



Tailings' filtration plant at Vargem Grande complex, delivered in March 2021

# VALE'S PRODUCTION AND SALES IN 1Q21

www.vale.com

vale.ri@vale.com

Tel.: (5521) 3485-3900

## Investor Relations Department

Ivan Fadel

André Werner

Mariana Rocha

Samir Bassil

B3: VALE3

NYSE: VALE

LATIBEX: XVALO

---

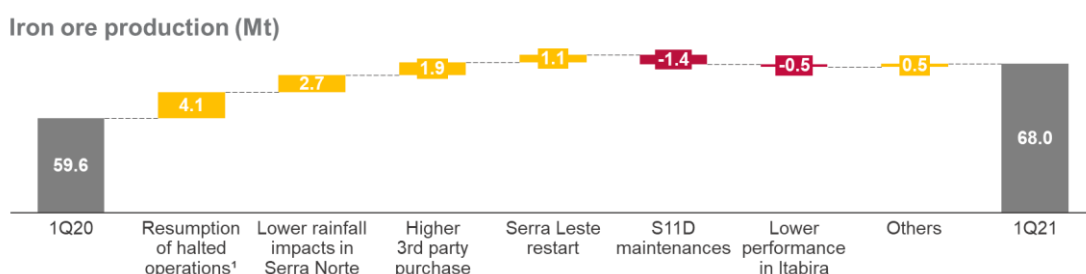
This press release may include statements about Vale's current expectations about future events or results (forward-looking statements). Many of those forward-looking statements can be identified by the use of forward-looking words such as "anticipate," "believe," "could," "expect," "should," "plan," "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.

# Production and sales in 1Q21

|                                       |   |          |                                |
|---------------------------------------|---|----------|--------------------------------|
| 14% YoY growth in iron ore production | Resumption of Timbopeba site and Vargem Grande pellet plant | VNC exit | Moatize plant revamp concluded |
|---------------------------------------|---|----------|--------------------------------|

**Rio de Janeiro, April 19<sup>th</sup>, 2021** – Vale S.A. (“Vale”) continues to progress, despite the additional challenges imposed by COVID-19 pandemic in Brazil, on its Iron Ore stabilization plan, resuming the remaining halted capacity at Timbopeba site and Vargem Grande pellet plant. On Base Metals, the sale of VNC operations was an important step on Vale’s commitment to transform the business, simplifying the operations flowsheet going forward and enabling a continuous focus on core assets. Vale also announced its intention to exit the Coal business and concluded in April the revamp of the two processing plant in Moatize, which is expected to produce sustainable results for the business.

**Vale’s iron ore fines production<sup>1</sup> totaled 68.0 Mt in 1Q21**, 14.2% higher than in 1Q20, as Vale progressed on its operational stabilization and resumption plan. The year on year growth is attributed to: (i) the gradual resumption of halted operations in Timbopeba, Fábrica and Vargem Grande complexes throughout 2020; (ii) stronger performance in Serra Norte and lower rainfall in January; (iii) higher third party purchases; and (iv) the restart of Serra Leste operations, which were partially offset by (i) scheduled maintenances in S11D; and (ii) the lower performance in Itabira complex related to tailings disposal restriction in the complex. The 19.5%q/q decline in production is mainly attributed to the usual seasonality.



<sup>1</sup> Considering Vargem Grande, Timbopeba and Fábrica.

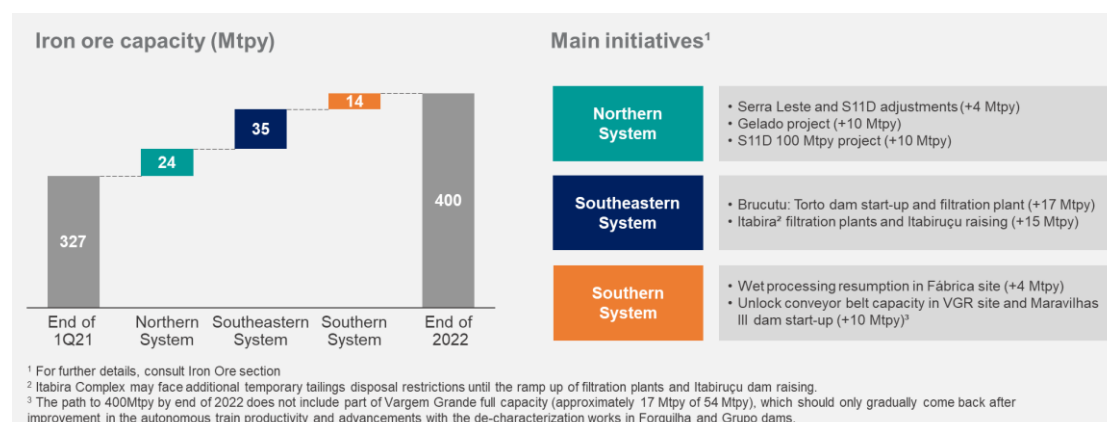
Following its stabilization and resumption plan, **Vale achieved a production capacity of 327 Mtpy production in 1Q21**, due to the commissioning of Timbopeba’s beneficiation lines

<sup>1</sup> Including third party purchases, run-of-mine and feed for pelletizing plants. Vale’s product portfolio Fe content reached 63.4%, alumina 1.3% and silica 4.7%.



