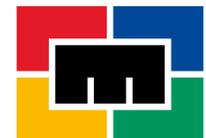




Kumba Iron Ore – Sishen Mine

SEPTEMBER 2019

# FACTS AND FIGURES 2018



**MINERALS COUNCIL**  
SOUTH AFRICA



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# FOREWORD

Mining plays a significant role in the economy of our nation. It is therefore important for industry data to be freely available so that stakeholders can understand how the sector is performing. In this document, Minerals Council Chief Economist, Henk Langenhoven, and his team, use data to showcase our industry, and provide some insight into what the numbers mean for our country and the future of our mining industry.

The availability of credible statistics, which paint an accurate picture of the South African mining sector, is crucial for the Minerals Council.



**Statistics allow us to fulfil our mandate as the voice of mining in South Africa.**

They also allow us to accurately represent the wider impact of mining on the country and help all South Africans to develop a better, more nuanced understanding of the current state of the mining industry.

The Minerals Council's economics discipline plays a key role in gathering the data necessary for us and our members to properly understand the state of the sector and to work to improve its growth.

A *Facts and Figures pocketbook 2018* was published just before the Mining Indaba 2019 and has been distributed widely – it is also currently available on the Minerals Council website. The pocketbook provides a snapshot of the industry and the impact that South Africa's mineral wealth has on our everyday lives.

This *Facts and Figures 2018* publication is both an updated version of the pocketbook and a more comprehensive statistical reference guide to the South African mining sector.

## QUICK FACTS



Contribution to GDP:

**R350.8bn**



Contribution to fixed investment:

**R91.1bn**



Total primary mineral sales:

**R498.7bn**



Royalties paid:

**R7.6bn**



Company taxes paid:

**R22.0bn**



PAYE by mining personnel:

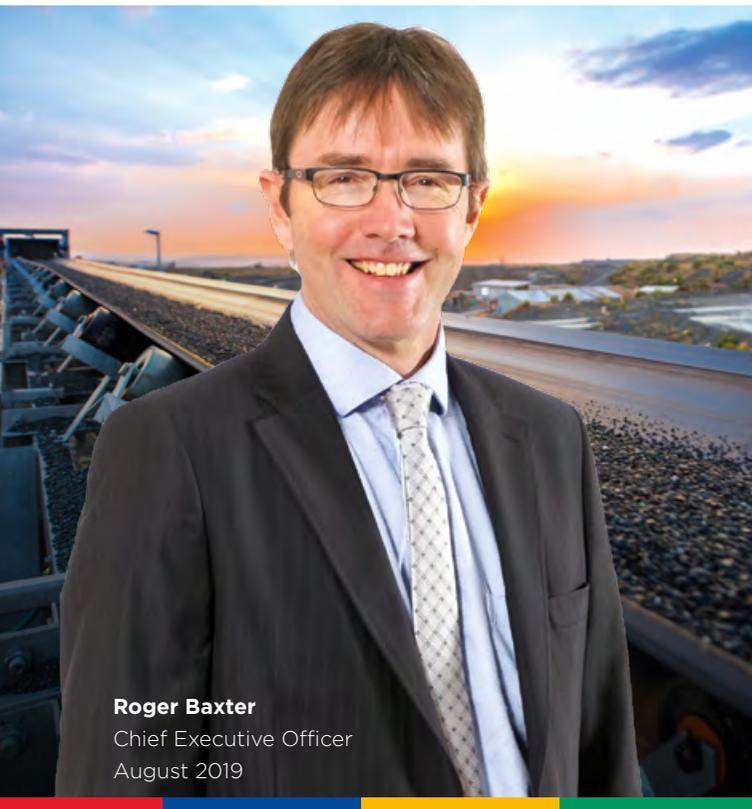
**R21.0bn**



Sibanye-Stillwater – Kroondal Mine

*In compiling the Facts and Figures publication, the Minerals Council relies on various primary data sources such as: Statistics South Africa, the Department of Mineral Resources and Energy, the South Africa Reserve Bank, the World Bank and the United States Geological Survey. Revisions to published data by these primary data sources is a common occurrence and a standard practice in the collection and publication of data. As the Minerals Council depends on the latest official data as published by the primary data source, this may by extension result in subsequent revisions to our estimates and/or published numbers.*

# MESSAGE FROM THE CEO



**Roger Baxter**  
Chief Executive Officer  
August 2019

**It gives me great pleasure to introduce you to the latest edition of the Minerals Council South Africa's Facts and Figures booklet.**

**The year 2018 was a turning point for South Africa's mining industry, and indeed for South Africa itself, with shifts in political leadership of the country and of the political head of our primary regulatory authority.**

Those changes were necessary in order to deal with the country's previous downward spiral into recessionary conditions based on mis-governance including systemic corruption. They introduced a period of new-found business confidence. This may have been one of the factors that contributed to the increase, in real terms, of the industry's fixed investment by 13.2% during 2018. However, as we know, the damage done over 10 years is not easily nor quickly repaired.

This is particularly important because the long-term nature of mining means that an increase in fixed investment needs to be sustained for a significant period before it translates into a growing industry. That point was not reached in 2018, with both output and employment declining by 1.7% and 1.6% respectively.

These aggregate numbers do conceal some significant diversity in sectoral performances. As will be seen, there are stark declines continuing in the diamond, gold, nickel and, particularly, deep-level platinum sectors, where sectoral maturity in the face of above-inflation cost increases and unimpressive commodity prices compound the situation. At the same time, sales for iron ore, manganese and chrome ore advanced well, as did the employment numbers.

The timing of the publication of this booklet means that 'real-time' developments in markets and environments that

are often volatile do sometimes overtake events. Hence, since the beginning of 2019, the industry has seen significant rises in the prices of commodities that had previously been disappointing for some time.

Surges in palladium and rhodium prices have, at the time of writing, changed the nature of the PGM basket. Gold has seen a surge, too, as have certain other minerals. We have also seen a weakening currency that accentuates rand revenues of dollar-denominated minerals. However, as we know, a weakening currency, which is itself substantially due to weakening confidence, is a double-edged sword for an industry that is dependent on imported inputs.

The more positive area relates to safety performance. The slight improvement in the number of fatalities in 2018 compared to 2017 is largely based on the considerable improvements in the final third of the year. That improved performance has extended into 2019.

*The Facts and Figures pocketbook 2019* to be published in February 2020 will doubtless reflect on these developments and everything that happens later in the year.

In the meanwhile, we trust you will find *Facts and Figures 2018* useful and informative.

**Roger Baxter**  
Chief Executive Officer  
August 2019

# MINING AT A GLANCE

The mining sector is an important component of the South African economy and has been for over 100 years. The sector contributed R350.8 billion (nominal) or 7.3% to the gross domestic product (GDP) in 2018 (2017: 7.5%). In the same year, the sector contracted by 1.7%.

Mining sector employment represented 6.2% and 4% of total private non-agricultural employment and total non-agricultural employment, respectively. The sector employed 456,438 people in 2018, representing a decline of 1.6% from the prior year, a decline consistent with performance of the sector. The most significant job losses were experienced in the gold industry (-11.2%), the diamond industry (-9.2%) and the PGM industry (-3.3%). It is noteworthy that the following industries added jobs during 2018: manganese industry (+20.2%), chrome ore industry (+11.6%) and the coal industry (+8.8%). Total employee earnings for the mining sector for the year amounted to R134.4 billion.

The fixed investment bill contributed by the mining sector amounted to R91.1 billion (nominal), which accounted for 15% of total private sector fixed investment and 10% of total fixed investment. In real terms, the sector's fixed investment increased by 13.2% during 2018.

Total mineral sales from the mining sector amounted to R498.7 billion, of which R333.2 billion (or US\$37.6 billion) was attributable to export sales. The significance of the export earnings from a single year is exemplified by the fact that they are equal to half of the country's foreign reserves (+/- US\$50 billion). This emphasises the importance of the mining sector, which accounts for 26.7% of South Africa's total export book. Export earnings allow the government

to service debt, build foreign currency reserves and import important implements into the economy, from capital goods to medicine.

In the 2017/2018 fiscal year the industry paid R7.6 billion in royalties, representing a 31% increase on the prior year. The industry paid R22.0 billion in company taxes for the same period and contributed R21.0 billion to PAYE.



