant impact on the proven and probable reserves of the Company.

The estimated volume of mineral reserves is used as basis for the calculation of depletion of the mineral properties, and also for the estimated useful life which is a major factor to quantify the provision for asset retirement obligation, environmental recovery of mines and impairment of long-lived asset. Any changes to the estimates of the volume of mine reserves and the useful lives of assets may have a significant impact on the depreciation, depletion and amortization charges and assessments of impairment.

Notes to the Financial Statements

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

The impairment reversal (impairment loss) and result of disposal of non-current assets recognized are presented below:

	Notes	2023	2022	2021
Midwestern System	16(g)	-	205	(78)
Manganese	16(i)	-	(10)	(35)
Vale Nouvelle-Calédonie S.A.S. ("VNC")	16(m)	-	-	(98)
Impairment reversal (impairment) of non-current assets		-	195	(211)
Onerous contracts - Midwestern System	16(g)	-	916	(18)
Result of disposals of non-current assets and others		(266)	(338)	(197)
Result of disposals of non-current assets and others		(266)	578	(215)
Impairment reversal (impairment) and disposals of non-current assets		(266)	773	(426)

The Company tested for impairment the cash generating units ("CGU") for which a triggering event was identified and for goodwill. The recoverable amount of each CGU under the Company's impairment test was assessed using the fair value less costs of disposal model ("FVLCD"), through discounted cash flow techniques, which is classified as "level 3" in the fair value hierarchy, taking into consideration offers and purchase agreements, if applicable.

The cash flows were discounted by using a post-tax discount rate expressed in real terms, which represents an estimate of the rate that a market participant would apply having regard to the time value of money and the asset's specific risk. The Company used the weighted average cost of capital ("WACC") of the mining segment as a starting point for determining the discount rates, with appropriate adjustments for the risk profile of the countries in which the individual CGU operate.

Climate change

As outlined in note 2, the potential financial impacts on the Company of climate change and the transition to a low carbon economy have been considered in the assessment of the Company's critical accounting estimates, which includes indicators of impairment, such as: (i) demand for the Company's commodities decreasing, due to policy, regulatory (including carbon pricing mechanisms), legal, technological, market or societal responses to climate change; (ii) physical impacts related to risks resulting from increased frequency or severity of extreme weather events, and those related to chronic risks resulting from longer-term changes in climate patterns; and (iii) investments related to decarbonization.

a) Impairment test for the goodwill and other intangibles (note 17)

Goodwill allocated to iron ore and pellet operations

	2023	2022
Carrying amount	1.473	1.367
Impairment testing results	The recoverable amount of the operating segments is higher than the carrying amount and, therefore, there is no impairment to be recognized.	The recoverable amount of the operating segments is higher than the carrying amount and, therefore, there is no impairment to be recognized.
Measurement of recoverable value	FVLCD	FVLCD
Discount rate	7.0%	6.4%
Period of cash flow projections	2053	2052
Range of iron ore forecasted prices	US\$/t 75 - 98	US\$/t 75 - 95
Sensitivity of key assumptions	A 34% reduction in the long-term prices of all commodities or a 61% reduction in reserves would, alone, result in estimated recoverable amount equal to the carrying value of this CGU.	A 29% reduction in the long-term prices of all commodities or a 51% reduction in reserves would, alone, result in estimated recoverable amount equal to the carrying value of this CGU.

Notes to the Financial Statements

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Goodwill allocated to nickel operations

	2023	2022
Carrying amount	1.789	1.822
Impairment testing results	The recoverable amount of the operating segments is higher than the carrying amount and, therefore, there is no impairment to be recognized.	The recoverable amount of the operating segments is higher than the carrying amount and, therefore, there is no impairment to be recognized.
Measurement of recoverable value	FVLCD	FVLCD
Discount rate	5.6% – 5.9%	4.5% – 5.3%
Period of cash flow projections	2034–2048	2032–2048
Range of nickel forecasted prices	US\$/t 18,000 – 23,000	US\$/t 21,000 – 24,000
Sensitivity of key assumptions	A 12.5% reduction in the long-term prices of all commodities would, alone, result in estimated recoverable amount equal to the carrying value of this group of CGUs.	A 23.7% reduction in the long-term prices of all commodities would, alone, result in estimated recoverable amount equal to the carrying value of this group of CGUs.

Other intangibles – Research and development project

	2023	2022
Carrying amount	568	528
Impairment testing results	The recoverable amount of the cash generating unit is higher than the carrying amount and, therefore, there is no impairment to be recognised.	The recoverable amount of the cash generating unit is higher than the carrying amount and, therefore, there is no impairment to be recognised.
Measurement of recoverable value	FVLCD	FVLCD
Discount rate	7%	6.4%
Beginning of operation and useful life	16 years of useful life considering the beginning of operation in 2025	16 years of useful life considering the beginning of operation in 2025
Range of iron ore forecasted prices	US\$/t 80 – 98	US\$/t 85 – 95
Sensitivity of key assumptions	A 7.5% reduction in the prices of all commodities or an 67% reduction in in processing and beneficiating iron ore volumes would, alone, result in estimated recoverable amount equal to the carrying value of this asset.	A 12.5% reduction in the prices of all commodities or an A 77% reduction in in processing and beneficiating iron ore volumes would, alone, result in estimated recoverable amount equal to the carrying value of this asset.

b) Impairment recorded on the sale of investments

In the past few years, the Company has divested non-strategic assets, as detailed in note 16 to these financial statements. These transactions resulted in material impacts on Vale's results, which were recorded under "Impairment reversal (impairment and disposals) of non-current assets, net", as summarized below:

- **Midwestern system (note 16g)** – As a result of the agreement for the sale of these assets to J&F, the Company recorded a gain in the amount of US\$1,121 in the income statement for the year ended December 31, 2022 due to the reversal of the impairment of property, plant and equipment, of which US\$214 relates to the property, plant and equipment, and US\$916 is due to the onerous contract, partially offset by losses of US\$9 due to working capital adjustments at the closing of the transaction.
- **Manganese (note 16i)** – The Company has entered into agreements to sell its manganese assets, resulting in an impairment loss of US\$10 recorded in the income statement for the year ended December 31, 2022 (2021: US\$35).
- **VNC (note 16m)** – As a result of the sale of this asset to Prony Resources, the Company recognized an impairment loss of US\$98 in the income statement for the year ended December 31, 2021.

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Accounting policy

Impairment of non-financial assets – Non-financial assets are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount might not be recoverable. An impairment loss is recognized for the amount by which the asset's carrying value exceeds its recoverable amount. The recoverable amount is the higher of an asset's fair value less costs of disposal ("FVLCD") and value in use ("VIU").

FVLCD is generally determined as the present value of the estimated future cash flows expected to arise from the continued use of the asset from a market participant's perspective, including any expansion prospects. VIU model is determined as the present value of the estimated future cash flows expected to arise from the continued use of the asset in its present form. Value in use is determined by applying assumptions specific to the Company's continued use and cannot take into account future development. These assumptions are different to those used in calculating fair value and consequently the VIU calculation is likely to give a different result to a FVLCD calculation.

Assets that have an indefinite useful life and are not subject to amortization, such as goodwill, are tested annually for impairment.

For the purposes of assessing impairment, assets are grouped at the lowest levels for which there are separately identifiable cash flows (CGU). Goodwill is allocated to Cash Generating Units or Cash Generating Units groups that are expected to benefit from the business combinations in which the goodwill arose and are identified in accordance with the operating segment.

Non-current assets (excluding goodwill) in which the Company recognized impairment in the past are reviewed whenever events or changes in circumstances indicate that the impairment may no longer be applicable. In such cases, an impairment reversal will be recognized.

Critical accounting estimates and judgments

Significant judgements, estimates and assumptions are required to determine whether an impairment trigger has occurred and to prepare the Company's cash flows. Management uses the budgets approved as a starting point and key assumptions are, but not limited to: (i) mineral reserves and mineral resources measured by internal experts; (ii) costs and investments based on the best estimate of projects as supported by past performance; (iii) sale prices consistent with projections available in reports published by industry considering the market price when appropriate; (iv) the useful life of each cash-generating unit (ratio between production and mineral reserves); and (v) discount rates that reflect specific risks relating to the relevant assets in each cash-generating unit.

These assumptions are susceptible to risks and uncertainties and may change the Company's projection and, therefore, may affect the recoverable value of assets.

20. Financial and capital risk management

The Company is exposed to several financial and capital risk factors that may impact its performance and equity position. The evaluation of the exposure to financial and capital risks is performed periodically to support decision making process regarding the risk management strategy.

The Company's policy aims at establishing a capital structure that will ensure the continuity of our business in the long term. Within this perspective, the Company has been able to deliver value to shareholders through dividend payments and capital gain, and at the same time maintain a debt profile suitable for its activities, with an amortization well distributed over the years, thus avoiding a concentration in one specific period.

The Board of Directors establishes and supervises the management of financial risks with the support of the Capital Allocation and Project Advisory Committee that ensures that Company's financial activities are governed by appropriate policies and procedures and that financial risks are identified, measured and managed in accordance with the Company's policies and objectives.

Notes to the Financial Statements

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The Company has developed its strategy through an integrated view of the risks to which it is exposed, considering not only the risk, generated by variables traded in the financial market (market risk) and the liquidity risk, but also the risk arising from obligations assumed by third parties to the Company (credit risk), among others.

The Company uses derivative financial instruments to protect its exposure to these market risks arising from operating, financing, and investment activities, so that Vale does not engage in derivative operations that result in leverage exceeding the nominal value of its contracts. The financial instruments portfolio is reassessed monthly, allowing the monitoring of financial results and their impact on cash flow. The Company applies hedge accounting to its net investment in foreign operation and nickel revenue program.

Risks	Origin of the exposure	Management
Market Risk – Exchange Rate	Financial instruments and other financial liabilities that are not denominated in US\$	Swap and forward operations
Market risk – Interest rate	Loans and financing indexed to different interest rates including, but not limited to, SOFR and CDI	Swap operations
Market risk – Product and input prices	Volatility of commodity and input prices	Forward operations and option contracts
Credit Risk	Receivables, derivative transactions, guarantees, advances to suppliers and financial investments	Portfolio diversification and policies for monitoring counterparty solvency and liquidity indicators
Liquidity risk	Contractual or assumed obligations	Availability of revolving credit lines

a) Method and techniques for valuation of derivatives

The risk of the derivatives instruments is measured using the delta-Normal parametric approach and considers that the future distribution of the risk factors and its correlations tends to present the same statistic properties verified in the historical data. The value at risk estimate considers a 95% confidence level for a one-business daytime horizon.

The derivative financial instruments were evaluated using the curves and market prices that impact each instrument on the calculation dates. For the pricing options, the Company generally uses the Black & Scholes model. In this model, the fair value of the derivative is obtained as a function of the volatility and price of the underlying asset, the exercise price of the option, the risk-free interest rate and the term to maturity of the option. In the case of options where the result is a function of the average price of the underlying asset in a certain period of the option's life, known as Asian options, the Company uses the Turnbull & Wakeman model. In this model, in addition to the factors that influence the option price in the Black & Scholes model, the average price formation period is considered.

In the case of swaps, both the present value of the paying and receiving amounts are estimated by discounting the cash flows by the interest rates in the corresponding currencies. The fair value is obtained by the difference between the present value of the paying and receiving amounts of the swap in the reference currency. In the case of swaps linked to Brazilian long-term interest rate ("TJLP"), the fair value calculation considers the current TJLP, i.e., projections of future cash flows in reais are made considering the last TJLP disclosed.

Forward and future contracts are priced using the futures curves of the respective underlying assets. These curves are usually obtained from the exchanges where these assets are traded, such as the London Metals Exchange ("LME"), the Commodities Exchange ("COMEX") or other market price providers. When there is no price for the desired maturity, the Company uses interpolations between the available maturities.

Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

a.i) Effects of derivatives on the statement of financial position

		December 31, 2023		December 31, 2022	
	Reference	Assets	Liabilities	Assets	Liabilities
Foreign exchange and interest rate risk					
CDI & TJLP vs. US\$ fixed and floating rate swap	20(b.i)	109	30	11	144
IPCA swap	20(b.i)	-	41	-	63
Dollar swap and forward transactions	20(b.i)	650	-	407	7
LIBOR & SOFR swap	20(b.ii)	4	28	7	-
		763	99	425	214
Commodities price risk					
Gasoil, Brent and freight	20(b.iv)	52	22	78	56
Energy Transition Metals	20(c)	-	8	35	1
		52	30	113	57
Other	20(d)	-	2	-	5
Total		815	131	538	276

a.ii) Net exposure

	Reference	December 31, 2023	December 31, 2022
Foreign exchange and interest rate risk			
CDI & TJLP vs. US\$ fixed and floating rate swap	20(b.i)	79	(133)
IPCA swap	20(b.i)	(41)	(63)
Dollar swap and forward transactions	20(b.i)	650	400
LIBOR & SOFR swap (i)	20(b.ii)	(24)	7
		664	211
Commodities price risk			
Gasoil, Brent and freight	20(b.iv)	30	22
Energy Transition Metals	20(c)	(8)	34
		22	56
Other	20(d)	(2)	(5)
Total		684	262

(i) In March 2021, the UK Financial Conduct Authority ("FCA"), the financial regulator in the United Kingdom, announced the discontinuation of the LIBOR rate for all terms in pounds, euros, Swiss francs, yen and for terms of one week and two months in dollars at the end of December 2021 and the other terms at the end of June 2023. Vale has finalized the negotiations for the replacement of the reference interest rate of its financial contracts from LIBOR to Secured Overnight Financing Rate ("SOFR"), with spread adjustments to match the transaction costs.

a.iii) Effects of derivatives on the income statement

	Reference	Gain (loss) recognized in the income statement		
		Year ended December 31,		
		2023	2022	2021
Foreign exchange and interest rate risk				
CDI & TJLP vs. US\$ fixed and floating rate swap	20(b.i)	214	394	(155)
IPCA swap	20(b.i)	28	74	28
Eurobonds swap		-	-	(28)
Dollar swap and forward operations	20(b.i)	667	628	(20)
LIBOR & SOFR swap	20(b.ii)	(23)	34	16
Treasury Hedge (Forward)	20(b.ii)	14	-	-
		900	1,130	(159)
Commodities price risk				
Gasoil, Brent and freight	20(c)	15	25	127
Energy Transition Metals	20(d)	(15)	18	(2)
		-	43	125
Other	20(d)	3	(19)	11
Total		903	1,154	(23)

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a.iv) Effects of derivatives on the cash flows

	Reference	Financial settlement inflows (outflows)		
		Year ended December 31,		
		2023	2022	2021
Foreign exchange and interest rate risk				
CDI & TJLP vs. US\$ fixed and floating rate swap	20(b.i)	(1)	(98)	(142)
IPCA swap	20(b.i)	1	56	(18)
Eurobonds swap			-	(29)
Dollar swap and forward operations	20(b.i)	454	164	(79)
LIBOR & SOFR swap	20(b.ii)	8	46	(2)
Treasury Hedge (Forward) (i)	20(b.iii)	14	(8)	-
		476	160	(270)
Commodities price risk				
Gasoil, Brent and freight	20(b.iv)	7	9	205
Energy Transition Metals	20(c)	(1)	10	-
		6	19	205
Derivatives designated as cash flow hedge accounting				
Nickel	20(e)	85	(277)	(67)
Palladium	20(e)	-	15	5
Coal		-	-	(70)
		85	(262)	(132)
Total		567	(83)	(197)

(i) In 2023, the Company carried out and settle the protection program for US interest rate volatility related to both the issuance and repurchase of bonds.

b) Market risk – Foreign exchange and interest rates

The Company's cash flow is exposed to the volatility of several currencies against the U.S. dollar. While most of our product prices are indexed to U.S. dollars, most of our costs, expenses and investments are indexed to currencies other than the U.S. dollar, principally the Brazilian real and the Canadian dollar.

The Company implements hedge transactions to protect its cash flow against the market risks that arises from its debt obligations and other liabilities – mainly currency volatility. The hedges cover most of the debt denominated in Brazilian real. The Company uses swap and forward transactions to convert debt and financial obligations linked to Brazilian real into U.S. dollar, with volumes, flows and settlement dates similar to those of the debt instruments and financial obligations – or sometimes lower, subject to market liquidity conditions.

Hedging instruments with shorter tenors are renegotiated through time, so that their final maturity matches – or becomes closer – to the debt and financial obligations final maturity. At each settlement date, the results of the swap and forward transactions partially offset the impact of the foreign exchange rate in the Company's obligations, contributing to stabilize the cash disbursements in U.S. dollar.