(+7Mtpy), which was partially offset by performance restrictions in different sites (e.g. Itabira and Mutuca), as disclosed previously.

The resumption plan advanced with the start-up of Vargem Grande's tailings filtration plant, the first of four filtration plants in Minas Gerais. The second plant, located in Itabira, is expected to start operation by the end of 2021.



**Vale's pellet production totalled 6.3 Mt in 1Q21**, 9.2% lower than in 1Q20, as a result of lower pellet feed availability from Vale's sites mainly from Itabira and Brucutu. Despite a weaker quarter, Vale expects to gradually increase production during 2021 with the higher availability of pellet feed from Timbopeba and Vargem Grande.

**Sales volumes of iron ore fines and pellets totalled 65.6 Mt in 1Q21**, up 11%y/y on stronger iron ore production, but partially offset by lower pellet-feed availability. Iron ore price premium was US\$ 8.3/t<sup>2</sup>, as strong demand recovery from ex-China markets, higher coking coal prices in China and the need for elevated productivity in blast furnaces gave support to higher spreads between 65% Fe index and 62% Fe benchmark index and pellet premiums.

**Production of finished nickel ex-VNC was 48.4 kt in 1Q21**, 6.8% higher than 1Q20 and 4.7% lower than 4Q20. The increase compared to 1Q20 was a result of Onça Puma operating at steady rates and robust performance at the North Atlantic refineries, with Long Harbour reaching record production levels in the 1<sup>st</sup> quarter. In comparison with 4Q20, production decreased as a result of lower production from material sourced from PTVI, due to a scheduled maintenance at Matsusaka refinery. This decrease was partially compensated by a solid performance in North Atlantic operations.

On March 31<sup>st</sup>, 2021 Vale concluded the sale of VNC to the Prony Resources New Caledonia Consortium. As a result, Vale will discontinue coverage of VNC operations in production and financial reports from 2Q21 onwards.

<sup>2</sup> Iron ore premium of US\$ 6.9/t and weighted average contribution of pellets of US\$ 1.5/t.

**Copper production reached 76.5 kt in 1Q21**, 19.0% lower than 1Q20 and 18.2% lower than 4Q20. The decrease was a result of: (i) changes in maintenance routines to improve safety and operating conditions, which has restricted mine movement and impacted feed grade, at Salobo; and (ii) scheduled and unscheduled maintenance that took longer than expected, as COVID-19 has limited the ability to mobilize contractors, at Sossego operations. As maintenance activities continue at both sites and, due to COVID-19, a planned major SAG mill maintenance at Sossego has been deferred, further impacts on production are anticipated, with copper operations returning to regular rates in 2H21. Given the challenges in 1H21, we are currently expecting copper production around the lower end of the guidance for the year. Nevertheless, we acknowledge that the COVID-19 situation could cause further delays in scheduled plant maintenance.

In 1Q21, Vale Base Metals went through a broad safety review of operational process, resulting in comprehensive overhaul of maintenance standards, procedures, training and oversight. These additional measures impacted mining equipment availability across all operations during the quarter. We expect improvements from maintenance activities to materialize throughout the business in 2H21.

**Coal business concluded its maintenance activities in April** and is progressing with the commissioning of the new and revamped equipment. Mine and plant ramp-up is expected to be carried out in 2Q21 and should achieve a production run-rate of 15 Mtpy in 2H21.

## Production summary

| 000' metric tons      | 1Q21   | 4Q20   | 1Q20   | % change  |           |
|-----------------------|--------|--------|--------|-----------|-----------|
|                       |        |        |        | 1Q21/4Q20 | 1Q21/1Q20 |
| Iron ore <sup>1</sup> | 68,045 | 84,508 | 59,605 | -19.5%    | 14.2%     |
| Pellets               | 6,287  | 7,117  | 6,926  | -11.7%    | -9.2%     |
| Manganese Ore         | 91     | 119    | 363    | -23.5%    | -74.9%    |
| Coal                  | 1,090  | 1,230  | 1,963  | -11.4%    | -44.5%    |
| Nickel                | 48.5   | 55.9   | 53.2   | -13.2%    | -8.8%     |
| Nickel Ex-VNC         | 48.4   | 50.8   | 45.3   | -4.7%     | 6.8%      |
| Copper                | 76.5   | 93.5   | 94.5   | -18.2%    | -19.0%    |
| Cobalt (metric tons)  | 714    | 1,042  | 1,202  | -31.5%    | -40.5%    |
| Gold (000' oz troy)   | 82     | 120    | 119    | -31.7%    | -31.1%    |