## MINING CONTRIBUTION SUMMARY 2018:

|  |   |
|--|---|
| Direct contribution of mining to GDP:              | <b>R350.8 billion</b><br>(2017: R343.6 billion)           |
| Mining GDP growth rate (2017/2018):                | <b>-1.7 %</b>   |
| Mining contribution as % of total GDP:             | <b>7.3 %</b><br>(2017: 7.5%)                              |
| Direct contribution of mining to fixed investment: | <b>R91.1 billion</b><br>(2017: R77.1 billion)             |
| Total primary mineral sales:                       | <b>R498.7 billion</b><br>(2017: R474 billion)             |
| Mineral export sales:                              | <b>R333.2 billion</b><br>(2017: R328 billion)             |
| Royalties paid for 2017/2018 (fiscal):             | <b>R7.6 billion</b><br>(2016/2017 (fiscal): R5.8 billion) |
| Company taxes paid:                                | <b>R22.0 billion</b><br>(2017: 19 billion)                |
| PAYE by mining personnel:                          | <b>R21.0 billion</b><br>(2017: 19.1 billion)              |

# OVERVIEW OF THE SOUTH AFRICAN MINING INDUSTRY

## The viability of the mining sector is the result of the interaction between selling prices and input costs.

It is important to note that the sector has no control over international commodity prices, nor does it have any influence on the level of the rand currency exchange rate.

Input costs are largely determined by domestic cost pressure, with imported costs accounting for approximately 12% of total input costs. Apart from labour costs (35%), nearly 50% of intermediary input costs are influenced by administered prices and provided by state-owned enterprises. The profitability of mining companies is therefore highly vulnerable to any adverse movements of these variables (lower commodity prices, appreciating exchange rate, exorbitant tariff or administered price increases).

Commodity prices are driven by various demand and supply dynamics. These include commodity-specific supply disruptions, rising US interest rates, an appreciation of the US dollar, growing trade tensions between major economies, and financial market pressures in some emerging market and developing economies (Source: World Bank, 2018). Adding the exchange rate into the equation also influences the realised price for South African mining companies. In 2018, the exchange rate remained moderately flat when compared to 2017. It appreciated 0.9% against the US dollar. The implication of the exchange rate performance in 2018, is that the rand price movement of various commodities mirrored that of the US dollar price, as indicated in the table.

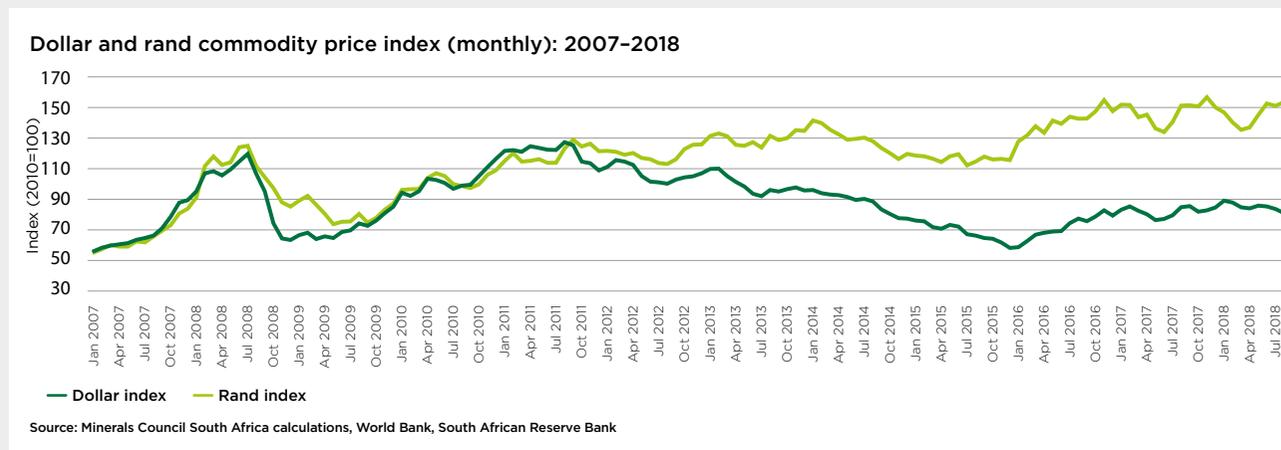
% change In commodity prices: 2018

|        | COAL | IRON ORE | GOLD | PLATINUM | PALLADIUM | RHODIUM |
|--------|------|----------|------|----------|-----------|---------|
| DOLLAR | 15   | -3       | 1    | -7       | 18        | 101     |
| RAND   | 14   | -3       | 0    | -8       | 18        | 99      |

Source: Minerals Council South Africa

The production weighted dollar and rand commodity price indices are contained in the graph below. In 2018, the weighted dollar price index increased by 2.8%, while the weighted rand commodity price index increased by 1.9%. This index provides the following weights to the respective commodities: coal (24.4%), PGMs (23.5%), gold (16%), iron ore (12.4%) and other minerals (23.7%). This is based on sales values as published by Statistics South Africa.

Rand/dollar exchange rate strengthened by **0.9%** during 2018



# OVERVIEW OF THE SOUTH AFRICAN MINING INDUSTRY

## CONTINUED

Non-energy dollar commodity prices have in the recent past been driven by demand from China. As that economy rebalances to a more consumption-based economy, the demand for commodities has decreased, which is also reflected in the price of these commodities. Of late, the effects of the trade dispute between the United States and China, have softened global trade, therefore also influencing commodity prices. The rand, however, has been on a continued weakening path for the greater part of the last decade, which has supported realised rand commodity prices.

The exchange rate is a double-edged sword. While it has contributed to better realised rand selling prices, on the other hand, it also contributes to input costs. Imported products account for 12% of total input costs, therefore, a weakening exchange rate adds upward pressure to input costs.

In 2018, input cost inflation for the total mining sector averaged 5.8%. Coke and refined petroleum (17%), industrial chemicals (10.2%) and transport equipment (9.4%) contributed the most significant increases to the cost basket. Operationally, the mining sector experienced a negative carry, a condition where input costs rose at a faster rate than selling prices.

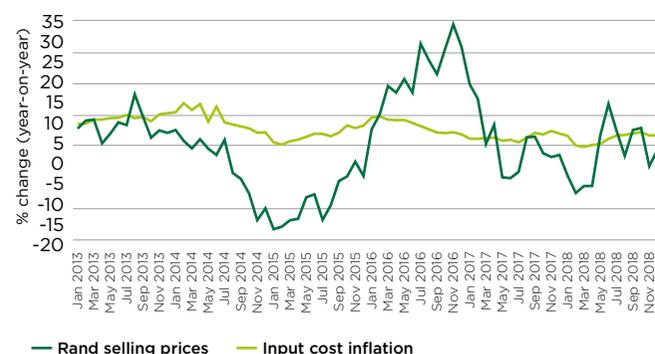
|                | Rand selling prices | Input cost inflation |
|----------------|---------------------|----------------------|
|                | %                   | %                    |
| <b>2013</b>    | 9.00                | 10.71                |
| <b>2014</b>    | -0.65               | 10.65                |
| <b>2015</b>    | -9.48               | 6.64                 |
| <b>2016</b>    | 21.58               | 9.02                 |
| <b>2017</b>    | 4.63                | 6.13                 |
| <b>2018</b>    | 2.12                | 5.77                 |
| <b>Average</b> | <b>4.53</b>         | <b>8.15</b>          |

Source: Minerals Council South Africa

In 2018, inflation adjusted sales decreased by 2.3% for the total mining sector. The industries that recorded a sharp decline in inflation adjusted sales were: gold (-16%), nickel (-14.5%), copper (-14.3%). In the same year, the following industries recorded noteworthy increases in inflation adjusted sales: iron ore (8.9%), manganese (7.3%), chrome ore (6.1%).

Nominal sales are typically influenced by the immediate movement and interaction between dollar commodity prices and the rand exchange rate. Changes in real sales in rands, which adjust for inflation, indicate the direction of changes in physical production volumes. The Minerals Council has previously indicated a correlation, with a lag of 12 to 18 months, between changes in real sales in rands and changes in physical production volumes. Holding all factors constant, this historically-identified relationship would entail downward pressure on production in the coming 12 to 18 months. It is particularly concerning for the industries identified above as having recorded significant decreases in inflation adjusted sales in 2018.