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b.i) Protection programs for the R\$ denominated debt instruments and other liabilities

To reduce cash flow volatility, swap and forward transactions were implemented to convert into US\$ the cash flows from certain liabilities denominated in R\$ with interest rates linked mainly to Brazilian Interbank Interest rate ("CDI"), TJLP and consumer price index ("IPCA"). In those swaps, the Company pays fixed rates in US\$ and receives payments in R\$ linked to the interest rates of the protected liabilities. The swap and forward transactions were negotiated over-the-counter and the protected items are the cash flows from debt instruments and other liabilities linked to R\$.

Flow	Notional		Index	Average rate	December 31, 2023	Fair value	Financial Settlement Inflows (Outflows)	Value at Risk	Fair value by year	
	December 31, 2023	December 31, 2022				December 31, 2022	December 31, 2023	December 31, 2023	2024	2025+
CDI vs. US\$ fixed rate swap					107	(83)	1	20	23	84
Receivable	R\$ 5,162	R\$ 6,356	CDI	100.00%						
Payable	US\$ 1,196	US\$ 1,475	Fix	2.00%						
TJLP vs. US\$ fixed rate swap					(28)	(50)	(2)	3	(3)	(25)
Receivable	R\$ 694	R\$ 814	TJLP +	1.06%						
Payable	US\$ 173	US\$ 204	Fix	3.46%						
					79	(133)	(1)	23	20	59
IPCA swap vs. US\$ fixed rate swap					(41)	(63)	1	4	(5)	(36)
Receivable	R\$ 1,078	R\$ 1,294	IPCA +	4.54%						
Payable	US\$ 267	US\$ 320	Fix	3.88%						
					(41)	(63)	1	4	(5)	(36)
R\$ fixed rate vs. US\$ fixed rate swap					600	318	340	40	333	267
Receivable	R\$ 12,660	R\$ 20,854	Fix	7.36%						
Payable	US\$ 2,431	US\$ 3,948	Fix	0.00%						
Forward	R\$ 1,209	R\$ 4,342	B	5.19	50	82	114	3	39	11
					650	400	454	43	372	278

Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

The sensitivity analysis of these derivative financial instruments is presented as follows:

Instrument	Instrument's main risk events	Fair value	Scenario I (Δ of 25%)	Scenario II (Δ of 50%)
CDI vs. US\$ fixed rate swap	R\$ depreciation	107	(189)	(485)
	US\$ interest rate inside Brazil decrease	107	74	38
	Brazilian interest rate increase	107	80	52
Protected item: R\$ denominated liabilities	R\$ depreciation	n.a.	-	-
TJLP vs. US\$ fixed rate swap	R\$ depreciation	(28)	(68)	(109)
	US\$ interest rate inside Brazil decrease	(28)	(32)	(37)
	Brazilian interest rate increase	(28)	(34)	(40)
	TJLP interest rate decrease	(28)	(32)	(37)
Protected item: R\$ denominated debt	R\$ depreciation	n.a.	-	-
IPCA swap vs. US\$ fixed rate swap	R\$ depreciation	(41)	(106)	(171)
	US\$ interest rate inside Brazil decrease	(41)	(47)	(55)
	Brazilian interest rate increase	(41)	(51)	(61)
	IPCA index decrease	(41)	(45)	(50)
Protected item: R\$ denominated debt	R\$ depreciation	n.a.	-	-
R\$ fixed rate vs. US\$ fixed rate swap	R\$ depreciation	600	31	(538)
	US\$ interest rate inside Brazil decrease	600	564	526
	Brazilian interest rate increase	600	525	453
Protected item: R\$ denominated debt	R\$ depreciation	n.a.	-	-
Forward	R\$ depreciation	50	-	(49)
	US\$ interest rate inside Brazil decrease	50	48	46
	Brazilian interest rate increase	50	46	43
Protected item: R\$ denominated liabilities	R\$ depreciation	n.a.	-	-

b.ii) Protection program for interest rate US\$ denominated debt

The Company has also exposure to interest rates risks over loans and financings. The US Dollar floating rate debt in the portfolio consists mainly of loans including export pre-payments, commercial banks and multilateral organizations loans.

To reduce the cash flow volatility, swap transactions were implemented to convert interest rate indexed to SOFR from certain debt instruments into fixed interest rate. In those swaps, the Company received floating rates and paid fixed rates in US\$.

Flow	December 31, 2023	Notional December 31, 2022	Index	Average rate	December 31, 2023	Fair value December 31, 2022	Financial Settlement Inflows (Outflows) December 31, 2023	Value at Risk December 31, 2023	Fair value by year	
LIBOR vs. US\$ fixed rate swap									2024	2025+
Receivable	-	US\$ 150	LIBOR	0.00%	-	7	4	-	-	
Payable	-	US\$ 150	Fix	0.00%						
SOFR vs. US\$ fixed rate swap										
Receivable	US\$ 2,300	-	SOFR	0.00%	(24)	-	4	10	4	(28)
Payable	US\$ 2,300	-	Fix	3.60%						

The sensitivity analysis of these derivative financial instruments is presented as follows:

Instrument	Instrument's main risk events	Fair value	Scenario I (Δ of 25%)	Scenario II (Δ of 50%)
SOFR vs. US\$ fixed rate swap	US\$ SOFR decrease	(25)	(67)	(111)
Protected item: SOFR US\$ indexed debt	US\$ SOFR decrease	n.a.	67	111

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Expressed in millions of United States dollar, unless otherwise stated

b.iii) Protection for American treasury volatility related to tender offer transaction

To reduce the volatility of the premium paid to investors on the tender offer transaction issued in 2023, treasury lock transactions were implemented and have already been settled as of December 31, 2023.

Flow	Notional			Average rate	Fair value		Financial Settlement Inflows (Outflows)	Value at Risk	Fair value by year
	December 31, 2023	December 31, 2022	Index		December 31, 2023	December 31, 2022	December 31, 2023	December 31, 2023	2024
Treasury Hedge (Forward)	-	-	B	-	-	-	14	-	-

b.iv) Protection program for product prices and input costs

The Company is also exposed to market risks associated with the price volatility of commodities and inputs, especially freight and fuel costs. In line with its risk management policy, risk mitigation strategies involving commodities are used to reduce cash flow volatility. These mitigation strategies incorporate derivative instruments, predominantly forward, futures and options.

Flow	Notional			Average strike (US\$)	Fair value		Financial settlement Inflows (Outflows)	Value at Risk	Fair value by year
	December 31, 2023	December 31, 2022	Bought / Sold		December 31, 2023	December 31, 2022	December 31, 2023	December 31, 2023	2024
Brent crude oil (bbl)									
Call options	19,907,250	22,600,500	B	91	45	74	-	11	45
Put options	19,907,250	22,600,500	S	58	(22)	(51)	-	5	(22)
Forward Freight Agreement (days)									
Freight forwards	1,210	2,085	B	14,248	7	(1)	7	1	7
					30	22	7	17	30

The sensitivity analysis of these derivative financial instruments is presented as follows:

Instrument	Instrument's main risk events	Fair value	Scenario I (Δ of 25%)	Scenario II (Δ of 50%)
Brent crude oil (bbl)				
Options	Price input decrease	23	(111)	(399)
Protected item: Part of costs linked to fuel oil prices	Price input decrease	n.a.	111	399
Forward Freight Agreement (days)				
Forwards	Freight price decrease	7	1	(5)
Protected item: Part of costs linked to maritime freight prices	Freight price decrease	n.a.	(1)	5

Brent Crude Oil – To reduce the impact of fluctuations in fuel oil prices on the hiring and availability of maritime freight and, consequently, to reduce the Company's cash flow volatility, hedging operations were carried out through options contracts on Brent Crude Oil for different portions of the exposure. The derivative transactions were traded over-the-counter and the protected item is part of the costs linked to the price of fuel oil used on ships. The financial settlement inflows/outflows are offset by the protected items' losses/gains. In 2023, the Company renewed the program related to its brent crude oil hedge strategy for 2024.

Freight derivative – To reduce the impact of maritime freight price volatility on the Company's cash flow, freight hedging transactions were implemented, through Forward Freight Agreements (FFAs). The protected item is part of the costs linked to maritime freight spot prices. The financial settlement inflows/outflows of the FFAs are offset by the protected items' losses/gains due to freight price changes. The FFAs are contracts traded over the counter and can be cleared through a Clearing House, in this case subject to margin requirements.

Notes to the Financial Statements

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c) Other derivatives, including embedded derivatives in contracts

	Notional				Fair value		Financial settlement Inflows (Outflows)	Value at Risk	Fair value by year
Flow	December 31, 2023	December 31, 2022	Bought / Sold	Average strike (US\$/ton)	December 31, 2023	December 31, 2022	December 31, 2023	December 31, 2023	2024+
Fixed price nickel sales protection (ton)									
Nickel forwards	3,322	766	B	19,207	(8)	7	(3)	3	(8)
Hedge program for products acquisition for resale (ton)									
Nickel forwards	-	384	S	-	-	(1)	2	-	-
					(8)	6	(1)	3	(8)
Embedded derivative (pellet price) in natural gas purchase (volume/month)									
Call options	746,667	746,667	S	233	(2)	(5)	-	2	(2)
					(2)	(5)	-	2	(2)

The sensitivity analysis of these derivative financial instruments is presented as follows:

Instrument	Instrument's main risk events	Fair value	Scenario I (Δ of 25%)	Scenario II (Δ of 50%)
Fixed price sales protection (ton)				
Forwards	Nickel price decrease	(8)	(21)	(35)
Protected item: Part of nickel revenues with fixed prices	Nickel price decrease	n.a.	21	35
Hedge program for products acquisition for resale (ton)				
Forwards	Nickel price increase	n.a.	-	-
Protected item: Part of revenues from products for resale	Nickel price increase	n.a.	-	-
Embedded derivative (pellet price) in natural gas				
Embedded derivatives – Gas purchase	Pellet price increase	(2)	(6)	(13)

Fixed price sales protection – The Company started an operational program to protect nickel sales, converting fixed price commercial contracts with customers to floating price, therefore maintaining the Company's exposure to price fluctuations. The transactions usually carried out in this program are nickel purchases for future settlement.

Hedge program for products acquisition for resale – The Company started a hedge program with forward transactions with the objective of reducing the risk of price mismatch between the period of purchase and sale of products to third parties.

Embedded derivative (pellet price) in natural gas purchase agreement – The Company has a natural gas purchase agreement in which the amount charged to Vale changes based on the pricing level of the pellets sold by the Company to the market.

Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

d) Hedge accounting

	Gain (loss) recognized in the other comprehensive income		
	Year ended December 31,		
	2023	2022	2021
Net investments hedge	139	81	(118)
Cash flow hedge	(19)	19	3

Net investment hedge – The Company uses hedge accounting for foreign exchange risk arising from Vale S.A.'s net investments in Vale International S.A. and Vale Holding BV. With the hedge program, the Company's debt with third parties denominated in United States dollars and euros serves as a hedge instrument for investments in these subsidiaries. In March 2021, the Company redeemed all its euro bonds (note 10). As a result, the amount of debt designated as a hedge instrument for this investment is US\$2,711 as of December 2023. As a result of the hedge program, the impact of the exchange rate variation on the debt denominated in dollars and euros is now partially recorded in other comprehensive income, as "Translation adjustments".

e) Cash flow hedge

Flow	Bought / Sold	December 31, 2023	Fair value December 31, 2022	Financial settlement Inflows (Outflows)	Value at Risk December 31, 2023	Fair value by year 2024
				December 31, 2023		
Nickel revenue hedge program						
Forward	S	-	28	85	-	-
		-	28	85	-	-

The sensitivity analysis of these derivative financial instruments is presented as follows:

Instrument	Instrument's main risk events	Fair value	Scenario I (Δ of 25%)	Scenario II (Δ of 50%)
Nickel Revenue Hedging Program				
Forward	Nickel price increase	-	-	-
Protected item: Part of nickel revenues with fixed sales prices	Nickel price increase	n.a.	-	-

Cash flow hedge (Nickel) – To reduce the cash flow volatility due to nickel price fluctuations, the Company implemented the Nickel Revenue Hedge Program in 2019. In this program, hedging operations were executed, through option contracts, to protect a portion of the projected volume of sales at floating, highly probable realization prices, guaranteeing prices above the average unit cost of nickel production for the protected volumes. The contracts are traded on the London Metal Exchange or over-the-counter market and the hedged item's P&L is offset by the hedged item's P&L due to Nickel price variation.

f) Credit risk management

The Company is exposed to credit risk that arises from trade receivables, derivative transactions, guarantees, down payment for suppliers and cash investments. The credit risk management process provides a framework for assessing and managing counterparties' credit risk and for maintaining our portfolio risk at an acceptable level.

For the commercial credit exposure, which arises from sales to final customers, the risk management area, in accordance with the current delegation level, approves or requests the approval of credit risk limits for each counterparty.

Vale attributes an internal credit risk rating for each counterparty using its own quantitative methodology for credit risk analysis, which is based on market prices, external credit ratings and financial information of the counterparty, as well as qualitative information regarding the counterparty's strategic position and history of commercial relations.

Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

Based on the counterparty's credit risk, risk mitigation strategies may be used to manage the Company's credit risk. The main credit risk mitigation strategies include non-recourse sale of receivables, insurance instruments, letters of credit, corporate and bank guarantees, mortgages, among others.

f.i) Accounts receivable portfolio

Vale has a diversified accounts receivable portfolio from a geographical standpoint, with Asia, Europe and Brazil as the regions with more significant exposures. According to each region, different guarantees can be used to enhance the credit quality of the receivables. Historically, the expected credit loss on the Company's accounts receivable portfolio is immaterial (note 11).

f.ii) Financial instruments, except for accounts receivable

To manage the credit exposure arising from cash investments and derivative instruments, credit limits are approved to each counterparty with whom the Company has credit exposure. Furthermore, the Company controls the portfolio diversification and monitors different indicators of solvency and liquidity of the different counterparties that were approved for trading. The carrying amount of the financial assets that represent the exposure to credit risk is presented below:

	Notes	December 31, 2023	December 31, 2022
Cash and cash equivalents	23	3,609	4,736
Short-term investments	23	51	61
Restricted cash		4	77
Judicial deposits	28	-	1,215
Derivative financial instruments		815	538
Investments in equity securities	14	45	7
		4,524	6,634

f.iii) Financial counterparties' ratings

The transactions of derivative instruments, cash and cash equivalents, as well as short-term investments are held with financial institutions whose exposure limits are periodically reviewed and approved by the delegated authority. The financial institutions credit risk is performed through a methodology that considers, among other information, ratings provided by international rating agencies.

The table below presents the ratings in foreign currency as published by Moody's regarding the main financial institutions used by the Company to contract derivative instruments, cash and cash equivalents transaction.

	December 31, 2023		December 31, 2022	
	Cash and cash equivalents and investment	Derivatives	Cash and cash equivalents and investment	Derivatives
Aa1	-	-	32	-
Aa2	338	-	342	5
Aa3	42	-	239	-
A1	2,022	50	1,746	97
A2	309	293	938	145
A3	186	22	918	63
Baa1	2	-	-	-
Baa2	16	-	7	-
Ba1 (i)	85	-	-	-
Ba2 (i)	287	314	411	174
Ba3 (i)	373	136	164	54
	3,660	815	4,797	538

(i) A substantial part of the balances is held with financial institutions in Brazil which are deemed investment grade in local currency.

Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

g) Liquidity risk management

The liquidity risk arises from the possibility that Vale might not perform its obligations on due dates, as well as face difficulties to meet its cash requirements due to market liquidity constraints.

The available revolving credit facilities are intended to assist short term liquidity management and to enable more efficiency in cash management and were provided by a syndicate of several global commercial banks. The Company has two revolving credit facilities, in the amount of US\$5,000, for which US\$3,000 have maturity date in 2024 and US\$2,000 in 2026. As of December 31, 2023, these lines were not drawn.

Accounting policy

The Company uses financial instruments to hedge its exposure to certain market risks arising from operational, financing and investing activities. Derivatives are included within financial assets or liabilities at fair value through profit or loss unless they are designated as effective hedging instruments (hedge accounting).

At the beginning of the hedge operations, the Company documents the type of hedge, the relation between the hedging instrument and hedged items, its risk management objective and strategy for undertaking hedge operations. The Company also documents, both at hedge inception and on an ongoing basis that the hedge is expected to continue to be highly effective. The Company has elected to adopt the new general hedge accounting model in IFRS 9 and designates certain derivatives as either:

Cash flow hedge – The effective portion of changes in the fair value of derivatives that are designated and qualify as cash flow hedges is recognized in equity within "Unrealized fair value gain (losses)". The gain or loss relating to the ineffective portion is recognized immediately in the income statement. When a hedging instrument expires or is sold, or when a hedge no longer meets the criteria for hedge accounting, any cumulative gain or loss existing in equity at that time remains in equity and is recognized in profit or loss when the transaction is recognized in the income statement.