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

## Sales summary

| 000' metric tons      | 1Q21   | 4Q20   | 1Q20   | % change  |           |
|-----------------------|--------|--------|--------|-----------|-----------|
|                       |        |        |        | 1Q21/4Q20 | 1Q21/1Q20 |
| Iron ore <sup>1</sup> | 59,298 | 82,825 | 51,656 | -28.4%    | 14.8%     |
| Pellets               | 6,271  | 8,486  | 7,311  | -26.1%    | -14.2%    |
| Manganese Ore         | 258    | 461    | 219    | -44.0%    | 17.8%     |
| Coal                  | 1,015  | 1,535  | 1,566  | -33.9%    | -35.2%    |
| Nickel <sup>2</sup>   | 48.0   | 66.1   | 44.2   | -27.4%    | 8.6%      |
| Copper                | 71.2   | 93.0   | 89.2   | -23.4%    | -17.6%    |

<sup>1</sup> Including third party purchases and run-of-mine.

<sup>2</sup> Includes VNC sales volumes

## Production guidance

|               | 2021             |
|---------------|------------------|
| Iron ore (Mt) | 315-335          |
| Nickel (kt)   | 200 <sup>1</sup> |
| Copper (kt)   | 360-380          |

<sup>1</sup> Production average from 2021 to 2023.

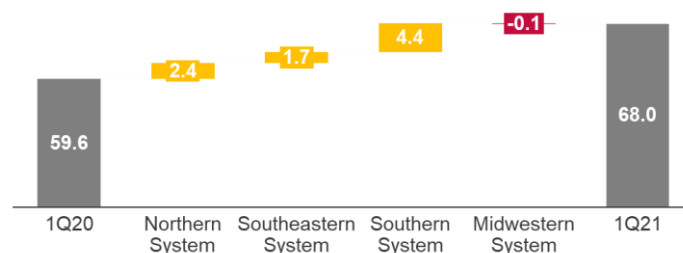
# Iron ore

| 000' metric tons                               | 1Q21          | 4Q20          | 1Q20          | % change      |               |
|--|---------------|---------------|---------------|---------------|---------------|
|  |               |               |               | 1Q21/4Q20     | 1Q21/1Q20     |
| <b>Northern System</b>                         | <b>42,293</b> | <b>53,053</b> | <b>39,900</b> | <b>-20.3%</b> | <b>6.0%</b>   |
| Serra Norte and Serra Leste                    | 25,300        | 31,158        | 21,480        | -18.8%        | 17.8%         |
| S11D   | 16,993        | 21,895        | 18,420        | -22.4%        | -7.7%         |
| <b>Southeastern System</b>                     | <b>13,529</b> | <b>16,468</b> | <b>11,789</b> | <b>-17.8%</b> | <b>14.8%</b>  |
| Itabira (Cauê, Conceição and others)           | 5,681         | 6,117         | 6,007         | -7.1%         | -5.4%         |
| Minas Centrais (Bucutu and others)             | 3,456         | 3,422         | 3,649         | 1.0%          | -5.3%         |
| Mariana (Alegria, Timbopeba and others)        | 4,392         | 6,929         | 2,133         | -36.6%        | 105.9%        |
| <b>Southern System</b>                         | <b>11,722</b> | <b>14,314</b> | <b>7,356</b>  | <b>-18.1%</b> | <b>59.4%</b>  |
| Paraopeba (Mutuca, Fábrica and others)         | 5,331         | 6,717         | 3,648         | -20.6%        | 46.1%         |
| Vargem Grande (Vargem Grande, Pico and others) | 6,391         | 7,597         | 3,708         | -15.9%        | 72.4%         |
| <b>Midwestern System</b>                       | <b>500</b>    | <b>673</b>    | <b>559</b>    | <b>-25.7%</b> | <b>-10.6%</b> |
| Corumbá  | 500           | 673           | 559           | -25.7%        | -10.6%        |
| <b>IRON ORE PRODUCTION<sup>1</sup></b>         | <b>68,045</b> | <b>84,508</b> | <b>59,605</b> | <b>-19.5%</b> | <b>14.2%</b>  |
| <b>IRON ORE SALES<sup>2</sup></b>              | <b>59,298</b> | <b>82,825</b> | <b>51,656</b> | <b>-28.4%</b> | <b>14.8%</b>  |
| <b>IRON ORE AND PELLETS SALES<sup>2</sup></b>  | <b>65,569</b> | <b>91,311</b> | <b>58,967</b> | <b>-28.2%</b> | <b>11.2%</b>  |

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

<sup>2</sup> Including third party purchases and run-of-mine.

## Production variation (1Q21 x 1Q20) Mt



## Northern System

The Northern System performance was solid, as a result of (i) lower rainfall levels in January in Serra Norte; and (ii) the resumption of Serra Leste in December 2020, which were partially offset by scheduled maintenances carried out in the S11D.

