Vale's performance in Q4 and 2022

Rio de Janeiro, February 16th, 2023. *"In 2022, we made significant progress on our strategic priorities. In safety, we are proud to have eliminated 40% of our upstream structures and removed the B3/B4 dam from the high-risk level. In Iron Solutions, we advanced on our path to becoming the supplier of choice for high-quality products, leveraging Vale's unique mineral endowment and capitalizing on the decarbonization trend of the steel industry. On that, we have announced hubs to develop green solutions in the Middle East and secured MoUs with clients representing around 50% of the our scope 3 emissions, expanding the offer of low-carbon products such as high-grade pellets and briquettes. On operations, we took concrete actions to deliver on our long-term growth guidance by advancing on the critical milestones we had laid out for the year. In the Southeast, the tailings filtration plants are ramping up, and in the North, we improved orebody knowledge at S11D and, in Q4, commissioned the Gelado project. In the Energy Transition Materials business, the operations at Sudbury are now stable, and Onça Puma had its best annual production in the last five years. On Copper, performance has resumed after major maintenance in Salobo and Sossego, and we are off to a great start in 2023. Additionally, our robust pipeline of accretive growth progressed with the successful start-up of Salobo III, the approval of Onça Puma 2nd furnace and the signing of partnerships in Indonesia. We have also re-designed the Executive Committee, ensuring a fit-for-purpose organizaton with a greater focus on our operations and on developing sustainable solutions for the global energy transition. We strongly believe these actions will continue to uniquely position Vale to benefit from the secular trends of the energy revolution impacting the mining industry, creating sustainable long-term value for all stakeholders,"* commented Eduardo Bartolomeo, Chief Executive Officer.

Selected financial indicators

US$ million	4Q22	3Q22	4Q21	2022	2021
Net operating revenues	11,941	9,929	13,105	43,839	54,502
Total costs and expenses (ex-Brumadinho and de-characterization of dams)	(7,895)	(6,730)	(7,228)	(26,253)	(23,807)
Expenses related to Brumadinho event and de-characterization of dams	(375)	(336)	(2,115)	(1,151)	(2,576)
Adjusted EBIT from continuing operations	3,726	2,891	3,904	16,589	28,309
Adjusted EBIT margin (%)	31%	29%	30%	38%	52%
Adjusted EBITDA from continuing operations	4,626	3,666	4,726	19,760	31,343
Adjusted EBITDA margin (%)	39%	37%	36%	45%	58%
Proforma adjusted EBITDA from continuing operations[1]	5,001	4,002	6,857	20,911	33,963
Net income from continuing operations attributable to Vale's shareholders	3,724	4,455	5,352	16,728	24,736
Net debt [2]	7,915	6,980	1,877	7,915	1,877
Capital expenditures	1,787	1,230	1,751	5,446	5,033

[1] Excluding expenses related to Brumadinho and donations associated with COVID-19.

[2] Including leases (IFRS 16).

Highlights

Business Results

- Proforma adjusted EBITDA from continued operations of US$ 5.0 billion in Q4, US$ 1 billion higher q/q, mainly reflecting the higher iron ore sales volumes and higher realized prices in nickel and copper. Proforma adjusted EBITDA from continued operations of US$ 20.9 billion in 2022, 38% lower than 2021 mainly due to 23.6% lower iron ore fines realized prices.

- Free Cash Flow from Operations of US$ 5.7 billion in 2022, vs. US$ 20.0 billion in 2021 due to lower EBITDA.

Disciplined capital allocation

- Capital expenditures of US$ 1.8 billion in Q4, including growth and sustaining investments, up US$ 557 million q/q, but flat y/y, following usual seasonality. Capital expenditures of US$ 5.4 billion in 2022, 8% higher than 2021, due to investments in the Sol do Cerrado solar farm, Serra Sul 120, Capanema and Tubarão Briquette iron ore projects.

- Gross debt and leases of US$ 12.7 billion as of December 31, 2022, US$ 508 million higher q/q, largely due to lower free cash flow from operations and further execution of the share buyback program.

- Expanded Net Debt of US$ 14.1 billion, up US$ 856 million q/q, in line with targeted leverage of US$ 10-20 billion.

Value creation and distribution

- US$ 12.6 billion paid in dividends, interest on capital and share repurchases in 2022. Since 2020, Vale has returned US$ 35 billion to shareholders, representing around 46% of its market cap[1].

- US$ 1.8 billion in dividends to be paid in March 2023, considering Vale's ordinary dividend policy applied to 2H22 results.

- 3rd share buyback program now 43% complete, with a disbursement of US$ 3.4 billion to repurchase 213 million shares[2]. With the three buyback programs, earnings and dividends on a per share basis have each increased 15% since April 2021.

2022 in review

Focusing and strengthening the core

- Progressing in the electric vehicles value chain:
  - Multi-year agreement to supply low-carbon nickel to Swedish lithium-cell producer Northvolt AB signed in March.
  - Affirmed nickel supply contract with Tesla in May.
  - Long-term nickel supply agreement with General Motors signed in November. Pursuant to the agreement, Vale will supply battery grade nickel sulfate, equivalent to 25ktpy of contained nickel starting in 2026.

- Enhancing the iron solutions business:
  - Vale signed three agreements in October for the development of Mega Hubs, industrial complexes to supply green solutions to the steel industry.
  - MoU with Nippon Steel Corporation, Hunan Iron & Steel Group[3], and SHS, among others, to pursue ironmaking solutions focused on the carbon-neutral steelmaking process, signed during 2022.
  - In July, Vale announced the start of construction of the Zhongzhai Pre-blending Project, a partnership with Shagang and Ningbo Zhoushan Port. Vale is committed to supplying part of the blended cargos, with high-quality products such as BRBF, and to provide technical assistance on the blending activities.
  - Tecnored started the construction of the R$ 1.6 billion-plant in April. Start-up is expected in 2025, with initial capacity of 250 ktpy of green pig iron and potentially reaching 500 ktpy in the future.

- Advancing the project pipeline:
  - Approval of the Morowali project (formerly Bahodopi nickel project) in July. The project is expected to start-up in 2025. PTVI will own 100% of the mine while the RKEF project is a partnership between PTVI (49%) and two Chinese partners with 73 ktpy capacity.

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[1] Market capitalization of Dec 30th, 2022.

[2] As of the date of this report. Related to the April 2022 3rd buyback program for a total of 500 million shares. As reflected in our 4Q22 Financial Statement, until Dec 30, 2022, the Company had repurchased approximately 188 million ordinary shares in the total amount of US$ 2.9 billion.

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

- PTVI and Huayou signed binding agreements on the Pomalaa Nickel Project[4] to build an HPAL project associated with PTVI's Pomalaa nickel resources. The project is expected to start-up in 2025 with a production capacity of up to 120 ktpy. Ford Motor Company signed a memorandum of understanding with PTVI and Huayou to join the Pomalaa nickel project to create a three-party relationship.
- PTVI and Huayou signed a Heads of Agreement in September to build a 60-ktpy HPAL project to process limonite ore from the Sorowako mine.
- Approval of the Onca Puma 2nd furnace project with start-up expected in 2025, adding 12-15ktpy of nickel to our portfolio. The project leverages Onca Puma's existing infrastructure, and once complete is expected to decrease unit production costs for the overall Onca Puma complex by 15%.
- Salobo III project successfully commenced at the end of 2022. The project will add 30-40 ktpy of copper production and it is expected to achieve full capacity in 4Q24.
- VBME construction progressing in line with our revised forecast, ending the year with 81% physical completion. The project is expected to achieve full capacity in 1Q24.
- Northern System 240 Mtpy (mine/plant front) and Gelado projects commissioned in Q4, supporting a gradual increase of Northern System iron ore production in 2023.

- Responsible divestment of non-core assets, totaling 9 deals in 5 countries since 2019, eliminating expenditures of up to US$ 2.0 billion per year. In 2022, Vale:
  - Concluded the sale of (i) the 50% stake in California Steel Industries; (ii) the Moatize coal mine and the Nacala Logistic Corridor; and (iii) the iron ore, manganese, and logistics assets of the Midwestern System.
  - Signed binding agreement for the sale of Companhia Siderúrgica do Pecém – CSP to ArcelorMittal. Closing expected in 1Q23.

- Reorganization of Energy Transition Materials operations in Brazil to combine copper and nickel assets into two entities announced in September.

- New design of Vale's top leadership to accelerate the achievement of strategic objectives, supporting the development and longevity of the company's portfolio and strengthening Vale's second line of defense and risk management model.

Promoting sustainable mining

- To reduce scope 1 and 2 emissions, Vale: (i) entered into an agreement to enable the supply of natural gas to the São Luís Plant, in Maranhão, starting in 2024, consolidating the use of this fuel in all its pellet plants, (ii) started operating the Sol do Cerrado, one of the largest solar farms in Latin America with 766 MWp of capacity, (iii) advanced the electrification of the operational fleet through renewable sources, with battery-powered off-road trucks and the second 100% battery-powered locomotive.

- Creation of Vale Ventures to invest approximately US$100 million in startups that are focused on decarbonization initiatives within the mining process, mining without waste, energy transition metals and other technologies.

- Addition of 172,000 hectares of forest since 2019, or around 34.4% of the long-term target.

- "Biomas" project launched by Vale and other major companies in partnership to restore and protect 4 million hectares of native forests in different Brazilian biomes over 20 years.

- Vale signed an agreement with the indigenous communities Xikrin do Cateté and Kayapós in the state of Pará and with the Pataxó and Pataxó Hã-Hã-Hãe communities, affected by the Brumadinho dam collapse.

- Human rights due diligence performed in 76% of Vale's operations (including 100% of operations in Brazil).

[4] PTVI will own 100% of the mine and has a call option to acquire up to 30% of the HPAL project upon mechanical completion.

- Brumadinho Integral Reparation Agreement 58% executed. Since 2019, US$ 7.5 billion have been disbursed[5], with another US$ 1.6 billion expected for 2023.
- Restitution of the right to housing in Mariana with a total of 441 housing solutions delivered.
- 12 upstream structures were eliminated by the end of 2022, representing 40% of Vale's Dam De-characterization Program.
- B3/B4 dam had its emergency level reduced from 3 to 2, after successful safety improvements, an important milestone in the journey to eliminate critical safety conditions in dams by 2025.
- 8 structures received stability condition declarations in 2022, with emergency level removed.

[5] Includes incurred expenses.