Net investment hedge – Hedges of net investments in foreign operations are accounted for similarly to cash flow hedges. Any gain or loss on the hedging instrument relating to the effective portion of the hedge is recognized in equity within "Cumulative translation adjustments". The gain or loss relating to the ineffective portion is recognized immediately in the income statement. Gains and losses accumulated in equity are included in the statement of income when the foreign operation is partially or fully disposed of or sold.

Derivatives at fair value through profit or loss – Certain derivative instruments do not qualify for hedge accounting. Changes in the fair value of any of these derivative instruments are recognized immediately in the income statement.

Critical accounting estimates and judgments

The fair values of financial instruments that are not traded in active markets are determined using valuation techniques. Vale uses its own judgment to choose between the various methods. Assumptions are based on the market conditions, at the end of the year. An analysis of the impact if actual results are different from management's estimates is present under "Sensitivity analysis of derivative financial instruments".

Notes to the Financial Statements

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21. Financial assets and liabilities

a) Classification

The Company classifies its financial instruments in accordance with the purpose for which they were acquired, and determines the classification and initial recognition according to the following categories:

December 31, 2023						December 31, 2022			
			At fair value through OCI	At fair value through profit or loss			At fair value through OCI	At fair value through profit or loss	
Financial assets	Notes	Amortized cost			Total	Amortized cost			Total
Current									
Cash and cash equivalents	23	3,609	-	-	3,609	4,736	-	-	4,736
Short-term investments	23	-	-	51	51	-	-	61	61
Derivative financial instruments	20	-	-	271	271	-	-	342	342
Accounts receivable	11	362	-	3,835	4,197	538	-	3,781	4,319
		3,971	-	4,157	8,128	5,274	-	4,184	9,458
Non-current									
Judicial deposits	28(d)	798	-	-	798	1,215	-	-	1,215
Restricted cash	14	4	-	-	4	77	-	-	77
Derivative financial instruments	20	-	-	544	544	-	-	196	196
Investments in equity securities	14	-	45	-	45	-	7	-	7
		802	45	544	1,391	1,292	7	196	1,495
Total of financial assets		4,773	45	4,701	9,519	6,566	7	4,380	10,953
Financial liabilities									
Current									
Suppliers and contractors	13	5,272	-	-	5,272	4,461	-	-	4,461
Derivative financial instruments	20	-	-	36	36	-	-	90	90
Loans and borrowings	23	824	-	-	824	307	-	-	307
Leases	24	197	-	-	197	182	-	-	182
Liabilities related to the concession grant	14(a)	591	-	-	591	416	-	-	416
Other financial liabilities - Related parties	31	290	-	-	290	400	-	-	400
Contract liability and financial liabilities	14	759	-	-	759	766	-	-	766
		7,933	-	36	7,969	6,532	-	90	6,622
Non-current									
Derivative financial instruments	20	-	-	95	95	-	-	186	186
Loans and borrowings	23	11,647	-	-	11,647	10,874	-	-	10,874
Leases	24	1,255	-	-	1,255	1,349	-	-	1,349
Participative shareholders' debentures	22	-	-	2,874	2,874	-	-	2,725	2,725
Liabilities related to the concession grant	14(a)	3,278	-	-	3,278	2,554	-	-	2,554
Financial guarantees	32	-	-	-	-	-	-	103	103
		16,180	-	2,969	19,149	14,777	-	3,014	17,791
Total of financial liabilities		24,113	-	3,005	27,118	21,309	-	3,104	24,413

b) Hierarchy of fair value

		December 31, 2023				December 31, 2022			
	Notes	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
Financial assets									
Short-term investments	23	51	-	-	51	61	-	-	61
Derivative financial instruments	20	-	815	-	815	-	538	-	538
Accounts receivable	11	-	3,835	-	3,835	-	3,781	-	3,781
Investments in equity securities	14	-	45	-	45	-	7	-	7
		51	4,695	-	4,746	61	4,326	-	4,387
Financial liabilities									
Derivative financial instruments	20	-	131	-	131	-	276	-	276
Participative shareholders' debentures	22	-	2,874	-	2,874	-	2,725	-	2,725
Financial guarantees	32	-	-	-	-	-	103	-	103
		-	3,005	-	3,005	-	3,104	-	3,104

There were no transfers between levels 1, 2 and 3 of the fair value hierarchy during the period presented.

Notes to the Financial Statements

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c) Fair value of loans and borrowings

Loans and borrowings are recorded at their contractual values. To determine the market values of these financial instruments traded in public markets, the closing market quotations on the balance sheet dates were used. The Company considers that for the other financial liabilities measured at amortized cost, their book values are close to their fair values and therefore information on their fair values is not being presented.

	December 31, 2023		December 31, 2022	
	Carrying amount	Fair value	Carrying amount	Fair value
Quoted in the secondary market:				
Bonds	7,253	7,404	6,256	6,253
Debentures	221	213	240	225
Debt contracts in Brazil in:				
R\$, indexed to TJLP, TR, IPCA, IGP-M and CDI	250	250	280	278
R\$, with fixed interest	-	-	2	2
Basket of currencies and bonds in US\$ indexed to SOFR	153	168	-	-
Debt contracts in the international market in:				
US\$, with variable and fixed interest	4,504	4,950	4,304	4,391
Other currencies, with variable interest	9	9	9	9
Other currencies, with fixed interest	81	85	90	91
	12,471	13,079	11,181	11,249

Accounting policy

Classification and measurement – The Company classifies financial instruments based on its business model for managing the assets and the contractual cash flow characteristics of those assets. The business model test determines the classification based on the business purpose for holding the asset and whether the contractual cash flows represent only payments of principal and interest.

Financial instruments are measured at fair value through profit or loss (“FVTPL”) unless certain conditions are met that permit measurement at fair value through other comprehensive income (“FVOCI”) or amortized cost. Gains and losses recorded in other comprehensive income for debt instruments are recognized in profit or loss only on disposal.

Investments in equity instruments are measured at FVTPL unless they are eligible to be measured at FVOCI, whose gains and losses are never recycled to profit or loss.

All financial liabilities are initially measured at fair value, net of transaction costs incurred and are subsequently carried at amortized cost and updated using the effective interest rate method. Excepts for Participative shareholders’ debentures and Derivative financial instruments that are measured at FVTPL.

Fair value hierarchy – The Company classifies financial instruments within the fair value hierarchy as:

Level 1: The fair value of financial instruments traded in active markets (e.g. derivatives and publicly traded shares) is based on quoted market prices at the end of the financial statements period.

Level 2: The fair value of financial instruments that are not traded in an active market (e.g. over the counter derivatives) is determined using valuation techniques that maximize the use of observable market data. If all significant data required for the fair value of an instrument are observable, the instrument is included in level 2.

Level 3: If one or more of the significant data are not based on observable market data, the instrument is included in level 3. The fair value of derivatives classified as level 3 is estimated using discounted cash flows and option valuation models with unobservable inputs of discount rates, stock prices and commodity prices.

Notes to the Financial Statements

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22. Participative shareholders' debentures

At the time of its privatization in 1997, the Company issued a total of 388,559,056 debentures to then-existing shareholders, including the Brazilian Government. The debentures' terms were set to ensure that pre-privatization shareholders would participate in potential future benefits that might be obtained from exploration of mineral resources. This obligation related to the debentures will cease when all the relevant mineral resources are exhausted, sold or otherwise disposed of by the Company.

Holders of participative shareholders' debentures have the right to receive semi-annual payments equal to an agreed percentage of revenues less value-added tax, transport fee and insurance expenses related to the trading of the products, derived from these mineral resources.

The effects on the income statement and on the statement of financial position are shown below:

	Year ended December 31,								
	Average price (R\$)			Financial results					Liabilities
	2023	2022	2021	2023	2022	2021	2023	2022	2021
Participative shareholders' debentures	35,80	36.59	49.10	(179)	659	(716)	2,874	2,725	3,419

The Company made available for withdrawal as remuneration the following amounts, as disclosed on the "Shareholders' debentures report" available on the Company's website, which were not incorporated by reference:

	Availability date	Remuneration amount
Remuneration for the first half of 2023	October 2, 2023	106
Remuneration for the second half of 2022	April 3, 2023	127
Year ended December 31, 2023		233
Remuneration for the first half of 2022	October 3, 2022	137
Remuneration for the second half of 2021	April 1, 2022	234
Year ended December 31, 2022		371
Remuneration for the first half of 2021	October 1, 2021	225
Remuneration for the second half of 2020	April 1, 2021	193
Year ended December 31, 2021		418

Accounting policy

The participative shareholders' debentures are measured at fair value through profit or loss based on the market approach, representing the amount that would be paid for the acquisition of these securities on the measurement date and, therefore, also implicitly includes the remuneration to the debenture holder. To calculate the fair value of the liabilities, the Company uses the weighted average price of the secondary market trades in the last month of period.

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23. Loans, borrowings, cash and cash equivalents and short-term investments

a) Net debt

The Company monitors the net debt with the objective of ensuring the continuity of its business in the long term.

	December 31, 2023	December 31, 2022
Loans and borrowings	12,471	11,181
Leases (note 24)	1,452	1,531
Gross debt	13,923	12,712
(-) Cash and cash equivalents	3,609	4,736
(-) Short-term investments (i)	51	61
(-) Net Cash PTVI (note 16b)	703	-
Net debt	9,560	7,915

(i) Substantially comprises investments in an exclusive investment fund, which portfolio is made by committed transactions and Selic Treasury Notes ("LFTs"), which are floating-rate securities issued by the Brazilian government.

b) Cash and cash equivalents

	December 31, 2023	December 31, 2022
R\$	953	1,770
US\$	2,516	2,798
Other currencies	140	168
Total	3,609	4,736

c) Loans and borrowings

i) Outstanding balance of loans and borrowings by type and currency

		Current liabilities		Non-current liabilities	
	Average interest rate (i)	December 31, 2023	December 31, 2022	December 31, 2023	December 31, 2022
Quoted in the secondary market:					
US\$ Bonds	6.02%	-	-	7,157	6,157
R\$ Debentures (ii)	10.17%	96	47	119	186
Debt contracts in Brazil in (iii):					
R\$, indexed to TJLP, TR, IPCA, IGP-M and CDI	10.12%	49	46	200	232
R\$, with fixed interest		-	2	-	-
Basket of currencies and bonds in US\$ indexed to SOFR	6.80%	-	-	150	-
Debt contracts in the international market in:					
US\$, with variable and fixed interest	5.59%	500	54	3,945	4,212
Other currencies, with variable interest	4.12%	-	-	9	9
Other currencies, with fixed interest	3.87%	12	11	67	78
Accrued charges		167	147	-	-
		824	307	11.647	10.874

(i) In order to determine the average interest rate for debt contracts with floating rates, the Company used the rate applicable as of December 31, 2023.

(ii) The Company has debentures in Brazil obtained for the Company's infrastructure investment projects.

(iii) The Company entered into derivatives to mitigate the exposure to cash flow variations of all floating rate debt contracted in Brazil, resulting in an average cost of 3.39% per year in US\$.

The reconciliation of loans and financing with cash flows resulting from financing activities is presented in note 10(C).

Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

ii) Future flows of principal and interest of loans and borrowings payments

	Principal	Estimated future interest payments (i)
2024	657	779
2025	451	752
2026	572	724
2027	1,700	625
Between 2028 and 2030	3,274	1,540
2031 onwards	5,650	2,182
Total	12,304	6,602

(i) Based on interest rate curves and foreign exchange rates applicable as of December 31, 2023 and considering that the payments of principal will be made on their contracted payments dates. The amount includes the estimated interest not yet accrued and the interest already recognized in the annual financial statements.

For the year ended in 2023, 2% of total interest incurred in Loans and borrowings was capitalized (2022: 7%) (note 6). Loan and Borrowing costs that are not capitalized were recognized in the income statement of the year in which they are incurred.

Covenants

Some of the Company's loans and borrowings agreements with lenders contain financial covenants. The primary financial covenants in those agreements require maintaining certain ratios, such as debt to EBITDA (as defined in note 4a) and interest coverage. The Company did not identify any instances of noncompliance as of December 31, 2023.

Accounting policy

Loans and borrowings are initially measured at fair value, net of transaction costs incurred and are subsequently carried at amortized cost and updated using the effective interest rate method. Any difference between the proceeds (net of transaction costs) and the redemption value is recognized in the Income statement over the period of the loan, using the effective interest rate method. The fees paid in obtaining the loan are recognized as transaction costs. The Company contracts derivatives to protect its exposure to changes in debt cash flows, changing the average cost of debts that have hedge derivatives contracted.

Loans and borrowing costs are capitalized as part of property, plants and equipment if those costs are directly related to a qualified asset. The capitalization occurs until the qualified asset is ready for its intended use. Interest on loans and borrowing not capitalized is recognized in profit or loss for the year when incurred.

Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

24. Leases

a) Right of use

	December 31, 2022	Additions and contract modifications	Depreciation	Transfer to asset held for sale	Translation adjustment	December 31, 2023
Ports	657	24	(59)	-	6	628
Vessels	453	4	(42)	-	-	415
Pelletizing plants	204	24	(51)	-	16	193
Properties	87	12	(25)	-	6	80
Energy plants	39	-	(5)	-	-	34
Equipment and Installment of mining	15	10	(8)	(8)	-	9
Total	1,455	74	(190)	(8)	28	1,359

b) Leases liabilities

	December 31, 2022	Additions and contract modifications	Payments (i)	Interest	Transfer to liabilities held for sale	Translation adjustment	December 31, 2023
Ports	690	24	(66)	31	-	3	682
Vessels	441	4	(63)	15	-	-	397
Pelletizing plants	222	24	(64)	9	-	16	207
Properties	105	12	(27)	4	-	8	102
Energy plants	52	-	(6)	3	-	-	49
Mining equipment	21	10	(7)	-	(9)	-	15
Total	1,531	74	(233)	62	(9)	27	1,452
Current liabilities	182						197
Non-current liabilities	1,349						1,255
Total	1,531						1,452

(i) The total amount of the variable lease payments not included in the measurement of lease liabilities was US\$112 recorded in the income statement for the year ended December 31, 2023, (2022:US\$ 367).

Annual minimum payments and remaining lease term

The following table presents the undiscounted lease obligation by maturity date. The lease liability recognized in the statement of financial position is measured at the present value of such obligations.

	2024	2025	2026	2027	2028 onwards	Total	Remaining term (years)	Discount rate
Ports	70	69	56	43	737	975	3 to 20	4% to 5%
Vessels	60	59	54	53	292	518	2 to 10	3% to 4%
Pelletizing plants	60	50	17	17	115	259	1 to 10	2% to 6%
Properties	28	18	16	14	38	114	1 to 10	2% to 6%
Energy plants	10	10	6	5	46	77	1 to 7	5% to 6%
Mining equipment	8	4	2	-	-	14	1 to 5	3% to 6%
Total	236	210	151	132	1,228	1,957		

Notes to the Financial Statements

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Accounting policy

The Company recognizes a right-of-use asset and a lease liability at the lease commencement date. The right-of-use asset is initially measured at cost, which comprises the initial amount of the lease liability adjusted for any lease payments made at or before the commencement date. The right-of-use asset is subsequently depreciated using the straight-line method from the commencement date to the earlier of the end of the lease term or the end of the useful life of the right-of-use asset.

The Company does not recognize right-of-use assets and liabilities for leases with less than 12 months of lease term and/or leases of low-value assets. The payments associated to these leases are recognized as an expense on a straight-line basis over the lease term.

The lease liability is initially measured at the present value of the lease payments, discounted using the interest rate implicit in the lease or, if that rate cannot be readily determined, the Company's incremental borrowing rate. Lease payments included in the measurement of the lease liability comprise: (i) fixed payments, including in-substance fixed payments; (ii) variable lease payments that depend on an index or a rate; and (iii) the exercise price under a purchase option or renewal option that are under the Company's control and is reasonably certain to be exercised.

The lease liability is measured at amortized cost using the effective interest method. It is remeasured when there is a change in future lease payments arising from a change in an index or rate. When the lease liability is remeasured, a corresponding adjustment is made to the carrying amount of the right-of-use asset or is recorded in profit or loss if the carrying amount of the right-of-use asset has been reduced to zero.

25. Brumadinho dam failure

In January 2019, a tailings dam ("Dam I") experienced a failure at the Córrego do Feijão mine, in the city of Brumadinho, state of Minas Gerais, Brazil. The failure released a flow of tailings debris, destroying some of Vale's facilities, affecting local communities and disturbing the environment. The tailings released have caused an impact of around 315 km in extension, reaching the nearby Paraopeba River. The dam failure in Brumadinho ("event") resulted in 270 fatalities or presumed fatalities and caused extensive property and environmental damage in the region.

