



# Vale production in 1Q17



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## Production highlights

Rio de Janeiro, April 20, 2017 – Vale S.A. (Vale) reached a record for a first quarter of 86.2 Mt of iron ore production<sup>1</sup> in the first quarter of 2017 (1Q17), 11.2% higher than in 1Q16 mainly due to the ramp-up of the S11D and Itabirito projects in the Southeastern System.

The Northern System, which comprises Carajás, Serra Leste and S11D, achieved a record for a first quarter of 36.0 Mt in 1Q17, 11.1% higher than in 1Q16 as a result of the S11D ramp-up, which is advancing according to plan.

Blended volumes in Asia totaled 12.4 Mt in 1Q17, 10.3 Mt and 6.5 Mt higher than in 1Q15 and 1Q16, respectively, as a result of the ongoing strategy to bring more flexibility to the integrated supply chain by increasing offshore blending capacity, enabling rapid responses to changes in market conditions. The ongoing offshore blending activities require the build-up of offshore inventories and, as a result, temporarily leads to lower sales volumes when compared to shipment volumes from Brazil.

Nickel production reached 71.4 kt in 1Q17, 14.0% and 2.9% lower than in 4Q16 and 1Q16, respectively, mainly due planned maintenance shutdowns at our operations in Indonesia and Japan, and operational challenges at our Thompson operations.

Production of finished nickel products from VNC reached the record of 10,200 t in 1Q17, 14.7% higher than 4Q16 and 6.0% higher than 1Q16.

Copper production was 109,000 t in 1Q17, 11.0% and 2.6% lower than in 4Q16 and 1Q16, respectively, mainly due to the lower production from Sudbury. Production of copper in concentrate at Salobo in 1Q17 totaled a record 42,600 t for a first quarter, 3.6% higher than in 1Q16.

Coal production in Mozambique reached a quarterly record of 2.4 Mt in 1Q17, 170.4% and 53.7% higher than in 1Q16 and 4Q16, respectively, mainly as a result of the continued and strong ramp-up of the second Coal Handling and Preparation Plant (CHPP2). CHPP2 production grew by 86% in 1Q17 compared to 4Q16.

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<sup>1</sup> Including iron ore acquired from third parties.

## Production summary

000' metric tons	1Q17	4Q16	1Q16	% change	
				1Q17/4Q16	1Q17/1Q16
Iron ore <sup>1</sup>	86,198	92,386	77,544	-6.7%	11.2%
Pellets	12,422	12,620	11,478	-1.6%	8.2%
Manganese Ore	544	580	596	-6.1%	-8.7%
Coal (Mozambique)	2,434	1,585	900	53.7%	170.4%
Nickel	71.4	83.0	73.5	-14.0%	-2.9%
Copper <sup>2</sup>	109.0	122.5	111.9	-11.0%	-2.6%
Cobalt	1.259	1.600	1.400	-21.3%	-10.1%
Gold (000' oz troy)	105	137	118	-23.4%	-11.0%

<sup>1</sup> Including third party purchases.

<sup>2</sup> Including Lubambe's attributable production.



## Iron Ore

000' metric tons	1Q17	4Q16	1Q16	% change	
				1Q17/4Q16	1Q17/1Q16
<b>Northern System</b>	35,974	40,594	32,385	-11.4%	11.1%
<b>Southeastern System</b>	28,165	27,785	22,544	1.4%	24.9%
Itabira	8,821	8,573	7,512	2.9%	17.4%
Minas Centrais	10,337	10,516	9,987	-1.7%	3.5%
Mariana	9,007	8,696	5,054	3.6%	78.5%
<b>Southern System</b>	21,504	23,430	22,033	-8.2%	-2.4%
Paraopeba	6,104	6,789	5,630	-10.1%	8.4%
Vargem Grande	6,466	6,716	7,323	-3.7%	-11.7%
Minas Itabirito	8,934	9,925	9,080	-10.0%	-1.6%
<b>Midwestern System</b>	555	577	582	-3.8%	-4.6%
Corumbá	-	-	329	n.m.	n.m.
Urucum	555	577	253	-3.8%	119.1%
<b>IRON ORE<sup>1</sup></b>	<b>86,198</b>	<b>92,386</b>	<b>77,544</b>	<b>-6.7%</b>	<b>11.2%</b>

<sup>1</sup> Including third party purchases.