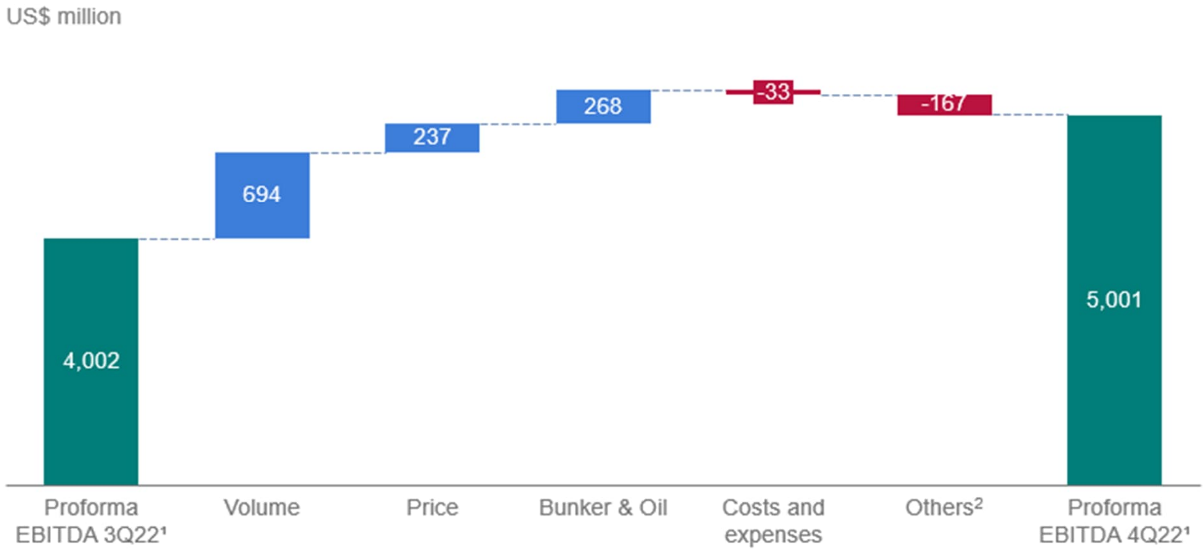
Adjusted EBITDA

Adjusted EBITDA

US$ million	4Q22	3Q22	4Q21	2022	2021
Net operating revenues	11,941	9,929	13,105	43,839	54,502
COGS	(7,155)	(6,301)	(6,494)	(24,028)	(21,729)
SG&A	(148)	(119)	(131)	(515)	(481)
Research and development	(218)	(170)	(177)	(660)	(549)
Pre-operating and stoppage expenses	(125)	(89)	(147)	(479)	(648)
Expenses related to Brumadinho event & de-characterization of dams	(375)	(336)	(2,115)	(1,151)	(2,576)
Expenses related to COVID-19 donations	-	-	(16)	-	(44)
Other operational expenses	(249)	(51)	(263)	(571)	(356)
Dividends and interests on associates and JVs	55	28	142	154	190
Adjusted EBIT from continuing operations	**3,726**	**2,891**	**3,904**	**16,589**	**28,309**
Depreciation, amortization & depletion	900	775	822	3,171	3,034
Adjusted EBITDA from continuing operations	**4,626**	**3,666**	**4,726**	**19,760**	**31,343**
Proforma Adjusted EBITDA from continuing operations[1]	**5,001**	**4,002**	**6,857**	**20,911**	**33,963**
Discontinued operations - Coal	-	-	102	171	(189)
Adjusted EBITDA total	**4,626**	**3,666**	**4,828**	**19,931**	**31,154**
Proforma Adjusted EBITDA total[1]	**5,001**	**4,002**	**6,959**	**21,082**	**33,774**

[1] Excluding expenses related to Brumadinho and COVID-19 donations.

Proforma EBITDA - 4Q22 vs. 3Q22



[1] Net of Brumadinho expenses. [2] Includes a positive effect of FX of US$ 40 million, a negative impact of non-recurrent tax of US$ 291 million and a positive impact of US$ 83 million related to dividends and others

Sales & price realization

Volume sold - Minerals and metals

'000 metric tons	4Q22	3Q22	4Q21	2022	2021
Iron ore fines	81,202	65,381	81,749	260,663	270,935
ROM	1,963	3,668	607	8,216	2,052
Pellets	8,789	8,521	10,351	33,164	32,306
Nickel	58	44	45	181	182
Copper	72	71	74	244	284
Gold as by-product ('000 oz)	73	79	77	277	340
Silver as by-product ('000 oz)	533	346	352	1,611	1,399
PGMs ('000 oz)	54	65	33	215	173
Cobalt (metric ton)	927	569	483	2,361	2,017

Average realized prices

US$/ton	4Q22	3Q22	4Q21	2022	2021
Iron ore fines Vale CFR reference (dmt)	99.0	103.3	109.6	120.2	159.5
Iron ore fines Vale CFR/FOB realized price	95.6	92.6	107.2	108.1	141.4
Pellets CFR/FOB (wmt)	165.6	194.3	182.6	188.6	218.3
Nickel	24,454	21,672	19,088	23,669	18,004
Copper	8,337	6,479	10,166	7,864	9,313
Gold (US$/oz)	1,677	1,748	1,795	1,785	1,768
Silver (US$/oz)	21.88	17.19	21.32	20.89	23.87
Cobalt (US$/t)	44,980	49,228	63,079	58,865	51,907

Costs

COGS by business segment

US$ million	4Q22	3Q22	4Q21	2022	2021
Iron Solutions[1]	5,079	4,317	4,717	16,755	15,623
Energy Transition Materials[2]	1,965	1,882	1,580	6,605	5,415
Others	111	102	197	668	691
Total COGS of continuing operations[3]	**7,155**	**6,301**	**6,494**	**24,028**	**21,729**
Depreciation	875	752	783	3,049	2,857
COGS of continuing operations, ex-depreciation	**6,280**	**5,549**	**5,711**	**20,979**	**18,872**

[1] The Company renamed its main operating segments starting from these financial statements. The operating segment previously named "Ferrous Minerals" is now disclosed as "Iron Solutions". There were no changes in the allocation criteria for these operating segments and, therefore, no adjustments were made to the comparative financial information
[2] The Company renamed its main operating segments starting from these financial statements. The operating segment previously named "Base Metals" operating segment is now disclosed as "Energy Transition Materials". There were no changes in the allocation criteria for these operating segments and, therefore, no adjustments were made to the comparative financial information.
[3] COGS currency exposure in 4Q22 was as follows: 56.3% USD, 37.0% BRL, 6.4% CAD and 0.3% Other currencies.

Expenses

Operating expenses

US$ million	4Q22	3Q22	4Q21	2022	2021
SG&A	148	119	131	515	481
Administrative	121	103	116	430	401
Personnel	45	42	42	185	170
Services	44	28	39	125	107
Depreciation	9	9	12	41	42
Others	23	24	23	79	82
Selling	27	16	15	85	80
R&D	218	170	177	660	549
Pre-operating and stoppage expenses	125	89	147	479	648
Expenses related to Brumadinho event and de-characterization of dams	375	336	2,115	1,151	2,576
Expenses related to COVID-19 donations	-	-	16	-	44
Other operating expenses	249	51	263	571	356
Total operating expenses	**1,115**	**765**	**2,849**	**3,376**	**4,654**
Depreciation	25	23	38	122	177
Operating expenses, ex-depreciation	**1,090**	**742**	**2,811**	**3,254**	**4,477**

Brumadinho

Impact of Brumadinho and De-characterization in 4Q22

US$ million	Provisions balance 30sep22	EBITDA impact	Payments	FX and other adjustments[2]	Provisions balance 31dec22
De-characterization	3,454	-	(102)	26	3,378
Agreements & donations[1]	3,231	133	(287)	235	3,312
Total Provisions	**6,685**	**133**	**(389)**	**261**	**6,690**
Incurred Expenses and others	-	242	(184)	-	58
Total	**6,685**	**375**	**(573)**	**261**	**6,748**

[1] Includes Integral Reparation Agreement, individual, labor and emergency indemnifications, tailing removal and containment works.
[2] Includes foreign exchange, present value and other adjustments.

Impact of Brumadinho and De-characterization from 2019 until 4Q22

US$ million	EBITDA impact	Payments	PV & FX adjust [2]	Provisions balance 31/dec/22
De-characterization	5,038	(1,138)	(522)	3,378
Agreements & donations[1]	8,658	(5,002)	(344)	3,312
Total Provisions	**13,696**	**(6,140)**	**(866)**	**6,690**
Incurred expenses	2,510	(2,510)	-	-
Others	180	-	-	58
Total	**16,328**	**(8,650)**	**(866)**	**6,748**

[1] Includes Integral Reparation Agreement, individual, labor and emergency indemnifications, tailing removal and containment works.
[2] Includes foreign exchange, present value and other adjustments

Cash outflow of Brumadinho & De-characterization commitments[1,2]:

US$ million	2022 disbursed	2023	2024	2025	2026	2027	Yearly average 2028-2035[3]
De-characterization	0.3	0.4	0.6	0.5	0.5	0.4	0.2
Integral Reparation Agreement & other reparation provisions	1.1	1.2	1.1	0.8	0.6	0.3	0.3[4]
Incurred expenses	0.6	0.4	0.4	0.3	0.2	0.1	-
Total	**2.0**	**2.0**	**2.1**	**1.6**	**1.3**	**0.8**	**-**

[1] Estimated cash outflow for 2023-2035 period based on a BRL-USD exchange rate of 5.2177.
[2] Amounts stated without discount to present value and net of judicial deposits, inclusive of inflation adjustments.
[3] Estimated annual average cash flow for de-characterization provisions in the 2028-2035 period is US$ 192 million per year.
[4] Disbursements related to the Integral Reparation Agreement end in 2028.

Net income

Reconciliation of proforma EBITDA to net income

US$ million	4Q22	3Q22	4Q21	2022	2021
EBITDA Proforma	**5,001**	**4,002**	**6,959**	**21,082**	**33,774**
Brumadinho event and de-characterization of dams & COVID-19 donations	(375)	(336)	(2,131)	(1,151)	(2,620)
EBITDA Coal (Discontinued operation)	-	-	(102)	(171)	189
Adjusted EBITDA from continuing operations	**4,626**	**3,666**	**4,726**	**19,760**	**31,343**
Impairment & disposal of non-current assets	(177)	(40)	(205)	773	(426)
Dividends received	(55)	(28)	(142)	(154)	(190)
Equity results and net income (loss) attributable to noncontrolling interests	53	89	(1,010)	223	(1,379)
Financial results	(658)	2,347	3,158	2,268	3,119
Income taxes	835	(804)	(353)	(2,971)	(4,697)
Depreciation, depletion & amortization	(900)	(775)	(822)	(3,171)	(3,034)
Net income from continuing operations attributable to Vale's shareholders	**3,724**	**4,455**	**5,352**	**16,728**	**24,736**

Financial results

US$ million	4Q22	3Q22	4Q21	2022	2021
Financial expenses	**(291)**	**(221)**	**(398)**	**(1,179)**	**(1,249)**
Loans and borrowings gross interest	(149)	(140)	(168)	(612)	(671)
Capitalization loans and borrowing costs	7	9	15	47	59
Others	(110)	(48)	(225)	(462)	(583)
Financial expenses (REFIS)	(39)	(42)	(20)	(152)	(54)
Financial income	**92**	**141**	**113**	**520**	**337**
Shareholders' Debentures	**(99)**	**470**	**393**	**659**	**(716)**
Financial Guarantee	**2**	**-**	**(18)**	**481**	**312**
Derivatives financial instruments[2]	**373**	**190**	**18**	**1,154**	**(23)**
Currency and interest rate swaps	323	232	7	1,130	(157)
Others (commodities, etc)	50	(42)	11	24	134
Foreign Exchange	**(247)**	**201**	**96**	**(398)**	**408**
Reclassification of cumulative translation adjustment on to income statement	**-**	**1,608**	**3,184**	**1,608**	**4,326**
Monetary variation	**(488)**	**(42)**	**(230)**	**(577)**	**(276)**
Financial result, net	**(658)**	**2,347**	**3,158**	**2,268**	**3,119**

[1] The cash effect of shareholder debentures was US$ 129 million in 4Q22.
[2] The cash effect of the derivatives was a gain of US$ 66 million in 4Q22.

Main factors that affected net income for 4Q22 vs. 3Q22

	US$ million	
3Q22 Net income from continuing operations attributable to Vale's shareholders	**4,455**	
∆ EBITDA proforma	999	Higher sales volumes and price realization across the board.
∆ Brumadinho event and de-characterization of dams & COVID-19 donations	(39)	
∆ Impairment & disposal of non-current assets	(137)	Reversal of onerous contracts after Midwestern System sale.
∆ Dividends received	(27)	
∆ Equity results	(36)	
∆ Financial results	(3,005)	3Q22 was greatly impacted by the positive effect of the reclassification of the cumulative translation adjustment after the capital reduction of a wholly owned subsidiary. Additionally, 3Q22 was positively affected by mark-to-market adjustments and in 4Q22, Vale paid remuneration on shareholders debentures.
∆ Income taxes	1,639	Recognition of deferred income tax assets from tax loss of a foreign subsidiary.
∆ Depreciation, depletion & amortization	(125)	
4Q22 Net income from continuing operations attributable to Vale's shareholders	**3,724**	

∆: difference between 4Q22 and 3Q22 figures

CAPEX

Vale’s investments totaled US$ 5.4 billion in 2022, in line with guidance and 8% higher y/y, owing to the Sol do Cerrado energy project as well as the Serra Sul 120 Mtpy, Capanema and Tubarão Briquette iron ore projects.