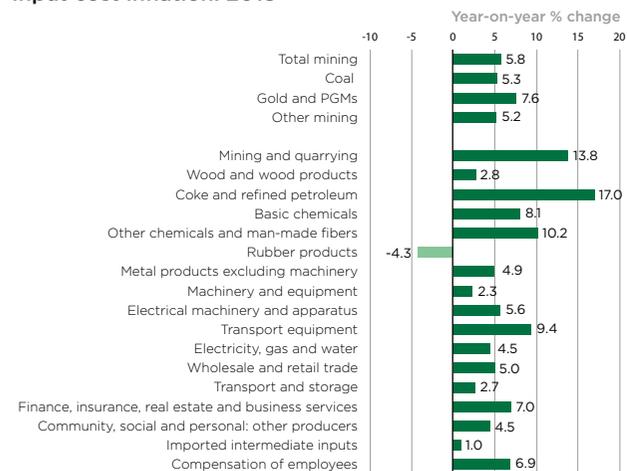
Selling price and input cost inflation (year-on-year)



Source: Statistics South Africa, Minerals Council South Africa

The graph above shows the historic context of value erosion of the mining sector, where selling prices fluctuate (and even turn negative in some instances) around a persistent input cost trend. The table alongside compares the annual average selling price performance to input cost increases. Over the observed period, the average annual increase in input costs was almost double the increase in selling prices, presenting a persistent negative carry for the mining sector.

### Input cost inflation: 2018

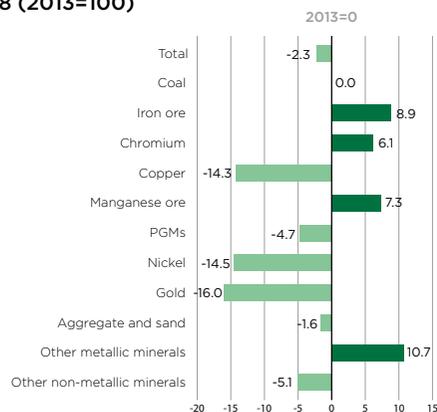


Source: Statistics South Africa, Minerals Council South Africa

# OVERVIEW OF THE SOUTH AFRICAN MINING INDUSTRY

## CONTINUED

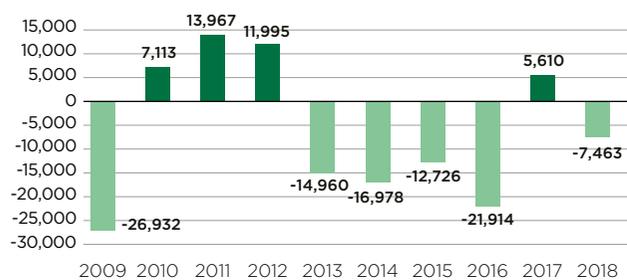
Real sales: 2018 (2013=100)



Source: Statistics South Africa, Minerals Council South Africa

The result of the interaction of all the variables above is employment gains and losses. In 2018, the total mining sector shed 7,463 jobs, a 1.6% decline, in line with the decreases in production and sales. Over the last decade, the sector has lost 62,228 jobs, with the gold mining industry contributing the most to this trend. Approximately 59,737 jobs have been lost in that sector, over the same period.

Annual employment gain/loss: 2009-2018



Total mineral sales: 2018

| Group                                  | Commodity          | Local sales        | Total sales        | Total exports      | Exports as a % of total sales |
|--|--------------------|--------------------|--------------------|--------------------|-------------------------------|
| <b>Gold, PGMs, diamonds and silver</b> | Gold               | 35,201,487         | 69,683,505         | 34,482,018         | 49.5                          |
|  | PGMs               | 10,668,195         | 104,896,855        | 94,228,661         | 89.8                          |
|  | Diamonds           | 7,196,612          | 17,274,739         | 10,078,127         | 58.3                          |
|  | Silver             | 35,536             | 382,745            | 347,209            | 90.7                          |
|  | <b>Sub-total</b>   |                    | <b>53,101,830</b>  | <b>192,237,844</b> | <b>139,136,015</b>            |
| <b>Base minerals</b>                   | Chrome             | 11,756,993         | 21,802,197         | 10,045,204         | 46.1                          |
|  | Copper             | 2,027,485          | 4,077,841          | 2,050,357          | 50.3                          |
|  | Iron ore           | 5,730,332          | 51,227,106         | 45,496,775         | 88.8                          |
|  | Lead concentrate   | -                  | 1,008,096          | 1,008,096          | 100.0                         |
|  | Manganese          | 1,066,479          | 44,813,469         | 43,746,990         | 97.6                          |
|  | Nickel             | 1,186,189          | 6,712,840          | 5,529,651          | 82.4                          |
|  | Zinc               | -                  | 802,282            | 802,282            | 100.0                         |
|  | Coal               | 72,899,501         | 146,004,073        | 73,104,572         | 50.1                          |
|  | Other non-metallic | 3,042,693          | 6,321,846          | 3,279,153          | 51.9                          |
|  | Miscellaneous      | 14,666,738         | 23,697,991         | 9,028,250          | 38.1                          |
| <b>Sub-total</b>                       |                    | <b>112,376,410</b> | <b>306,467,741</b> | <b>194,091,330</b> | <b>63.0</b>                   |
| <b>Grand total</b>                     |                    | <b>165,478,240</b> | <b>498,705,585</b> | <b>333,227,345</b> | <b>67.0</b>                   |

Source: Department of Mineral Resources and Energy



# OVERVIEW OF THE SOUTH AFRICAN MINING INDUSTRY

## CONTINUED

### Key mineral statistics for South Africa: 2008-2018

| Description  | Units of measure                | 2008      | 2009      | 2010      | 2011      | 2012      | 2013      | 2014      | 2015      | 2016      | 2017      | 2018      | Year-on-year<br>% change<br>2017 to 2018 |
|--|---------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|--|
| <b>Gross domestic product</b>                            |                                 |           |           |           |           |           |           |           |           |           |           |           |  |
| Direct contribution of mining to GDP (value add)         | R millions nominal terms        | 197,643   | 200,824   | 230,350   | 261,575   | 267,344   | 288,300   | 287,488   | 281,523   | 317,724   | 343,672   | 350,882   | 2.1%                                     |
| Direct contribution of mining to GDP                     | R millions constant 2010 prices | 230,663   | 218,830   | 230,350   | 228,646   | 221,990   | 230,772   | 226,791   | 234,247   | 225,035   | 234,522   | 230,514   | -1.7%                                    |
| Mining GDP growth rate                                   | % year-on-year                  | -5.3      | -5.1      | 5.3       | -0.7      | -2.9      | 4.0       | -1.7      | 3.3       | -3.9      | 4.2       | -1.7      |  |
| Direct contribution of mining to GDP                     | US\$ equivalent                 | 23,952    | 23,802    | 31,459    | 36,064    | 32,563    | 29,875    | 26,510    | 22,079    | 21,601    | 25,815    | 26,514    | 2.7%                                     |
| South African GDP (market prices)                        | R millions nominal terms        | 2,369,063 | 2,507,677 | 2,748,008 | 3,023,659 | 3,253,852 | 3,539,977 | 3,805,350 | 4,049,884 | 4,359,061 | 4,653,579 | 4,873,899 | 4.7%                                     |
| South African GDP (market prices)                        | R millions constant 2010 prices | 2,708,601 | 2,666,940 | 2,748,008 | 2,838,257 | 2,901,078 | 2,973,175 | 3,028,090 | 3,064,236 | 3,076,466 | 3,119,983 | 3,144,539 | 0.8%                                     |
| Mining's contribution as % of total GDP nominal terms    | %                               | 8.3%      | 8.0%      | 8.4%      | 8.7%      | 8.2%      | 8.1%      | 7.6%      | 7.0%      | 7.3%      | 7.4%      | 7.2%      |  |
| Mining's contribution as % of total GDP real terms       | %                               | 8.5%      | 8.2%      | 8.4%      | 8.1%      | 7.7%      | 7.8%      | 7.5%      | 7.6%      | 7.3%      | 7.5%      | 7.3%      |  |
| <b>Fixed investment</b>                                  |                                 |           |           |           |           |           |           |           |           |           |           |           |  |
| Direct contribution of mining to fixed investment (GFCF) | R millions nominal terms        | 59,084    | 64,574    | 63,555    | 68,420    | 72,106    | 80,609    | 85,615    | 63,791    | 53,864    | 77,178    | 91,098    | 18.04%                                   |
| Direct contribution of mining to fixed investment (GFCF) | R millions constant 2010 prices | 62,349    | 65,969    | 63,555    | 65,953    | 65,438    | 67,333    | 66,995    | 48,606    | 38,797    | 53,949    | 61,072    | 13.20%                                   |
| Total private sector fixed investment (private GFCF)     | R millions nominal terms        | 376,918   | 342,142   | 341,517   | 380,410   | 406,000   | 470,179   | 511,839   | 525,404   | 545,608   | 579,589   | 607,599   | 4.83%                                    |
| Total South African fixed investment (GFCF)              | R millions nominal terms        | 556,997   | 539,440   | 529,431   | 578,014   | 625,643   | 721,234   | 775,950   | 822,576   | 846,552   | 873,223   | 886,428   | 1.51%                                    |