### Production summary

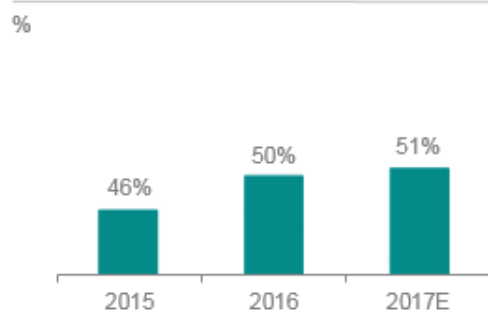
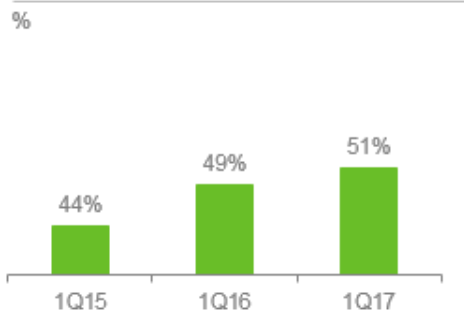
Vale's iron ore production reached a record for a first quarter of 86.2 Mt in 1Q17, 8.6 Mt higher than in 1Q16 mainly due to the ramp-up of the S11D and Itabirito projects in the Southeastern System. Production was 6.2 Mt lower than in 4Q16 due to usual weather-related seasonality in the first quarter of the year, which affected mainly the performance of the Northern System.

The production guidance for 2017 remains within the 360-380 Mt range as previously announced and from the end of 2018 onwards Vale will most likely achieve the long-term base case target of 400 Mt, as per Vale's presentation at the December 2016 "Vale Day".

Vale's Global Recovery (GR)<sup>2</sup> increased from 44% in 1Q15 to 49% in 1Q16 and to 51% in 1Q17, as a result of the continuing increase in operational productivity over the past few years.

<sup>2</sup> Measured by output of final production divided by the total tonnages extracted (ROM and waste).



**Annual global recovery rate****Quarterly global recovery rate**

Iron ore and pellets shipments from Brazil and Argentina totaled 77.7 Mt in 1Q17, 12.0 Mt and 6.1 Mt higher than in 1Q15 and 1Q16, respectively, mainly due to higher production in the Northern and Southeastern Systems.

Blended volumes in Asia totaled 12.4 Mt in 1Q17, 10.3 Mt and 6.5 Mt higher than in 1Q15 and 1Q16, respectively, as a result of the ongoing strategy to bring more flexibility to the integrated supply chain by increasing offshore blending capacity, enabling rapid responses to changes in market conditions.

The share of offshore inventories over total inventories increased from 15% in 2015 and 2016 to 23% in 1Q17, reflecting the ongoing strategy to shift inventories downstream along the supply chain. By the end of 2017, we expect to have 30% of our total inventories offshore. The ongoing offshore blending activities require the build-up of offshore inventories and, as a result, temporarily leads to lower sales volumes when compared to shipment volumes from Brazil.

The average Fe content was 63.9% in 1Q17, remaining in line with the average grade achieved in 4Q16.

## Northern System

The Northern System, which comprises Carajás, Serra Leste and S11D, achieved a record for a first quarter of 36.0 Mt in 1Q17, 11.1% higher than in 1Q16 as a result of the S11D ramp-up, which is advancing according to plan. Production was 11.4% lower than in 4Q16 due to the usual weather-related seasonality in 1Q17.

## Southeastern System

The Southeastern System, which encompasses the Itabira, Minas Centrais and Mariana mining hubs, produced 28.2 Mt in 1Q17, 0.4 Mt higher than in 4Q16 due to the better operational performance of the dry beneficiation process in Alegria and the higher production in Conceição Itabiritos II, as its ramp-up was concluded in 1Q17. Production in 1Q17 was 5.6 Mt higher than

in 1Q16 due to the start-up of a crushing facility at the Fazendão mine and the other above-mentioned positive events from 4Q16 vs. 1Q17.