As a result of the dam failure, the Company recognized provisions to meet its assumed obligations, including indemnification to those affected by the event, remediation of the impacted areas and compensation to the society. Changes in the provisions are shown below:

	December 31, 2022	Revision to estimates and new provisions	Monetary and present value adjustments	Disbursements	Translation adjustment	December 31, 2023
Judicial Settlement for Integral Reparation						
Payment obligations	882	34	79	(495)	62	562
Provision for socio-economic reparation and others	867	(4)	97	(423)	55	592
Provision for social and environmental reparation	777	9	82	(86)	61	843
	2,526	39	258	(1,004)	178	1,997
Other obligations						
Tailings containment, geotechnical safety and environmental reparation	559	200	58	(175)	42	684
Individual indemnification	45	104	9	(78)	3	83
Other	182	133	38	(73)	16	296
	786	437	105	(326)	61	1,063
Liability	3,312	476	363	(1,330)	239	3,060

The cash flow for obligations are estimated for an average period ranging from 5 to 7 years and were discounted at present value at a rate in nominal terms, which decreased from 9.08% on December 31, 2022, to 8.36% on December 31, 2023.

In addition, the Company has incurred expenses, which have been recognized straight to the income statement as "other operating expenses, net" (note 5c), in relation to tailings management, communication, humanitarian assistance, payroll, legal services, water supply, among others. The Company incurred expenses in the amount of US\$499, US\$626 and US\$650 for the years ended December 31, 2023, 2022 and 2021, respectively.

Notes to the Financial Statements

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Judicial Settlement for Integral Reparation

The Settlement for Integral Reparation includes: (i) payment obligations, of which the funds will be used directly by the State of Minas Gerais and Institutions of Justice for socio-economic and socio-environmental compensation projects; (ii) socioeconomic projects in Brumadinho and other municipalities; and (iii) compensation of the environmental damage caused by the dam failure. These obligations are projected for an average period of 5 years.

For the measures (i) and (ii), the agreement specifies an amount for each project and changes in the original budget and deadlines may have an impact in the provision. In addition, the execution of the environmental recovery actions has no cap limit despite having been estimated in the Judicial Settlement for Integral Reparation due to the Company's legal obligation to fully repair the environmental damage caused by the dam failure. The expenses related to these obligations are deducted from the income tax calculation, in accordance with the Brazilian tax regulation, which is subject to periodic inspection by the competent authorities. Therefore, although Vale is monitoring this provision, the amount recorded could materially change depending on several factors that are not under the Company's control.

Other obligations

The Company is also working to ensure geotechnical safety of the remaining structures at the Córrego do Feijão mine, in Brumadinho, and the removal and proper disposal of the tailings of Dam I, including dredging part of the released material and de-sanding from the channel of the river Paraopeba. In 2023, the review of estimates to carry out these actions resulted in an addition to the provision in the amount of US\$200 (2022: US\$303).

For the individual indemnification, Vale and the Public Defendants of the State of Minas Gerais formalized an agreement on April 5, 2019, under which those affected by the Brumadinho's dam failure may join an individual or family group out-of-Court settlement agreements for the indemnification of material, economic and moral damages. This agreement establishes the basis for a wide range of indemnification payments, which were defined according to the best practices and case law of Brazilian Courts, following rules and principles of the United Nations.

a) Legal proceedings

Public civil actions brought by the State of Minas Gerais and state public prosecutors for damages resulting from the failure of Dam I

The Company is party to public civil actions brought by the State of Minas Gerais and justice institutions, claiming compensation for socioeconomic and socio-environmental damages resulting from the dam failure and seeking a broad range of decisions ordering Vale to execute specific remediation and reparation actions. As a result of the Judicial Settlement for Integral Reparation, settled in February 2021, the requests for the reparation of socio-environmental and socioeconomic damages caused by the dam failure were substantially resolved. Indemnifications for individual damages were excluded from the Judicial Settlement for Integral Reparation, and the Term of Commitment signed with the Public Defendants of the State of Minas Gerais was ratified, whose parameters are utilized as a basis for the settlement of individual agreements. The likelihood of a financial loss to the Company is classified as possible and it is not yet possible to reliably estimate the amount of a potential loss to Vale.

Public civil action and investigation under the Brazilian Anticorruption Law

In October 2020, the Brazilian Office of the Comptroller General ("CGU") notified the Company about an administrative proceeding prosecution based on the same allegations mentioned above under the Brazilian Law 12,846/2013 in connection with inspection and monitoring activities related to the Brumadinho dam. In August 2022, the CGU concluded that Vale has failed to present reliable information to the Brazilian National Mining Agency ("ANM"), as once a positive stability condition statement ("DCE") was issued for the Dam I, where it should be negative in the view of the CGU. Thus, even recognizing the non-existence of corruption acts or practices, the CGU fined Vale US\$18 (R\$86 million), which is the minimum amount established by law (for example, the CGU recognizes the non-involvement or tolerance of the Company's top management).

In September 2023, CGU denied the request for reconsideration filed by the Company and, therefore, Vale paid the fine of US\$18 (R\$86 million) during the year ended December 31, 2023. Vale disagrees with the decision and is adopting the appropriate legal measures.

Notes to the Financial Statements

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Class action in the United States

Vale is defending itself against a class action brought before a Federal Court in New York and filed by holders of securities – American Depositary Receipts ("ADRs") – issued by Vale. Following the decision of the Court, in May 2020, that partially denied the Motion to Dismiss presented by the Company, the Discovery phase has started and was concluded in November 2023.

Upon the filing of a pre-motion letter for the Motion for Summary Judgment by Vale, the Court should decide whether the Parties may file their motion for summary judgment. In addition, a Court hearing will be held in 2024, with oral arguments before the Court on the Motion for Class Decertification filed by Vale.

On November 24, 2021, a new complaint was filed before the same Court by eight Plaintiffs, all investment funds, as an "opt-out" litigation from the class action already pending in the Eastern District of New York court, asserting virtually the same allegations in the main class action. The Parties are still exchanging briefs on the merits of the claims.

The likelihood of loss of these proceedings is considered possible. However, considering the current phase of this class action, it is not yet possible to reliably estimate the amount of a potential loss. The amount of damages sought in these claims is unspecified.

Criminal proceedings and investigations

In January 2020, the State Prosecutors of Minas Gerais ("MPMG") filed criminal charges against 16 individuals (including former executive officers of Vale and former employees) for a number of potential crimes, including homicide, and against Vale S.A. for alleged environmental crimes.

In November 2021, the Brazilian Federal Police concluded the investigation on potential criminal responsibility related with the Brumadinho dam failure and the final report sent to the Federal Public Prosecutors ("MPF").

In January 2023, after the Federal Supreme Court recognized the competence of the Federal Court, the MPF ratified the complaint presented by MPMG, which was received by the competent authority. The MPF and the Brazilian Federal Police conducted a separate investigation into the causes of the dam failure in Brumadinho, which may result in new criminal proceedings. Vale is defending itself against the criminal claims and is not possible to estimate when a decision will be issued. The likelihood of a financial loss to the Company is classified as possible and it is not yet possible to reliably estimate the amount of a potential loss to Vale.

Public civil actions brought by labor unions

In 2021, public civil actions were filed with Labor Court of Betim in the State of Minas Gerais, by a workers' unions claiming the compensation for death damages to own and outsourced employees, who died as a result of the failure of Dam I. Initial decisions sentenced Vale to pay US\$200 thousand (R\$1 million) per fatality. In June 2023, the Superior Labor Court ruled the lawsuit filed by workers' union, sustaining the initial decision that condemned Vale. The Company is defending itself in the lawsuits and considers that the likelihood of loss is possible.

Securities and Exchange Commission ("SEC") and investigations conducted by the CVM

On April 28, 2022, the SEC filed a lawsuit against Vale in the U.S. District Court for the Eastern District of New York, alleging that certain Vale's disclosures related to dam safety management prior to the dam failure in Brumadinho violated U.S. securities laws.

On March 28, 2023, Vale reached a settlement with the SEC to fully resolve this litigation. Under the agreement, without admitting or denying the settled claims, Vale paid US\$56 during the year ended December 31, 2023. The settlement resolves the litigation without judgment on the claims based upon intentional or reckless fraud. In April 2023, the settlement was approved and granted by the Court.

CVM is also conducting investigations relating to Vale's disclosure of relevant information to shareholders, investors and the market in general, especially regarding the conditions and management of Vale's dams. The likelihood of loss of this proceeding is classified as possible and it is not yet possible to reliably estimate the amount of a potential loss to the Company.

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Arbitration proceedings in Brazil filed by shareholders, a class association and foreign investment funds

In Brazil, Vale is named as a defendant in (i) one arbitration filed by 385 minority shareholders, (ii) two arbitrations filed by a class association allegedly representing all Vale's noncontrolling shareholders, and (iii) three arbitrations filed by foreign investment funds.

In the six proceedings, the claimants argue that Vale was aware of the risks associated with the dam and failed to disclose it to its shareholders. Based on such argument, they claim compensation for losses caused by the decrease in share price.

The expectation of loss is classified as possible for the six procedures and, considering the initial phase, it is not possible at this time to reliably estimate the amount of a possible loss.

In one of the proceedings filed by foreign funds, the Claimants initially estimated the amount of the alleged losses would be approximately US\$359 (R\$1,800 million). In another proceeding filed by foreign funds, the Claimants initially estimated the amount of the alleged losses would be approximately US\$779 (R\$3,900 million). The Company disagrees with the ongoing proceedings and understands that, in this case and at the current stage of the proceedings, the probability of loss in the amount claimed by the foreign funds is remote.

Other proceedings

Vale is defendant in a number of investigations and proceedings brought by individuals, business entities, investors, associations, unions, legislative bodies, non-governmental organizations and other entities seeking remediation and compensation for environmental, property and personal damages resulting from the Brumadinho dam failure, including alleged violations of securities laws. The potential loss was US\$94 as of December 31, 2023 (2022: US\$132) and the likelihood of a potential loss to the Company is classified as possible.

b) Insurance

The Company is negotiating with insurers the payment of indemnification under its civil liability and Directors and Officers Liability Insurance. In 2023, the Company received US\$30 from insurers (2022: US\$6) which was recorded in income statement as "other operating expenses, net" (note 5c).

Critical accounting estimates and judgments

The provision for social, economic and environmental reparation may be affected by factors including, but not limited to: (i) changes in the current estimated market price of the direct and indirect cost related to products and services, (ii) changes in timing for cash outflows, (iii) changes in the technology considered in measuring the provision, (iv) number of individuals entitled to the indemnification payments, (v) resolution of existing and potential legal claims, (vi) demographic assumptions, (vii) actuarial assumptions, and (viii) updates in the discount rate.

Thus, the amounts actually incurred by the Company may differ from the amounts currently provisioned, due to the confirmation of the assumptions used and which depend on several factors, some of which are not under the Company's control. These changes could result in a material impact on the amount of the provision in future periods. At each presentation date of its financial statements, the Company will reassess the main assumptions used in the preparation of projected cash flows and will adjust the provision, when applicable.

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26. Liabilities related to associates and joint ventures

In November 2015, the Fundão tailings dam owned by Samarco Mineração S.A. ("Samarco") experienced a failure, flooding certain communities and impacting communities and the environment along the Doce River. The dam failure resulted in 19 fatalities and caused property and environmental damage to the affected areas. Samarco is a joint venture equally owned by Vale S.A. and BHP Billiton Brasil Ltda. ("BHPB").

In 2016, Vale, Samarco and BHPB, entered into a Framework Agreement with the Federal Government of Brazil, the states of Espírito Santo and Minas Gerais and certain other public authorities to establish the Renova Foundation that is developing and executing environmental and socio-economic programs to remediate and provide compensation for damage caused by the Samarco dam failure.

In June 2018, Samarco, Vale and BHPB entered into a comprehensive agreement with the offices of the federal and state (Minas Gerais and Espírito Santo) prosecutors, public defenders and attorney general, among other parties ("TacGov Agreement"), improving the governance mechanism of Renova Foundation and establishing, among other things, a process for potential revisions to the remediation programs under the Framework Agreement.

These agreements aim to remediate and provide compensation for damage caused, of which Samarco has primary responsibility for funding the obligations, and Vale and BHPB have secondary funding obligations under the Framework Agreement in proportion to their 50 per cent shareholding in Samarco.

a) Judicial reorganization of Samarco

In April 2021, Samarco filed for Judicial Reorganization ("JR") with the Courts of Minas Gerais to renegotiate its debt, which was held by bondholders abroad. The purpose of JR is to restructure Samarco's debts and establish an independent and sustainable financial position, allowing Samarco to keep working to resume its operations safely and to fulfill its obligations related to the Renova Foundation.

In May 2023, Vale S.A. entered into a binding agreement jointly with BHPB, Samarco and certain creditors which hold together more than 50% of Samarco's debt, setting the parameters of Samarco's debt restructuring to be implemented through a consensual restructuring plan, which was approved by the creditors, submitted to the JR Court in July 2023, and confirmed by the judge in September 2023.

In December 2023, Samarco's existing US\$4.8 billion of financial debt held by creditors was exchanged for approximately US\$3.9 billion of long-term unsecured debt, bearing interest from 2023 to 2031.

After the execution of the plan, Samarco has a lean capital structure, in line with its operational ramp-up and cash flow generation. The plan considers the fund of the reparation and compensation programs capped at US\$ 1 billion from 2024 to 2030 and additional contributions after that period due to the Samarco's projected cash flows generation.

b) Main contingent liabilities

Public Civil Action filed by the Federal Government and others and public civil action filed by the Federal Public Ministry ("MPF")

Vale is a defendant in several legal proceedings brought by governmental authorities and civil associations claiming recover socioenvironmental and socioeconomic damages and a number of specific remediation measures as a result of the Samarco's Fundão dam failure, including a claim brought by the Federal Public Prosecution Office in 2016 seeking several measures that amount to US\$31 billion (R\$155 billion), subject to interest and monetary adjustments, which the effect for Vale would be 50% of this amount.

This Public Civil Action was suspended as a result of the ratification of TacGov agreement. However, as pre-requisites established in the TacGov Agreement, for renegotiation of the Framework Agreement were not implemented during the established period, in 2020, the Brazilian Federal and State prosecutors and public defenders filed a request for the immediate resumption of this claim.

Therefore, Vale, Samarco, BHPB and Federal and State prosecutors have been engaging in negotiations to seek a definitive settlement of the obligations under the Framework Agreement and the US\$31 billion (R\$155 billion) Federal Public Prosecution Office claim.

The goal in signing a potential settlement agreement is to provide a stable framework for the execution of reparation and compensation measures related to the Samarco dam rupture, it also aims to settle all lawsuits brought by the public authorities involved.

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Judicial decision requesting cash deposits and increase on the territories affected by the collapse

In March 2023, as part of a proceeding related to a potential increase on the number of territories recognized as affected by the collapse of Samarco's Fundão dam and covered by the TTAC, a Federal Court issued a decision ordering Vale and BHP Brasil to make judicial deposits in the total amount of US\$2.1 billion (R\$10.3 billion), in ten installments, which the effect for Vale would be 50% of this amount. On April 28, 2023, the Federal Court granted the companies' request for a suspensive effect on the decision that determined this deposit.

In August 2023, the judge issued a judicial decision recognizing the existence of new territories impacted by the collapse of the Fundão dam. The Company is adopting the appropriate legal measures and believes its provisions are sufficient to comply with the TTAC obligations.

Judicial decision on collective moral damages

In January 2024 (subsequent event), the 4th Federal Lower Civil Court of Belo Horizonte issued a judicial decision requiring the payment of collective moral damages in the amount of US\$9.5 billion (R\$47.6 billion) (the effect for Vale would be 50% of this amount), subject to monetary adjustments from the date of the decision and interests from November 2015. The Company is defending itself and believes the likelihood of loss in relation of the merits of these proceedings is possible, however, the likelihood of loss in the alleged amount is assessed as remote.

c) Provision related to the Samarco dam failure

In preparing these financial statements, Vale has considered all information available from the status of the potential settlement agreement, the claims related to the Samarco dam failure and the extent to which Samarco may be able to fund any future outflows.

As a result, the Company recognized an addition to the provision in the amount of US\$1,200, reflecting the change in Vale's assessment of potential outflows to resolve all aspects of the reparation and compensation of the Samarco dam failure. The changes on the provision are presented below:

	Total
Balance on December 31, 2022	3,321
Addition to the provision due to change in estimates	1,200
Monetary and present value adjustments	198
Disbursements	(553)
Translation adjustments	261
Balance on December 31, 2023	4,427

The cash outflows to meet the obligations are discounted at present value at a rate in nominal terms, which decreased from 9.51% on December 31, 2022, to 8.90% on December 31, 2023.