# OVERVIEW OF THE SOUTH AFRICAN MINING INDUSTRY

## CONTINUED

### Key mineral statistics for South Africa: 2008-2018 continued

| Description   | Units of measure         | 2008       | 2009      | 2010      | 2011      | 2012       | 2013       | 2014       | 2015       | 2016       | 2017       | 2018       | Year-on-year<br>% change<br>2017 to 2018 |
|---|--------------------------|------------|-----------|-----------|-----------|------------|------------|------------|------------|------------|------------|------------|--|
| Mining fixed investment growth rate                               | % year-on-year           | 25.6%      | 5.8%      | -3.7%     | 3.8%      | -0.8%      | 2.9%       | -0.5%      | -27.4%     | -20.2%     | 39.1%      | 13.2%      | -  |
| Direct contribution to fixed investment (GFCF)                    | US\$ equivalent          | 7,160      | 7,654     | 8,680     | 9,433     | 8,783      | 8,353      | 7,895      | 5,003      | 3,662      | 5,797      | 6,884      | 18.74%                                   |
| Mining's contribution to private sector fixed investment (GFCF) % | %                        | 16%        | 19%       | 19%       | 18%       | 18%        | 17%        | 17%        | 12%        | 10%        | 13%        | 15%        | -  |
| Minings contribution as % of total investment                     | %                        | 11%        | 12%       | 12%       | 12%       | 12%        | 11%        | 11%        | 8%         | 6%         | 9%         | 10%        | -  |
| <b>Sales and exports</b>  |                          |            |           |           |           |            |            |            |            |            |            |            |  |
| Total primary mineral sales                                       | R millions nominal terms | 300,763    | 239,881   | 300,891   | 370,833   | 363,757    | 385,033    | 386,350    | 386,709    | 424,042    | 474,171    | 498,706    | 5.2%                                     |
| Total primary mineral sales                                       | US\$ equivalent          | 36,449     | 28,432    | 41,093    | 51,123    | 44,307     | 39,899     | 35,627     | 30,329     | 28,829     | 35,617     | 37,684     | 5.8%                                     |
| Mining industry primary exports                                   | R millions nominal terms | 220,077    | 175,772   | 224,969   | 282,2976  | 269,120    | 279,673    | 269,264    | 266,604    | 294,897    | 328,470    | 333,227    | 1.4%                                     |
| Mining industry primary exports                                   | US\$ equivalent          | 26,671     | 20,833    | 30,725    | 38,921    | 32,780     | 28,981     | 24,830     | 20,909     | 20,049     | 24,673     | 25,180     | 2.1%                                     |
| Total South African exports (goods and services)                  | R millions nominal terms | 636,495    | 503,403   | 663,182   | 782,664   | 812,402    | 919,813    | 1,005,727  | 1,027,636  | 1,116,205  | 1,183,495  | 1,246,687  | 5.3%                                     |
| Primary mineral exports as % of total South African exports       | %                        | 34.6%      | 34.9%     | 33.9%     | 36.1%     | 33.1%      | 30.4%      | 26.8%      | 25.9%      | 26.4%      | 27.8%      | 26.7%      | -  |
| <b>Employment</b>   |                          |            |           |           |           |            |            |            |            |            |            |            |  |
| Mining industry direct employment                                 | Numbers                  | 518,725    | 491,794   | 498,907   | 512,874   | 524,869    | 509,909    | 492,931    | 480,205    | 458,291    | 463,901    | 456,438    | -1.6%                                    |
| Total private non-agricultural employment                         | Numbers                  | 6,381,296  | 6,069,240 | 6,074,561 | 6,293,433 | 6,494,169  | 6,602,460  | 6,671,999  | 6,838,103  | 7,063,724  | 7,226,938  | 7,386,445  | 2.2%                                     |
| Total South African formal non-agricultural employment            | Numbers                  | 10,083,177 | 9,966,943 | 9,626,647 | 9,942,385 | 10,222,218 | 10,524,415 | 10,822,211 | 10,935,430 | 11,021,260 | 11,288,136 | 11,318,851 | 0.3%                                     |

# OVERVIEW OF THE SOUTH AFRICAN MINING INDUSTRY

## CONTINUED

### Key mineral statistics for South Africa: 2008-2018 *continued*

| Description  | Units of measure       | 2008    | 2009    | 2010    | 2011    | 2012    | 2013    | 2014    | 2015    | 2016    | 2017    | 2018    | Year-on -year<br>% change<br>2017 to 2018 |
|--|------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---|
| Mining as % of total private non-agricultural employment | %                      | 8.1%    | 8.1%    | 8.2%    | 8.1%    | 8.1%    | 7.7%    | 7.4%    | 7.0%    | 6.5%    | 6.4%    | 6.2%    | -   |
| Mining as % of total non-agricultural formal employment  | %                      | 5.1%    | 4.9%    | 5.2%    | 5.2%    | 5.1%    | 4.8%    | 4.6%    | 4.4%    | 4.2%    | 4.1%    | 4.0%    | -   |
| Remuneration paid to employees in mining                 | R millions current     | 60,886  | 66,092  | 74,319  | 86,972  | 93,630  | 100,753 | 102,146 | 114,085 | 120,515 | 128,558 | 134,454 | 4.6%                                      |
| Remuneration paid to employees in mining                 | R millions 2010 prices | 49,882  | 58,775  | 74,319  | 101,780 | 117,961 | 136,589 | 140,394 | 175,129 | 195,427 | 222,381 | 243,248 | 9.4%                                      |
| Average annual remuneration per mineworker               | Rand                   | 117,377 | 134,389 | 148,963 | 169,578 | 178,388 | 197,590 | 207,223 | 237,576 | 262,966 | 277,123 | 294,572 | 6.3%                                      |
| <b>Exchange rates</b>                                    |                        |         |         |         |         |         |         |         |         |         |         |         |   |
| Rand per US\$  | R/US\$                 | 8.3     | 8.4     | 7.3     | 7.3     | 8.2     | 9.7     | 10.8    | 12.8    | 14.7    | 13.3    | 13.2    | -0.6%                                     |
| Rand per euro  | R/Euro                 | 12.0    | 11.7    | 9.7     | 10.1    | 10.6    | 12.8    | 14.4    | 14.1    | 16.3    | 15.0    | 15.4    | 2.3%                                      |
| Rand per British pound (GBP)                             | R/GBP                  | 15.1    | 13.1    | 11.3    | 11.6    | 13.0    | 15.1    | 17.9    | 19.5    | 20.0    | 17.2    | 17.6    | 2.7%                                      |
| <b>Commodity prices</b>                                  |                        |         |         |         |         |         |         |         |         |         |         |         |   |
| Coal   | US\$/tonne             | 121     | 65      | 92      | 116     | 93      | 80      | 72      | 57      | 64      | 85      | 98      | 14.7%                                     |
| Iron ore   | US\$/dmtu*             | 156     | 80      | 146     | 168     | 128     | 135     | 97      | 56      | 58      | 72      | 70      | -2.8%                                     |
| Gold   | US\$/oz                | 872     | 973     | 1,225   | 1,569   | 1,670   | 1,411   | 1,266   | 1,161   | 1,249   | 1,258   | 1,269   | 0.9%                                      |
| Platinum   | US\$/oz                | 1,574   | 1,203   | 1,610   | 1,719   | 1,551   | 1,487   | 1,384   | 1,053   | 987     | 948     | 880     | -7.3%                                     |
| Palladium  | US\$/oz                | 1,067   | 429     | 721     | 950     | 738     | 773     | 814     | 697     | 617     | 875     | 1,037   | 18.5%                                     |
| Rhodium  | US\$/oz                | 2,914   | 1,366   | 2,118   | 1,739   | 1,210   | 1,045   | 1,169   | 956     | 694     | 1,107   | 2,219   | 100.5%                                    |