### **Southern System**

The Southern System, which encompasses the Paraopeba, Vargem Grande and Minas Itabirito mining hubs, produced 21.5 Mt in 1Q17, 8.2% lower than in 4Q16 mainly due to stoppages in the Minas Itabirito complex to allow for the shift in beneficiation from wet to dry processing. Production was 2.4% lower than in 1Q16 due to quality of ROM being mined at current mine faces in the Vargem Grande mining hub.

### **Midwestern System**

The Midwestern System, which encompasses the Urucum and the Corumbá mines, produced 0.6 Mt in 1Q17, remaining in line with 4Q16 and 1Q16, as a result of Vale's continuing strategy to optimize margins.



## Pellets

000' metric tons	1Q17	4Q16	1Q16	% change	
				1Q17/4Q16	1Q17/1Q16
<b>Southeastern System</b>	<b>7,514</b>	<b>7,616</b>	<b>7,221</b>	<b>-1.3%</b>	<b>4.1%</b>
Itabasco (Tubarão 3)	1,130	1,133	1,100	-0.2%	2.8%
Hispanobras (Tubarão 4)	1,128	1,104	1,128	2.2%	0.0%
Nibrasco (Tubarão 5 and 6)	2,401	2,378	2,159	1.0%	11.2%
Kobrasco (Tubarão 7)	1,171	1,150	1,088	1.8%	7.6%
Tubarão 8	1,683	1,851	1,746	-9.1%	-3.6%
<b>Southern System</b>	<b>2,545</b>	<b>2,551</b>	<b>2,330</b>	<b>-0.2%</b>	<b>9.2%</b>
Fábrica	0,919	0,981	0,861	-6.4%	6.7%
Vargem Grande	1,626	1,570	1,469	3.6%	10.7%
<b>Oman</b>	<b>2,364</b>	<b>2,453</b>	<b>1,927</b>	<b>-3.7%</b>	<b>22.6%</b>
<b>TOTAL PELLETS</b>	<b>12,422</b>	<b>12,620</b>	<b>11,478</b>	<b>-1.6%</b>	<b>8.2%</b>

### Production overview

Vale's pellet production totaled 12.4 Mt in 1Q17, 1.6% lower than in 4Q16 due to scheduled maintenance stoppages in Tubarão 8 and Oman, and 4.1% higher than in 1Q16 mainly as a result of productivity gains in both systems in Brazil, and the 30-day maintenance stoppage in the Oman plant in January of 2016.

Vale is executing its project to re-start the São Luis pellet plant with its start-up envisioned for the first half of 2018 after the renewal of its operational license, the revamp of the plant and the upgrade of its automation system.

### Southeastern system

The Tubarão pellet plants – Tubarão 3, 4, 5, 6, 7 and 8 – reached a production of 7.5 Mt in 1Q17, in line with 4Q16, and 4.1% higher than in 1Q16 mainly due to the better operational performance in plants 3 to 7.

### Southern system

The Fábrica pellet plant achieved a production level of 0.9 Mt in 1Q17, in line with 4Q16 and 1Q16.



The Vargem Grande pellet plant reached 1.6 Mt of production in 1Q17, in line with 4Q16, and 10.7% higher than in 1Q16, as a result of higher availability of pellet feed and better operational performance at the plant.

### **Oman operations**

The Oman pellet plant reached 2.4 Mt in 1Q17, 3.7% lower than in 4Q16 due to 10-day scheduled maintenance stoppages in the plant in 1Q17 and 22.6% higher than in 1Q16 due to higher productivity and the 30-day maintenance stoppage that occurred in January 2016.



## Manganese ore and ferroalloys

000' metric tons	1Q17	4Q16	1Q16	% change	
				1Q17/4Q16	1Q17/1Q16
<b>MANGANESE ORE</b>	<b>544</b>	<b>580</b>	<b>596</b>	<b>-6.2%</b>	<b>-8.7%</b>
Azul	367	391	434	-6.1%	-15.4%
Urucum	163	167	162	-2.4%	1.0%
Morro da Mina	14	22	-	-36.6%	n.m.
<b>FERROALLOYS (Brazil)</b>	<b>36</b>	<b>35</b>	<b>25</b>	<b>2.8%</b>	<b>44.0%</b>

### Production overview

Manganese ore production totaled 544,000 t in 1Q17, 6.2% and 8.7% lower than in 4Q16 and 1Q16, respectively.