In 2023, Vale expects to invest US$ 6.0 billion driven by (i) Onça Puma 2nd furnace and VBME construction; (ii) the capital contribution for the Morowali project in Indonesia; and (iii) the progress on the Serra Sul 120 Mtpy and Capanema iron ore projects in Brazil.

Growth and sustaining projects execution

US$ million	4Q22	%	3Q22	%	4Q21	%	2022	%	2021	%
Growth projects	**426**	**23.8**	**375**	**30.5**	**352**	**20.1**	**1,587**	**29.1**	**999**	**19.8**
Iron Solutions	285	15.9	200	16.3	200	11.4	866	15.9	531	10.6
Energy Transition Materials	100	5.6	81	6.6	94	5.4	338	6.2	344	6.8
Nickel	16	0.9	19	1.5	7	0.4	49	0.9	14	0.3
Copper	84	4.7	62	5.0	87	5.0	289	5.3	330	6.6
Energy and others	41	2.3	94	7.6	58	3.3	383	7.0	124	2.5
Sustaining projects	**1,361**	**76.2**	**855**	**69.5**	**1,399**	**79.9**	**3,859**	**70.9**	**4,034**	**80.2**
Iron Solutions	764	42.8	497	40.4	842	48.1	2,236	41.1	2,481	49.3
Energy Transition Materials	567	31.7	341	27.7	545	31.1	1,521	27.9	1,518	30.2
Nickel	480	26.9	288	23.4	470	26.8	1,287	23.6	1,353	26.9
Copper	87	4.9	53	4.3	75	4.3	234	4.3	165	3.3
Energy and others	30	1.7	17	1.4	12	0.7	102	1.9	35	0.7
Total	**1,787**	**100.0**	**1,230**	**100.0**	**1,751**	**100.0**	**5,446**	**100.0**	**5,033**	**100.0**

In Iron Solutions, the Northern System 240 Mtpy (mine/plant front) and Gelado projects started their commissioning in Q4, with both expected to support a gradual increase of Northern System iron ore production in 2023.

In Energy Transition Materials, the Salobo III project successfully commenced at the end of 2022. The project is expected to add 30-40 ktpy in copper production and achieve full capacity in 4Q24.

Vale's Board of Directors approved the investment of US$ 755 million for the Compact Crushing project development at S11D, which will allow the processing of a variety of minerals, including the jaspilite waste material. The project will give S11D more flexibility and is expected to be operational in 2H26.

Growth projects

Investments in growth projects under construction totaled US$ 426 million in Q4, US$ 51 million higher q/q, mainly due to progress in the Serra Sul 120 Mtpy, Capanema and Salobo III projects. This was partially offset by lower investments at the Sol do Cerrado project after its start-up in Q3.

Growth projects progress indicator[6]

Projects	Capex 4Q22	Financial progress[1]	Physical progress	Comments
Iron Solutions				
Northern System 240 Mtpy *Capacity: 10 Mtpy* *Start-up: 1H23* *Capex: US$ 772 MM*	32	68%	85%[2]	Mine-plant front is near full commission. The pending licenses to finalize the approximately 13 km stretch required to complete the project were granted. The port front works are on schedule.
Capanema's Maximization *Capacity: 18 Mtpy* *Start-up: 1H25* *Capex: US$ 913 MM*	48	15%	29%	Electro-mechanical assembly has begun at the primary crushing plant and secondary circuit, with steelworks continuing at the tertiary screening plant. Critical packages have been awarded for the electro-mechanical assembly of stacker/reclaimers for stockpiles as well as for the long-distance conveyor belt system.
Serra Sul 120 Mtpy[3] *Capacity: 20 Mtpy* *Start-up: 2H25* *Capex: US$ 1,502 MM*	118	32%	42%	Remaining civil packages have been awarded. Major excavations at the mine were concluded. Civil works began for the duplication of the long-distance belt conveyor (TCLD), including earthworks and piling.
Briquettes Tubarão *Capacity: 6 Mtpy* *Start-up: 1H23 (Plant 1) and 2H23 (Plant 2)* *Capex: US$ 182 MM*	29	58%	79%	Seven of the nine briquetting machines have been assembled, while drying and mixing infrastructure is well advanced.
Energy Transition Materials				
Salobo III *Capacity: 30-40 ktpy* *Start-up: 2H22* *Capex: US$ 1,056 MM*	81	91%	99%	Project's line #1 started-up in Q4 and start-up of the line #2 is expected for 1Q23.
Onça Puma 2nd Furnace *Capacity: 12-15 ktpy* *Start-up: 1H25* *Capex: US$ 555 MM*	2	3%	1%	The detailed engineering and procurement of major work packages are currently in progress.

1 CAPEX disbursement until end of 4Q22 vs. CAPEX expected.
2 Considering physical progress on mine, plant and logistics.
3 The project consists of increasing the S11D mine-plant capacity by 20 Mtpy.

Sustaining projects

Investments in sustaining our operations totaled US$ 1,361 million in Q4, US$ 506 million higher q/q, mainly due to the usual seasonally higher disbursements at the end of the year as well as higher disbursements for the Voisey's Bay project.

Sustaining projects progress indicator[7]

Projects	Capex 4Q22	Financial progress[1]	Physical progress	Comments
Iron Solutions				
Gelado *Capacity: 10 Mtpy* *Start-up: 2H22* *Capex: US$ 428 MM*	18	80%	99%	Project progressed on production commissioning. The Gelado project capacity is 5 Mtpy in the initial years, as it requires Usina 1 conversion to dry processing to achieve full capacity (10 Mtpy).
Energy Transition Materials				
Voisey's Bay Mine Extension *Capacity: 45 ktpy (Ni) and 20 ktpy (Cu)* *Start-up: 1H21*[2] *Capex: US$ 2,690 MM*	224	75%	81%	Electro-mechanical assembly continued to advance on the surface scope. In the underground, the Reid Brook bulk Material Handling System is progressing on schedule. For Eastern Deeps, the final infrastructure package was awarded, and lateral development advancement remains the priority.

1 CAPEX disbursement until end of 4Q22 vs. CAPEX expected.
2 In 2Q21, Vale achieved the first ore production from the Reid Brook deposit, the first of two underground mines to be developed in the project. Eastern Deeps, the second deposit, has started to extract development ore from the deposit and is scheduled to start the main production ramp-up in the second half of 2023.

6 Pre-operating expenses included in the total estimated capex information, in line with Vale's Board of Directors approvals.
7 Pre-operating expenses included in the total estimated capex column, in line with Vale's Board of Directors approvals

Sustaining capex by type - 4Q22

US$ million	Iron Solutions	Energy Transition Materials	Energy and others	Total
Enhancement of operations	424	245	2	671
Replacement projects	21	247	-	268
Filtration and dry stacking projects	62	-	-	62
Dam management	37	10	-	47
Other investments in dams and waste dumps	46	13	-	59
Health and Safety	56	40	2	98
Social investments and environmental protection	64	5	-	69
Administrative & Others	54	7	26	87
Total	**764**	**567**	**30**	**1,361**

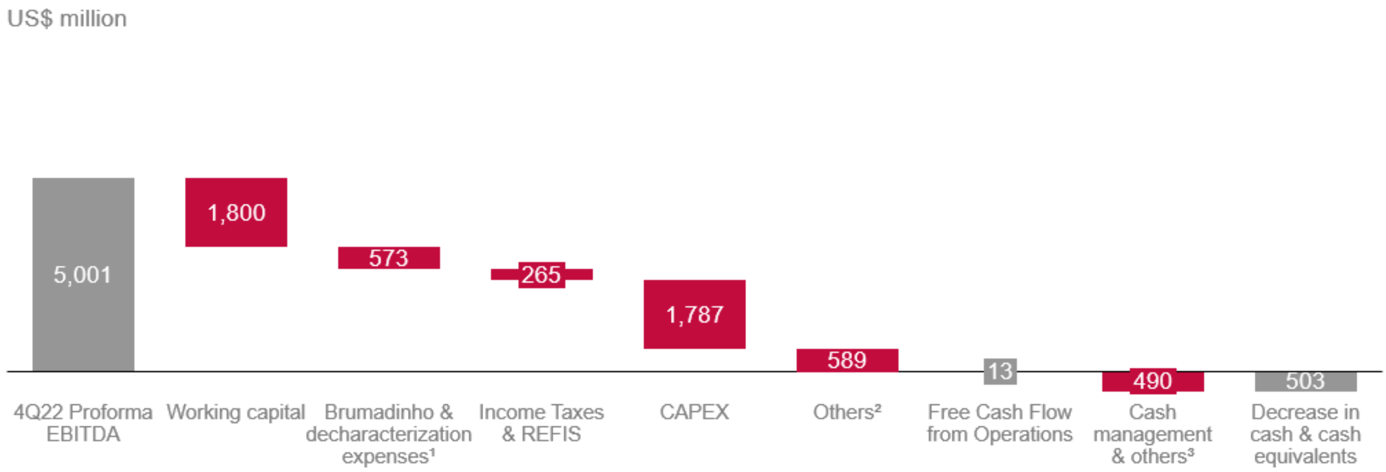
Free cash flow

In 4Q22, free cash flow generation was largely impacted by working capital and CAPEX, which are usually higher in Q4.

The working capital variation is largely explained by the US$ 2.1 billion increase in accounts receivables mainly due to the combined effect of (i) expected seasonally higher ferrous accrual sales volume (19.0 Mt in 4Q22 versus 11.8 Mt in 3Q22) led by stronger sales at the end of Q4; and (ii) iron ore provisional prices above quarter average (the opposite happened in Q3).

The cash & cash equivalents position decreased by US$ 503 million in the quarter as Vale repurchased its shares in amount of US$ 966 million. This was partially offset by US$ 476 million net debt issued in the quarter.

Free Cash Flow 4Q22



[1] Includes US$ 389 million of disbursement of Brumadinho and de-characterization provisioned expenses and US$ 184 million of Brumadinho incurred expenses.
[2] Includes interest on loans, derivatives, leasing, dividends paid to noncontrolling interest, shareholders debentures, payments to Renova and others.
[3] Includes US$ 966 million of share buyback, US$ 500 million of debt funding and US$ 24 million of debt repurchased.

Debt

Debt indicators

US$ million	4Q22	3Q22	4Q21
Gross debt [1]	**11,181**	**10,666**	**12,180**
Lease (IFRS 16)	1,531	1,538	1,602
Gross debt and leases	**12,712**	**12,204**	**13,782**
Cash, cash equivalents and short-term investments	4,797	5,224	11,905
Net debt	**7,915**	**6,980**	**1,877**
Currency swaps[2]	(211)	119	724
Brumadinho provisions	3,312	3,231	3,537
Samarco & Renova Foundation provisions[3]	3,124	2,954	2,910
Expanded net debt	**14,140**	**13,284**	**9,048**
Average debt maturity (years)	8.7	9.2	8.7
Cost of debt after hedge (% pa)	5.5	5.5	4.6
Total debt / adjusted LTM EBITDA (x)	0.6	0.6	0.4
Net debt / adjusted LTM EBITDA (x)	0.4	0.3	0.1
Adjusted LTM EBITDA / LTM gross interest (x)	32.3	33.7	46.7

[1] Does not include leases (IFRS 16).
[2] Includes interest rate swaps.
[3] Does not include provision for de-characterization of Germano dam in the amount of US$ 197 million in 4Q22, US$ 191 million in 3Q22 and US$ 202 million in 4Q21.