As previously announced, a fire occurred in one (CN6) of the eight ship loaders at the Ponta da Madeira Maritime Terminal on January 14<sup>th</sup>, 2021. The fire was controlled, without casualties or environmental damage. On January 28<sup>th</sup>, shipping activities at Southern berth of Pier IV were resumed using the second ship loader (CN7) available at the berth. Vale expects to conclude the maintenance activities at the affected ship loader (CN6) by the end of 2Q21, without impacts on shipments and production in 2021.

## **Southeastern System**

Southeastern System's production was 15% higher than in 1Q20, as result of (i) partial resumption of Timbopeba site, which was halted in 1Q20; and (ii) full quarter production in Fazendão site, which was halted from end of February to July 2020, due to the depletion of the licensed mining area. The positive effects were partially offset by (i) lower productivity at Itabira Complex, operating under temporary tailings management solutions; and (ii) lower ROM availability in Água Limpa, located in Minas Centrais complex, as expected in its mining plan.

In March, Vale started commissioning to increase wet processing production in Timbopeba site. At the end of commissioning process, which is expected to last 2 months, Timbopeba will operate with an iron ore production capacity of 12 Mtpy, adding 7 Mtpy to its current capacity, by using 3 additional beneficiation lines at the processing plant. The tailings generated by the wet processing will continue to be disposed of in Timbopeba pit, a bedrock self-contained structure.

## **Southern System**

The robust operational performance in 1Q21 (vs. 1Q20) can be in large attributed to (i) higher production from Vargem Grande Complex, which gradually resumed operations in 2020; (ii) restart of dry processing activities at Fábrica site; (iii) higher third-party purchases.

In March, Vale started up the tailings filtration plant located at the Vargem Grande Complex. In addition to reducing the dependence on dams, this allows for an improvement in the average quality of Vale's product portfolio with the use of wet processing on the site. The addition of 4 Mtpy of production capacity, as previously announced, will take place from the third quarter of 2021 along with the start-up of the Maravilhas III dam, which is in its final stage of construction and it will receive the slime from the plant.



## Operational stabilization and resumption plan

|                        | Actions in Progress   | Accomplishments in 1Q21   | Timeline for Resumption   |
|------------------------|---|---|---|
| <b>Northern System</b> | <ul style="list-style-type: none"> <li>Licensing and opening new mining fronts.</li> <li>Progressing on the construction of Gelado, Northern System 240 Mtpy and Serra Sul 120 projects.</li> </ul>   | <ul style="list-style-type: none"> <li>Serra Norte: Board approval of N3 mining front development.</li> <li>Licensing of mining fronts in Serra Norte, as planned.</li> </ul>   | <ul style="list-style-type: none"> <li>3Q21: Install mobile crushers in Serra Leste.</li> <li>2021/22: Installation of new crushers to process jaspilite ore bodies in S11D.</li> <li>1H22: Start-up of Gelado project with 10 Mtpy capacity.</li> <li>2H22: Start-up of Northern System 240 Mtpy project, increasing the System's capacity by 10 Mtpy.</li> <li>1H23: Expansion of Serra Leste to 8 Mtpy capacity<sup>3</sup>.</li> <li>2021/23: Applying for new licenses and opening new mining fronts.</li> <li>1H24: Start-up of Serra Sul 120 project.</li> <li>2024: Usina 1 shift to 100% dry processing temporarily impacting production.</li> </ul> |
| <b>Itabira</b>         | <ul style="list-style-type: none"> <li>Completion of tailings' filtration plants construction to increase wet processing capacity.</li> <li>Tailings piles developing and licensing.</li> <li>Requirements to restart Itabiruçu dam raising construction works of Itabiruçu dam.</li> </ul> | <ul style="list-style-type: none"> <li>Tailings' filtration plant construction works achieved 37% and 59% of physical progress in Cauê and Conceição, respectively.</li> <li>Removal of emergency level of Itabiruçu dam and resumption of tailings disposal in the residual area.</li> </ul> | <ul style="list-style-type: none"> <li>2021/22: Capacity restrictions in Conceição II due to area constraint for tailings disposal.</li> <li>4Q21: Restart of Itabiruçu raising construction, necessary to stabilize Conceição II capacity.</li> <li>4Q21: Start-up of Conceição I tailings filtering plant and dry stacking activities.</li> <li>1Q22: Start-up of Cauê tailings filtering plant and dry stacking activities.</li> </ul>   |
| <b>Brucutu</b>         | <ul style="list-style-type: none"> <li>Completion of Torto dam<sup>4</sup> and tailings' filtration plant construction to increase wet processing capacity.</li> <li>Assessment of Norte/Laranjeiras dam geotechnical characteristics.</li> </ul>   | <ul style="list-style-type: none"> <li>Tailings' filtration plant construction works achieved 58% of physical progress.</li> </ul>  | <ul style="list-style-type: none"> <li>4Q21: Start-up of Torto dam, increasing site's capacity to 28 Mtpy from current 11 Mtpy.</li> <li>1Q22: Start-up of tailings' filtering plant and dry stacking activities.</li> </ul>  |
| <b>Timbopeba</b>       | <ul style="list-style-type: none"> <li>Commissioning of 3 additional beneficiation lines (of a total of 6 line), increasing site's capacity by 7 Mtpy.</li> </ul>   | <ul style="list-style-type: none"> <li>Conclusion of works necessary to resume site's capacity, starting the operations of 6 lines (currently in ramp up).</li> </ul>   | <ul style="list-style-type: none"> <li>2H23: Start-up of Capanema project, adding 14 Mtpy of net capacity in the first years.</li> </ul>  |