Source: Minerals Council South Africa, South African Reserve Bank, Statistics South Africa, World Bank, Department of Mineral Resources and Energy, South African Revenue Service

\* dmtu: dry metric tonne unit

# OVERVIEW OF THE SOUTH AFRICAN MINING INDUSTRY

CONTINUED

Mining sector expenditure



|                                    |       |
|------------------------------------|-------|
| Purchases                          | 40.6% |
| Salaries and wages (total)         | 19.3% |
| Interest paid                      | 2.7%  |
| Royalties paid                     | 1.0%  |
| Paid rental on land and buildings  | 2.7%  |
| Paid rental on plant and machinery | 0.7%  |
| Depreciation                       | 7.0%  |
| Losses on assets                   | 7.7%  |
| Other expenditure                  | 18.3% |

Mining sector royalties by commodity

| Commodity           | 2015/16      | 2016/17      | 2017/18      |
|---------------------|--------------|--------------|--------------|
|                     | R million    | R million    | R million    |
| Coal                | 702          | 1,097        | 1,637        |
| Copper              | -            | -            | -            |
| Diamond             | 93           | 250          | 353          |
| Gold and uranium    | 608          | 930          | 590          |
| Industrial Minerals | 155          | 70           | 99           |
| Iron ore            | 643          | 1,629        | 2,167        |
| Manganese           | 185          | 105          | 665          |
| Platinum            | 720          | 804          | 851          |
| Zinc                | 5            | 8            | 13           |
| Other               | 597          | 909          | 1,243        |
| <b>Total</b>        | <b>3,708</b> | <b>5,802</b> | <b>7,617</b> |

Source: South African Revenue Service



South Africa's contribution to world mineral reserves: 2017-2018

| Commodity                           | Unit | South Africa | World             |      | Locality of major reserves |              |               |
|-------------------------------------|------|--------------|-------------------|------|----------------------------|--------------|---------------|
|                                     |      | Reserves     | Reserves          | %    |                            |              |               |
| Aluminium                           | kt   | 715          | 72,500            | 0.9  | China                      | Russia       | India         |
| Antimony (metal)                    | kt   | 27           | 1,500,000         | 1.8  | China                      | Russia       | Bolivia       |
| Chromium                            | Mt   | 200,000      | 500,000           | 40.0 | South Africa               | Kazakhstan   | India         |
| Coal                                | Mt   | 16,044       | 1,100,000,000,000 | *    |                            |              |               |
| Copper                              | kt   | *            | 720,000           | *    | Chile                      | Peru         | Australia     |
| Diamond                             |      | 70           | 750               | 9.3  | Australia                  | Botswana     | Congo         |
| Gold (metal)                        | t    | 6,000        | 57,000            | 10.5 | Australia                  | Russia       | South Africa  |
| Iron ore                            | Mt   | 770          | 82,000            | 0.9  | Australia                  | Russia       | Brazil        |
| Lead (metal)                        | Mt   | 300          | 88,000            | 0.3  | Australia                  | China        | Russia        |
| Manganese (metal)                   | kt   | 200,000      | 690,000           | 28.9 | South Africa               | Ukraine      | Brazil        |
| Nickel                              | Mt   | 3,700        | 78,000            | 4.7  | Australia                  | Brazil       | New Caledonia |
| Platinum Group Metals               | t    | 63,000       | 67,000            | 94.0 | South Africa               | Zimbabwe     | Russia        |
| Silicon (metal)                     | Mt   | 84           | 7,200             | 0.1  | China                      | Russia       | USA           |
| Silver (metal)                      | t    | *            | 570,000           | *    | Peru                       | Poland       | Chile         |
| Uranium (Metal, up to \$US 80/kg U) | t    | 279,100      | -                 | 5.2  | Australia                  | Kazakhstan   | Canada        |
| Zirconium minerals (metals)         | kt   | 14,000       | 75,000            | 18.6 | Australia                  | South Africa | India         |

Source: Department of Mineral Resources and Energy, US Geological Survey

# OVERVIEW OF THE SOUTH AFRICAN MINING INDUSTRY

## CONTINUED

### MINING'S CONTRIBUTION TO SOUTH AFRICA - PROVINCIAL OVERVIEW

Mining plays a big role at provincial level, offering not only employment but also supporting the respective provincial economies. In the communities where mining firms operate, they have built schools, clinics, and other social infrastructure such as roads and housing for employees, thus improving the quality of life of community members. They have also directly and indirectly supported recreational activities.

### Mining sector contribution to provincial economies (GDP value added)

| Rm            | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---------------|------|------|------|------|------|------|------|------|------|------|------|
| Eastern Cape  | 0.4  | 0.5  | 0.3  | 0.3  | 0.4  | 0.3  | 0.3  | 0.2  | 0.2  | 0.2  | 0.2  |
| Free State    | 14.4 | 13.3 | 14.2 | 13.7 | 13.4 | 13.0 | 12.3 | 9.9  | 10.8 | 11.1 | 10.8 |
| Gauteng       | 3.3  | 3.2  | 3.3  | 3.2  | 3.2  | 2.9  | 2.7  | 2.3  | 2.6  | 2.5  | 2.4  |
| KwaZulu-Natal | 2.0  | 1.8  | 2.0  | 1.9  | 1.9  | 1.9  | 1.8  | 1.4  | 1.6  | 1.6  | 1.6  |
| Limpopo       | 31.2 | 28.4 | 29.2 | 30.9 | 29.5 | 29.4 | 28.0 | 26.7 | 28.3 | 28.5 | 28.3 |
| Mpumalanga    | 25.6 | 24.5 | 25.5 | 27.5 | 28.1 | 25.8 | 24.2 | 22.7 | 23.2 | 23.7 | 23.6 |
| North West    | 36.5 | 34.8 | 35.9 | 37.7 | 32.9 | 35.7 | 34.4 | 33.3 | 34.0 | 33.6 | 33.0 |
| Northern Cape | 26.6 | 26.5 | 27.6 | 26.4 | 25.8 | 26.9 | 23.3 | 20.2 | 22.0 | 22.0 | 22.0 |
| Western Cape  | 0.3  | 0.3  | 0.3  | 0.2  | 0.3  | 0.3  | 0.2  | 0.3  | 0.3  | 0.3  | 0.3  |

Source: Quantec

### Provincial overview: 2018

|                                    | Eastern Cape | Free State | Gauteng    | KwaZulu-Natal | Limpopo   | Mpumalanga | North West | Northern Cape | Western Cape |
|------------------------------------|--------------|------------|------------|---------------|-----------|------------|------------|---------------|--------------|
| Compensation of employees (Rm)     | 210          | 15,370     | 21,471     | 3,584         | 39,688    | 23,163     | 44,681     | 8,645         | 683          |
| Gross fixed capital formation (Rm) | 117,467      | 4,948      | 8,127      | 2,098         | 20,714    | 16,785     | 23,352     | 4,432         | 305          |
| Total mining employment            | 1,723        | 38,431     | 54,467     | 9,554         | 48,782    | 91,414     | 193,177    | 14,969        | 1,531        |
| Population (2017 census)           | 6,499,180    | 2,866,704  | 14,278,351 | 11,074,546    | 5,778,533 | 4,444,073  | 3,856,169  | 1,213,998     | 6,510,394    |
| Disposable income (R)              | 246,877      | 144,916    | 960,620    | 455,256       | 185,859   | 192,160    | 195,507    | 53,462        | 403,470      |