Gross debt and leases totaled US$ 12.7 billion as of December 31, 2022, US$ 508 million higher q/q mainly due to US$ 500 million debt issued as part of Vale's liability management.

Expanded net debt increased US$ 856 million q/q reaching US$ 14.1 billion as of December 31, 2022, mainly explained by the US$ 966 million disbursement for the share buyback program.

The average debt maturity was 8.7 years on December 31, 2022, slightly lower than 9.2 years on September 30, 2022. After currency and interest rate swaps, the average cost of debt was in line with 3Q22 at 5.5% per annum.

Performance of the business segments

Proforma Adjusted EBITDA from continuing operations, by business area

US$ million	4Q22	3Q22	4Q21	2022	2021
Iron Solutions	**4,721**	**3,773**	**6,380**	**19,443**	**31,480**
Iron ore fines	3,955	2,806	5,145	15,670	26,471
Pellets	743	933	1,211	3,653	4,873
Others	23	34	24	120	136
Energy Transition Materials	**775**	**364**	**811**	**2,493**	**3,193**
Nickel	610	209	405	1,924	1,576
Copper	165	155	406	569	1,617
Others	**(495)**	**(135)**	**(334)**	**(1,025)**	**(710)**
Total	**5,001**	**4,002**	**6,857**	**20,911**	**33,963**

Segment information 4Q22, as per footnote of financial statements

			Expenses				
US$ million	Net operating revenues	Cost[1]	SG&A and others[1]	R&D[1]	Pre operating & stoppage[1]	Dividends and interest received from associates and JVs	Adjusted EBITDA
Iron Solutions	**9,330**	**(4,561)**	**94**	**(84)**	**(102)**	**44**	**4,721**
Iron ore fines	7,767	(3,744)	93	(83)	(92)	14	3,955
Pellets	1,456	(735)	(1)	(2)	(5)	30	743
Others	107	(82)	2	1	(5)	-	23
Energy Transition Materials	**2,549**	**(1,657)**	**(36)**	**(75)**	**(6)**	**-**	**775**
Nickel[2]	2,051	(1,378)	(20)	(42)	(1)	-	610
Copper[3]	498	(279)	(16)	(33)	(5)	-	165
Brumadinho event and de-characterization of dams	**-**	**-**	**(375)**	**-**	**-**	**-**	**(375)**
Others	**62**	**(62)**	**(446)**	**(59)**	**(1)**	**11**	**(495)**
Total	**11,941**	**(6,280)**	**(763)**	**(218)**	**(109)**	**55**	**4,626**

[1] Excluding depreciation, depletion and amortization.
[2] Including copper, by-products from our nickel operations and marketing activities.
[3] Including by-products from our copper operations.

Iron Solutions

Selected financial indicators - Iron Solutions

US$ million	4Q22	3Q22	4Q21	2022	2021
Net Revenues	9,330	7,827	10,769	34,916	45,925
Costs[1]	(4,561)	(3,891)	(4,244)	(14,946)	(13,830)
SG&A and Other expenses[1]	94	(47)	(14)	(51)	(98)
Pre-operating and stoppage expenses[1]	(102)	(72)	(118)	(381)	(393)
R&D expenses	(84)	(49)	(72)	(215)	(205)
Dividends and interests on associates and JVs	44	5	59	120	81
Adjusted EBITDA	**4,721**	**3,773**	**6,380**	**19,443**	**31,480**
Depreciation and amortization	(535)	(442)	(504)	(1,890)	(1,750)
Adjusted EBIT	**4,186**	**3,331**	**5,876**	**17,553**	**29,730**
Adjusted EBIT margin (%)	**44.9**	**42.6**	**54.6**	**50.3**	**64.7**

[1] Net of depreciation and amortization.

Iron Solutions EBITDA Variation 4Q22 vs 3Q22

		Drivers				
US$ million	3Q22	Volume	Prices	Others	Total variation	4Q22
Iron ore fines	2,806	683	248	218	1,149	3,955
Pellets	933	29	(272)	53	(190)	743
Other	34	(9)	(7)	5	(11)	23
Iron Solutions	**3,773**	**703**	**(31)**	**276**	**948**	**4,721**

The 25% q/q increase in EBITDA is largely explained by 16 Mt higher iron ore fines and pellets sales (US$ 712 million), as well as lower all-in unit costs driven by better freight rates (included in "Others" US$ 276 million in the table above).

Revenues

Iron Solutions – volumes, prices, premiums and revenues

	4Q22	3Q22	4Q21	2022	2021
Volume sold ('000 metric tons)					
Iron ore fines	81,202	65,381	81,749	260,663	270,935
ROM	1,963	3,668	607	8,216	2,052
Pellets	8,789	8,521	10,351	33,164	32,306
Share of premium products[1] (%)	83%	78%	82%	80%	84%
Average prices (US$/t)					
Iron ore - 62% Fe reference price	99.0	103.3	109.6	120.2	159.5
Iron ore - Metal Bulletin 62% Fe low alumina index	99.8	105.1	111.8	123.0	161.0
Iron ore - Metal Bulletin 65% Fe index	111.4	115.8	128.8	139.2	185.2
Provisional price at the end of the quarter	116.3	95.2	120.3	116.3	120.3
Iron ore fines Vale CFR reference price (dmt)	107.4	103.3	117.9	121.1	156.8
Iron ore fines Vale CFR/FOB realized price	95.6	92.6	107.2	108.1	141.4
Pellets CFR/FOB (wmt)	165.6	194.3	182.6	188.6	218.3
Iron ore fines and pellets quality premium (US$/t)					
Iron ore fines quality premium	1.6	0.6	0.5	1.8	2.9
Pellets weighted average contribution	3.8	6.0	4.2	5.1	4.0
Total	5.4	6.6	4.7	6.9	6.9
Net operating revenue by product (US$ million)					
Iron ore fines	7,767	6,053	8,764	28,188	38,324
ROM	22	29	8	103	62
Pellets	1,456	1,656	1,889	6,256	7,053
Others	85	89	108	369	486
Total	**9,330**	**7,827**	**10,769**	**34,916**	**45,925**

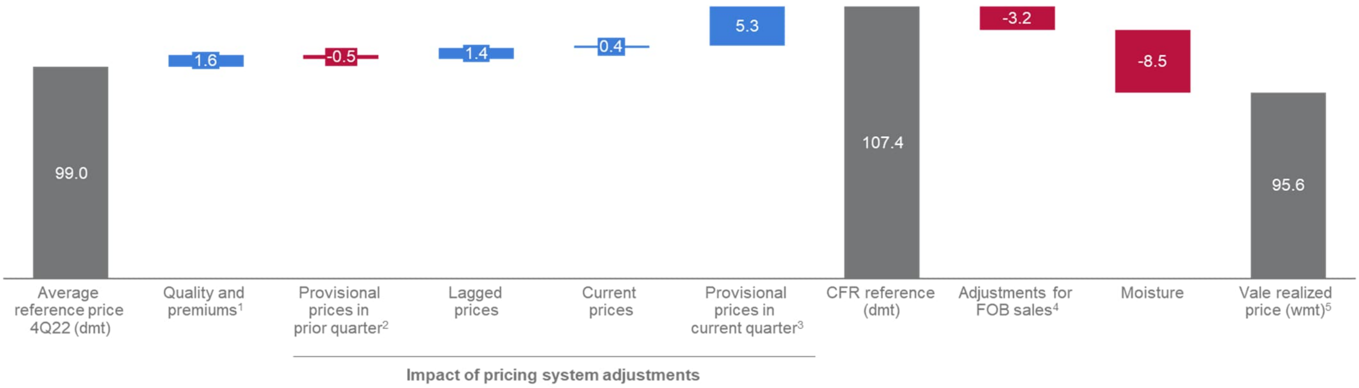
[1] Pellets, Carajás (IOCJ), Brazilian Blend Fines (BRBF) and pellet feed.

The share of premium products in total sales was 83% in Q4, with higher sales of IOCJ and BRBF. Iron ore premium of US$ 5.4/t (vs. US$ 6.6/t in Q3) driven by lower contractual pellet premiums, after record premiums in Q3.

Iron ore fines, excluding Pellets and ROM

Revenues & price realization

Price realization iron ore fines – US$/t, 4Q22



[1] Includes quality (US$ 0.8/t) and premiums/discounts and commercial conditions (US$ 0.8/t).
[2] Adjustment as a result of provisional prices booked in 3Q22 at US$ 95.2/t.
[3] Difference between the weighted average of the prices provisionally set at the end of 4Q22 at US$ 116.3/t based on forward curves and US$ 99.0/t from the 4Q22 average reference price.
[4] Includes freight pricing mechanisms of CFR sales freight recognition.
[5] Vale's price is net of taxes.

Vale's realized price was US$ 95.6/t, US$ 3.1/t higher q/q, despite the US$ 4.3/t decrease of the average reference price. The increase is largely explained by a positive effect of the pricing system due to higher forward price adjustments (+US$ 7.5/t vs. Q3), with 31% of sales booked at an average price of US$ 116.3/t.

Iron Ore fines pricing system breakdown (%)

	4Q22	3Q22	4Q21
Lagged	12	13	14
Current	57	61	52
Provisional	31	26	34
Total	**100**	**100**	**100**

Costs

Iron ore fines cash cost and freight

	4Q22	3Q22	4Q21	2022	2021
Costs (US$ million)					
Vale's iron ore fines C1 cash cost (A)	1,759	1,489	1,488	5,856	5,377
Third-party purchase costs[1] (B)	274	343	194	1,100	1,166
Vale's C1 cash cost ex-third-party volumes (C = A – B)	1,485	1,146	1,294	4,756	4,211
Sales Volumes (Mt)					
Volume sold (ex-ROM) (D)	81.2	65.4	81.7	260.7	270.9
Volume sold from third-party purchases (E)	5.1	6.2	3.2	18.5	15.6
Volume sold from own operations (F = D – E)	76.2	59.2	78.6	242.2	255.3

cont'd

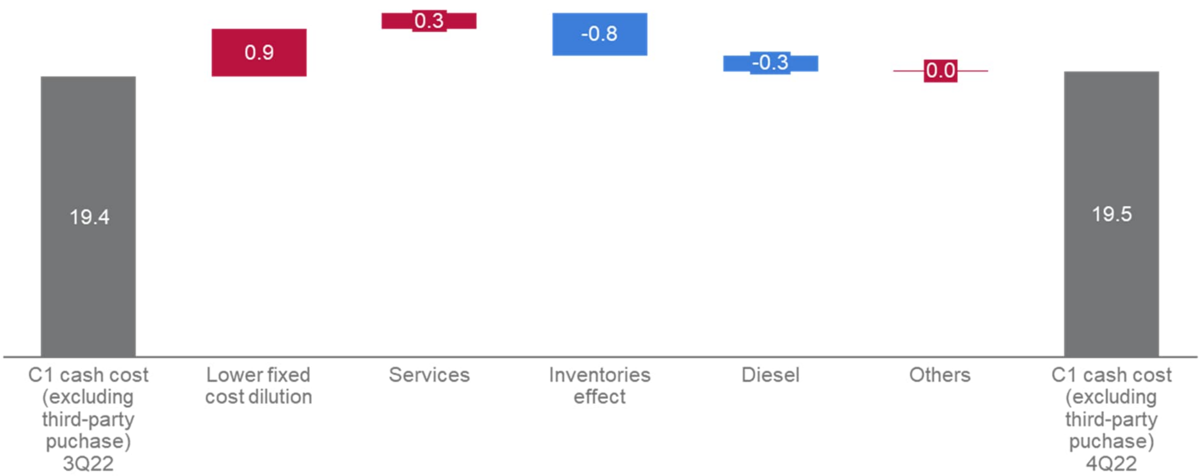
cont'd	4Q22	3Q22	4Q21	2022	2021
Iron ore fines cash cost (ex-ROM, ex-royalties), FOB (US$ /t)					
Vale's C1 cash cost ex-third-party purchase cost (C/F)	19.5	19.4	16.5	19.6	16.5
Average third-party purchase C1 cash cost (B/E)	54.2	55.3	61.6	59.5	74.8
Vale's iron ore cash cost (A/D)	21.7	22.8	18.2	22.5	19.8
Freight					
Maritime freight costs (G)	1,312	1,230	1,498	4,328	4,200
% of CFR sales (H)	86%	84%	88%	82%	82%
Volume CFR (Mt) (I = D x H)	69.8	54.9	71.9	214.5	223.5
Vale's iron ore unit freight cost (US$/t) (G/I)	18.8	22.4	20.8	20.2	18.8

[1] Includes logistics costs related to third-party purchases.

