

# Vale

## 80 years in Brazil



On June 1, 2022, Vale completed 80 years of operations in Brazil, always with the purpose of improving life and transforming the future.

# VALE'S PRODUCTION AND SALES IN 2022

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# Production and sales in 2Q22

## Rio de Janeiro, July 19<sup>th</sup>, 2022

- Iron ore production increased 17% q/q to 74.1 Mt, mainly driven by the Southeastern and Southern Systems' solid performance into the dry season. Northern System production improved 4% q/q, benefiting from favorable weather seasonality with partial offset by one-off stockpiles homogenization activities in Ponta da Madeira to adjust for moisture levels.
  - As a result of this one-off event, the sale of our Midwestern System (~3.5 Mt) and in order to account for greater flexibility in our production due to current market conditions, Vale is revising its annual production guidance for 2022 to 310-320 Mt. The revised guidance is in line with our value over volume philosophy.
- Nickel production was 24% lower q/q mostly due to scheduled maintenance of our downstream facilities, which was partially offset by strong performance at Onça Puma. Mines operated in a steady pace through the quarter, with North Atlantic mines building up feedstock for planned mine-mill maintenance in 3Q22. Sales were largely in line q/q as inventories built in 1Q22 were sold in 2Q22.
- Copper production was in line with Q1 as the effect of Sossego SAG mill resumption in early June and stronger performance of Canadian mines were offset by both planned and corrective maintenance at Salobo plant.
  - As a result of a longer-than-expected maintenance at Sossego mill and additional maintenance at Salobo mill identified for 2022, Vale is revising its annual production guidance for Copper to 270-285 kt.

## Production summary

000' metric tons	2Q22	1Q22	2Q21	1H22	1H21	% change			2022 Guidance
						2Q22/1Q22	2Q22/2Q21	1H22/1H21	
Iron ore <sup>1</sup>	74,108	63,128	75,001	137,236	142,531	17.4%	-1.2%	-3.7%	310-320 Mt <sup>2</sup>
Pellets	8,672	6,924	8,008	15,596	14,295	25.2%	8.3%	9.1%	34-38 Mt
Nickel	34.8	45.8	41.5	80.6	89.9	-24.0%	-16.1%	-10.3%	175-190 kt
Copper	55.9	56.6	73.5	112.5	150.1	-1.2%	-23.9%	-25.0%	270-285 <sup>2</sup> kt

<sup>1</sup> Including third-party purchases, run-of-mine and feed for pelletizing plants. Excluding Midwestern System volumes.

<sup>2</sup> Iron ore and copper production guidance were reviewed from 320-335 Mt and 330-355 kt, respectively.

## Sales summary

000' metric tons	2Q22	1Q22	2Q21	1H22	1H21	% change		
						2Q22/1Q22	2Q22/2Q21	1H22/1H21
Iron ore <sup>1</sup>	64,318	52,347	65,849	116,665	123,906	22.9%	-2.3%	-5.8%
Pellets	8,843	7,011	7,647	15,854	13,918	26.1%	15.6%	13.9%
Nickel	39.3	39.0	47.4	78.3	95.4	0.8%	-17.1%	-17.9%
Copper	51.5	50.3	74.2	101.8	145.4	2.4%	-30.6%	-30.0%

<sup>1</sup> Including third-party purchases and run-of-mine. Excluding Midwestern System volumes.

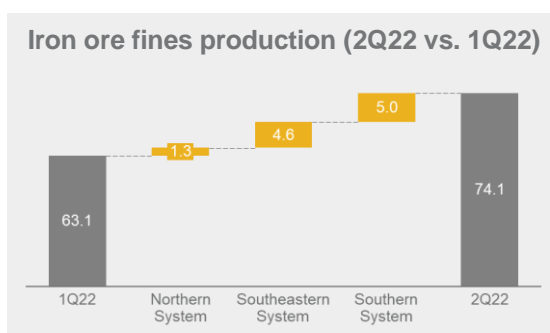
## Businesses' highlights in 2Q22

### Iron Ore and Pellets operations

- **Northern System production improved**

benefiting from better weather seasonality in June while still restricted by tie-in effects from the primary crushers' installation to process jaspilite materials at S11D, which was concluded in May. Moreover, production was negatively impacted by (i) one-off supply

chain restrictions as result of changes in stockpile formation procedures in Ponta da Madeira Terminal to manage moisture level in some cargos produced at S11D during the rainy season; and (ii) the ongoing lower ROM availability, caused by slower licensing processes.