<sup>3</sup> The expansion project expects to adapt and repower the existing plant, allowing a capacity upgrade to 8 Mtpy, previously expected to reach 10 Mtpy, limited by the road route required to connect site with EFC railway.

<sup>4</sup> A positive declaration of stability condition (DCE) and an operating license for Torto dam operations are necessary, relying on the external auditor and authorities' assessment.

|                              | Actions in Progress  | Accomplishments in 1Q21   | Timeline for Resumption  |
|------------------------------|--|---|--|
| <b>Fábrica</b>               | <ul style="list-style-type: none"> <li>Conclusion of beneficiation plant vibration tests (to certify the absence of impacts on the site's structures), depending on external assessment/ approval.</li> </ul>  | <ul style="list-style-type: none"> <li>Vibration tests at beneficiation plant and pelletizing facilities in progress.</li> </ul>  | <ul style="list-style-type: none"> <li>2Q21: Resumption of beneficiation plant activities, upgrading capacity to 6 Mtpy (+4Mtpy), after vibration tests conclusion.</li> <li>2022: Resumption of Fábrica pellet plant, depending on market conditions.</li> </ul>  |
| <b>Vargem Grande Complex</b> | <ul style="list-style-type: none"> <li>Completion of Maravilhas III dam to increase wet processing capacity.</li> <li>Studies to debottleneck logistics capacity, limited by the impossibility to operate the long-distance conveyor belt in the segment close to the Vargem Grande dam and the use of autonomous train in Forquilhas and Grupo dams self-rescue zones (ZAS).</li> </ul> | <ul style="list-style-type: none"> <li>Restart of Vargem Grande pellet plant.</li> <li>Start-up of Vargem Grande tailing filtration plant.</li> <li>Approval received to start VGR's conveyor belt vibration tests, which are under development to start.</li> <li>Approval received to resume blasting activities at Sapecado mine.</li> </ul> | <ul style="list-style-type: none"> <li>2Q21: Unlock site's conveyor belt capacity.</li> <li>3Q21: Start-up of Maravilhas III dam.</li> <li>2022: Start-up of 1.5 Mtpy capacity New Steel plant.</li> <li>2021/27: Increase railway capacity, advancing in studies to elevate automated train productivity and decreasing emergency levels of Forquilhas and Grupo dams<sup>5</sup>.</li> </ul> |

<sup>5</sup> Decrease of emergency levels also depends on external evaluation by ANM and external auditors.

# Pellets

| 000' metric tons           | 1Q21         | 4Q20         | 1Q20         | % change      |               |
|----------------------------|--------------|--------------|--------------|---------------|---------------|
|                            |              |              |              | 1Q21/4Q20     | 1Q21/1Q20     |
| <b>Northern System</b>     | <b>961</b>   | <b>1,195</b> | <b>883</b>   | <b>-19.6%</b> | <b>8.8%</b>   |
| São Luis                   | 961          | 1,195        | 883          | -19.6%        | 8.8%          |
| <b>Southeastern System</b> | <b>3,609</b> | <b>4,174</b> | <b>5,132</b> | <b>-13.5%</b> | <b>-29.7%</b> |
| Tubarão 1 and 2            | -            | -            | -            | -             | -             |
| Itabasco (Tubarão 3)       | 583          | 804          | 888          | -27.5%        | -34.3%        |
| Hispanobras (Tubarão 4)    | 169          | 738          | 629          | -77.1%        | -73.1%        |
| Nibrasco (Tubarão 5 and 6) | 699          | 359          | 1,225        | 94.7%         | -42.9%        |
| Kobrasco (Tubarão 7)       | 607          | 631          | 810          | -3.8%         | -25.1%        |
| Tubarão 8                  | 1,551        | 1,642        | 1,580        | -5.5%         | -1.8%         |
| <b>Southern System</b>     | <b>656</b>   | <b>-</b>     | <b>-</b>     | <b>n.m.</b>   | <b>n.m.</b>   |
| Fábrica                    | -            | -            | -            | -             | -             |
| Vargem Grande              | 656          | -            | -            | n.m.          | n.m.          |
| <b>Oman</b>                | <b>1,061</b> | <b>1,748</b> | <b>912</b>   | <b>-39.3%</b> | <b>16.3%</b>  |
| <b>PELLETS PRODUCTION</b>  | <b>6,287</b> | <b>7,117</b> | <b>6,926</b> | <b>-11.7%</b> | <b>-9.2%</b>  |
| <b>PELLETS SALES</b>       | <b>6,271</b> | <b>8,486</b> | <b>7,311</b> | <b>-26.1%</b> | <b>-14.2%</b> |