Iron ore fines COGS - 3Q22 x 4Q22

		Drivers				
US$ million	3Q22	Volume	Exchange rate	Others	Total variation	4Q22
C1 cash costs	1,489	360	(2)	(88)	270	1,759
Freight	1,230	332	-	(250)	82	1,312
Distribution costs	145	35	-	(27)	8	153
Royalties & others	231	56	-	233	289	520
Total costs before depreciation and amortization	**3,095**	**783**	**(2)**	**(132)**	**649**	**3,744**
Depreciation	289	65	(2)	30	93	382
Total	**3,384**	**848**	**(4)**	**(102)**	**742**	**4,126**

C1 cash cost variation (excluding 3rd party purchases) – US$/t (4Q22 x 3Q22)



Vale's C1 cash cost, ex-third-party purchases, was in line q/q, mainly driven by (i) lower dilution of fixed costs due to lower production vs. Q3; and (ii) higher service costs in the Southern System, offset by (i) consumption of inventories from Q3 with lower costs; and (ii) lower diesel-related costs. The effect of third-party purchases on cost was reduced, as third-party volumes represented a smaller share in Vale's total sales vs. Q3.

Vale's maritime freight cost was US$ 18.8/t in Q4, US$ 3.6/t lower q/q. The decrease is largely explained by (i) lower bunker fuel costs (US$ 2.8/t); and (ii) seasonally lower spot affreightment (US$ 0.5/t).

CFR sales totaled 69.8 Mt in Q4, increasing to 86% of total sales volumes, due to higher sales to China. Sales to China are predominantly CFR-based, due to Vale's blending strategy and customers' usual choice.

In 4Q22, Vale recorded the change in Pará state's tax on mineral production (Taxa de Fiscalização de Recursos Minerais — "TFRM" in Portuguese) to 3 UPF-PA[8] from 1 UPF-PA, or R$ 8.26/t increase in 2022. The adoption of the new rate occurs after joining the "Estrutura Pará Program" with the objective of promoting infrastructure investments in the State of Pará, through the conversion of 50% of the payment of the TFRM in local investments. Therefore, US$ 222 million was recorded in Q4 in "Royalties & others" of the Iron Solutions business related to the payment of the new rate for the period between January and September 2022 relative to Northern System production. The effect of rate increase is expected to be recorded quarterly going forward.

Expenses

Expenses - Iron Ore fines

US$ millions	4Q22	3Q22	4Q21	2022	2021
SG&A	**21**	**14**	**10**	**64**	**58**
R&D	**83**	**46**	**69**	**208**	**198**
Pre-operating and stoppage expenses	**92**	**63**	**102**	**342**	**329**
Other expenses[1]	**(114)**	**30**	**12**	**(10)**	**79**
Total expenses	**82**	**153**	**193**	**604**	**664**

[1] Including a positive effect of tax recovery effect.

Iron ore pellets

Pellets – EBITDA

US$ million	4Q22	3Q22	4Q21	Comments
Net revenues / Realized prices	1,456	1,656	1,889	Realized prices averaged US$165.6/t in Q4 (-US$ 28.7/t q/q), driven by (i) a decline in the contractual premium after record premiums in Q3; (ii) lower 65%Fe benchmark prices; and (iii) lower effect of lagged prices in pricing realization.
Dividends from leased pelletizing plants	30	4	49	
Cash costs (Iron ore, leasing, freight, overhead, energy and other)	(735)	(714)	(716)	Mainly due to lower FOB sales, 46% of total sales (vs. 57% in Q3).
Pre-operational & stoppage expenses	(5)	(5)	(11)	
Expenses (Selling, R&D and other)	(3)	(8)	0	
EBITDA	**743**	**933**	**1,211**	
EBITDA/t	**85**	**109**	**117**	

[8] Pará Fiscal Unit ("Unidade Padrão Fiscal" in Portuguese). In 2022, 1 UPF-PA was R$ 4.1297/t.

Iron ore fines and pellets cash break-even landed in China[9]

US$/t	4Q22	3Q22	4Q21	2022	2021
Vale's C1 cash cost ex-third-party purchase cost	19.5	19.4	16.5	19.6	16.5
Third party purchases cost adjustments	2.2	3.4	1.7	2.8	3.4
Vale's iron ore cash cost (ex-ROM, ex-royalties), FOB (US$ /t)	21.7	22.8	18.2	22.5	19.8
Iron ore fines freight cost (ex-bunker oil hedge)	18.8	22.4	20.8	20.2	18.8
Iron ore fines distribution cost	1.9	2.2	1.1	2.0	1.2
Iron ore fines expenses[1] & royalties[2]	7.2	5.8	6.7	6.9	7.3
Iron ore fines moisture adjustment	4.3	4.7	4.1	4.6	4.1
Iron ore fines quality adjustment	(1.6)	(0.6)	(0.5)	(1.8)	(2.9)
Iron ore fines EBITDA break-even (US$/dmt)	**52.3**	**57.3**	**50.4**	**54.4**	**48.3**
Iron ore fines pellet adjustment	(3.8)	(6.0)	(4.2)	(5.1)	(4.0)
Iron ore fines and pellets EBITDA break-even (US$/dmt)	**48.5**	**51.3**	**46.2**	**49.3**	**44.3**
Iron ore fines sustaining investments	8.7	6.9	9.4	7.8	8.5
Iron ore fines and pellets cash break-even landed in China (US$/dmt)	**57.2**	**58.2**	**55.6**	**57.1**	**52.8**

[1] Net of depreciation and including dividends received. Includes stoppage expenses.

[2] Includes the one-off effect of Pará TFRM change in 4Q22 (US$ 2.7/t or US$ 222 million).

[9] Measured by unit cost + expenses + sustaining investment adjusted for quality. Does not include the impact from the iron ore fines and pellets pricing system mechanism.

Energy Transition Materials

Energy Transition Materials EBITDA overview – 4Q22

US$ million	Sudbury	Voisey's Bay & Long Harbour	PTVI (site)	Onça Puma	Sossego	Salobo	Others	Subtotal Energy Transition Material	Marketing activities	Total Energy Transition Material
Net Revenues	1,000	283	306	196	145	353	10	2,293	256	2,549
Costs	(777)	(206)	(202)	(92)	(81)	(198)	139	(1,417)	(240)	(1,657)
Selling and other expenses	(10)	(3)	-	(3)	(2)	(7)	(11)	(36)	-	(36)
Pre-operating and stoppage expenses	-	-	-	-	-	(5)	(1)	(6)	-	(6)
R&D	(21)	(9)	(9)	-	(11)	(1)	(24)	(75)	-	(75)
EBITDA	**192**	**65**	**95**	**101**	**51**	**142**	**113**	**759**	**16**	**775**

Nickel operations

Selected financial indicators, ex- marketing activities

US$ million	4Q22	3Q22	4Q21	2022	2021
Net Revenues	1,795	1,255	1,175	5,509	4,497
Costs[1]	(1,138)	(1,028)	(718)	(3,498)	(2,736)
SG&A and other expenses[1]	(20)	2	(27)	(38)	(5)
Pre-operating and stoppage expenses[1]	(1)	-	(1)	(1)	(113)
R&D expenses	(42)	(31)	(28)	(115)	(77)
Adjusted EBITDA	594	198	401	1,857	1,566
Depreciation and amortization	(272)	(254)	(212)	(883)	(824)
Adjusted EBIT	322	(56)	189	974	742
Adjusted EBIT margin (%)	17.9	(4.4)	16.1	17.7	16.5

[1] Net of depreciation and amortization

EBITDA variation - US$ million (4Q22 x 3Q22)

		Drivers					
US$ million	3Q22	Volume	Prices	By-products	Others	Total variation	4Q22
Nickel excl. marketing	198	19	162	77	138	396	594

EBITDA by operations, ex-marketing activities

US$ million	4Q22	3Q22	4Q21	4Q22 vs 3Q22 comments
Sudbury[1]	192	51	121	Higher nickel realized prices and higher by-products credits.
Voisey's Bay & Long Harbour	65	17	133	Higher nickel realized prices.
PTVI	95	103	106	Higher material and services costs due to increased equipment consumption and royalties, owing to higher nickel prices.
Onça Puma	101	28	8	Higher sales volumes and nickel realized prices.
Others[2]	141	(1)	33	Higher sales originated from Matsusaka.
Total	**594**	**198**	**401**	

[1] Includes Thompson operations and Clydach refinery.
[2] Includes Japanese operations, intercompany eliminations and purchase of finished nickel. Hedge results have been relocated to each nickel business operation.

Revenues & price realization

	4Q22	3Q22	4Q21	2022	2021
Volume sold ('000 metric tons)					
Nickel[1]	58	44	45	181	182
Copper	27	18	21	78	68
Gold as by-product ('000 oz)	11	10	6	40	27
Silver as by-product ('000 oz)	355	152	224	919	756
PGMs ('000 oz)	54	65	33	215	173
Cobalt (metric ton)	927	569	483	2,361	2,017
Average realized prices (US$/t)					
Nickel	24,454	21,672	19,088	23,669	18,004
Copper	7,610	5,925	10,229	7,459	9,237
Gold (US$/oz)	1,750	1,578	1,795	1,713	1,718
Silver (US$/oz)	23.58	14.98	21.32	21.11	23.87
Cobalt	44,980	49,228	63,079	58,865	51,907
Net revenue by product - ex marketing activities (US$ million)					
Nickel	1,422	960	851	4,279	3,273
Copper	205	104	210	578	631
Gold as by-product (US$/oz)	20	16	11	68	46
Silver as by-product (US$/oz)	9	2	5	20	17
PGMs	87	129	64	390	395
Cobalt	42	28	31	139	105
Others	10	15	3	35	30
Total	**1,795**	**1,255**	**1,175**	**5,509**	**4,497**

Breakdown of nickel volumes sold, realized price and premium

	4Q22	3Q22	4Q21	2022	2021
Volumes (kt)					
Upper Class I nickel	28.9	25.1	22.3	93.4	95.0
- of which: EV Battery	1.8	1.6	2.5	5.7	6.3
Lower Class I nickel	7.0	5.2	5.6	24.2	28.0
Class II nickel	17.8	8.7	12.7	46.6	44.0
Intermediates	4.5	5.3	4.0	16.5	15.0
Nickel realized price (US$/t)					
LME average nickel price	25,292	22,063	19,821	25,605	18,488
Average nickel realized price	24,454	21,672	19,088	23,669	18,004
Contribution to the nickel realized price by category:					
Nickel average aggregate premium	(250)	190	140	(40)	30
Other timing and pricing adjustments contributions[1]	(588)	(581)	(873)	(1,895)	(514)
Premium/discount by product (US$/t)					
Upper Class I nickel	1,520	1,770	900	1,530	830
Lower Class I nickel	670	750	180	690	180
Class II nickel	(2,370)	(1,920)	20	(1,690)	(530)
Intermediates	(4,750)	(4,310)	(3,840)	(5,270)	(3,750)

[1] Comprises (i) the Quotational Period effects (based on sales distribution in the prior three months, as well as the differences between the LME price at the moment of sale and the LME average price), with a positive impact of US$ 601/t , (ii) fixed-price sales, with a negative impact of US$ 72/t (iii) the effect of the hedging on Vale's nickel price realization, with a negative impact of US$ 1,115 /t in the quarter and (iv) other effects with a negative impact of US$ 2/t.