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d) Other contingent liabilities

As of December 31, 2023, Vale has certain contingent liabilities arising as a consequence of the Samarco dam failure. The main updates regarding the lawsuits in the year were as follows:

London Contribution claim

As a result of the rupture of Samarco's Fundão dam failure, BHP Group Ltd ("BHP") was named as defendant in group action claims for damages filed in the courts of England and Wales for various plaintiffs, between individuals, companies and municipalities from Brazil that were supposedly affected by the Samarco dam failure (the "UK Claim").

On December 2022, BHP filed a "Contribution Claim" against Vale, requesting the Company to share the indemnification established in the UK Claim. Both the Contribution Claim and the UK Claim are still ongoing, and there has not been any decision on their merits. It is not yet possible to reliably estimate the amount of a potential loss to Vale.

Criminal proceedings

In September 2019, the federal court dismissed all criminal charges against Vale representatives relating to the first group of charges, which concerns the results of the Fundão dam failure, remaining only the legal entity in the passive pole. The second group of charges against Vale S.A. and one of the Company's employees, which concerns the accusation of alleged crimes committed against the Environmental Public Administration, remained unchanged. The Company cannot estimate when a final decision on the case will be issued. The likelihood of loss is classified as possible and it is not yet possible to reliably estimate the amount of a potential loss to Vale.

Tax proceeding

In September 2018, the federal tax authorities filed a request before a federal court in Belo Horizonte for an order to Vale's assets to secure the payment of Samarco's federal tax and social security debts, in the amount of approximately US\$2.3 billion (R\$11 billion) (as of June 2018). In May 2019, a favorable decision was issued dismissing the claim without prejudice, due to lack of procedural interest. The General Attorney for the National Treasury (Procuradoria Geral da Fazenda Nacional - "PGFN") filed an appeal to the local court, and a decision is pending.

Other proceedings

Vale is defendant in several private actions, before different state and federal courts in the states of Minas Gerais and Espírito Santo, brought by individuals and other entities seeking remediation and compensation for environmental, property and personal damages resulting from the Samarco dam failure.

e) Tax consequences for Vale arising from the consensual restructuring plan of Samarco

The plan provides that additional cash demands from Renova Foundation will be made through capital contributions to Samarco. The contributions have been carried out directly by Vale and BHPB to the Renova Foundation on behalf of Samarco and, therefore, they were deemed tax deductible as incurred, according to the Brazilian tax regulation.

Therefore, due to the change in the mechanism to fund Renova, Vale will no longer be allowed to deduct future payments from its income tax computation as they are not tax deductible in Brazil. Thus, the deferred income tax asset over the provision in the amount of US\$1,078 was reversed in full, with the corresponding impact in the income statement for the year ended December 31, 2023, recorded as "Income taxes" (note 8a).

In addition, the Plan does not require the capitalization of the expenses of US\$703 (R\$3,404 million) that were incurred in the past and so, there is no change in relation to the tax treatment adopted.

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f) Summarized financial information

The summarized financial information of Samarco are as follows. The stand-alone financial statements of Samarco may differ from the financial information reported herein, which is prepared considering Vale's accounting policies.

	December 31, 2023	December 31, 2022
Current assets	532	454
Non-current assets	3,590	2,748
Total assets	4,122	3,202
Current liabilities	3,342	10,808
Non-current liabilities	12,179	7,401
Total liabilities	15,521	18,209
Negative reserves	(11,399)	(15,007)
Net income for the year ended	2,669	11

g) Insurance

Since the Fundão dam failure, the Company has been negotiating with insurers the indemnification payments based on its general liability policies. In 2021, the Company received payments in the amount of US\$33, which was recorded as a gain in the income statement as "Equity results and other results in associates and joint ventures". The Company did not receive any further insurance in 2023 and 2022 and does not expect to receive any material amounts in the future.

Critical accounting estimates and judgments

Under Brazilian legislation and the terms of the joint venture agreement, the Company does not have an obligation to provide funding to Samarco. Accordingly, the Company's investment in Samarco was fully impaired and no provision was recognized in relation to the Samarco's negative equity.

The provision related to the Samarco dam failure requires the use of assumptions and estimates, which may be materially impacted by: (i) the scope and cost of completing the programs under the Framework Agreement, including the ongoing legal actions in relation to the number of people eligible for compensation and the amount of damages to which they are entitled, (ii) the terms of any potential future settlement agreement in respect of the Federal Public Prosecution Office Claim, including potential amounts payable, obligations of the parties to perform ongoing programs of the Framework Agreement, and the period of time over which any settlement amounts may be payable, (iii) the extent to which Samarco is able to directly fund any future obligations relating to reparation and compensation measures as Samarco's long-term cash flow generation depends on factors including its ability to return to full production capacity and commodity prices, (iv) resolution of existing and potential legal claims, and (v) updates of the discount rate.

As a result, future expenditures may differ from the amounts currently provided and changes to key assumptions could result in a material impact to the amount of the provision in future reporting periods.

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27. Provision for de-characterization of dam structures and asset retirement obligations

The Company is subject to local laws and regulations, that requires the decommissioning of the assets that Vale operates at the end of their useful lives, therefore, expenses for demobilization occur predominantly after the end of operational activities. These obligations are regulated by the ANM at the federal level and by environmental agencies at the state level. Among the requirements, the decommissioning plans must consider the physical, chemical and biological stability of the areas and post-closure actions for the period necessary to verify the effectiveness of the decommissioning. These obligations are accrued and are subject to critical estimates and assumptions applied to the measurement of costs by the Company. Depending on the geotechnical characteristics of the structures, the Company is required to de-characterize the structures, as shown in item a) below.

Laws and regulations related to dam safety

In September 2020, the Federal Government enacted Law no. 14.066, which modified the National Dam Safety Policy (Law no. 12,334/2020), reinforcing the prohibition of constructing and raising upstream dams in Brazil. The law also required the de-characterization of the structures built using the upstream method by 2022, or by a later date if proven that the de-characterization was not technically feasible by 2022. As made available to competent bodies, a substantial part of the Company's de-characterization projects will be completed in a period exceeding the date established in the legislation due to the characteristics and safety levels of the Company's geotechnical structures.

Thus, in February 2022, the Company filed with the relevant bodies a request for an extension to perform the projects and, as a result, signed a Term of Commitment establishing legal and technical certainty for the process of de-characterization of the upstream dams, considering that the deadline defined was technically infeasible, especially due to the necessary actions to increase safety during the works. With the signing of the agreement, the Company recorded an additional provision of US\$37 to make investments in social and environmental projects over a period of 8 years.

In December 2022, the Federal Government published decree no. 11,310, which regulates dispositions of the National Dam Safety Policy, regulates dam supervision activities, establishes the competence to regulate the extension of the self-rescue zone for authorities acting in dam emergency situations, and presents guidelines on technical reports regarding the causes of a breach and other aspects of management of geotechnical structures. This decree also determined that companies must present guarantees for dams in an alert situation.

In February 2023, ANM issued a resolution that modifies the current dam safety regulation. The main changes are new rules in connection with the active and passive monitoring during the de-characterization of dams, the simplified dam collapse study and simplified emergency action plan for specific cases, and the dam safety plan ("PSB"). The Company believes its provisions are sufficient to comply with the effective legal obligations.

In December 2023, the government of Minas Gerais published decree No. 48,747, which regulates the measurement and execution of environmental guarantees individually for each dam, based on the reservoir area, classification and purpose of the dam, and estimated de-characterization costs and should be kept throughout the useful life of the dam, from its start-up phase until the de-characterization and socio-environmental recovery. The guarantee may be a cash deposit, bank deposit certificate, bank guarantee or insurance. The guarantees shall be presented up to 3 years, with half of the amount in 2024 and the remaining amount split between 2025 and 2026.

The value of the guarantees is estimated at US\$370 (R\$1.8 billion), for which the Company intends to meet by providing financial guarantees and insurance. Vale expects that the financial costs to be incurred will be immaterial.

Decommissioning plan and future use

The implementation and execution of future use projects, after the decommissioning, is not required by law. However, the Company has been studying a governance to assess the future use, considering its aptitudes, post-operational usage intention, socio-economic development of the community and the characteristics of the physical and biotic environments in which Vale operates. Any future obligations, if assumed by Vale, may result in material impact on the amount of the provision.

Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

a) De-characterization of upstream and centerline geotechnical structures

As a result of the Brumadinho dam failure (note 25) and, in compliance with Law 14,066, the Company has decided to speed up the plan to “de-characterize” of all its tailings dams built under the upstream method, certain “centerline structures” and dikes, located in Brazil. The Company also operates tailings dams in Canada, including upstream compacted dams. However, the Company decided that these dams will be decommissioned using other methods, thus, the provision to carry out the decommissioning of dams in Canada is recognized as “Obligations for decommissioning assets and environmental obligations”, as presented in item (b) below.

These structures are in different stages of maturity, some of them still in the conceptual engineering phase, for which the estimate of expenditures includes in its methodology a high degree of uncertainty in the definition of the total cost of the project in accordance with best market practices.

The cash flow for de-characterization projects are estimated for a period up to 15 years and were discounted at present value at a rate, which reduced from 6.14% to 5.41%. Changes in the provisions are as follows:

	Total
Balance as of December 31, 2021	3,464
Revision to estimates and new provisions	72
Disbursements	(347)
Monetary and present value adjustments	(139)
Translation adjustment	249
Balance as of December 31, 2022	3,299
Revision to estimates and new provisions	153
Disbursements	(458)
Monetary and present value adjustments	199
Translation adjustment	258
Balance as of December 31, 2023	3,451

Public civil actions relating to evacuation of communities

In August 2023, Vale entered into an agreement to extinguish the Public Civil Action of the Sul Superior dam, located in Barão de Cocais, in the amount of US\$108 (R\$527 million), which is recorded as other liabilities on the statement of financial position as of December 31, 2023.

In December 2022, Vale entered into an agreement to extinguish the Public Civil Action of the B3/B4 dam located in Nova Lima, in the amount of US\$96 (R\$500 million), part of which had already been registered by the Company in previous periods. Thus, the Company recorded an additional provision in the amount of US\$57 (R\$292 million) for the year ended December 31, 2022.

In addition, the Company is defending itself in a public civil action filed by the Public Prosecutor's Office of the State of Minas Gerais claiming injunctions and socio-economic damages arising from the evacuations of communities located within the self-rescue zones of the Doutor dam, located in Ouro Preto. The Company assessed that the risk of loss is possible and, at this moment, it is not possible to reliably estimate the amount of a possible loss for the Company.

Operational stoppage and idle capacity

In addition, due to the de-characterization projects, the Company has suspended some operations due to judicial decisions or technical analysis performed by Vale on its upstream dam structures located in Brazil. The Company has been recording losses in relation to the operational stoppage and idle capacity of the Iron Ore Solutions segment in the amounts of US\$218 for the year ended December 31, 2023 (2022: US\$269 and 2021: US\$376). The Company is working on legal and technical measures to resume all operations at full capacity.

Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

b) Asset retirement obligations and environmental obligations

		Liability		Discount rate		Cash flow maturity	
	Notes	December 31, 2023	December 31, 2022	December 31, 2023	December 31, 2022	December 31, 2023	December 31, 2022
Liability by geographical area							
Brazil		2,415	1,863	5.47%	6.20%	2132	2096
Canada		1,592	1,683	1.30%	1.11%	2150	2151
Oman		158	114	3.19%	3.90%	2035	2035
Indonesia	16(b)	-	73	-	4.33%	-	2061
Other regions		114	149	2.04%	1.92%	-	-
		4,279	3,882				
Operating plants		3,155	2,971				
Closed plants		1,124	911				
		4,279	3,882				

Provision changes during the year

	Asset retirement obligations	Environmental obligations	Total
Balance on December 31, 2021	4,342	297	4,639
Disbursements	(101)	(26)	(127)
Revision to estimates and new provisions (i)	(684)	46	(638)
Transfer to assets held for sale	(49)	(2)	(51)
Monetary and present value adjustments	78	7	85
Translation adjustment	(41)	15	(26)
Balance on December 31, 2022	3,545	337	3,882
Disbursements	(172)	(101)	(273)
Revision to estimates and new provisions	206	219	425
Transfer to assets held for sale	(84)	-	(84)
Monetary and present value adjustments	126	17	143
Translation adjustment	158	28	186
Balance on December 31, 2023	3,779	500	4,279

(i) Among other factors, includes the reduction in liability of US\$870, due to the update in the discount rate of the asset retirement obligation in Canada, which increased from 0.00% to 1.11% for the year ended December 31, 2022.

Critical accounting estimates and judgments

De-characterization of dam structures – The main critical assumptions and estimates applied in the de-characterization provision considers, among others: (i) volume of the waste to be removed based on historical data available and interpretation of the enacted laws and regulations; (ii) location availability for the tailings disposal; (iii) engineering methods and solutions; (iv) security levels; (v) productivity of the equipment used; (vi) advances in geological studies and new hydrological information; and (vii) discount rate update.

Therefore, future expenditures may differ from the amounts currently provided because the realized assumptions and various other factors are not always under the Company's control. These changes to key assumptions could result in a material impact to the amount of the provision in future reporting periods. At each reporting period, the Company will reassess the key assumptions used in the preparation of the projected cash flows and will adjust the provision, if required.

Asset retirement obligations – When the provision is recognized, the corresponding cost is capitalized as part of property, plant and equipment and it is depreciated over the useful life of the related mining asset.

The long-term liability is discounted at presented value using a pre-tax rate that reflects current market assessments of the time value of money and the risks specific to the liability and the unwinds are recorded in the income statement and is reduced by payments for mine closure and decommissioning of mining assets. The accrued amounts of these obligations are not deducted from the potential costs covered by insurance or indemnities.

Judgment is required to determine key assumptions used on the asset retirement obligation measurement such as, interest rate, cost of closure, useful life of the mining asset considering the current conditions of closure and the projected date of depletion of each mine. Any changes in these assumptions may significantly impact the recorded provision. Therefore, the estimated costs for closure of the mining assets are deemed to be a critical accounting estimate and annually reviewed.

Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

28. Legal proceedings

The Company is a defendant in numerous legal actions in the ordinary course of business, including civil, tax, environmental and labor proceedings.

The Company makes use of estimates to recognize the amounts and the probability of outflow of resources, based on reports and technical assessments and on management's assessment. Provisions are recognized for probable losses of which a reliable estimate can be made.

Arbitral, legal and administrative decisions against the Company, new jurisprudence and changes of existing evidence can result in changes regarding the probability of outflow of resources and on the estimated amounts, according to the assessment of the legal basis.

a) Provision for legal proceedings

	Tax litigation	Civil litigation	Labor litigation	Environmental litigation	Total of litigation provision
Balance as of December 31, 2021	456	284	358	7	1,105
Additions and reversals, net	40	38	67	8	153
Payments	(40)	(67)	(56)	(1)	(164)
Indexation and interest	89	26	19	-	134
Transfer to held for sale	(1)	(7)	(2)	-	(10)
Translation adjustment	32	17	25	-	74
Balance as of December 31, 2022	576	291	411	14	1,292
Additions and reversals, net	(8)	70	167	-	229
Payments	(4)	(43)	(93)	(7)	(147)
Indexation and interest	90	39	(5)	7	131
Transfer to payable taxes	(611)	-	-	-	(611)
Translation adjustment	47	23	34	1	105
Balance as of December 31, 2023	90	380	514	15	999

The Company has considered all information available to assess the likelihood of an outflow of resources and in the preparation on the estimate of the costs that may be required to settle the obligations.

Tax litigations – The transfer to payable taxes refers to the lawsuit filed in 2011 by Valepar (merged by Vale) seeking the right to exclude the amount of dividends received in the form of interest on capital ("JCP") from the PIS and COFINS tax base. This proceeding is fully guaranteed by a judicial deposit. In December 2023, a judicial decision was issued determining the conversion of part of the judicial deposit to the Government, resulting in the reclassification of the amount to payable taxes.

Civil litigations – Refers to lawsuits for: (i) indemnities for losses, payments and contractual fines due to contractual imbalance or non-compliance that are alleged by suppliers, and (ii) land claims referring to real estate related to Vale's operational activities.

Labor litigations – Refers to lawsuits for individual claims by in-house employees and service providers, primarily involving demands for additional compensation for overtime work, moral damages or health and safety conditions.

Environmental litigations – Refers mainly to proceedings for environmental damages and issues related to environmental licensing.

The lawsuits related to the Brumadinho event (note 25) and the Samarco dam failure (note 26) are presented in its specific notes to these financial statements and, therefore, are not disclosed below.

b) Contingent liabilities

	December 31, 2023	December 31, 2022
Tax litigations	7,235	6,590
Civil litigations	1,366	1,270
Labor litigations	378	569
Environmental litigations	1,320	1,102
Total	10,299	9,531

Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

The main contingent liabilities, updated by applicable interest rates, for which the likelihood of loss is considered possible are presented by nature as follows. The proceedings related to the Brumadinho event (note 25) and the Samarco dam failure (note 26) are presented in its specific notes to these financial statements.