## Production overview

Pellet production declined from 1Q20, mainly due to lower pellet feed availability from Itabira and Brucutu, resulting in the voluntary stoppage of Tubarão 4 plant in order to optimize costs. This was partially compensated by the resumption of Vargem Grande pellet plant. Despite a weaker quarter, Vale expects to gradually increase production in 2021 with more pellet feed from Timbopeba and Vargem Grande.

In January 2021, Vale resumed production at Vargem Grande pellet plant, halted since February 2019. With a nominal capacity of 7 Mtpy, the plant is expected to produce approximately 4-5 Mtpy in 2021.

## Manganese ore and ferroalloys

| 000' metric tons                | 1Q21       | 4Q20       | 1Q20       | % change      |               |
|---------------------------------|------------|------------|------------|---------------|---------------|
|                                 |            |            |            | 1Q21/4Q20     | 1Q21/1Q20     |
| <b>MANGANESE ORE PRODUCTION</b> | <b>91</b>  | <b>119</b> | <b>363</b> | <b>-23.5%</b> | <b>-74.9%</b> |
| Azul                            | -          | -          | 230        | -             | -100.0%       |
| Urucum                          | 63         | 93         | 109        | -32.2%        | -42.0%        |
| Morro da Mina                   | 28         | 26         | 23         | 8.0%          | 21.6%         |
| <b>MANGANESE ORE SALES</b>      | <b>258</b> | <b>461</b> | <b>219</b> | <b>-44.0%</b> | <b>17.8%</b>  |
| <b>FERROALLOYS PRODUCTION</b>   | <b>16</b>  | <b>15</b>  | <b>28</b>  | <b>6.7%</b>   | <b>-42.9%</b> |
| <b>FERROALLOYS SALES</b>        | <b>14</b>  | <b>15</b>  | <b>27</b>  | <b>-6.7%</b>  | <b>-48.1%</b> |

### Production and sales overview

Manganese ore production totaled 91 kt in 1Q21, 23% lower than in 4Q20, mainly due to the rainy season and maintenance works at the Urucum Mine, which were partially offset by the performance improvement at the beneficiation plant in Morro da Mina. Azul mine operations remain suspended. The weather conditions also affected navigation in the Paraguay River, impacting the manganese ore sales quarter-on-quarter. Ferroalloys production and sales volumes remained in line with the previous quarter.

# Nickel

## Finished production by source

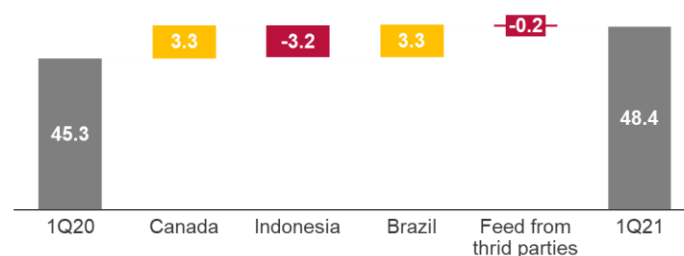
| 000' metric tons                | 1Q21        | 4Q20        | 1Q20        | % change      |              |
|---------------------------------|-------------|-------------|-------------|---------------|--------------|
|                                 |             |             |             | 1Q21/4Q20     | 1Q21/1Q20    |
| Canada                          | 25.2        | 22.2        | 21.9        | 13.5%         | 15.1%        |
| Sudbury                         | 12.0        | 11.2        | 12.0        | 7.1%          | 0.0%         |
| Thompson                        | 2.8         | 2.1         | 2.7         | 33.3%         | 3.7%         |
| Voisey's Bay                    | 10.4        | 8.9         | 7.3         | 16.9%         | 42.5%        |
| Indonesia                       | 15.4        | 20.2        | 18.6        | -23.8%        | -17.2%       |
| New Caledonia                   | 0.04        | 5.1         | 7.9         | -99.2%        | -99.5%       |
| Brazil                          | 6.3         | 6.6         | 3.0         | -4.5%         | 110.0%       |
| Feed from third parties         | 1.6         | 1.8         | 1.8         | -11.1%        | -11.1%       |
| <b>NICKEL PRODUCTION</b>        | <b>48.5</b> | <b>55.9</b> | <b>53.2</b> | <b>-13.2%</b> | <b>-8.8%</b> |
| <b>NICKEL PRODUCTION EX-VNC</b> | <b>48.4</b> | <b>50.8</b> | <b>45.3</b> | <b>-4.7%</b>  | <b>6.8%</b>  |
| <b>NICKEL SALES<sup>2</sup></b> | <b>48.0</b> | <b>66.1</b> | <b>44.2</b> | <b>-27.4%</b> | <b>8.6%</b>  |

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

<sup>2</sup> Includes VNC sales volumes.