Ferroalloy production reached 36,000 t in 1Q17, 2.8% and 44.0% higher than in 4Q16 and 1Q16, respectively.

### Manganese ore production

Production at the Azul manganese mine totaled 367,000 t in 1Q17, 6.1% and 15.4% lower than in 4Q16 and 1Q16, respectively, mainly due to the lower availability of high grade ore.

Production at the Urucum mine totaled 163,000 t in 1Q17, in line with 4Q16 and 1Q16.

Production at the Morro da Mina mine totaled 14,000 t in 1Q17, 36.6% lower than 4Q16 due to a scheduled stoppage in the mine, which began at the end of February and is scheduled to go on until May. The purpose of the stoppage is to adequate the mine to increase the manganese grade and to clean the bottom of the pit.

### Ferroalloy production

Ferroalloy production in 1Q17 totaled 36,000 t, 44.0% higher than in 1Q16, mainly due to the resumption of the operations at the Barbacena unit in February 2016. Production was composed by 15,000 t of ferrosilicon manganese alloys (FeSiMn), 15,000 t of high-carbon manganese alloys (FeMnHC) and 6,000 t of medium-carbon manganese alloys (FeMnMC).



## Nickel

### Finished production by source

000' metric tons	1Q17	4Q16	1Q16	% change	
				1Q17/4Q16	1Q17/1Q16
Canada	36.1	43.4	36.6	-16.8%	-1.4%
Sudbury	17.9	19.9	19.5	-10.1%	-8.2%
Thompson	4.8	7.2	6.2	-33.3%	-22.6%
Voisey's Bay	13.5	16.3	10.9	-17.2%	23.9%
Indonesia	16.3	21.8	17.8	-25.2%	-8.4%
New Caledonia <sup>1</sup>	10.2	8.9	9.7	14.6%	5.2%
Brazil	6.1	5.6	5.6	8.9%	8.9%
Feed from third parties <sup>2</sup>	2.7	3.3	3.9	-18.2%	-30.8%
<b>TOTAL NICKEL</b>	<b>71.4</b>	<b>83.0</b>	<b>73.5</b>	<b>-14.0%</b>	<b>-2.9%</b>

<sup>1</sup> Production at VNC reached 8,700 t in 1Q17, while production of finished nickel from VNC totaled 10,200 t in 1Q17; the differences stem from the required processing time into finished nickel.

<sup>2</sup> External feed purchased from third parties and processed into finished nickel in our Canadian and Asian operations.

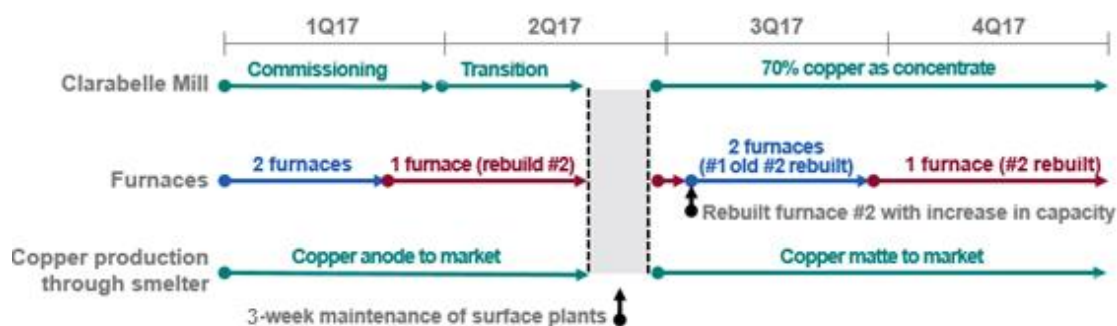
### Production overview

Production of nickel reached 71,400 t in 1Q17, 14.0% lower than in 4Q16 and 2.9% lower than in 1Q16, mainly due to planned maintenance shutdowns in Indonesia and Japan and operational challenges at our Thompson operations.

### Canadian operations

Production from the Sudbury mines reached 17,900 t in 1Q17, 10.1% lower than in 4Q16 and 8.2% lower than in 1Q16. Sudbury source production was adversely impacted in 1Q17 mainly due to inventory drawdown during the 4Q16 and 1Q16 periods. Sudbury took furnace #2 off-line mid-March for a three-month long rebuild and expansion in its' capacity as this will be the furnace in operation when Sudbury officially transitions to a single furnace in 4Q17. In 2Q17 Sudbury will have its three-week long surface plant wide scheduled maintenance shutdown, which occurs every 18 months.