Tax proceedings – Financial compensation for the exploration of mineral resources (“CFEM”)

The Company is engaged in numerous administrative and judicial proceedings related to the mining royalty known as CFEM. These proceedings arise from assessments by the Brazilian National Mining Agency (“*Agência Nacional de Mineração – ANM*”, former “*DNPM*”), which main discussions involve the deduction of taxes, insurance and transportation costs indicated in the corresponding invoice of CFEM payments, in addition to CFEM charges on pellet sales and the revenues from sales made by our foreign subsidiaries. The Company estimates the possible losses resulting from these proceedings to be US\$2,132 (R\$10,320 million) as of December 31, 2023 (December 31, 2022: US\$1,831 (R\$9,555 million)).

Tax proceedings – PIS/COFINS

The Company is a party to several claims related to the alleged misuse of PIS and COFINS credits (federal taxes levied on the companies’ gross revenue). Brazilian tax legislation authorizes taxpayers to deduct PIS and COFINS tax credits, such as those referring to the acquisition of inputs for the production process and other items. The tax authorities mainly claim that (i) some credits were not related to the production process, and (ii) the right to use the tax credits was not adequately proven. The Company is discussing the afore mentioned charges related to credits determined as of 2002. The chances of loss related to these lawsuits classified as possible total US\$2,198 (R\$10,640 million) as of December 31, 2023 (December 31, 2022: US\$1,720 (R\$8,975 million)).

Tax proceedings – Tax on Services (“ISS”)

The Company is party to several administrative and judicial proceedings related to the collection of ISS in several Brazilian municipalities. The tax authorities’ main allegations for those proceedings are: (i) the tax basis used for computing the tax payable was incorrect; (ii) failure to pay ISS related to third-party property and business management services; and (iii) the incidence of ISS over own goods port handling services (“self-service”). As of December 31, 2023, the total amount of the possible loss is US\$738 million (R\$3,573 million) (December 31, 2022: US\$626 (R\$3,268 million)).

Tax proceedings – Value added tax on services and circulation of goods (“ICMS”)

The Company is engaged in several administrative and judicial proceedings relating to additional charges of ICMS by the tax authorities of different Brazilian states. In each of these proceedings, the tax authorities claim that (i) misuse of tax credit; (ii) the Company is required to pay the ICMS on acquisition of electricity (iii) operations related to the collection of tax rate differential (“DIFAL”) and (iv) incidence of ICMS on its own transportation. The total amount classified as a possible loss is US\$586 (R\$2,835 million) as of December 31, 2023 (December 31, 2022: US\$558 (R\$2,910 million)).

Tax proceedings – Fines arising from offsets not approved for settlement of federal debts

Vale is a party to several assessments by the Brazilian Federal Revenue Service (“RFB”) referring to the imposition of fines of 50% on the value of compensation not approved for the settlement of federal debts. The RFB understands that these offsets were made with undue credits. We are challenging these assessments and the tax offset rejection in other proceedings. The constitutional foundations for charging these fines were discussed in leading cases and, in 2023 September, the STF discussion has become final with victory for the taxpayers to declare the charge unconstitutional. The possible loss of these assessments was changed to remote, and we expect that these fines will be cancelled. As of December 31, 2023, the total amount of fines imposed was US\$626 (R\$3,032 million) (December 31, 2022: US\$524 (R\$2,735 million)).

Civil proceedings – Environmental licensing of the Company's operations in the State of Pará, Brazil

The Company is a party to several civil proceedings, which are not individually material. Among these processes, the Company is engaged on public civil actions brought by associations representing the Kayapó and Xikrin indigenous communities, in the state of Pará, which seek to suspend the Company's environmental licenses for Onça Puma (nickel), Salobo (copper) and S11D (iron ore). Those associations claim, among other things, that during the environmental licensing process, the Company did not perform appropriate studies on the impacts from those operations over the surrounding indigenous communities, which were ordinarily processed and approved by the competent licensing bodies.

In 2022, the Company entered into an indemnity agreement with the indigenous communities Xikrin do Cateté and Kayapó, for social and economic compensation. However, the Company is still defending itself against the environmental claims, which likelihood of loss is deemed as possible, however, it is not yet possible to estimate the amount of a potential loss due to the interruption of these operations or any potential agreement to mitigate and compensate.

Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

Environmental proceedings– Environmental licensing of the Company's operations in the States of Minas Gerais and Espírito Santo, Brazil

The Company is a party to a public civil action filed by associations representing the owners of areas near to the Mar Azul, Tamanduá and Capão Xavier mines. The associations are requesting the cancellation of Vale's mining and environmental licenses to operate those mines, mainly claiming that the mining activities are contaminating the water springs in the region. The Company is defending itself against the lawsuit, which it believes that the likelihood of loss is possible, however, it is not yet possible to estimate the amount of a potential loss due to the interruption of these operations or any potential agreement to mitigate and compensate.

In addition, the Company is also a party to public civil actions filed by the Public Ministry of the State of Minas Gerais and by the municipality of Jeceaba requesting the Company to stop disposing tailings at Maravilhas II and III dams (Vargem Grande complex), Forquilha V (Fábrica complex) and Dam 7 (Viga mine). The Company signed a partial agreement with the municipality from Dam 7. The Company believes that the likelihood of loss is possible, however, it is not yet possible to estimate the amount of a potential loss due to an interruption of these operations or any potential agreement to mitigate and compensate.

Labor litigations – Safety requirements at dams in the State of Pará, Brazil

In March 2022, the Labor Prosecutor's Office of the State of Pará filed two public civil actions requesting an indemnification payment of US\$122 (R\$590 million) and the adoption of several work safety measures related to the Mirim and Pera Jusante dams to restrict access only to the employees that are strictly necessary at the site. The Company signed an agreement with the Public Ministry and labor unions to close the public civil actions and disbursed US\$2 (R\$10 million) during the year ending December 31, 2023.

Environmental litigations – Iron ore operations in Itabira

The Company is a party to several environmental proceedings, which are not individually material. Among these processes, the Company is a defendant in two separate actions brought by the municipality of Itabira, in the Brazilian state of Minas Gerais. In the first action, filed in August 1996, the municipality alleges that Vale iron ore operations have caused environmental and social harm, and claims damages with respect to the alleged environmental degradation, as well as the immediate restoration of the affected ecological complex and the performance of compensatory environmental programs in the region. In the second action, filed in September 1996, the municipality of Itabira claims the right to be reimbursed for expenses it has incurred in connection with public services rendered due to mining activities. The damages sought, as adjusted from the date of the claim, amount to approximately US\$524 (R\$2.538 million) (2022: US\$431 (R\$2,249 million)).

c) Contingent assets

In 2015, the Company filed a legal proceeding to receive the amounts related to compulsory loans with Eletrobrás. In August 2020, the Company received US\$55 (R\$301 million) resulting from a favorable decision on part of the claim presented by the Company, and the remaining amount remained under legal discussion. In November 2023, the Company signed an extrajudicial agreement with Eletrobrás to conclude the legal proceedings. Thus, the Company recorded a gain of US\$48 as "other assets" in financial position as of December 31, 2023.

d) Judicial deposits

	December 31, 2023	December 31, 2022
Tax litigations	516	945
Civil litigations	122	123
Labor litigations	148	134
Environmental litigations	12	13
Total	798	1,215

e) Guarantees contracted for legal proceedings

In addition to the above-mentioned tax, civil, labor and environmental judicial deposits, the Company contracted US\$2.7 billion (December 31, 2022: US\$2.3 billion) in guarantees for its lawsuits, as an alternative to judicial deposits.

Notes to the Financial Statements

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Accounting policy

A provision is recognized when it is considered probable that an outflow of resources will be required to settle the obligation and can be reliably estimated. The liability is accounted against an expense in the income statement. This obligation is updated based on the developments of the judicial process or interest accretion and can be reversed if the expectation of loss is not considered probable due to changes in circumstances or when the obligation is settled.

Contingent assets are disclosed when the related economic benefits are probable and are only recognized in the financial statements in the period in which their realization is virtually certain.

Critical accounting estimates and judgments

Legal proceedings are contingent by nature, that is, it will be resolved when one or more future event occurs or fails to occur. Typically, the occurrence or not of such events is outside of the Company's control. Legal uncertainties involve the application of significant estimates and judgments by management regarding the potential outcomes of future events.

29. Employee benefits

	Notes	Current liabilities		Non-current liabilities	
		December 31, 2023	December 31, 2022	December 31, 2023	December 31, 2022
Payroll, related charges and other remunerations	29(a)	867	831	-	-
Share-based payment	29(b)	27	33	-	-
Employee post-retirement obligation	29(c)	70	66	1,381	1,260
		964	930	1,381	1,260

a) Profit sharing program ("PLR")

The Company recorded as cost of goods sold and services rendered and other operating expenses related to the profit sharing program US\$557, US\$499 e US\$474 for the years ended on December 31, 2023, 2022 and 2021, respectively.

b) Share-based payments

For the long-term incentive programs, the Company compensation plans includes Matching Program and Performance Share Unit program ("PSU"), with three-year-vesting cycles, respectively, with the aim of encouraging employee's retention and encouraging their performance. The fair value of the programs is recognized on a straight-line basis over the three-year required service period, net of estimated losses.

Matching Program

For the Matching program, the participants can acquire Vale's common shares in the market without any benefits being provided by Vale. If the shares acquired are held for a period of three years and the participants keep an employment relationship with Vale, the participant is entitled to receive from Vale an award in shares, equivalent to the number of shares originally acquired by the executive.

The fair value of the Matching program was estimated using the Company's share price and ADR and the number of shares granted on the grant date.

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	2023	2022
Granted shares	1,330,503	1,437,588
Share price	15.94	20.03

Performance Shares Units ("PSU")

Under the PSU, eligible executives can earn, during a three-year vesting cycle, an award equivalent to the market value of a certain number of common shares and conditioned to Vale's performance factor measured based on Total Shareholder Return ("TSR") and Environmental, Social and Governance ("ESG") metrics. It is comprised of 75% of TSR metrics and 25% of ESG indicators and health and safety.

The fair value of the PSU program was measured by estimating the performance factor using Monte Carlo simulations for the Return to Shareholders Indicator and health and safety and sustainability indicators. The assumptions used for the Monte Carlo simulations are shown in the table below, as well as the result used to calculate the expected value of the total performance factor.

	2023	2022
Granted shares	1,177,755	1,709,955
Date shares were granted	January 2, 2023	January 3, 2022
Share price	16.6	13.81
Expected volatility	48.33%	39.00%
Expected term (in years)	3	3
Expected shareholder return indicator	72.42%	51.20%
Expected performance factor	79.32%	53.08%

c) Employee post-retirement obligation

In Brazil, the management of the pension plans is the responsibility of Fundação Vale do Rio Doce de Seguridade Social ("Valia") a nonprofit entity with administrative and financial autonomy. The Brazilian plans are as follows:

Benefit plan Vale Mais ("Vale Mais") and benefit plan Valiaprev ("Valiaprev") - The Company's employees participating in Valia are associated, for the most part, with the Vale Mais plan, which has a defined benefit component (settled benefit from the former Defined Benefits Plan and specific benefit to cover death, disability retirement and sickness benefit) and defined contribution component (for programmable benefits). The Valiaprev plan is similar to the Vale Mais plan, with the exception of not having the benefit settled and the sickness benefit. Both Vale Mais and Valiaprev plans were overfunded as of December 31, 2023 and 2022.

Defined benefit plan ("Plano BD") - The Plano BD is closed to new entrants since 2000, when the Vale Mais plan was implemented. It is a plan that has defined benefit characteristics, covering almost exclusively retirees and their beneficiaries. It was overfunded as of December 31, 2023 and 2022 and the contributions made by the Company are not material.

"Abono complementação" benefit plan - The Company sponsors a specific group of former employees entitled to receive additional benefits from Valia regular payments. The contributions made by the Company finished in 2014. The "Abono complementação" benefit was overfunded as of December 31, 2023 and 2022.

Other benefits - The Company sponsors medical plans for employees that meet specific criteria and for employees who use the "abono complementação" benefit. Although those benefits are not specific retirement plans, actuarial calculations are used to calculate future obligations. As those benefits are related to health care plans they have nature of underfunded benefits, and are presented as underfunded plans as of December 31, 2023 and 2022.

The foreign plans are managed in accordance with their region. They are divided between plans in Canada, US A, UK and Indonesia. Pension plans in Canada are composed of a defined benefit and defined contribution component. Currently the defined benefit plans do not allow new entrants. The majority of foreign defined benefit plans are underfunded as of December 31, 2023 and 2022 and just two overfunded plans as of December 31, 2023 and three in December 31, 2022.

In December 2023, the Company entered into annuity contracts to transfer US\$836 of pension plan obligations and its associated assets. This transaction triggered a settlement and remeasurement of the pension plan, and as a result, the Company recognized a non-cash loss of US\$5 in the income statement as "Other expenses", measured by the difference between the premium and the obligations transferred.

Notes to the Financial Statements

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Employers' disclosure about pensions and other post-retirement benefits on the status of the defined benefit elements of all plans is provided as follows.

i. Evolution of present value obligation

	Overfunded pension plans	Underfunded pension plans	Other benefits
Benefit obligation as of December 31, 2021	2,833	3,983	1,427
Service costs	45	40	13
Interest costs	325	39	60
Benefits paid	(534)	(58)	(57)
Participant contributions	-	(30)	-
Effect of changes in the actuarial assumptions	(784)	(109)	(343)
Translation adjustment	5	(5)	(24)
Others	-	-	(19)
Transfer	3,252	(3,252)	-
Benefit obligation as of December 31, 2022	5,142	608	1,057
Service costs	16	15	8
Interest costs	322	103	68
Benefits paid	(479)	(126)	(56)
Participant contributions	-	-	-
Effect of changes in the actuarial assumptions	468	130	44
Settlement	-	(836)	-
Transfer to assets held for sale	-	(28)	(12)
Other	3	10	(2)
Translation adjustment	246	41	43
Transfer	(1,201)	1,201	-
Benefit obligation as of December 31, 2023	4,517	1,118	1,150

ii. Evolution of assets fair value

	Overfunded pension plans	Underfunded pension plans	Other benefits
Fair value of plan assets as of December 31, 2021	3,752	3,779	-
Interest income	412	17	-
Employer contributions	45	14	57
Benefits paid	(534)	(58)	(57)
Return on plan assets (excluding interest income)	(752)	(31)	-
Translation adjustment	44	(9)	-
Transfer	3,373	(3,373)	-
Fair value of plan assets as of December 31, 2022	6,340	339	-
Interest income	429	85	-
Employer contributions	22	25	56
Benefits paid	(479)	(126)	(56)
Return on plan assets (excluding interest income)	286	44	-
Settlement	-	(841)	-
Translation adjustment	320	28	-
Transfer	(1,261)	1,261	-
Fair value of plan assets as of December 31, 2023	5,657	815	-

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iii. Reconciliation of assets and liabilities recognized in the statement of financial position

	December 31, 2023			Plans in Brazil December 31, 2022		
	Overfunded pension plans	Underfunded pension plans	Other benefits	Overfunded pension plans	Underfunded pension plans	Other benefits
Movements of assets ceiling						
Balance at beginning of the year	924	-	-	876	-	-
Interest income	95	-	-	83	-	-
Changes on asset ceiling	(194)	-	-	(89)	-	-
Translation adjustment	68	-	-	54	-	-
Balance at end of the year	893	-	-	924	-	-
Amount recognized in the statement of financial position						
Present value of actuarial liabilities	(3,152)	(272)	(389)	(2,634)	(246)	(321)
Fair value of assets	4,045	94	-	3,558	101	-
Effect of the asset ceiling	(893)	-	-	(924)	-	-
Liabilities	-	(178)	(389)	-	(145)	(321)
Current liabilities	-	(3)	(22)	-	(3)	(16)
Non-current liabilities	-	(175)	(367)	-	(142)	(305)
Liabilities	-	(178)	(389)	-	(145)	(321)

	December 31, 2023			Foreign plan December 31, 2022		
	Overfunded pension plans (i)	Underfunded pension plans	Other benefits	Overfunded pension plans	Underfunded pension plans	Other benefits
Movements of assets ceiling						
Balance at beginning of the year	190	-	-	44	-	-
Interest income	8	1	-	1	-	-
Changes on asset ceiling and onerous liability	2	(28)	-	160	-	-
Translation adjustment	5	-	-	(15)	-	-
Transfer	(27)	27	-	-	-	-
Balance at end of the year	178	-	-	190	-	-
Amount recognized in the statement of financial position						
Present value of actuarial liabilities	(1,365)	(846)	(759)	(2,508)	(362)	(736)
Fair value of assets	1,611	721	-	2,782	238	-
Effect of the asset ceiling	(178)	-	-	(190)	-	-
Assets (liabilities)	68	(125)	(759)	84	(124)	(736)
Current liabilities	-	(6)	(39)	-	(7)	(40)
Non-current assets (liabilities)	68	(119)	(720)	84	(117)	(696)
Assets (liabilities)	68	(125)	(759)	84	(124)	(736)

	December 31, 2023			Total December 31, 2022		
	Overfunded pension plans (i)	Underfunded pension plans	Other benefits	Overfunded pension plans	Underfunded pension plans	Other benefits
Movements of assets ceiling						
Balance at beginning of the year	1,114	-	-	919	-	-
Interest income	103	1	-	84	-	-
Changes on asset ceiling	(192)	(28)	-	65	-	-
Translation adjustment	73	-	-	46	-	-
Transfer	(27)	27	-	-	-	-
Balance at end of the year	1,071	-	-	1,114	-	-
Amount recognized in the statement of financial position						
Present value of actuarial liabilities	(4,517)	(1,118)	(1,148)	(5,142)	(608)	(1,057)
Fair value of assets	5,656	815	-	6,340	339	-
Effect of the asset ceiling	(1,071)	-	-	(1,114)	-	-
Assets (liabilities)	68	(303)	(1,148)	84	(269)	(1,057)
Current liabilities	-	(9)	(61)	-	(10)	(56)
Non-current assets (liabilities)	68	(294)	(1,087)	84	(259)	(1,001)
Assets (liabilities)	68	(303)	(1,148)	84	(269)	(1,057)

(i) The pension plan asset is recorded as "Other non-current assets" in the financial position.