- **Improvements in the performance of Southeastern System** are mainly attributed to (i)

higher production at Brucutu of products to be concentrated in Chinese beneficiation plants; (ii) higher productivity at Itabira Complex, with the reassessment of tailings management solutions; and (iii) Timbopeba production improvement after the impact of the heavy rains in January and lower maintenance activities vs. 1Q22.

- After being strongly impacted by heavy rains in 1Q22, **production level at Southern System improved**, driven by (i) better performance in all operations, especially at Vargem Grande and Mutuca; and (ii) higher third-party purchase.

- **Pellets production increased** due to (i) lower maintenance activities at Oman plant; and (ii) higher pellet feed availability at Vargem Grande plant.

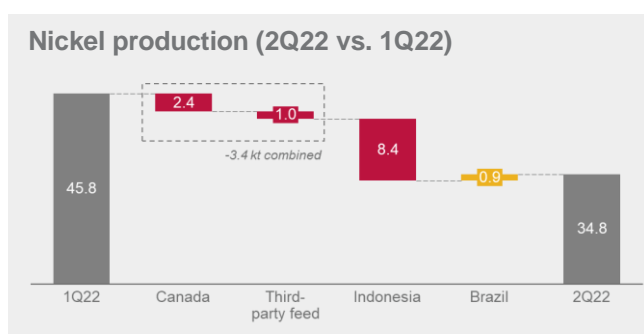
- **Iron ore fines and pellets sales totalled 73.2 Mt, 23% higher q/q, while all-in premium reached US\$ 7.3/t<sup>1</sup> (vs. US\$ 9.1/t in 1Q22).** The higher pellet premiums<sup>2</sup> were offset by sales of high-silica ores. High-silica ores can be blended into BRBF, concentrated in China or sold separately. Vale sold a higher percentage of high-silica ores separately to anticipate sales and to benefit from 2Q22 higher market prices for such products. Vale's supply-chain flexibility allows us to adjust its sales strategy according to market conditions.

<sup>1</sup> Iron ore premium of US\$ 1.1/t and weighted average contribution of pellets of US\$ 6.2/t.

<sup>2</sup> Including seasonal dividends received from our pellet's JVs in Q2 and Q4.

## Nickel operations

- **Production from Sudbury sourced ore was lower q/q mainly due to a 28-day planned maintenance shutdown at the Copper Cliff Smelter and Refinery**, which began in early April and reached full production again in June. Ontario mines' run rates improved during Q2, allowing for an inventory build-up to cover for planned maintenance across the underground mines and at the Clarabelle mill in Q3.
- **Production from Thompson sourced ore was down q/q** due to scheduled maintenance during the quarter at Long Harbour Refinery.
- **Production from Voisey's Bay sourced ore was lower q/q** as we proceed on the ongoing transitional period between the depletion of Ovoid mine and ramp-up to full production of the Voisey's Bay underground project.
- Meanwhile, consumption of feed from third parties is planned to stay higher than in recent years, aiming to maximize the utilization and performance of our downstream operations. Finished nickel produced from third parties was lower q/q, as nickel downstream facilities were in maintenance.
- **Production of finished nickel from Indonesia source was lower q/q**, mainly due to scheduled maintenance at the Clydach and Matsusaka refineries during the quarter, limiting their consumption of PTVI source ore, as well as the reallocation of direct matte sales to third parties from 2Q22 to 1Q22. Overall PTVI matte deliveries to downstream operations were reduced due to the planned furnace rebuild, which started in December 2021 and concluded in June 2022. Nickel-in-matte production decreased 9% q/q due to a full planned maintenance shutdown in early-June.
- **Production at Onça Puma was higher q/q following maintenance works performed in 1Q22.**
- Nickel sales were relatively in line q/q, outpacing production by 13%, as a result of inventories strategy put in place in 1Q22 in order to fulfil sales commitments for 2Q22 as nickel refineries were in planned maintenance.