Note: In 2022 we started the implementation of the Nickel Revenue Hedging Program for 2023. The nickel realized price for 4Q22 was impacted by strike price in the quarter of circa US$ 20,206/t. The average price for the complete hedge position has increased from US$ 25,113/t to US$ 39,929/t.

Nickel price in 4Q22 increased 13% q/q mainly due to 15% higher LME nickel average price. This was partially offset by the reversion of the nickel average aggregate premium resulting from (i) higher share of Class II products in the sales mix due to higher sales originated from Matsusaka, (ii) an increase in FeNi sales to Asia at higher discounts and (iii) lower premiums across the board.

Product type by operation

% of source sales	North Atlantic	PTVI	Onça Puma	Total 4Q22	Total 3Q22
Upper Class I	75.5	-	-	49.7	56.7
Lower Class I	18.3	-	-	12.0	11.6
Class II	3.4	69.2	100	30.5	19.6
Intermediates	2.8	30.8	-	7.7	12.0

Costs

Nickel COGS, excluding marketing activities - 4Q22 x 3Q22

		Drivers				
US$ million	3Q22	Volume	Exchange rate	Others	Total variation	4Q22
Nickel operations	1,028	281	(34)	(137)	110	1,138
Depreciation	254	81	(7)	(56)	18	272
Total	**1,282**	**362**	**(41)**	**(193)**	**128**	**1,410**

Unit cash cost of sales by operation, net of by-product credits

US$/t	4Q22	3Q22	4Q21	4Q22 vs 3Q22 comments
Sudbury[1,2]	16,435	19,078	13,887	Higher by-products credits.
Voisey's Bay & Long Harbour[2]	17,797	16,704	2,676	Maintenance cost partially offset by greater by-product credits.
PTVI	12,150	11,637	8,946	Higher material and services costs due to increased equipment consumption and royalties, owing to higher nickel prices.
Onça Puma	10,412	9,882	13,612	Lower dilution of fixed costs from lower production.

[1] Sudbury figures include Thompson and Clydach costs.
[2] A large portion of Sudbury, including Clydach, and Long Harbour finished nickel production is derived from intercompany transfers, as well as from the purchase of ore or nickel intermediates from third parties. These transactions are valued at fair market value.

EBITDA break-even[10]

US$/t	4Q22	3Q22	4Q21	2022	2021
COGS ex. 3rd-party feed	18,660	21,717	15,914	18,346	14,663
COGS[1]	19,577	23,214	16,098	19,351	14,944
By-product revenues[1]	(6,390)	(6,663)	(7,258)	(6,798)	(6,639)
COGS after by-product revenues	13,187	16,551	8,840	12,553	8,305
Other expenses[2]	1,017	705	1,258	847	1,069
Total Costs	**14,204**	**17,256**	**10,098**	**13,400**	**9,375**
Nickel average aggregate premium (discount)	**(250)**	**190**	**140**	**(40)**	**30**
EBITDA breakeven	**14,454**	**17,066**	**9,958**	**13,440**	**9,345**

[1] Excludes marketing activities.
[2] Includes R&D, sales expenses and pre-operating & stoppage.

[10] Considering only the cash effect of US$ 400/oz that Wheaton Precious Metals pays for 70% of Sudbury's gold by-product, nickel operations EBITDA break-even would increase to US$ 14,544/t.

Copper operations – Salobo and Sossego

Selected financial indicators - Copper operations, ex-marketing activities

US$ million	4Q22	3Q22	4Q21	2022	2021
Net Revenues	498	479	669	1,779	2,589
Costs[1]	(279)	(275)	(241)	(1,049)	(878)
SG&A and other expenses[1]	(16)	(8)	(2)	(21)	(9)
Pre-operating and stoppage expenses[1]	(5)	(3)	(1)	(13)	(4)
R&D expenses	(33)	(38)	(19)	(127)	(81)
Adjusted EBITDA	165	155	406	569	1,617
Depreciation and amortization	(34)	(30)	(34)	(132)	(145)
Adjusted EBIT	131	125	372	437	1,472
Adjusted EBIT margin (%)	26.3	26.1	55.6	24.6	56.9

[1] Net of depreciation and amortization

EBITDA variation - US$ million (4Q22 x 3Q22)

		Drivers					
US$ million	3Q22	Volume	Prices	By-products	Others	Total variation	4Q22
Copper	155	(26)	106	(21)	(49)	10	165

EBITDA by operation

US$ million	4Q22	3Q22	4Q21	4Q22 vs 3Q22 comments
Salobo	142	128	253	Higher copper realized prices
Sossego	51	56	163	Lower copper sales volumes.
Others copper[1]	(28)	(29)	(10)	
Total	**165**	**155**	**406**	

[1] Includes US$ 28 million in research expenses related to the Hu'u project in 4Q22.

Revenues & price realization

US$ million	4Q22	3Q22	4Q21	2022	2021
Volume sold (000 metric tons)					
Copper	45	53	53	166	216
Gold as by-product	62	69	71	237	313
Silver as by-product	178	194	128	692	643
Average prices (US$/t)					
Average LME copper price	8,001	7,745	9,699	8,797	9,317
Average copper realized price	**8,774**	**6,663**	**10,229**	**8,052**	**9,337**
Gold (US$/oz)	1,663	1,773	1,784	1,797	1,773
Silver (US$/oz)	18	19	20	21	25
Revenue (US$ million)					
Copper	392	353	539	1,339	2,018
Gold as by-product	103	123	127	426	555
Silver as by-product	3	4	3	14	16
Total	**498**	**479**	**669**	**1,779**	**2,589**

Price realization – copper operations

US$/t	4Q22	3Q22	4Q21	2022	2021
Average LME copper price	8,001	7,745	9,699	8,797	9,317
Current period price adjustments[1]	514	(390)	144	(259)	(74)
Copper gross realized price	8,514	7,355	9,843	8,538	9,244
Prior period price adjustments[2]	736	(246)	824	(25)	539
Copper realized price before discounts	**9,250**	**7,110**	**10,667**	**8,513**	**9,783**
TC/RCs, penalties, premiums and discounts[3]	(476)	(457)	(438)	(461)	(446)
Average copper realized price	**8,774**	**6,663**	**10,229**	**8,052**	**9,337**

[1] Current-period price adjustments: at the end of the quarter, mark-to-market of open invoices based on the copper price forward curve. Includes a small number of final invoices that were provisionally priced and settled within the quarter.
[2] Prior-period price adjustment: based on the difference between the price used in final invoices (and in the mark-to-market of invoices from previous quarters still open at the end of the quarter) and the provisional prices used for sales in prior quarters.
[3] TC/RCs, penalties, premiums, and discounts for intermediate products.

Vale's copper products are sold on a provisional pricing basis during the quarter, with final prices determined in a future period, generally one-to-four months forward.

The positive effects of the prior-period price adjustments of US$ 736/t and the current-period price adjustments US$ 514/t[11] were mainly due to the forward price increase during the fourth quarter.

Costs

COGS - 4Q22 x 3Q22

		Drivers				
US$ million	3Q22	Volume	Exchange rate	Others	Total variation	4Q22
Copper operations	275	(41)	-	45	4	279
Depreciation	30	(7)	-	11	4	34
Total	**305**	**(48)**	**-**	**56**	**8**	**313**

Copper operations – unit cash cost of sales, net of by-product credits

US$/t	4Q22	3Q22	4Q21	4Q22 vs 3Q22 comments
Salobo	3,644	2,343	1,992	Lower dilution of fixed costs.
Sossego	4,409	3,491	2,255	Higher material costs and lower dilution of fixed costs.

EBITDA break-even – copper operations[12]

US$/t	4Q22	3Q22	4Q21	2022	2021
COGS	6,264	5,170	4,559	6,304	4,059
By-product revenues	(2,372)	(2,390)	(2,454)	(2,644)	(2,638)
COGS after by-product revenues	**3,892**	**2,780**	**2,105**	**3,660**	**1,421**
Other expenses[1]	1,201	952	415	970	436
Total costs	**5,093**	**3,732**	**2,520**	**4,630**	**1,857**
TC/RCs penalties, premiums and discounts	476	457	438	461	446
EBITDA breakeven	**5,569**	**4,189**	**2,958**	**5,091**	**2,303**
EBITDA breakeven ex-Hu'u	**4,938**	**3,643**	**2,773**	**4,502**	**2,035**

[1] Includes sales expenses, R&D, pre-operating and stoppage expenses and other expenses

The realized price to be compared to the EBITDA break-even should be the copper realized price before discounts (US$ 9,250/t), given that TC/RCs, penalties and other discounts are already part of the EBITDA break-even build-up.

[11] On December 31st, 2022, Vale had provisionally priced copper sales from Sossego and Salobo totaling 52,256 tons valued at an LME forward price of US$ 8,375/t, subject to final pricing over the following months.
[12] Considering only the cash effect of US$ 400/oz that Wheaton Precious Metals pays for 75% of Salobo's gold by-product, copper operations EBITDA break-even would increase to US$ 6,816/t and copper operations EBITDA break-even ex- Hu'u would increase to US$ 6,185/t.

WEBCAST INFORMATION

Vale will host a webcast on Friday, February 17, 2023, at 11:00 a.m. Brasilia time (9:00 a.m. New York time; 2:00 p.m. London time). Internet access to the webcast and presentation materials will be available on Vale's website at www.vale.com/investors. A webcast replay will be accessible at www.vale.com beginning shortly after the completion of the call. Interested parties may listen to the teleconference by dialing in:

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Except where otherwise indicated, the operational and financial information in this release is based on the consolidated figures in accordance with IFRS. Our quarterly financial statements are reviewed by the company's independent auditors. The main subsidiaries that are consolidated are the following: Companhia Portuária da Baía de Sepetiba, Vale Manganês S.A., Minerações Brasileiras Reunidas S.A., Salobo Metais S.A, Tecnored Desenvolvimento Tecnológico S.A., PT Vale Indonesia Tbk, Vale Holdings B.V, Vale Canada Limited, Vale International S.A., Vale Malaysia Minerals Sdn. Bhd., Vale Oman Pelletizing Company LLC e Vale Oman Distribution Center LLC.

This press release may include statements about Vale's current expectations about future events or results (forward-looking statements). Many of those forward-looking statements can be identified by the use of forward-looking words such as „anticipate," „believe," „could," „expect," „should," „plan," „intend," „estimate" "will" and „potential," among others. All forward-looking statements involve various risks and uncertainties. Vale cannot guarantee that these statements will prove correct. These risks and uncertainties include, among others, factors related to: (a) the countries where Vale operates, especially Brazil and Canada; (b) the global economy; (c) the capital markets; (d) the mining and metals prices and their dependence on global industrial production, which is cyclical by nature; and (e) global competition in the markets in which Vale operates. Vale cautions you that actual results may differ materially from the plans, objectives, expectations, estimates and intentions expressed in this presentation. Vale undertakes no obligation to publicly update or revise any forward-looking statement, whether as a result of new information or future events or for any other reason. To obtain further information on factors that may lead to results different from those forecast by Vale, please consult the reports that Vale files with the U.S. Securities and Exchange Commission (SEC), the Brazilian Comissão de Valores Mobiliários (CVM) and, in particular, the factors discussed under "Forward-Looking Statements" and "Risk Factors" in Vale's annual report on Form 20-F.

The information contained in this press release includes financial measures that are not prepared in accordance with IFRS. These non-IFRS measures differ from the most directly comparable measures determined under IFRS, but we have not presented a reconciliation to the most directly comparable IFRS measures, because the non-IFRS measures are forward-looking and a reconciliation cannot be prepared without unreasonable effort.