Source: Statistics South Africa

# OVERVIEW OF THE SOUTH AFRICAN MINING INDUSTRY

## CONTINUED

### Employment per commodity: 2018

|      | Gold    | PGMs    | Diamonds | Chrome | Iron ore | Manganese | Coal   | Industrial minerals | Other minerals | Total   |
|------|---------|---------|----------|--------|----------|-----------|--------|---------------------|----------------|---------|
| 2008 | 166,423 | 199,948 | 18,474   | 12,279 | 13,257   | 3,976     | 65,484 | 13,352              | 25,533         | 518,725 |
| 2009 | 159,926 | 184,162 | 11,601   | 10,966 | 13,728   | 5,003     | 70,791 | 13,254              | 22,363         | 491,794 |
| 2010 | 157,019 | 181,969 | 11,467   | 13,982 | 18,216   | 5,879     | 74,025 | 13,118              | 23,231         | 498,907 |
| 2011 | 144,799 | 194,745 | 12,047   | 16,911 | 22,360   | 7,460     | 78,580 | 13,013              | 22,961         | 512,874 |
| 2012 | 142,200 | 197,752 | 12,332   | 19,762 | 23,380   | 8,685     | 83,244 | 13,795              | 23,719         | 524,869 |
| 2013 | 131,738 | 191,260 | 13,579   | 18,358 | 21,127   | 9,842     | 88,039 | 13,623              | 6,805          | 509,909 |
| 2014 | 119,007 | 186,864 | 15,356   | 18,658 | 21,794   | 9,971     | 86,106 | 13,031              | 6,330          | 492,931 |
| 2015 | 115,029 | 186,465 | 18,313   | 18,450 | 20,554   | 8,639     | 77,747 | 12,866              | 5,727          | 480,205 |
| 2016 | 116,572 | 172,556 | 18,789   | 15,449 | 16,651   | 7,242     | 77,259 | 13,222              | 5,797          | 458,291 |
| 2017 | 112,901 | 172,760 | 18,038   | 16,968 | 17,510   | 7,780     | 82,372 | 13,029              | 6,219          | 463,901 |
| 2018 | 100,189 | 167,041 | 16,361   | 18,935 | 18,613   | 9,352     | 89,647 | 12,712              | 6,121          | 456,438 |

Source: Department of Mineral Resources and Energy

### Employee earnings per commodity: 2018

| Rm   | Gold   | PGMs   | Diamonds | Chrome | Iron ore | Manganese | Coal   | Industrial minerals | Other minerals | Total   |
|------|--------|--------|----------|--------|----------|-----------|--------|---------------------|----------------|---------|
| 2008 | 15,960 | 23,344 | 2,164    | 1,306  | 1,668    | 672       | 11,021 | 1,103               | 3,649          | 60,886  |
| 2009 | 17,371 | 24,879 | 1,790    | 1,457  | 2,178    | 737       | 12,815 | 1,210               | 3,654          | 66,092  |
| 2010 | 19,878 | 26,688 | 1,956    | 2,082  | 3,037    | 946       | 14,186 | 1,326               | 4,217          | 74,319  |
| 2011 | 20,841 | 30,482 | 2,141    | 2,755  | 6,507    | 1,278     | 16,069 | 1,402               | 5,499          | 86,972  |
| 2012 | 22,238 | 34,393 | 2,408    | 3,434  | 4,691    | 1,565     | 17,446 | 1,598               | 5,857          | 93,630  |
| 2013 | 23,930 | 37,710 | 2,871    | 3,841  | 4,848    | 1,947     | 18,949 | 1,680               | 1,387          | 100,753 |
| 2014 | 23,383 | 35,652 | 3,663    | 4,047  | 5,692    | 2,302     | 20,595 | 1,810               | 1,311          | 102,146 |
| 2015 | 24,578 | 44,955 | 4,678    | 4,417  | 6,219    | 2,199     | 19,932 | 1,924               | 1,235          | 114,085 |
| 2016 | 28,761 | 45,926 | 5,073    | 4,214  | 5,895    | 2,118     | 21,112 | 2,074               | 1,301          | 120,515 |
| 2017 | 30,168 | 49,484 | 5,430    | 4,734  | 5,826    | 2,391     | 22,442 | 2,129               | -              | 128,558 |
| 2018 | 27,677 | 51,412 | 5,198    | 5,518  | 6,641    | 3,002     | 25,924 | 2,201               | 1,592          | 134,454 |

Source: Department of Mineral Resources and Energy

# OVERVIEW OF THE SOUTH AFRICAN MINING INDUSTRY

## CONTINUED

### Total mining sector employees and earnings

|      | Total earnings<br>(R million) | Total employment<br>(Number) |
|------|-------------------------------|------------------------------|
| 2008 | 60,886                        | 518,725                      |
| 2009 | 66,092                        | 491,794                      |
| 2010 | 74,319                        | 498,907                      |
| 2011 | 86,972                        | 512,874                      |
| 2012 | 93,630                        | 524,869                      |
| 2013 | 100,753                       | 509,909                      |
| 2014 | 102,146                       | 492,931                      |
| 2015 | 114,085                       | 480,205                      |
| 2016 | 120,515                       | 458,291                      |
| 2017 | 128,558                       | 463,901                      |
| 2018 | 134,454                       | 456,438                      |

Source: Department of Mineral Resources and Energy

### THE IMPACT OF THE CARBON TAX ON THE MINING SECTOR

The carbon tax will be implemented in two phases, namely:

#### Phase 1: June 2019 – December 2022

This phase is a transitional period to determine, *inter alia*, the efficacy of the implementation of the law in the reduction of national greenhouse gas emissions and to assist impacted companies with allowances to cushion the impacts of the tax on their operational costs. In this phase, the carbon will be levied on scope 1 emissions, applying to process and internal combustion emissions. The carbon tax is R120/tonne CO<sub>2</sub> emitted, which is proposed to increase at a rate of CPI+2%.

In phase 1, National Treasury has proposed the following offsets:

- 60% basic tax-free allowance
- 10% allowance for process emissions
- 10% allowance for fugitive emissions
- 0%-10% variable tax-free allowance for trade exposed companies
- 5% allowance for companies that have allocated and comply with a carbon budget
- 5% tax-free allowance for above average performance for reducing carbon emissions
- 5% or 10% tax-free allowance for carbon offset programmes

**The mining sector accounts for approximately 15% of GHG emissions, or 75MT of 502MT of GHG emissions produced in South Africa (2014). This tax could cost the industry an additional R900 million to R1.8 billion per annum in this period.**

Given that mining companies face multiple hurdles in starting renewable energy projects, most mining companies have

limited scope to get the carbon offset. The uncertainty for the mining sector is compounded by the fact that the Department of Environmental Affairs' process to finalise carbon offsets and carbon budget regulations is still to be finalised.

Additionally, in the February 2019 budget speech, the National Treasury indicated that during phase 1, the carbon tax would initially be factored in through a 10c/litre increase in the fuel/diesel price.

Between March 2014 and February 2017, the mining sector consumed an average of 900,000,000 litres of diesel in its production process. This figure declined to 416,000,000 in the fiscal year 2017/18. The assessment below models the impact on the mining sector from the introduction of a 10c/litre carbon tax on diesel. Given the mining sector's employment multipliers economy wide, the model also depicts the economy-wide impact emanating from the impact on the mining sector.

The mining sector has a jobs' multiplier of 2.8, which is one of the highest in the South Africa economy. People employed as a result of the mining sector's backward linkages were more than 1.3 million in 2018.

The impact per year from the introduction of a 10c/litre carbon tax on diesel includes:

- Net job losses of 3,703 in the mining sector
- Indirect jobs decline of 10,441
- Net jobs losses of 6,836 (after factoring in the diesel fund rebate)

# OVERVIEW OF THE SOUTH AFRICAN MINING INDUSTRY

## CONTINUED

### Phase 2: January 2023 onwards (carbon tax on scope 1 and scope 2 emissions)

At this point, it is anticipated that the draft Climate Change Bill would have come into law and as such, it will be compulsory for companies to have a carbon budget.

The tax rate of R137<sup>1</sup> (carbon tax adjusted for inflation – see table below) per tonne of CO<sub>2</sub>-eq will apply. There is still considerable uncertainty around this phase, particularly, if the tax offsets allowed in phase 1 will be maintained, and if the electricity generation sector will be allowed to pass on the cost of the tax to consumers.

#### Carbon tax escalation

|                               | 2019 | 2020 | 2021 |
|-------------------------------|------|------|------|
| CPI +2% (SARB - CPI forecast) | N/A  | 7.3% | 6/7% |
| Carbon tax rate               | 120  | 129  | 137  |

*Source: Minerals Council, South African Reserve Bank (SARB - CPI forecast)*

**In the absence of policy certainty from the National Treasury and if the allowances granted in phase 1 are removed, the potential carbon tax liability on scope 1 emissions for the mining sector would rise to R10.2 billion per annum (75 million tonnes of GHG emissions multiplied by the carbon tax rate of R137 per tonne).**

It is important to note that mining companies cannot pass on the carbon tax to final consumers, so these costs will be absorbed by the companies.