## Timeline of the transition to a single furnace operation in Sudbury



In 1Q17, the Clydach refinery continued to consume feed from the Sudbury smelter above normal levels, contributing to the overall performance of the North Atlantic operations.

Production from the Thompson mines reached 4,800 t in 1Q17, 34.3% lower than in 4Q16 and 23.6% lower than in 1Q16, output in 1Q17 was impacted by: (i) the planned 1Q17 transition to a single furnace operation; and (ii), certain operational issues, including deleterious elements in the smelter feed and a hot metal leak in the smelter that resulted in approximately ten days of production loss. The operational issues encountered were unrelated to the transition to the single furnace.

Production from the Voisey's Bay source reached 13,500 t in 1Q17, 17.0% lower than in 4Q16 and 23.4% higher than in 1Q16. Production decreased relative to 4Q16 mainly due to reduced consumption of Voisey's Bay source concentrate in Thompson due to the single furnace operation and certain operational issues. The production increase over 1Q16 was due to the higher consumption rates at Sudbury and the continued successful ramp-up of the Long Harbour refinery.

Production at the Long Harbour processing plant reached 4,100 t in 1Q17, 21.2% lower than in 4Q16 due to the start-up of additional processing circuits in January after a two-week shutdown to complete the necessary tie-ins. These new circuits successfully started up and both cobalt and copper metal were produced for the first time. A monthly production record for nickel was achieved in March. During 1Q17, the operating throughput increased to almost 65% of its nominal capacity.

## Indonesian operation (PTVI)

PTVI nickel in matte production reached 17,200 t in 1Q17, 12% lower than in 4Q16 and 2.0% higher than in 1Q16. Compared to 4Q16, the weaker nickel in matte production was due to the adverse impact of a planned maintenance works in its kilns and furnaces.

Production of finished nickel from PTVI reached 16,300 t in 1Q17, 25.4% lower than in 4Q16 and 8.6% lower than in 1Q16. Production in 1Q17 of finished nickel was negatively impacted by the scheduled annual maintenance shutdown at the Matsusaka refinery in Japan.

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

Production of finished products from VNC reached a record of 10,200 t in 1Q17, 14.7% higher than in 4Q16 and 6.0% higher than in 1Q16.

Production of NiO and NHC at VNC was 8,700 t in 1Q17. Site production was 6.5% lower than in 4Q16 and 4.0% lower than in 1Q16. Production was negatively impacted by decreased autoclave availability and unscheduled electrical power outages. NiO represented 81% and NHC 19% of VNC's 1Q17 site production.

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

Production from the Onça Puma operation reached 6,100 t in 1Q17, 8.9% and 10.6% higher than in 4Q16 and in 1Q16, respectively. Onça Puma's strong production rates were achieved through improved asset utilization and productivity.



# Copper

## Finished production by source

000' metric tons	1Q17	4Q16	1Q16	% change	
				1Q17/4Q16	1Q17/1Q16
<b>BRAZIL</b>	<b>67.5</b>	<b>72.3</b>	<b>63.4</b>	<b>-6.6%</b>	<b>6.5%</b>
Sossego	24.9	22.5	22.3	10.7%	11.7%
Salobo	42.6	49.8	41.1	-14.5%	3.6%
<b>CANADA</b>	<b>39.9</b>	<b>48.4</b>	<b>46.5</b>	<b>-17.6%</b>	<b>-14.2%</b>
Sudbury	26.5	32.2	30.9	-17.7%	-14.2%
Thompson	0.3	0.4	0.6	-25.0%	-50.0%
Voisey's Bay	9.1	11.0	7.8	-17.3%	16.7%
Feed from third parties	4.1	4.8	7.1	-14.6%	-42.3%
<b>TOTAL EX-LUBAMBE</b>	<b>107.4</b>	<b>120.7</b>	<b>109.9</b>	<b>-11.0%</b>	<b>-2.3%</b>
Lubambe <sup>1</sup>	1.5	1.8	2.0	-16.7%	-25.0%
<b>TOTAL COPPER</b>	<b>109.0</b>	<b>122.5</b>	<b>111.9</b>	<b>-11.0%</b>	<b>-2.6%</b>

<sup>1</sup> Attributable production.