## Production Variation – Ex-VNC (1Q21 x 1Q20)

kt



## Canadian operations

Finished production from Sudbury ore source reached 12.0 kt in 1Q21, in line with 1Q20 and 7.1% higher than 4Q20 mainly due to strong performance of Copper Cliff and Clydach refineries in 1Q21. In addition, Sudbury ore source Nickel consumption at Clydach refinery increased in the period.

Finished production from Voisey's Bay ore source reached 10.4 kt in 1Q21, 42.5% higher than 1Q20 and 16.9% higher than 4Q20. During the month of March, Long Harbour set a monthly finished Nickel production record of 4 kt. This is 9% higher than the previous record set in December 2018.



## **Indonesian operation (PTVI)**

Finished production from PTVI source reached 15.4 kt in 1Q21, 17.2% lower than 1Q20 and 23.6% lower than 4Q20, mainly as a result of a scheduled maintenance shutdown at the Matsusaka refinery.

Nickel in matte production at PTVI site reached 15.2 kt in 1Q21, 13.6% lower than 1Q20 and 7.3% lower than 4Q20, mainly due to unscheduled furnace repairs during the quarter.

## **New Caledonia operation (VNC)**

VNC plant operations have been stopped since December 10th, 2020. As a result, production of finished nickel from VNC was limited to a small batch of 0.04 kt to complete a vessel shipment in 1Q21.

On March 31st, 2021 Vale concluded the sale of VNC to the Prony Resources New Caledonia Consortium. As a result, Vale will discontinue coverage of VNC operations in production and financial reports from 2Q21 onwards.

As part of the agreement, Vale will continue to have the right to a long-term nickel supply agreement for a proportion of the operation's production, allowing it to continue addressing the growing demand for nickel.

## **Brazilian operation (Onça Puma)**

Production at Onça Puma reached 6.3 kt in 1Q21, 110.0% higher than 1Q20 and 4.5% lower than 4Q20, a solid performance from Onça Puma refinery during the quarter. In 1Q20 Onça Puma operations were impacted by 18-day unscheduled maintenance activities.

## **Feed from third parties**

Finished nickel produced from third-party feed reached 1.6 kt in 1Q21, relatively in line with 1Q20 and 4Q20. The purchase of third-party feed is a regular process to sustain a normal finished nickel production flow within the business.

## **Sales**

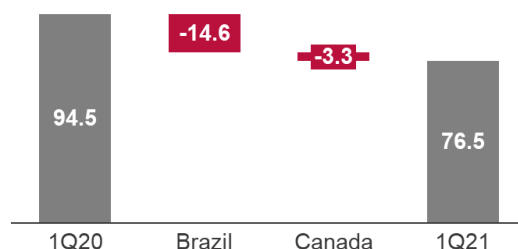
Nickel sales volumes ex-VNC were 48.0 kt in 1Q21, 8.6% higher than 1Q20, mostly as a result of higher production into a recovering market.

# Copper

## Finished production by source

| 000' metric tons         | 1Q21 | 4Q20 | 1Q20 | % change  |           |
|--------------------------|------|------|------|-----------|-----------|
|                          |      |      |      | 1Q21/4Q20 | 1Q21/1Q20 |
| <b>BRAZIL</b>            | 50.0 | 67.6 | 64.6 | -26.0%    | -22.6%    |
| Salobo                   | 34.1 | 43.9 | 42.2 | -22.3%    | -19.2%    |
| Sossego                  | 15.9 | 23.7 | 22.4 | -32.9%    | -29.0%    |
| <b>CANADA</b>            | 26.6 | 25.9 | 29.9 | 2.7%      | -11.0%    |
| Sudbury                  | 19.4 | 18.5 | 23.1 | 4.9%      | -16.0%    |
| Thompson                 | 0.2  | 0.1  | 0.2  | 100.0%    | -         |
| Voisey's Bay             | 6.1  | 6.2  | 5.3  | -1.6%     | 15.1%     |
| Feed from third parties  | 1.1  | 1.2  | 1.3  | -8.3%     | -15.4%    |
| <b>COPPER PRODUCTION</b> | 76.5 | 93.5 | 94.5 | -18.2%    | -19.0%    |
| <b>COPPER SALES</b>      | 71.2 | 93.0 | 89.2 | -23.4%    | -20.2%    |
| Copper Sales Brazil      | 45.4 | 66.7 | 58.5 | -31.9%    | -22.4%    |
| Copper Sales Canada      | 25.8 | 26.3 | 30.7 | -1.9%     | -16.0%    |

## Production Variation (1Q21 x 1Q20) kt



## Production and sales overview

In 1Q21, copper production in Sossego totalled 15.9 kt, 29.0% lower than 1Q20 and 32.9% lower than 4Q20, mainly due to SAG mill<sup>6</sup> electrical issues and longer-than-expected preventive maintenance of the plant. As COVID-19 has limited the ability to mobilize contractors, a major SAG Mill maintenance, required as part of its life cycle and originally scheduled for April, was deferred to 3Q21. Consequently, this will have an impact in operations productivity and reliability in the 2Q21 and 3Q21, with improvements in performance expected from 4Q21 onwards.