<sup>1</sup> Minerals Council calculation, based on the CPI + 2% annual escalation proposed by National Treasury

Additionally, it is our view, that in phase 2 of the carbon tax implementation process, the full impact of the carbon tax on electricity (scope 2 emissions) will be fed through to the mining sector because the National Treasury has not yet specified any potential tax-free allowances.

### Carbon tax impact modeled through the price of electricity (from 2022):

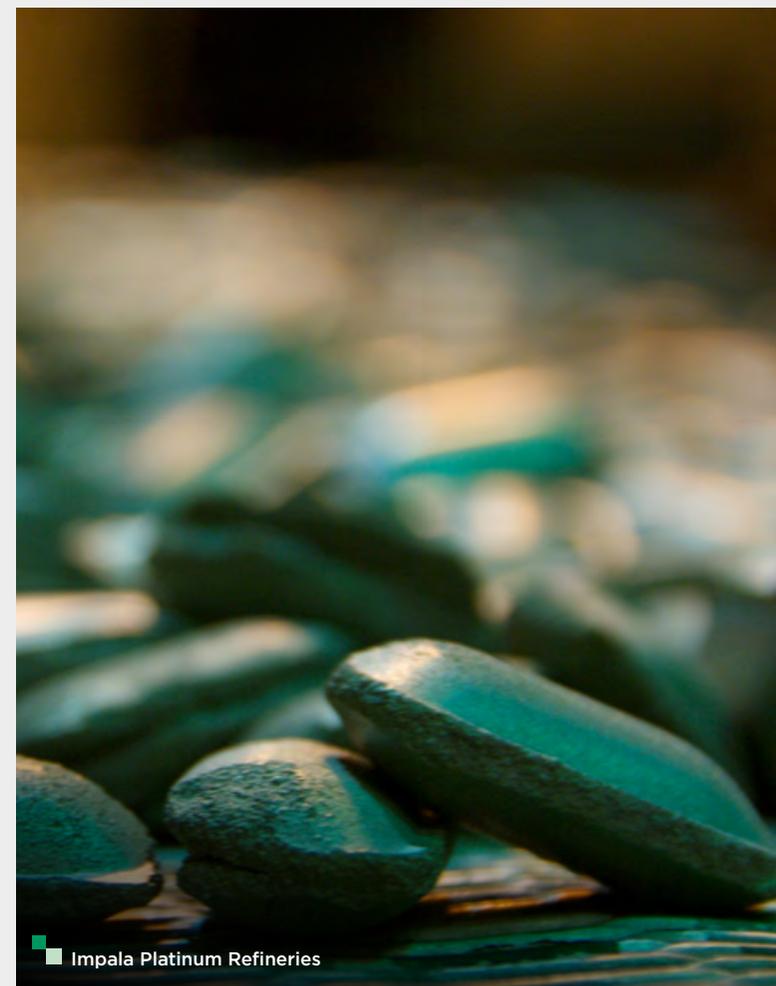
The analysis – while counter-factual in its use of historical data – is a good indicator of the impact of the carbon tax going forward.

The imposition of the carbon tax results in annual declines of:

- Approximately 6,000 jobs per year (over and above those lost in phase 1)
- R4.0 billion in output (value added)
- R2.2 billion in investment in the mining sector

The tax would also result in an increase in costs to the tune of R10.2 billion.

An August 2019 survey by the Minerals Council of its members, confirms the significant costs that will be incurred by mining companies from the introduction of the carbon tax. Across the 18 mining companies that responded to the survey, the carbon tax is estimated to cost as much as R517 million a year in phase 1 of the implementation of the tax. In the absence of the offsets allowed in phase 1, the carbon tax liability for these 18 companies is estimated to increase to R5.5 billion for each year of phase 2. This represents a 972% increase in the tax liability.



Impala Platinum Refineries

# OVERVIEW OF THE SOUTH AFRICAN MINING INDUSTRY

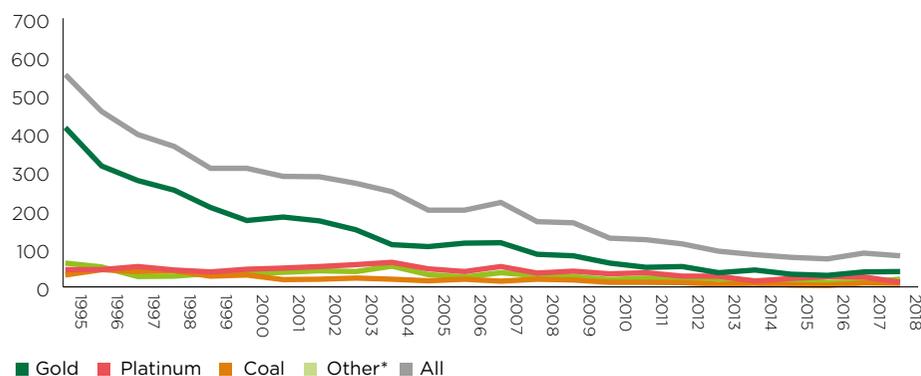
## CONTINUED

### SAFETY AND HEALTH PERFORMANCE

#### Safety performance

The last 25 years saw an 87% reduction in the number of fatalities from 615 in 1993 to 81 in 2018. Following 2016's 73 fatalities, the lowest number in a calendar year, a deterioration started in 2017 and continued into the first half of 2018, when the number of fatalities began to rise again. This prompted the Minerals Council Board, through the CEO Zero Harm Forum, to initiate several measures to address this safety performance regression. Key among these were the National Day of Safety and Health Day in Mining, launched in August 2018, and the CEO Heartfelt Conversations. We believe that this helped the safety performance improve in the second half of 2018 with total fatalities for the year of 81 (2017: 90).

Mining fatalities per commodity (1995-2018)



Source: Department of Mineral Resources and Energy

Fatalities by commodity: 2017 and 2018 year on year comparison

| Commodity    | 2017      | 2018      | % change    |
|--------------|-----------|-----------|-------------|
| Gold         | 40        | 40        | -           |
| PGMs         | 29        | 12        | (59)        |
| Coal         | 10        | 9         | (10)        |
| Other*       | 11        | 20        | 82          |
| <b>Total</b> | <b>90</b> | <b>81</b> | <b>(10)</b> |

\* Other includes diamonds, chrome, copper, iron ore and all others not specified above

Source: Department of Mineral Resources and Energy



# OVERVIEW OF THE SOUTH AFRICAN MINING INDUSTRY

## CONTINUED

Although the 10% decrease in fatalities in 2018 is encouraging, we, of course, recognise that one fatality is one too many. The Minerals Council and our member companies convey our deepest sympathy to the families, friends and communities of the deceased miners. We acknowledge that there is still much work to be done by all stakeholders to achieve the industry goal of zero harm in which every mine worker returns from work unharmed every day.

The PGMs sector had a commendable decrease of 59% in the number of fatalities while the coal sector had a 10% improvement. The gold sector fatalities remained the same while the 'other' category of mines' fatalities increased by 82%. There was a 26% improvement in the number of accidents, although there were multiple fatalities from a few incidents. The primary causes of fatalities were falls of ground, transport and mining, and general accidents, which include underground fires/gas.