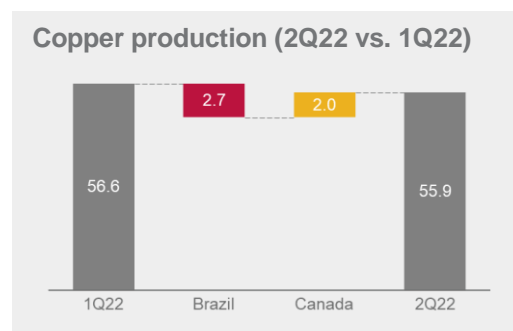


## Copper operations

- **At Sossego, production has increased as operations resumed in early June after the extended SAG mill maintenance.**

During the shutdown in Q1, an assessment of the discharge trunnion revealed the need for a full replacement which was completed during the quarter. In addition, work that had been scheduled for 2023 was brought

forward, including GMD (gearless mill drive) rewinding and structural integrity work. This increased maintenance scope led to a total plant stoppage of 4.5 months, from 45 days originally. Sossego mill has been operating at a consistent pace since the end of June.



- **Salobo operations were impacted by maintenance in 2Q22.** Mine movement continued to improve throughout the quarter. However, concentrate production was negatively impacted by plant performance due to delays in ramp-up after planned maintenance and additional corrective maintenance. We expect further maintenance work to continue in 2H22.
- **Production of copper from Canadian sourced ore was higher due to improved Sudbury mine run-rates.** As indicated in the nickel section, a planned maintenance at Sudbury mines and mill will occur in Q3, in addition to scheduled ground control work. This is expected to have a planned temporary impact on copper production from Canadian operations.
- Copper sales<sup>3</sup> were slightly higher q/q as a result of the postponement of a shipment from late 1Q22 to 2Q22.

<sup>3</sup> Sales volumes are lower compared to production volumes due to payable copper vs. contained copper: part of the copper contained in the concentrates is lost in the smelting and refining process, hence payable quantities of copper are approximately 3.5% lower than contained volumes.

## ANNEX – Production and sales summary

### Iron ore

000' metric tons	2Q22	1Q22	2Q21	1H22	1H21	% change		
						2Q22/1Q22	2Q22/2Q21	1H22/1H21
<b>Northern System</b>	<b>39,073</b>	<b>37,732</b>	<b>43,501</b>	<b>76,805</b>	<b>85,794</b>	<b>3.6%</b>	<b>-10.2%</b>	<b>-10.5%</b>
Serra Norte and Serra Leste	22,548	22,586	26,916	45,134	52,216	-0.2%	-16.2%	-13.6%
S11D	16,525	15,147	16,585	31,672	33,578	9.1%	-0.4%	-5.7%
<b>Southeastern System</b>	<b>19,557</b>	<b>14,955</b>	<b>18,059</b>	<b>34,512</b>	<b>31,588</b>	<b>30.8%</b>	<b>8.3%</b>	<b>9.3%</b>
Itabira (Cauê, Conceição and others)	7,061	6,198	7,233	13,259	12,914	13.9%	-2.4%	2.7%
Minas Centrais (Brucutu and others)	5,950	3,569	5,490	9,519	8,946	66.7%	8.4%	6.4%
Mariana (Alegria, Timbopeba and others)	6,547	5,188	5,337	11,735	9,729	26.2%	22.7%	20.6%
<b>Southern System</b>	<b>15,477</b>	<b>10,441</b>	<b>13,441</b>	<b>25,918</b>	<b>25,149</b>	<b>48.2%</b>	<b>15.1%</b>	<b>3.1%</b>
Paraopeba (Mutuca, Fábrica and others)	6,968	4,010	5,899	10,978	11,216	73.8%	18.1%	-2.1%
Vargem Grande (Vargem Grande, Pico and others)	8,510	6,432	7,542	14,942	13,933	32.3%	12.8%	7.2%
<b>IRON ORE PRODUCTION<sup>1</sup></b>	<b>74,108</b>	<b>63,128</b>	<b>75,001</b>	<b>137,236</b>	<b>142,531</b>	<b>17.4%</b>	<b>-1.2%</b>	<b>-3.7%</b>
<b>IRON ORE SALES<sup>2</sup></b>	<b>64,318</b>	<b>52,347</b>	<b>65,849</b>	<b>116,665</b>	<b>123,906</b>	<b>22.9%</b>	<b>-2.3%</b>	<b>-5.8%</b>
<b>IRON ORE AND PELLETS SALES<sup>2</sup></b>	<b>73,161</b>	<b>59,358</b>	<b>73,496</b>	<b>132,519</b>	<b>137,824</b>	<b>23.3%</b>	<b>-0.5%</b>	<b>-3.8%</b>

<sup>1</sup> Including third party purchases, run-of-mine and feed for pelletizing plants. Excluding Midwestern System volumes. Vale's product portfolio Fe content reached 62.2%, alumina 1.3% and silica 6.4% in 2Q22.