Annexes

Simplified financial statements

Income Statement

US$ million	4Q22	3Q22	4Q21	2022	2021
Net operating revenue	**11,941**	**9,929**	**13,105**	**43,839**	**54,502**
Cost of goods sold and services rendered	(7,155)	(6,301)	(6,494)	(24,028)	(21,729)
Gross profit	**4,786**	**3,628**	**6,611**	**19,811**	**32,773**
Gross margin (%)	40.1	36.5	50.4	45.2	60.1
Selling and administrative expenses	(148)	(119)	(131)	(515)	(481)
Research and development expenses	(218)	(170)	(177)	(660)	(549)
Pre-operating and operational stoppage	(125)	(89)	(147)	(479)	(648)
Other operational expenses, net	(624)	(387)	(2,394)	(1,722)	(2,976)
Impairment reversal (impairment and disposals) of non-current assets, net	(177)	(40)	(205)	773	(426)
Operating income	**3,494**	**2,823**	**3,557**	**17,208**	**27,693**
Financial income	92	141	113	520	337
Financial expenses	(291)	(221)	(398)	(1,179)	(1,249)
Other financial items, net	(459)	2,427	3,443	2,927	4,031
Equity results and other results in associates and joint ventures	72	78	(955)	305	(1,271)
Income before income taxes	**2,908**	**5,248**	**5,760**	**19,781**	**29,541**
Current tax	(72)	(514)	(483)	(2,020)	(5,663)
Deferred tax	907	(290)	130	(951)	966
Net income from continuing operations	**3,743**	**4,444**	**5,407**	**16,810**	**24,844**
Net income (loss) attributable to noncontrolling interests	19	(11)	55	82	108
Net income from continuing operations attributable to Vale's shareholders	**3,724**	**4,455**	**5,352**	**16,728**	**24,736**
Discontinued operations					
Net income (Loss) from discontinued operations	-	-	89	2,060	(2,376)
Net income from discontinued operations attributable to noncontrolling interests	-	-	14	-	(85)
Net income (Loss) from discontinued operations attributable to Vale's shareholders	**-**	**-**	**75**	**2,060**	**(2,291)**
Net income	**3,743**	**4,444**	**5,496**	**18,870**	**22,468**
Net income (Loss) attributable to Vale's to noncontrolling interests	19	(11)	69	82	23
Net income attributable to Vale's shareholders	**3,724**	**4,455**	**5,427**	**18,788**	**22,445**
Earnings per share (attributable to the Company's shareholders - US$):					
Basic and diluted earnings per share (attributable to the Company's shareholders - US$)	0.82	0.98	1.07	4.05	4.47

Equity income (loss) by business segment

US$ million	4Q22	%	3Q22	%	4Q21	%	2022	%	2021	%
Iron Solutions	65	90	80	92	36	19	213	87	166	34
Energy Transition Materials	-	-	-	-	1	1	3	1	1	0
Others	7	10	7	8	154	80	30	12	327	66
Total	**72**	**100**	**87**	**100**	**191**	**100**	**246**	**100**	**494**	**100**

Balance sheet

US$ million	12/31/2022	9/30/2022	12/31/2021
Assets			
Current assets	**15,526**	**13,922**	**22,360**
Cash and cash equivalents	4,736	5,182	11,721
Short term investments	61	42	184
Accounts receivable	4,319	2,150	3,914
Other financial assets	342	152	111
Inventories	4,482	5,268	4,377
Recoverable taxes	1,272	858	862
Others	314	270	215
Non-current assets held for sale	-	-	976
Non-current assets	**14,394**	**13,354**	**14,389**
Judicial deposits	1,215	1,289	1,220
Other financial assets	280	236	143
Recoverable taxes	1,110	1,114	935
Deferred income taxes	10,770	9,825	11,441
Others	1,019	890	650
Fixed assets	**56,974**	**53,335**	**52,693**
Total assets	**86,894**	**80,611**	**89,442**
Liabilities			
Current liabilities	**13,891**	**12,994**	**15,198**
Suppliers and contractors	4,461	4,735	3,475
Loans, borrowings and leases	489	447	1,204
Other financial liabilities	1,672	1,466	2,312
Taxes payable	470	303	2,177
Settlement program (REFIS)	371	351	324
Provisions	1,036	929	1,045
Liabilities related to associates and joint ventures	1,911	2,027	1,785
Liabilities related to Brumadinho	944	1,318	1,156
De-characterization of dams and asset retirement obligations	661	700	621
Dividends and interest on capital	1,383	-	-
Others	493	718	744
Liabilities associated with non-current assets held for sale	-	-	355
Non-current liabilities	**35,645**	**32,945**	**38,938**
Loans, borrowings and leases	12,223	11,757	12,578
Participative shareholders' debentures	2,725	2,659	3,419
Other financial liabilities	2,843	1,948	2,571
Settlement program (REFIS)	1,869	1,861	1,964
Deferred income taxes	1,413	1,608	1,881
Provisions	2,446	2,349	3,419
Liabilities related to associates and joint ventures	1,410	1,117	1,327
Liabilities related to Brumadinho	2,368	1,913	2,381
De-characterization of dams and asset retirement obligations	6,520	5,926	7,482
Streaming transactions	1,612	1,629	1,779
Others	216	178	137
Total liabilities	**49,536**	**45,939**	**54,136**
Shareholders' equity	**37,358**	**34,672**	**35,306**
Total liabilities and shareholders' equity	**86,894**	**80,611**	**89,442**

Cash flow

US$ million	4Q22	3Q22	4Q21	2022	2021
Cash flow from operations	**2,902**	**4,591**	**4,228**	**18,762**	**33,414**
Interest on loans and borrowings paid	(135)	(194)	(94)	(785)	(693)
Cash received (paid) on settlement of Derivatives, net	(65)	100	(80)	(83)	(197)
Payments related to Brumadinho event	(287)	(423)	(1,004)	(1,093)	(1,388)
Payments related to de-characterization of dams	(102)	(95)	(84)	(349)	(338)
Interest on participative shareholders debentures paid	(136)	-	(225)	(371)	(418)
Income taxes (including settlement program)	(265)	(582)	(951)	(4,637)	(4,385)
Net cash generated by operating activities from continuing operations	**1,912**	**3,397**	**1,790**	**11,444**	**25,995**
Net cash generated (used) in operating activities from discontinued operations	**-**	**-**	**90**	**41**	**(316)**
Net cash generated by operating activities	**1,912**	**3,397**	**1,880**	**11,485**	**25,679**
Cash flow from investing activities					
Short term investiment	39	118	331	260	582
Capital expenditures	(1,787)	(1,230)	(1,751)	(5,446)	(5,033)
Dividends received from joint ventures and associates	55	28	142	219	190
Proceeds from the sale of investments, net	-	140	1,259	586	714
Other investment activities, net	(171)	(70)	(276)	(202)	(594)
Net cash used in investing activities from continuing operations	**(1,864)**	**(1,014)**	**(295)**	**(4,583)**	**(4,141)**
Net cash used in investing activities from discontinued operations	**-**	**-**	**(81)**	**(103)**	**(2,469)**
Net cash used in investing actitivies	**(1,864)**	**(1,014)**	**(376)**	**(4,686)**	**(6,610)**
Cash flow from financing activities					
Loans and financing:					
Loans and borrowings from third parties	500	150	630	1,275	930
Payments of loans and borrowings from third parties	(24)	(448)	(404)	(2,300)	(1,927)
Payments of leasing	(78)	(48)	(63)	(224)	(215)
Payments to shareholders:					
Dividends and interest on capital paid to shareholders	-	(3,123)	-	(6,603)	(13,483)
Dividends and interest on capital paid to noncontrolling interest	(2)	(3)	(21)	(12)	(30)
Share buyback program	(966)	(686)	(701)	(6,036)	(5,546)
Net cash used in financing activities from continuing operations	**(570)**	**(4,158)**	**(559)**	**(13,900)**	**(20,271)**
Net cash used in financing activities from discontinued operations	**-**	**-**	**(3)**	**(11)**	**(13)**
Net cash used in financing activities	**(570)**	**(4,158)**	**(562)**	**(13,911)**	**(20,284)**
Increase (decrease) in cash and cash equivalents	**(522)**	**(1,775)**	**942**	**(7,112)**	**(1,215)**
Cash and cash equivalents in the beginning of the period	5,182	7,185	10,857	11,721	13,487
Effect of exchange rate changes on cash and cash equivalents	76	(228)	(78)	138	(551)
Cash and cash equivalents from subsidiaries sold, net	-	-	-	(11)	-
Cash and cash equivalents at the end of period	**4,736**	**5,182**	**11,721**	**4,736**	**11,721**
Non-cash transactions:					
Additions to property, plant and equipment - capitalized loans and borrowing costs	7	9	15	47	59
Cash flow from operating activities					
Income before income taxes	**2,908**	**5,248**	**5,760**	**19,781**	**29,541**
Adjusted for:					
Provisions related to Brumadinho	133	141	201	400	201
Provision for de-characterization of dams	-	35	1,725	72	1,725
Equity results and other results in associates and joint ventures	(72)	(78)	955	(305)	1,271
Impairment reversal (impairment and disposals) of non-current assets, net	177	40	205	(773)	426
Depreciation, depletion and amortization	900	775	822	3,171	3,034
Financial results, net	658	(2,347)	(3,158)	(2,268)	(3,119)
Change in assets and liabilities					
Accounts receivable	(2,107)	3	(3,142)	(325)	1,029
Inventories	940	(287)	423	45	(503)
Suppliers and contractors	(435)	1,169	(103)	495	251
Other assets and liabilities, net	(200)	(108)	540	(1,531)	(442)
Cash flow from operations	**2,902**	**4,591**	**4,228**	**18,762**	**33,414**

Reconciliation of IFRS and “non-GAAP” information

(a) Adjusted EBIT

US$ million	4Q22	3Q22	4Q21
Net operating revenues	11,941	9,929	13,105
COGS	(7,155)	(6,301)	(6,494)
Sales and administrative expenses	(148)	(119)	(131)
Research and development expenses	(218)	(170)	(177)
Pre-operating and stoppage expenses	(125)	(89)	(147)
Brumadinho event and dam de-characterization of dams	(375)	(336)	(2,115)
Other operational expenses, net	(249)	(51)	(279)
Dividends received and interests from associates and JVs	55	28	142
Adjusted EBIT from continuing operations	**3,726**	**2,891**	**3,904**

(b) Adjusted EBITDA

EBITDA defines profit or loss before interest, tax, depreciation, depletion and amortization. The definition of Adjusted EBITDA for the Company is the operating income or loss plus dividends received and interest from associates and joint ventures, and excluding the amounts charged as (i) depreciation, depletion and amortization and (ii) impairment reversal (impairmaint and disposals) of non-current assets. However, our adjusted EBITDA is not the measure defined as EBITDA under IFRS and may possibly not be comparable with indicators with the same name reported by other companies. Adjusted EBITDA should not be considered as a substitute for operational profit or as a better measure of liquidity than operational cash flow, which are calculated in accordance with IFRS. Vale provides its adjusted EBITDA to give additional information about its capacity to pay debt, carry out investments and cover working capital needs. The following tables shows the reconciliation between adjusted EBITDA and operational cash flow and adjusted EBITDA and net income, in accordance with its statement of changes in financial position.

The definition of Adjusted EBIT is Adjusted EBITDA plus depreciation, depletion and amortization.