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Expressed in millions of United States dollar, unless otherwise stated

iv. Costs recognized in the income statement

	Year ended December 31,								
	2023			2022			2021		
	Overfunded pension plans	Underfunded pension plans	Other benefits	Overfunded pension plans	Underfunded pension plans	Other benefits	Overfunded pension plans	Underfunded pension plans	Other benefits
Service cost	16	15	8	45	40	13	10	68	1
Interest expense	322	103	68	325	39	60	196	122	33
Interest income	(429)	(85)	-	(412)	(17)	-	(253)	(102)	-
Interest expense on effect of (asset ceiling)/ onerous liability	103	1	-	84	-	-	58	-	-
Others	3	10	(2)	-	-	-	-	-	-
Total of cost, net	15	44	74	42	62	73	11	88	34

v. Costs recognized in the statement of comprehensive income

	Year ended December 31,								
	2023			2022			2021		
	Overfunded pension plans	Underfunded pension plans	Other benefits	Overfunded pension plans	Underfunded pension plans	Other benefits	Overfunded pension plans	Underfunded pension plans	Other benefits
Balance at beginning of the year	(124)	(45)	62	(93)	(92)	(172)	(101)	(400)	(363)
Effect of changes actuarial assumptions	(468)	(130)	(44)	784	109	343	330	246	261
Return on plan assets (excluding interest income)	286	44	-	(752)	(31)	-	(269)	181	-
Change of asset ceiling	192	28	-	(65)	-	-	(60)	-	-
Others	-	-	(12)	(3)	-	-	(5)	3	(4)
	10	(58)	(56)	(36)	78	343	(4)	430	257
Deferred income tax	(3)	19	20	12	(26)	(102)	5	(130)	(83)
Others comprehensive income	7	(39)	(36)	(24)	52	241	1	300	174
Translation adjustments	(10)	(6)	(9)	(7)	(5)	(7)	7	8	17
Accumulated other comprehensive income	(127)	(90)	17	(124)	(45)	62	(93)	(92)	(172)

Notes to the Financial Statements

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vi. Risks related to plans

The Administrators of the plans have committed to strategic planning to strengthen internal controls and risk management. This obligation is achieved by conducting audits and assessments of internal controls, which aim to mitigate operational market and credit risks. Risks are presented as follow:

Legal – Lawsuits: issuance of periodic reports to the audit and Board of Directors, including the lawyers' analysis of the chances of success (remote, probable or possible), focusing on the administrative decision on provisions. Promote and monitor adaptations to new legal obligations and monitor compliance with established legal obligations. Due diligence of third parties from the perspective of the Integrity Program.

Actuarial – The annual actuarial evaluation of the benefit plans comprises the assessment of taxes, income and adequacy of the costing plans. Technical study of compliance with the assumptions adopted in the actuarial evaluation of benefit plans prepared by an external actuary, in accordance with current legislation. Monitoring of biometric, demographic and economic-financial assumptions.

Market – Technical allocation studies are carried out with the objective of evaluating investment portfolios of the different obligations of the plans and projecting the future result of these portfolios. Asset Liability Management studies are carried out for defined benefit type obligations (Asset Liability Management study), while for defined contribution type obligations there are efficient frontier studies (investment profiles) and glidepath (life cycles). Periodic monitoring of the plans' short-term market risk based on risk indicators (VaR – Value at Risk, Benchmark VaR, Maximum Drawdown, Stress Tests, among others).

Credit – Risk classification of securities from corporate and bank issuers based on quantitative and qualitative assessments of the credit risk of the issuer, the asset and its guarantees, from acquisition to maturity. This internal rating sensitizes provisions for credit risk losses, as well as verified defaults, in accordance with current legislation. Provisions for loan losses with participants are realized based on default verified in payments.

Liquidity – Technical study of the liquidity of plans with defined benefit obligations, focusing on the long term, whose objective is to verify the sufficiency of the assets in fulfilling the plan's obligations. Monitoring of short-term liquidity with a focus on cash available to meet plan obligations for the coming years. The defined contribution bond portfolios (investment profiles and life cycles) have assets available for sale at any time in normal market situations.

vii. Actuarial and economic assumptions and sensitivity analysis

All calculations involve future actuarial projections about some parameters, such as: salaries, interest, inflation, mortality and disability.

The economic and actuarial assumptions adopted have been formulated considering the long-term period for maturity and should therefore be analyzed accordingly. In the short term they may not be realized.

The following assumptions were adopted in the assessment:

	December 31, 2023			December 31, 2022		
	Overfunded pension plans	Underfunded pension plans	Other benefits	Overfunded pension plans	Underfunded pension plans	Other benefits
Discount rate to determine benefit obligation	8,57% – 8,63%	10.15%	8,59% – 8,74%	9,77% – 9,88%	10.66%	9,81% – 9,90%
Nominal average rate to determine expense/ income	8,57% – 8,63%	10.15%	N/A	9,77% – 9,88%	10.66%	N/A
Nominal average rate of salary increase	3,08% – 4,94%	4.50%	N/A	3,50% – 5,36%	6.86%	N/A
Nominal average rate of benefit increase	3,08% – 3,60%	4.50%	N/A	3,50% – 4,02%	6.86%	N/A
Immediate health care cost trend rate	N/A	N/A	6.17%	N/A	N/A	6.35%
Ultimate health care cost trend rate	N/A	N/A	6.17%	N/A	N/A	6.35%
Nominal average rate of price inflation	3.08%	4.50%	3.08%	3.50%	4.25%	3.50%

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	December 31, 2023			December 31, 2022		
	Overfunded pension plans	Underfunded pension plans	Other benefits	Overfunded pension plans	Underfunded pension plans	Other benefits
Discount rate to determine benefit obligation	4.63%	4.63%	4.64%	5.10%	5.10%	5.14%
Nominal average rate to determine expense/ income	5.10%	5.10%	5.14%	2.84%	2.84%	3.03%
Nominal average rate of salary increase	3.31%	3.31%	N/A	3.23%	3.23%	N/A
Nominal average rate of benefit increase	3.00%	3.00%	N/A	3.00%	3.00%	N/A
Immediate health care cost trend rate	N/A	N/A	4.85%	N/A	N/A	5.11%
Ultimate health care cost trend rate	N/A	N/A	4.49%	N/A	N/A	4.57%
Nominal average rate of price inflation	2.08%	2.08%	N/A	2.06%	2.06%	N/A

For the sensitivity analysis, the Company applies the effect of 1.0% in nominal discount rate to the present value of the Company's actuarial liability. The effects of this analysis on the Company's actuarial liability and assumptions adopted are as follows:

	December 31, 2023		
	Overfunded pension plans	Underfunded pension plans	Other benefits
Nominal discount rate - 1% increase			
Actuarial liability adjusted for sensitivity test	2,940	262	501
Assumptions made	9.60%	11.15%	9.67%
Nominal discount rate - 1% reduction			
Actuarial liability adjusted for sensitivity test	3,399	283	387
Assumptions made	7.60%	9.15%	7.67%

	December 31, 2023		
	Overfunded pension plans	Underfunded pension plans	Other benefits
Nominal discount rate - 1% increase			
Actuarial liability adjusted for sensitivity test	1,237	745	677
Assumptions made	5.63%	5.63%	5.65%
Nominal discount rate - 1% reduction			
Actuarial liability adjusted for sensitivity test	1,506	957	880
Assumptions made	3.63%	3.63%	3.64%

viii. Assets of pension plans

Brazilian plan assets as of December 31, 2023 and 2022 includes respectively (i) investments in a portfolio of Vale's share and other instruments in the amount of US\$32 and US\$47, which are presented as "Investments funds – Equity" and (ii) Brazilian Federal Government securities in the amount of US\$4.793 and US\$4,214, which are presented as "Debt securities governments" and "Investments funds – Fixed" Foreign plan assets as of December 31, 2023 and 2022 includes Canadian Government securities in the amount of US\$592 and US\$454, respectively.

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ix. Overfunded pension plans

Assets by category are as follows:

	December 31, 2023				December 31, 2022			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
Cash and cash equivalents	-	14	-	14	-	55	-	55
Equity securities	261	-	-	261	1,115	-	-	1,115
Debt securities – Corporate	-	396	-	396	1	367	-	368
Debt securities – Government	3,814	361	-	4,175	3,354	435	-	3,789
Investments funds – Fixed Income	1,391	162	-	1,553	1,040	133	-	1,173
Investments funds – Equity	483	1	-	484	455	1	-	456
International investments	59	186	-	245	23	231	-	254
Structured investments – Private Equity funds	-	51	72	123	-	188	240	428
Structured investments – Real estate funds	-	-	-	-	-	-	3	3
Real estate	-	-	235	235	-	-	293	293
Loans to participants	-	-	162	162	-	-	128	128
Other	-	-	187	187	-	-	-	-
Total	6,008	1,171	656	7,835	5,988	1,410	664	8,062
Funds not related to risk plans (i)				(2,178)				(1,722)
Fair value of plan assets at end of year				5,657				6,340

(i) Financial investments not related to coverage of overfunded pension plans. Funds are related to the Company's unconsolidated entities and former employees.

Measurement of overfunded plan assets at fair value with no observable market variables (level 3) are as follows:

	Private equity funds	Real estate funds	Real estate	Loans to participants	Total
Balance as of December 31, 2021	103	5	212	106	426
Return on plan assets	(5)	(2)	15	26	34
Assets purchases	10	-	25	280	315
Assets sold during the year	(36)	-	(22)	(292)	(350)
Translation adjustment	4	-	14	8	26
Transfer between Overfunded pension and Underfunded pension plans	164	-	49	-	213
Balance as of December 31, 2022	240	3	293	128	664
Return on plan assets	5	-	9	22	36
Assets purchases	11	-	8	211	230
Assets sold during the year	(6)	(3)	(16)	(210)	(235)
Translation adjustment	8	-	18	11	37
Transfer between Overfunded pension and Underfunded pension plans	(58)	-	(18)	-	(76)
Balance as of December 31, 2023	200	-	294	162	656

x. Underfunded pension plans

Assets by category are as follows:

	December 31, 2023				December 31, 2022			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
Cash and cash equivalents	-	6	-	6	-	2	-	2
Equity securities	112	-	-	112	55	-	-	55
Debt securities – Corporate	-	215	-	215	-	24	-	24
Debt securities – Government	60	150	-	210	46	19	-	65
Investments funds – Fixed Income	41	-	-	41	40	-	-	40
Investments funds – Equity	8	11	-	19	7	6	-	13
Structured investments – Private Equity funds	-	-	55	55	-	-	8	8
Real estate	-	-	27	27	-	-	6	6
Loans to participants	-	-	1	1	-	-	1	1
Others	-	-	131	131	-	-	125	125
Total	221	382	214	817	148	51	140	339

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Measurement of underfunded plan assets at fair value with no observable market variables (level 3) are as follows:

	Private equity funds	Equity pool	Real estate	Loans to participants	Others	Total
Balance as of December 31, 2021	181	53	3	1	168	406
Return on plan assets	1	-	-	-	(33)	(32)
Assets purchases	-	-	1	-	-	1
Assets sold during the year	(2)	-	(1)	-	-	(3)
Translation adjustment	(8)	-	(2)	-	(10)	(20)
Transfer between surplus and deficit plans	(164)	(53)	5	-	-	(212)
Balance as of December 31, 2022	8	-	6	1	125	140
Return on plan assets	4	-	-	-	3	7
Assets purchases	3	-	2	-	-	5
Assets sold during the year	(19)	-	-	-	-	(19)
Translation adjustment	1	-	1	-	3	5
Transfer between surplus and deficit plans	58	-	18	-	-	76
Balance as of December 31, 2023	55	-	27	1	131	214

xi. Disbursement of future cash flow

Vale expects to disburse US\$59 in 2024 in relation to pension plans and other benefits.

xii. Expected benefit payments

The expected benefit payments, which reflect future services, are as follows:

	Overfunded pension plans	Underfunded pension plans	Other benefits
2024	275	30	26
2025	277	30	27
2026	279	31	28
2027	280	31	30
2028	281	31	30
2029 and thereafter	1,387	161	167

Accounting policy

Employee benefits

i. Current benefits – wages, vacations and related taxes

Payments of benefits such as wages or accrued vacation, as well the related social security taxes over those benefits are recognized monthly in income, on an accrual basis.

ii. Current benefits – profit sharing program

The Company has the Annual Incentive Program (AIP) based on Team and business unit's contribution and Company-wide performance through operational cash generation. The Company makes an accrual based on evaluation periodic of goals achieved and Company result, using the accrual basis and recognition of present obligation arising from past events in the estimated outflow of resources in the future. The accrual is recorded as cost of goods sold and services rendered or operating expenses in accordance with the activity of each employee.

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iii. Non-current benefits – share-based payments

The Company has established a procedure for awarding certain eligible executives (Matching and Performance Share Unit (“PSU”) Programs) with the goal of encouraging employee retention and optimum performance. Share-based long-term compensation programs are equity-settled, under which the Company receives employee services as consideration for equity instruments. The fair value of employee services received in exchange for the grant of options is recognized as an expense. The total amount of expenses is recognized during the period in which the right is acquired; period during which the specific vesting conditions are met.

iv. Non-current benefits – pension costs and other post-retirement benefits

The Company has several retirement plans for its employees.

For defined contribution plans, the Company's obligations are limited to a monthly contribution linked to a pre-defined percentage of the remuneration of employees enrolled into these plans.

For defined benefit plans, actuarial calculations are periodically obtained for liabilities determined in accordance with the Projected Unit Credit Method in order to estimate the Company's obligation. The liability recognized in the statement of financial position represents the present value of the defined benefit obligation as of that date, less the fair value of plan assets. The Company recognized in the income statement the costs of services, the interest expense of the obligations and the interest income of the plan assets. The remeasurement of gains and losses, return on plan assets (excluding the amount of interest on return of assets, which is recognized in income for the year) and changes in the effect of the ceiling of the active and onerous liabilities are recognized in comprehensive income for the year.

For overfunded plans, the Company recognizes the net defined benefit assets limited to the present value of the economic benefits available as refunds or reductions in future contributions, considering minimum funding requirements applicable. For underfunded plans, the Company recognizes net defined benefit liabilities. The gain or loss on recognition/remeasurement of these net assets/liabilities are recognized in income statement or in comprehensive income, when arising from the actuarial valuation.

Critical accounting estimates and judgments

Post-retirement benefits for employees – The amounts recognized depend on several factors that are determined based on actuarial calculations using various assumptions in order to determine costs and liabilities. One of these assumptions is selection and use of the discount rate. Any changes to these assumptions will affect the amount recognized.

At the end of each year the Company and external actuaries review the assumptions that will be used for the following year. These assumptions are used in determining the fair values of assets and liabilities, costs and expenses and the future values of estimated cash outflows, which are recorded in the plan obligations.

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30. Equity

a) Share capital

As of December 31, 2023, the share capital was US\$ 61,614 corresponding to 4,539,007,580 shares issued and fully paid without par value. The Board of Directors may, regardless of changes to by-laws, approve the issue and cancelation of common shares, including the capitalization of profits and reserves to the extent authorized.