<sup>2</sup> Including third-party purchases and run-of-mine. Excluding Midwestern System volumes.

### Pellets

000' metric tons	2Q22	1Q22	2Q21	1H22	1H21	% change		
						2Q22/1Q22	2Q22/2Q21	1H22/1H21
<b>Northern System</b>	<b>836</b>	<b>738</b>	<b>748</b>	<b>1,574</b>	<b>1,709</b>	<b>13.3%</b>	<b>11.8%</b>	<b>-7.9%</b>
São Luis	836	738	748	1,574	1,709	13.3%	11.8%	-7.9%
<b>Southeastern System</b>	<b>4,088</b>	<b>3,689</b>	<b>3,963</b>	<b>7,777</b>	<b>7,572</b>	<b>10.8%</b>	<b>3.2%</b>	<b>2.7%</b>
Itabasco (Tubarão 3)	930	310	742	1,240	1,325	200.0%	25.3%	-6.4%
Hispanobras (Tubarão 4)	-	-	-	-	169	-	-	-100.0%
Nibrasco (Tubarão 5 and 6)	921	1,064	974	1,985	1,673	-13.4%	-5.4%	18.6%
Kobrasco (Tubarão 7)	963	969	803	1,932	1,410	-0.6%	19.9%	37.0%
Tubarão 8	1,273	1,346	1,445	2,619	2,996	-5.4%	-11.9%	-12.6%
<b>Southern System</b>	<b>1,136</b>	<b>679</b>	<b>975</b>	<b>1,815</b>	<b>1,631</b>	<b>67.3%</b>	<b>16.5%</b>	<b>11.3%</b>
Fábrica	-	-	-	-	-	-	-	-
Vargem Grande	1,136	679	975	1,815	1,631	67.3%	16.5%	11.3%
<b>Oman</b>	<b>2,612</b>	<b>1,818</b>	<b>2,322</b>	<b>4,430</b>	<b>3,383</b>	<b>43.7%</b>	<b>12.5%</b>	<b>30.9%</b>
<b>PELLETS PRODUCTION</b>	<b>8,672</b>	<b>6,924</b>	<b>8,008</b>	<b>15,596</b>	<b>14,295</b>	<b>25.2%</b>	<b>8.3%</b>	<b>9.1%</b>
<b>PELLETS SALES</b>	<b>8,843</b>	<b>7,011</b>	<b>7,647</b>	<b>15,854</b>	<b>13,918</b>	<b>26.1%</b>	<b>15.6%</b>	<b>13.9%</b>

### Nickel – Finished production by source

000' metric tons	2Q22	1Q22	2Q21	1H22	1H21	% change		
						2Q22/1Q22	2Q22/2Q21	1H22/1H21
<b>Canada</b>	<b>16.7</b>	<b>18.9</b>	<b>20.4</b>	<b>35.6</b>	<b>45.6</b>	<b>-11.6%</b>	<b>-18.1%</b>	<b>-21.9%</b>
Sudbury	7.7	8.6	9.0	16.3	21.0	-10.5%	-14.4%	-22.4%
Thompson	2.0	2.9	1.4	4.9	4.2	-31.0%	42.9%	16.7%
Voisey's Bay	6.9	7.5	10.0	14.4	20.4	-8.0%	-31.0%	-29.4%
<b>Indonesia</b>	<b>9.1</b>	<b>17.6</b>	<b>14.5</b>	<b>26.7</b>	<b>29.9</b>	<b>-48.3%</b>	<b>-37.2%</b>	<b>-10.7%</b>
<b>Brazil</b>	<b>6.3</b>	<b>5.4</b>	<b>5.2</b>	<b>11.7</b>	<b>11.5</b>	<b>16.7%</b>	<b>21.2%</b>	<b>1.7%</b>
<b>Feed from third-parties<sup>1</sup></b>	<b>2.7</b>	<b>3.7</b>	<b>1.3</b>	<b>6.5</b>	<b>2.9</b>	<b>-27.0%</b>	<b>107.7%</b>	<b>124.1%</b>
<b>NICKEL PRODUCTION</b>	<b>34.8</b>	<b>45.8</b>	<b>41.5</b>	<b>80.5</b>	<b>89.9</b>	<b>-24.0%</b>	<b>-16.1%</b>	<b>-10.5%</b>
<b>NICKEL SALES</b>	<b>39.3</b>	<b>39.0</b>	<b>47.4</b>	<b>78.4</b>	<b>95.4</b>	<b>0.8%</b>	<b>-17.1%</b>	<b>-17.8%</b>