## Production overview

Copper production<sup>3</sup> reached 107,400 t in 1Q17, being 11.0% and 2.3% lower than in 4Q16 and 1Q16, respectively. The decrease was mainly due to lower production in Sudbury as a result of lower production from the copper rich mines and some unscheduled maintenance in the mines.

## Brazilian operations

Production of copper in concentrate at Sossego totaled 24,900 t in 1Q17, 10.7% and 11.7% higher than in 4Q16 and 1Q16, respectively, due to strong asset performance with high concentrator utilization and productivity along with higher feed grades in 1Q17 compared to previous quarters.

<sup>3</sup> Excluding Lubambe attributable production.



Production of copper in concentrate at Salobo reached 42,600 t in 1Q17, 14.5% lower than in 4Q16 and 3.6% higher than in 1Q16. Production was negatively impacted by conveyor belt and plant repairs in February, as well as by lower grades when compared to 4Q16.

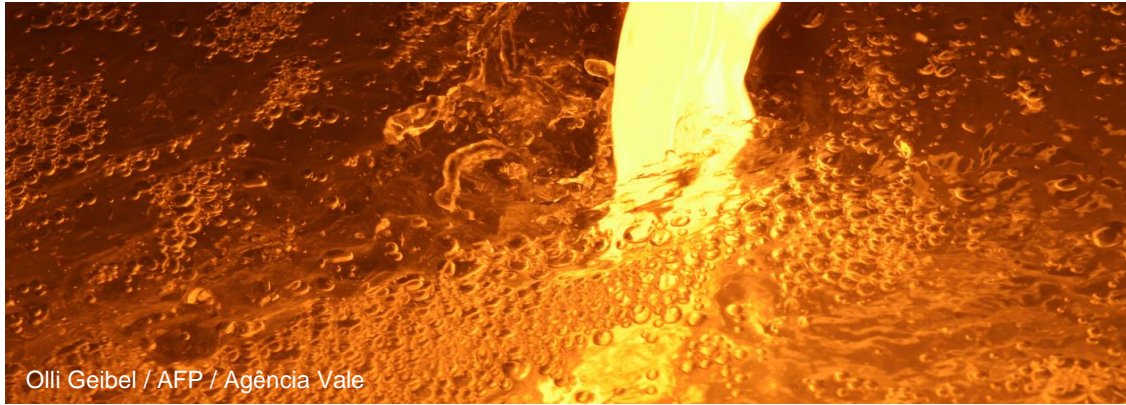
### **Canadian operations**

Production of copper from the Sudbury mines reached 26,500 t in 1Q17, 17.7% and 14.2% lower than in 4Q16 and 1Q16, respectively. During 1Q17 the copper production in Sudbury was adversely impacted as a result of lower production from the copper rich mines. .

Production of copper from Voisey's Bay reached 9,100 t in 1Q17, 17.3% lower than in 4Q16 and 16.7% higher than in 1Q16. Copper production is in line with the expected seasonal fluctuations due to the severe winter conditions and logistical constraints. Voisey's Bay continues to run at planned rates.

### **African operation (Lubambe)**

Lubambe delivered 3,800 t of copper in concentrate on a 100% basis (attributable production of 1,500 t).