Shareholders	December 31, 2023		
	Common shares	Golden shares	Total
Previ	395,314,056	-	395,314,056
Mitsui&co	286,347,055	-	286,347,055
Blackrock, Inc	264,763,034	-	264,763,034
Total shareholders with more than 5% of capital (i)	946,424,145	-	946,424,145
Free floating	3,353,430,143	-	3,353,430,143
Golden shares	-	12	12
Total outstanding (without shares in treasury)	4,299,854,288	12	4,299,854,300
Shares in treasury	239,153,280	-	239,153,280
Total capital	4,539,007,568	12	4,539,007,580

(i) The number of shares is based on communications sent by shareholders pursuant to Resolution 44 issued by the Brazilian Securities Exchange Commission ("CVM").

b) Cancelation of treasury shares

During 2023 and 2022, the Board of Directors approved cancellations of common shares issued by the Company, acquired and held in treasury, without reducing the amount of its share capital, as shown below. The effects were transferred in shareholders' equity as "Treasury shares cancelled", between the "Revenue reserve" and "Treasury shares".

	Number of canceled shares	Carrying amount
Cancelation approved on March 2, 2023 (i)	239,881,683	4,164
Year ended December 31, 2023	239,881,683	4,164
Cancelation approved on February 24, 2022 (i)	133,418,347	2,830
Cancelation approved on July 28, 2022	220,150,800	3,786
Year ended December 31, 2022	353,569,147	6,616

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c) Share buyback program

In 2023 and 2022, the Board of Directors approved shares buyback programs for Vale's shares, as described below.

	Total of shares repurchased		Effect on cash flows	
	2023	2022	Year ended December 31,	
			2023	2022
Shares buyback program up to 150,000,000 shares (i)				
Acquired by Parent	1,500,000	-	22	-
Acquired by wholly owned subsidiaries	1,500,000	-	22	-
Total	3,000,000	-	44	-
Shares buyback program up to 500,000,000 shares (ii)				
Acquired by Parent	93,638,352	87,779,900	1,378	1,375
Acquired by wholly owned subsidiaries	88,058,750	90,847,177	1,292	1,410
Total	181,697,102	178,627,077	2,670	2,785
Shares buyback program up to 470,000,000 shares (iii)				
Acquired by Parent	-	81,855,600	-	1,501
Acquired by wholly owned subsidiaries	-	96,959,900	-	1,750
Total	-	178,815,500	-	3,251
Shares buyback program	184,697,102	357,442,577	2,714	6,036

(i) On October 26, 2023, a new share buyback program limited to a maximum of 150,000,000 common shares and their respective ADRs, over the next 18 months started from the end of the program previously on going.

(ii) On April 27, 2022, the Board of Directors approved the common shares buyback program, limited to a maximum of 500,000,000 common shares or their respective ADRs, with a term of 18 months.

(iii) On April 1, 2021, the Board of Directors approved the common share buyback program, limited to a maximum of 270,000,000 common shares or their respective ADRs. In continuation of the previous program, the Board of Directors approved a new share repurchase program on October 28, 2021, with a limit of up to 200,000,000 common shares or their respective ADRs. Both programs ended in 2022.

d) Profit distribution

	2023	2022
Net income of the year	7,983	18,788
Appropriation to legal reserve (i)	-	(276)
Appropriation to tax incentive reserve	(891)	(1,157)
Net income after appropriations to legal reserve and tax incentive reserve	7,092	17,355
Minimum remuneration to shareholders (ii)	2,042	4,386
Additional shareholders' remuneration		
from the net income for the year	4,066	437
Total remuneration to shareholders	6,108	4,823
Appropriation to statutory reserve	984	8,821
Appropriation to retained earnings reserve	-	3,711

(i) In 2022, the limit of 20% of the share capital for the constitution of the legal reserve was reached, in accordance with article 193 of Law 6,404 and article 39 of the Company's By-laws.

(ii) Mandatory minimum remuneration was fully approved.

Remuneration approved

The Company's By-laws determines as its minimum mandatory remuneration to Vale shareholders an amount equal to 25% of the net income, after appropriations to legal and tax incentive reserves. The remuneration approved as interest on capital ("JCP") is gross up with the income tax applicable to Vale's shareholders. The remuneration to Vale's shareholders was based on the following resolutions:

- On February 22, 2024 (subsequent event), the Board of Directors has approved remuneration to shareholders in the total amount of US\$2,364 (R\$11,722 million). The total amount was approved as dividends and recorded in equity as "Additional remuneration reserve". The payment is expected by March 2024.
- On October 26, 2023, the Board of Directors approved an additional remuneration to its shareholders in the amount of US\$2,000 (R\$10,033 million) as an anticipation of the shareholders remuneration for the year ending December

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31, 2023, of which US\$657 (R\$3,295 million) was approved as interest on capital and US\$1,343 (R\$6,738 million) as dividends. The payment of this remuneration was fully paid in December 2023.

- On July 27, 2023, the Board of Directors approved interest on capital to its shareholders in the amount of US\$1,744 (R\$8,277 million) as an anticipation of remuneration for the year ended December 31, 2023. The payment of this remuneration was fully paid in September 2023.
- On February 16, 2023, the Board of Directors approved the shareholder's remuneration of US\$1,569 (R\$8,130 million), of which US\$1,132 (R\$5,865 million) is part of the minimum mandatory remuneration, recorded as a liability for the year ended December 31, 2022, and US\$437 (R\$2,265 million) as an additional remuneration, recorded in equity as "Additional remuneration reserve". The payment of this remuneration was fully paid in March 2023.
- On December 1, 2022, the Board of Directors approved interest on capital to shareholders in the amount of US\$254 (R\$1.319 million), as an anticipation of the income for the year ended December 31, 2022, which is part of the minimum mandatory remuneration, recorded as a liability for the year ended December 31, 2022. The payment of this remuneration was fully paid in March 2023.
- On July 28, 2022, the Board of Directors approved the remuneration to shareholders in the amount of US\$3,000 (R\$16,243 million), which is part of the minimum mandatory remuneration, recorded as a liability for the year ended December 31, 2022. The payment of this remuneration was fully paid in September 2022.
- On February 24, 2022, the Board of Directors approved the remuneration to shareholders in the amount of US\$3,500 (R\$17,849 million) as an additional remuneration for the year ended December 31, 2021, recorded in equity as "Additional remuneration reserve". The payment of this remuneration was fully paid in March 2022.

e) Profit reserves

	Legal reserve	Tax incentive reserve	Statutory reserve	Retained earnings reserve	Additional remuneration reserve	Total of profit reserves
Balance as of December 31, 2021	2,523	3,083	6,898	-	3,198	15,702
Allocation of income	276	1,157	8,821	3,711	437	14,402
Deliberated dividends and interest on capital of Vale's shareholders	-	-	-	-	(3,500)	(3,500)
Treasury shares cancellation	-	-	(6,616)	-	-	(6,616)
Transfer of reserves	-	3	(3)	-	-	-
Translation adjustment	165	173	249	(133)	302	756
Balance as of December 31, 2022	2,964	4,416	9,349	3,578	437	20,744
Allocation of income	-	891	984	-	2,364	4,239
Deliberated dividends and interest on capital of Vale's shareholders	-	-	-	-	(437)	(437)
Treasury shares cancellation	-	-	(4,164)	-	-	(4,164)
Translation adjustment	230	383	604	278	-	1,495
Balance as of December 31, 2023	3,194	5,690	6,773	3,856	2,364	21,877

Legal reserve - Is a legal requirement for Brazilian public companies to retain 5% of the annual net income up to 20% of the capital. The reserve can only be used to compensate losses or to increase capital. The reserve can only be used to absorb losses or to increase capital. In 2022, the limit of 20% of the share capital for the constitution of the legal reserve was reached, in accordance with article 193 of Law No. 6,404 and article 39 of the Company's By-laws.

Tax incentive reserve - Results from the option to designate a portion of the income tax for investments in projects approved by the Brazilian Government as well as tax incentives.

Statutory reserve - Aims to ensure the maintenance and development of the main activities that comprise the Company's operations and to retain budgeted capital for investments. Based on the Company's by-laws, this reserve is capped to 50% of the annual distributable net income, up to the amount of the share capital.

Retained earnings reserve - It is intended to be used in investments for capital expenditures as allowed by the Brazilian Corporate Law.

Additional remuneration reserve - Results from the remuneration proposed by Management that exceeds the mandatory minimum remuneration of 25% of the adjusted net income.

Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

Accounting policy

Share capital and treasury shares – The Company holds shares in treasury for a future sale, cancellation or for the payment of the executives' long-term compensation programs. These shares are recognized in a specific account as a reduction of equity to the acquisition value and maintained at the cost of the transaction. Incremental costs directly attributable to the issue of new shares or options are recognized in equity as a deduction from the amount raised, net of taxes.

Shareholder's remuneration – The shareholder's remuneration is paid on dividends and interest on capital. This remuneration is recognized as a liability in the financial statements of the Company based on by-laws. Any amount above the minimum mandatory remuneration approved by the by-laws shall only be recognized in current liabilities on the date that is approved by shareholders.

The Company is permitted to distribute interest attributable to equity. The calculation is based on the equity amounts as stated in the statutory accounting records and the interest rate applied may not exceed the Brazilian Government Long-term Interest Rate ("TJLP") determined by the Central Bank of Brazil. Also, such interest may not exceed 50% of the net income for the year or 50% of retained earnings plus profit reserves as determined by Brazilian corporate law.

The benefit to the Company, as opposed to making a dividend payment, is a reduction in the income tax burden because this interest charge is tax deductible in Brazil. Income tax of 15% is withheld on behalf of the shareholders relative to the interest distribution. Under Brazilian law, interest attributed to equity is considered as part of the annual minimum mandatory dividend. This notional interest distribution is treated for accounting purposes as a deduction from equity in a manner similar to a dividend and the tax deductibility recorded in the income statement.

31. Related parties

The Company's related parties are subsidiaries, joint ventures, associates, shareholders and its related entities and key management personnel of the Company.

Related party transactions were made by the Company on terms equivalent to those that prevail in arm's-length transactions, with respect to price and market conditions that are no less favorable to the Company than those arranged with third parties.

Net operating revenue relates to sale of iron ore to the steelmakers and right to use capacity on railroads. Cost and operating expenses mostly relates to the variable lease payments of the pelletizing plants.

Purchases, accounts receivable and other assets, and accounts payable and other liabilities relate largely to amounts charged by joint ventures and associates related to the pelletizing plants operational lease and railway transportation services.

Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

a) Transactions with related parties

	Year ended December 31,						2021		
	2023			2022			2021		
	Net operating revenue	Cost and operating expenses	Financial result	Net operating revenue	Cost and operating expenses	Financial result	Net operating revenue	Cost and operating expenses	Financial result
Joint Ventures									
Companhia Siderúrgica do Pecém	93	-	-	434	-	(3)	640	-	3
Aliança Geração de Energia S.A.	-	(126)	-	-	(121)	-	5	(105)	-
Pelletizing companies (i)	-	(227)	(38)	-	(337)	(34)	-	(349)	(15)
MRS Logística S.A.	-	(453)	-	1	(397)	-	-	(279)	-
Norte Energia S.A.	-	(107)	-	-	(135)	-	-	(114)	-
Other	32	(10)	1	41	(8)	-	-	(10)	(1)
	125	(923)	(37)	476	(998)	(37)	645	(857)	(13)
Associates									
VLI	321	(29)	(3)	289	(26)	(3)	255	(21)	(2)
Other	-	(1)	-	1	-	-	1	-	-
	321	(30)	(3)	290	(26)	(3)	256	(21)	(2)
Shareholders									
Cosan	10	(11)	-	-	-	-	-	-	-
Bradesco	-	-	201	-	-	381	-	-	(528)
Banco do Brasil	-	-	-	-	-	3	-	-	13
Mitsui	280	-	-	416	-	-	261	-	-
	290	(11)	201	416	-	384	261	-	(515)
Total of continuing operations	736	(964)	161	1,182	(1,024)	344	1,162	(878)	(530)
Discontinued operation - Coal	-	-	-	-	-	-	-	(95)	15
Total	736	(964)	161	1,182	(1,024)	344	1,162	(973)	(515)

(i) Aggregated entities: Companhia Coreano-Brasileira de Pelotização, Companhia Hispano-Brasileira de Pelotização, Companhia Ítalo-Brasileira de Pelotização and Companhia Nipo-Brasileira de Pelotização.

b) Outstanding balances with related parties

	December 31, 2023			December 31, 2022		
	Cash and cash equivalents	Accounts receivable	Dividends receivable and other assets	Cash and cash equivalents	Accounts receivable	Dividends receivable and other assets
Joint Ventures						
Companhia Siderúrgica do Pecém	-	-	-	-	91	17
Pelletizing companies (i)	-	-	27	-	-	25
MRS Logística S.A.	-	16	34	-	-	25
Other	-	4	43	-	4	50
	-	20	104	-	95	117
Associates						
VLI	-	46	-	-	14	-
Other	-	1	2	-	-	1
	-	47	2	-	14	1
Shareholders						
Cosan	-	1	-	-	-	-
Bradesco	176	-	313	335	-	154
Banco do Brasil	58	-	-	30	-	-
Mitsui	-	5	-	-	89	-
	234	6	313	365	89	154
Pension plan	-	16	-	-	13	-
Total	234	89	419	365	211	272

(i) Aggregated entities: Companhia Coreano-Brasileira de Pelotização, Companhia Hispano-Brasileira de Pelotização, Companhia Ítalo-Brasileira de Pelotização and Companhia Nipo-Brasileira de Pelotização.

Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

	December 31, 2023		Liabilities December 31, 2022	
	Supplier and contractors	Financial instruments and other liabilities	Supplier and contractors	Financial instruments and other liabilities
Joint Ventures				
Pelletizing companies (i)	51	290	63	400
MRS Logística S.A.	48	-	57	-
Other	39	-	31	-
	138	290	151	400
Associates				
VLI	1	59	5	53
Other	4	-	3	-
	5	59	8	53
Shareholders				
Cosan	1	-	-	-
Bradesco	-	23	-	75
Mitsui			1	
	1	23	1	75
Pension plan	14	-	11	-
Total	158	372	171	528

(i) Aggregated entities: Companhia Coreano-Brasileira de Pelotização, Companhia Hispano-Brasileira de Pelotização, Companhia Ítalo-Brasileira de Pelotização and Companhia Nipo-Brasileira de Pelotização.

c) Key management personnel compensation

	Year ended December 31,		
	2023	2022	2021
Short-term benefits			
Wages	11	10	9
Direct and indirect benefits	1	2	1
Profit sharing program ("PLR")	11	12	10
	23	24	20
Long-term benefits			
Shares based	14	18	12
Severance	2	2	1
	39	44	33

32. Commitments and guarantees granted

a) Commitments

	December 31, 2023	December 31, 2022
Purchase of raw materials and services	5,361	6,534
Purchase of energy	2,316	2,605
	7,677	9,139

Commitments arise mainly from contracts for the acquisition of fuel and power and the purchase of raw materials and services. They represent the minimum required and non-cancelable payments related to contractual obligations.

b) Guarantee

	December 31, 2023			December 31, 2022		
	Guarantee	Restricted cash	Liability (i)	Guarantee	Restricted cash	Liability (i)
Associates and joint ventures	274	-	-	1,522	-	103
Assets retirement obligations	910	-	-	644	73	-
	1,184	-	-	2,166	73	103

(i) The fair value of these financial guarantees is recorded as "Other financial liabilities" (note 14).

Notes to the Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

Guarantees for associates and joint ventures – The Company has issued financial guarantees to certain associates and joint ventures to the extent of its direct and indirect ownership interest. In March 2023, the Company completed the sale of its interest in CSP and derecognized the financial guarantee granted by the Company (note 16f). In 2022, there was an improvement in the credit risk rating of the associates and as a result of the decrease in the probability of default on the guaranteed debts, resulting in a gain in the amount of US\$481 (2021: US\$312) (note 6).

Guarantees related to asset retirement obligations – The Company has financial guarantees provided for the asset retirement obligations of its energy transition metals operations in Canada. In addition, for Indonesia, as collateral in relation to the bank guarantees issued by the bank in relation to the reclamation and mine closure guarantees Vale has bank deposits as collateral in relation to the bank guarantees issued by the bank in relation to the reclamation and mine closure guarantees.

Fixed assets given as guarantee for loans and financing – The securities issued through Vale's wholly owned finance subsidiary Vale Overseas Limited are fully and unconditionally guaranteed by Vale and no other subsidiary of the Parent Company guarantees those securities.

Accounting policy

Power Purchase Agreements ("PPAs") – The Company holds PPAs that were entered into and continue to be held for own use. As such, these contracts fall outside the scope of IFRS 9 – *Financial Instruments*. These PPAs are accounted for as executory contracts and are recorded as energy is received.