<sup>1</sup> External feed purchased from third parties and processed into finished nickel in our Canadian operations.

## Copper – Finished production by source

000' metric tons	2Q22	1Q22	2Q21	1H22	1H21	% change		
						2Q22/1Q22	2Q22/2Q21	1H22/1H21
<b>Brazil</b>	<b>35.0</b>	<b>37.7</b>	<b>55.2</b>	<b>72.7</b>	<b>105.2</b>	<b>-7.2%</b>	<b>-36.6%</b>	<b>-30.9%</b>
Salobo	29.6	33.9	38.7	63.6	72.8	-12.7%	-23.5%	-12.6%
Sossego	5.4	3.8	16.6	9.1	32.5	42.1%	-67.5%	-72.0%
<b>Canada</b>	<b>20.9</b>	<b>18.9</b>	<b>18.2</b>	<b>39.8</b>	<b>44.8</b>	<b>10.6%</b>	<b>14.8%</b>	<b>-11.2%</b>
Sudbury	16.9	13.9	13.0	30.8	32.4	21.6%	30.0%	-4.9%
Thompson	0.2	0.3	0.1	0.4	0.3	-33.3%	100.0%	33.3%
Voisey's Bay	2.5	3.1	4.5	5.6	10.6	-19.4%	-44.4%	-47.2%
Feed from third parties	1.3	1.6	0.6	2.9	1.7	-18.8%	116.7%	70.6%
<b>COPPER PRODUCTION</b>	<b>55.9</b>	<b>56.6</b>	<b>73.5</b>	<b>112.5</b>	<b>150.1</b>	<b>-1.2%</b>	<b>-23.9%</b>	<b>-25.0%</b>
<b>COPPER SALES</b>	<b>51.5</b>	<b>50.3</b>	<b>74.2</b>	<b>101.8</b>	<b>145.4</b>	<b>2.4%</b>	<b>-30.6%</b>	<b>-30.0%</b>
Copper Sales Brazil	34.6	34.1	55.8	68.7	101.2	1.5%	-38.0%	-32.1%
Copper Sales Canada	16.9	16.2	18.4	33.1	44.2	4.3%	-8.2%	-25.3%

## Base Metals by-products – Finished production

	2Q22	1Q22	2Q21	1H22	1H21	% change		
						2Q22/1Q22	2Q22/2Q21	1H22/1H21
COBALT (000' metric tons)	541	755	754	1,296	1,465	-28.3%	-28.2%	-11.5%
PLATINUM (000' oz troy)	21	23	30	44	60	-8.7%	-30.0%	-26.7%
PALLADIUM (000' oz troy)	28	29	36	58	75	-3.4%	-22.2%	-22.7%
GOLD (000' oz troy) <sup>1</sup>	60	71	96	131	182	-15.5%	-37.5%	-28.0%
<b>TOTAL BY-PRODUCTS</b> (000' metric tons Cu eq.) <sup>2,3</sup>	<b>28</b>	<b>32</b>	<b>42</b>	<b>59</b>	<b>85</b>	<b>-12.5%</b>	<b>-33.3%</b>	<b>-30.6%</b>

<sup>1</sup> Includes gold from Copper and Nickel operations.

<sup>2</sup> Includes iridium, rhodium, ruthenium and silver.

<sup>3</sup> Copper equivalent tonnes calculated using average market metal prices for each quarter. Market reference prices: for copper, cobalt, gold and silver: LME spot; for Platinum and Palladium: NYMEX spot; for other PGMs: Johnson Matthey.