Olli Geibel / AFP / Agência Vale

## Nickel and copper by-products

### Finished production by source

	1Q17	4Q16	1Q16	% change	
				1Q17/4Q16	1Q17/1Q16
<b>COBALT (metric tons)</b>	<b>1,259</b>	<b>1,600</b>	<b>1,400</b>	<b>-21.3%</b>	<b>-10.1%</b>
Sudbury	215	286	173	-24.8%	24.3%
Thompson	138	156	182	-11.5%	-24.2%
Voisey's Bay	211	320	145	-34.1%	45.5%
VNC	678	814	849	-16.7%	-20.1%
Others	17	23	50	-26.1%	-66.0%
<b>PLATINUM (000' oz troy)</b>	<b>36</b>	<b>27</b>	<b>46</b>	<b>33.3%</b>	<b>-21.7%</b>
Sudbury	36	27	46	33.3%	-21.7%
<b>PALLADIUM (000' oz troy)</b>	<b>61</b>	<b>48</b>	<b>100</b>	<b>27.1%</b>	<b>-39.0%</b>
Sudbury	61	48	100	27.1%	-39.0%
<b>SILVER BY-PRODUCT (000' oz troy)</b>	<b>403</b>	<b>621</b>	<b>516</b>	<b>-35.1%</b>	<b>-21.9%</b>
Sudbury	403	621	516	-35.1%	-21.9%
<b>GOLD BY-PRODUCT (000' oz troy)</b>	<b>105</b>	<b>137</b>	<b>118</b>	<b>-23.4%</b>	<b>-11.0%</b>

### Cobalt

Cobalt production totaled 1,259 t in 1Q17, 21.3% and 10.1% lower than in 4Q16 and 1Q16, respectively, mainly driven by lower production from New Caledonia sources.

Cobalt production from Sudbury was 215 t in 1Q17, 71 t lower than the 286 t in 4Q16 and 42 t higher than the 173 t in 1Q16. Production from Voisey's Bay was 211 t in 1Q17, 109 t lower than the 320 t in 4Q16 and 66 t higher than the 145 t in 1Q16. Overall recovery of cobalt will increase upon the commissioning of all production circuits at Long Harbour.

### Platinum and palladium

Platinum production was 36,000 oz and palladium production was 61,000 oz, 33.3% and 27.1% higher than in 4Q16, respectively.

## **Gold as a by-product of nickel and copper concentrates**

The contained volume of gold as a by-product in the nickel and copper concentrates reached 105,000 oz in 1Q17, 23.4% lower than in 4Q16 and 11.0% lower than in 1Q16.



## Coal

000' metric tons	1Q17	4Q16	1Q16	% change	
				1Q17/4Q16	1Q17/1Q16
<b>MOZAMBIQUE</b>	<b>2,434</b>	<b>1,585</b>	<b>900</b>	<b>53.7%</b>	<b>170.4%</b>
Metallurgical coal	1,632	1,006	603	62.2%	170.6%
Thermal coal	802	579	297	38.8%	170.0%
<b>AUSTRALIA</b>	<b>-</b>	<b>139</b>	<b>763</b>	<b>-</b>	<b>-</b>
Metallurgical coal	-	139	763	-	-
<b>TOTAL COAL</b>	<b>2,434</b>	<b>1,724</b>	<b>1,663</b>	<b>41.3%</b>	<b>46.4%</b>
Metallurgical coal	1,632	1,145	1,366	42.5%	19.5%
Thermal coal	802	579	297	38.8%	170.0%

### Production overview

Coal production reached a quarterly production of 2.4 Mt in 1Q17, despite the divestment of the Carborough Downs operations in November 2016. The good performance was due to a record production from the Moatize operation. Total coal production was 41.3% and 46.4% higher than in 4Q16 and 1Q16, respectively, despite a 139 kt and 763 kt production of coal from Australian mines reported in each of those quarters.

### Mozambique operations

Production at Moatize was 2.4 Mt in 1Q17, a quarterly record production, as a result of successive production records in January (0.8 Mt) and March (0.9 Mt). Production increased for both metallurgical and thermal coal, due to the continued and strong ramp-up of the second Coal Handling and Preparation Plant (CHPP2). CHPP2 production grew by 86% in 1Q17 compared to 4Q16.

Production of metallurgical coal was 1.6 Mt in 1Q17, 62.2% and 170.6% higher than in 4Q16 and 1Q16, respectively, and production of thermal coal was 802 kt, 38.8% and 170.0% higher compared to the same quarters.

In 1Q17, our logistics operations in Mozambique reached all-time records, with railed volume<sup>4</sup> achieving 2.7 Mt in 1Q17, 12.5% higher than the 2.4 Mt railed in 4Q16 and shipped volume<sup>6</sup> reaching 2.6 Mt in 1Q17, 24% higher than the 2.1 Mt shipped in 4Q16.

### **Australian operations**

Due to the divestment of the Carborough Downs operations in November 2016, no production was reported in 1Q17.

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<sup>4</sup> Includes Sena-Beira and Nacala logistics corridors.