Reconciliation between adjusted EBITDA and operational cash flow

US$ million	4Q22	3Q22	4Q21
Adjusted EBITDA from continuing operations	**4,626**	**3,666**	**4,726**
Working capital:			
Accounts receivable	(2,107)	3	(3,142)
Inventories	940	(287)	423
Suppliers and contractors	(435)	1,169	(103)
Provisions for Brumadinho	133	141	201
Provision for de-characterization of dams	-	35	1,725
Others	(255)	(136)	398
Cash flow from continuing operations	**2,902**	**4,591**	**4,228**
Income taxes paid - including settlement program	(265)	(582)	(951)
Interest on loans and borrowings paid	(135)	(194)	(94)
Payments related to Brumadinho event	(287)	(423)	(1,004)
Payments related to de-characterization of dams	(102)	(95)	(84)
Interest on participative shareholders' debentures paid	(136)	-	(225)
Cash received (paid) on settlement of Derivatives, net	(65)	100	(80)
Net cash generated from operating activities from continuing operations	**1,912**	**3,397**	**1,790**
Net cash generated (used) in operating activities from discontinued operations	**-**	**-**	**90**
Net cash generated from operating activities	**1,912**	**3,397**	**1,880**

Reconciliation between adjusted EBITDA and net income (loss)

US$ million	4Q22	3Q22	4Q21
Adjusted EBITDA from continuing operations	**4,626**	**3,666**	**4,726**
Depreciation, depletion and amortization	(901)	(775)	(820)
Dividends received and interest from associates and joint ventures	(55)	(28)	(142)
Impairment and disposals (impairment reversal) of non-current assets, net	(177)	(40)	(205)
Operating income	**3,493**	**2,823**	**3,559**
Financial results	(658)	2,347	3,158
Equity results and other results in associates and joint ventures	72	78	(955)
Income taxes	991	(804)	(353)
Net income from continuing operations	**3,898**	**4,444**	**5,409**
Net income (loss) attributable to noncontrolling interests	19	(11)	55
Net income attributable to Vale's shareholders	**3,879**	**4,455**	**5,354**

(c) Net debt

US$ million	4Q22	3Q22	4Q21
Gross debt	11,181	10,666	12,180
Leases	1,531	1,538	1,602
Cash and cash equivalents[1]	4,797	5,224	11,905
Net debt	**7,915**	**6,980**	**1,877**

[1] Including financial investments

(d) Gross debt / LTM Adjusted EBITDA

US$ million	4Q22	3Q22	4Q21
Gross debt and leases / LTM Adjusted EBITDA (x)	0.6	0.6	0.4
Gross debt and leases / LTM operational cash flow (x)	0.7	0.9	0.5

(e) LTM Adjusted EBITDA / LTM interest payments

US$ million	4Q22	3Q22	4Q21
Adjusted LTM EBITDA / LTM gross interest (x)	32.3	33.7	46.7
LTM adjusted EBITDA / LTM interest payments (x)	25.2	19.4	45.2

(f) US dollar exchange rates

R$/US$	4Q22	3Q22	4Q21
Average	5.2554	5.2462	5.5860
End of period	5.2177	5.4066	5.5805

Revenues and volumes

Net operating revenue by destination

US$ million	4Q22	%	3Q22	%	4Q21	%	2022	%	2021	%
North America	**613**	**5.1**	**562**	**5.7**	**464**	**3.5**	**2,239**	**5.1**	**1,910**	**3.5**
USA	433	3.6	423	4.3	366	2.8	1,643	3.7	1,543	2.8
Canada	180	1.5	139	1.4	98	0.7	596	1.4	367	0.7
South America	**913**	**7.6**	**1,086**	**10.9**	**1,101**	**8.4**	**4,740**	**10.8**	**6,080**	**11.2**
Brazil	829	6.9	958	9.6	919	7.0	4,137	9.4	5,164	9.5
Others	84	0.7	128	1.3	182	1.4	603	1.4	916	1.7
Asia	**8,484**	**71.0**	**6,282**	**63.3**	**9,607**	**73.3**	**28,857**	**65.8**	**37,627**	**69.0**
China	7,072	59.2	4,640	46.7	7,119	54.3	22,203	50.6	28,603	52.5
Japan	803	6.7	857	8.6	1,402	10.7	3,535	8.1	4,523	8.3
South Korea	310	2.6	387	3.9	518	4.0	1,311	2.9	1,744	3.2
Others	299	2.5	398	4.0	568	4.3	1,808	4.2	2,757	5.1
Europe	**1,109**	**9.3**	**1,360**	**13.7**	**1,286**	**9.8**	**5,357**	**12.2**	**6,730**	**12.3**
Germany	321	2.7	377	3.8	432	3.3	1,521	3.5	2,034	3.7
Italy	153	1.3	166	1.7	118	0.9	708	1.6	652	1.2
Others	635	5.3	817	8.2	736	5.6	3,128	7.1	4,044	7.4
Middle East	**317**	**2.7**	**334**	**3.4**	**322**	**2.5**	**1,241**	**2.8**	**960**	**1.8**
Rest of the World	**505**	**4.2**	**305**	**3.1**	**325**	**2.5**	**1,405**	**3.2**	**1,195**	**2.2**
Total	**11,941**	**100.0**	**9,929**	**100.0**	**13,105**	**100.0**	**43,839**	**100.0**	**54,502**	**100.0**

Volume sold by destination – Iron ore and pellets

'000 metric tons	4Q22	3Q22	4Q21	2022	2021
Americas	**9,659**	**11,495**	**8,373**	**39,200**	**32,979**
Brazil	8,904	10,334	7,165	35,550	27,711
Others	755	1,161	1,208	3,650	5,268
Asia	**74,370**	**59,353**	**77,249**	**232,587**	**244,175**
China	64,172	48,707	64,603	190,107	197,893
Japan	5,473	5,226	6,823	22,801	24,636
Others	4,725	5,420	5,823	19,679	21,646
Europe	**3,403**	**3,676**	**3,799**	**17,363**	**19,358**
Germany	698	789	949	3,220	3,957
France	587	669	706	3,313	3,653
Others	2,118	2,218	2,144	10,830	11,748
Middle East	**1,654**	**1,554**	**1,681**	**5,797**	**4,009**
Rest of the World	**2,868**	**1,491**	**1,604**	**7,095**	**4,772**
Total	**91,954**	**77,569**	**92,706**	**302,042**	**305,293**

Net operating revenue by business area

US$ million	4Q22	%	3Q22	%	4Q21	%	2022	%	2021	%
Iron Solutions	**9,330**	**78%**	**7,827**	**79%**	**10,769**	**82%**	**34,916**	**80%**	**45,925**	**84%**
Iron ore fines	7,767	65%	6,053	61%	8,764	67%	28,188	64%	38,324	70%
ROM	22	0%	29	0%	8	0%	103	0%	62	0%
Pellets	1,456	12%	1,656	17%	1,889	14%	6,256	14%	7,053	13%
Others	85	1%	89	1%	108	1%	369	1%	486	1%
Energy Transition Materials	**2,549**	**21%**	**2,043**	**21%**	**2,224**	**17%**	**8,398**	**19%**	**7,966**	**15%**
Nickel	1,422	12%	960	10%	851	6%	4,279	10%	3,273	6%
Copper	597	5%	457	5%	749	6%	1,917	4%	2,649	5%
PGMs	87	1%	129	1%	64	0%	390	1%	395	1%
Gold as by-product	123	1%	139	1%	138	1%	494	1%	601	1%
Silver as by-product	12	0%	6	0%	8	0%	34	0%	33	0%
Cobalt	42	0%	28	0%	31	0%	139	0%	105	0%
Others[1]	266	2%	324	3%	383	3%	1,145	3%	910	2%
Others	**62**	**1%**	**60**	**1%**	**112**	**1%**	**525**	**1%**	**611**	**1%**
Total of continuing operations	**11,941**	**100%**	**9,929**	**100%**	**13,105**	**100%**	**43,839**	**100%**	**54,502**	**100%**

[1] Includes marketing activities

Projects under evaluation and growth options

Copper		
Alemão	**Capacity: 60 ktpy**	**Stage: FEL3**
Carajás, Brazil	Growth project	Investment decision: 2023
Vale's ownership: 100%	Underground mine	115 kozpy Au as byproduct
South Hub extension	**Capacity: 60-80 ktpy**	**Stage: FEL3[1]**
Carajás, Brazil	Replacement project	Investment decision: 2023
Vale's ownership: 100%	Open pit	Development of mines to feed Sossego mill
Victor	**Capacity: 20 ktpy**	**Stage: FEL3**
Ontario, Canada	Replacement project	Investment decision: 2024
Vale's ownership: N/A	Underground mine	5 ktpy Ni as co-product; JV partnership under discussion
Hu'u	**Capacity: 300-350 ktpy**	**Stage: FEL2**
Dompu, Indonesia	Growth project	200 kozpy Au as byproduct
Vale's ownership: 80%	Underground block cave	
North Hub	**Capacity: 70-100 ktpy**	**Stage: FEL1**
Carajás, Brazil	Growth project	
Vale's ownership: 100%	Mines and processing plant	
Nickel		
Sorowako Limonites	**Capacity: 60 ktpy**	**Stage: FEL3**
Sorowako, Indonesia	Growth project	Investment decision: 2023
Vale's ownership: N/A[2]	HPAL plant	8 kpty Co as by-product
Pomalaa	**Capacity: 120 ktpy**	**Stage: Definitive feasibility study**
Kolaka, Indonesia	Growth project	Investment decision: 2023 (mine)
Vale's ownership: N/A[2]	Mine	15 ktpy Co as by-product
Creighton Ph. 5	**Capacity: 20-24 ktpy**	**Stage: FEL3**
Ontario, Canada	Replacement project	Investment decision: 2023-2024
Vale's ownership: 100%	Underground mine	17-20 ktpy Cu as by-product
CCM Pit	**Capacity: 12-15 ktpy**	**Stage: FEL3**
Ontario, Canada	Replacement project	Investment decision: 2023
Vale's ownership: 100%	Underground mine	7-9 ktpy Cu as by-product
CCM Ph. 3	**Capacity: 7 ktpy**	**Stage: FEL2**
Ontario, Canada	Replacement project	9 ktpy Cu as by-product
Vale's ownership: 100%	Underground mine	
CCM Ph. 4	**Capacity: 9 ktpy**	**Stage: FEL2**
Ontario, Canada	Replacement project	9 ktpy Cu as by-product
Vale's ownership: 100%	Underground mine	
Iron ore		
Dry concentration plant	**Capacity: 8 Mtpy DR pellet feed**	**Stage: FEL3**
Oman	Replacement project	Investment decision: 2023
Vale's ownership: N/A	Cleaner to produce DR pellet feed	
Green briquette plants	**Capacity: Under evaluation**	**Stage: FEL3 (two plants)**
Brazil and other regions	Growth project	Investment decision: 2023-2029
Vale's ownership: N/A	Cold agglomeration plant	8 plants under engineering stage, including co-located plants in clients' facilities
Serra Leste expansion	**Capacity: +4 Mtpy (10 Mtpy total)**	**Stage: FEL2**
Northern System (Brazil)	Growth project	
Vale's ownership: 100%	Open pit mine	
S11C	**Capacity: Under evaluation**	**Stage: FEL2**
Northern System (Brazil)	Growth project	
Vale's ownership: 100%	Open pit mine	

cont'd

Iron ore *(cont'd)*		
Serra Norte N1/N2[3]	**Capacity: Under evaluation**	**Stage: FEL2**
Northern System (Brazil)	Replacement project	
Vale's ownership: 100%	Open pit mine	
Mega Hubs	**Capacity: Under evaluation**	**Stage: Prefeasibility Study**
Middle East	Growth project	
Vale's ownership: N/A	Industrial complexes for iron ore concentration and agglomeration and production of direct reduction metallics	Vale signed three agreements with Middle East local authorities and clients to jointly study the development of Mega Hubs

[1] Refers to the most advanced projects (Bacaba and Cristalino).
[2] Indirect ownership through Vale's 44.34% equity in PTVI. PTVI will own 100% of the mine and has the option to acquire up to 30% of the plant as part of the JV agreement.
[3] Project scope is under review given permitting constraints.