In 1Q21, copper production in Salobo totalled 34.1 kt, 19.2% lower than 1Q20 and 22.3% lower than 4Q20. Production was mainly impacted by changes in maintenance routines at Salobo which restricted mine movement, with further impacts on feed grade for the quarter.

<sup>6</sup> Semi-autogenous grinding mill

In 1Q21, copper production in Canada reached 26.6 kt, 11.0% lower than 1Q20 and 2.7% higher than 4Q20. Production was weaker than 1Q20 due to lower ore feed availability and lower planned feed grade.

Sales volumes<sup>7</sup> of copper were 71.2 kt in 1Q21, 22.4% lower than 1Q20 mostly as a result of lower production and an unplanned shipping reschedule, which has deferred sales to the next quarter.

---

<sup>7</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.

## Cobalt and other by-products

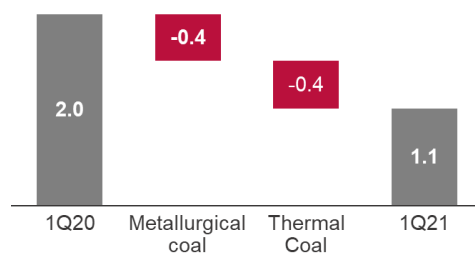
### Finished production by source

| Metric tons                              | 1Q21       | 4Q20         | 1Q20         | % change      |               |
|--|------------|--------------|--------------|---------------|---------------|
|  |            |              |              | 1Q21/4Q20     | 1Q21/1Q20     |
| <b>COBALT</b>                            | <b>714</b> | <b>1,042</b> | <b>1,202</b> | <b>-31.5%</b> | <b>-40.6%</b> |
| <b>COBALT EX-VNC</b>                     | <b>710</b> | <b>626</b>   | <b>562</b>   | <b>-13.4%</b> | <b>26.3%</b>  |
| Sudbury                                  | 96         | 96           | 141          | -             | -31.9%        |
| Thompson                                 | 14         | 15           | 22           | -6.7%         | -36.4%        |
| Voisey's Bay                             | 476        | 388          | 307          | 22.7%         | 55.0%         |
| VNC                                      | 3          | 416          | 640          | -99.3%        | -99.5%        |
| Others                                   | 124        | 127          | 92           | -2.4%         | 34.8%         |
| <b>PLATINUM (000' oz troy)</b>           | <b>30</b>  | <b>31</b>    | <b>48</b>    | <b>-3.2%</b>  | <b>-37.5%</b> |
| <b>PALLADIUM (000' oz troy)</b>          | <b>39</b>  | <b>38</b>    | <b>59</b>    | <b>2.6%</b>   | <b>-33.9%</b> |
| <b>GOLD AS BY-PRODUCT (000' oz troy)</b> | <b>86</b>  | <b>120</b>   | <b>119</b>   | <b>-28.3%</b> | <b>-27.7%</b> |

# Coal

| 000' metric tons       | 1Q21         | 4Q20         | 1Q20         | % change      |               |
|------------------------|--------------|--------------|--------------|---------------|---------------|
|                        |              |              |              | 1Q21/4Q20     | 1Q21/1Q20     |
| <b>COAL PRODUCTION</b> | <b>1,090</b> | <b>1,230</b> | <b>1,963</b> | <b>-11.4%</b> | <b>-44.5%</b> |
| Metallurgical Coal     | 558          | 658          | 983          | -15.3%        | -43.2%        |
| Thermal Coal           | 532          | 572          | 980          | -6.9%         | -45.7%        |
| <b>COAL SALES</b>      | <b>1,015</b> | <b>1,535</b> | <b>1,566</b> | <b>-33.9%</b> | <b>-35.2%</b> |
| Metallurgical Coal     | 474          | 884          | 706          | -46.4%        | -32.9%        |
| Thermal Coal           | 541          | 651          | 860          | -16.8%        | -37.0%        |

## Production Variation (1Q21 x 1Q20) Mt



## Production and sales overview

Coal production totalled 1.1 Mt in 1Q21, both a quarter-on-quarter and year-over-year decrease due to the production slowdown following the effects of the COVID-19 pandemic on the seaborne coal demand and the maintenance plan revamp.

Vale resumed its maintenance plan revamp in November 2020 and concluded it in April 2021. The production ramp-up period in Plant 1 was also concluded at the beginning of April and in Plant 2 is expected to be concluded in May, allowing a production run-rate in the second semester of 15 Mtpy.