### Causes of fatalities: 2017 and 2018 year-on-year comparison

| Cause                | 2017 | 2018 | % change |
|----------------------|------|------|----------|
| Falls of ground      | 32   | 22   | (31)     |
| Transport and mining | 23   | 17   | (26)     |
| General*             | 26   | 16   | (38)     |
| Machinery            | 5    | 2    | (60)     |
| Other**              | 4    | 24   | 500      |
| Total                | 90   | 81   | (10)     |

\* General causes of fatalities include struck, falling, drowning, inundation, mud rush, burning and scalding

\*\* Other includes electricity, fires, explosives, heat exhaustion and miscellaneous

Source: Department of Mineral Resources and Energy

### Injuries by commodity: 2017 and 2018 year-on-year comparison

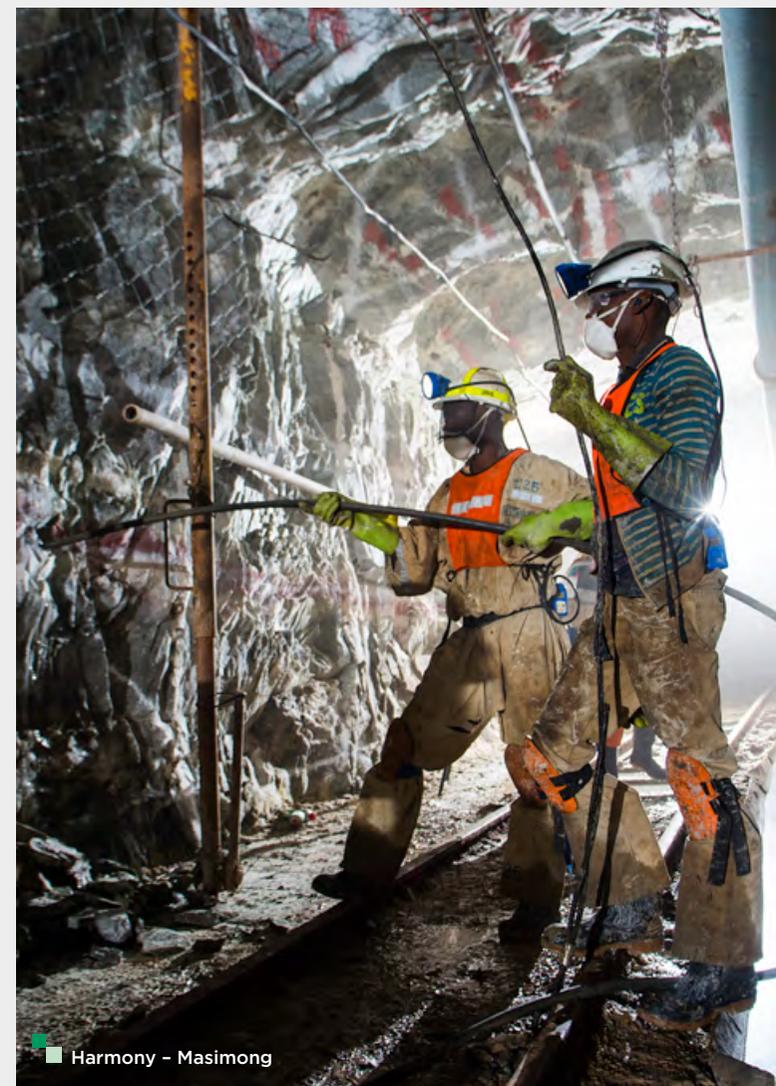
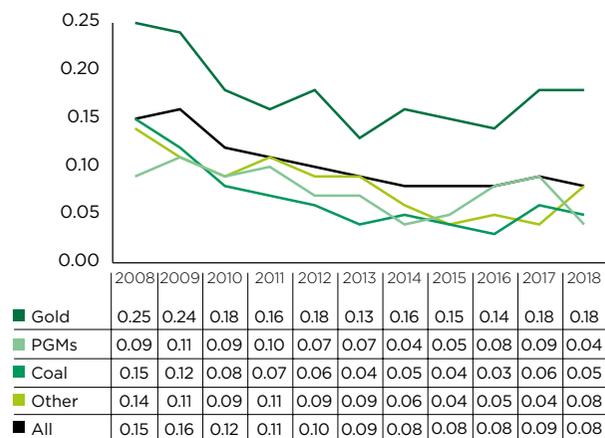
| Commodity | 2017  | 2018  | % change |
|-----------|-------|-------|----------|
| Gold      | 1,021 | 880   | (14)     |
| PGMs      | 1,048 | 1,154 | 10       |
| Coal      | 202   | 167   | (17)     |
| Other*    | 398   | 149   | (63)     |
| Total     | 2,669 | 2,350 | (12)     |

\* Other includes diamonds, chrome, copper, iron ore and all others not specified

Source: Department of Mineral Resources and Energy

In 2018, there was a welcome 12% reduction in the number of injuries, most of which were as a result of accidents categorised as falls of grounds, transport and mining, and general accidents.

### Fatality frequency rate per million hours worked (2008-2018)



# OVERVIEW OF THE SOUTH AFRICAN MINING INDUSTRY

## CONTINUED

### HEALTH PERFORMANCE

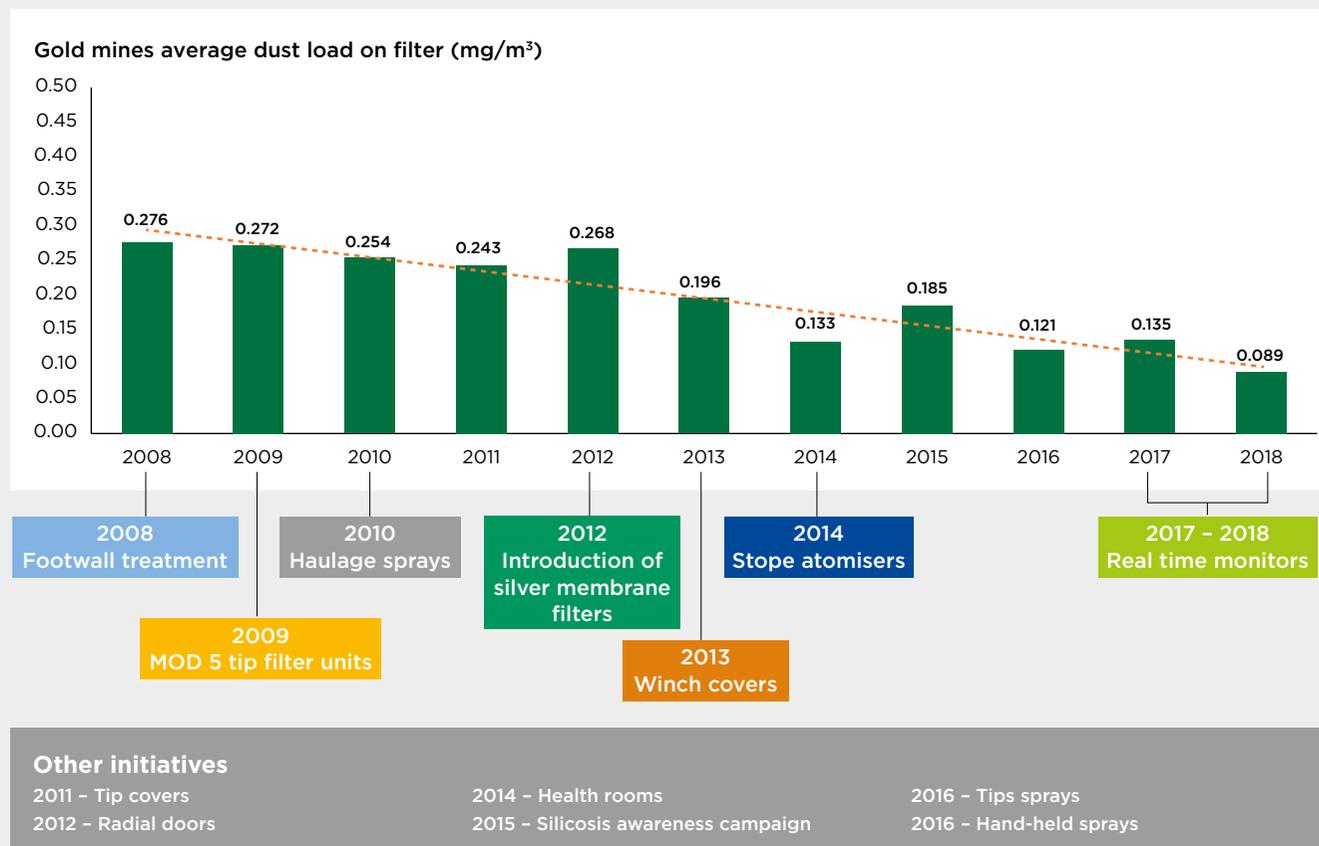
At the Mine Health and Safety Council (MHSC) Tripartite Summit held in 2014, the mining industry stakeholders agreed on milestone targets to be achieved by 2024 to improve the performance of occupational health and safety and in the pursuit of zero harm.

### Occupational lung disease

The milestone target for respirable crystalline silica (RCS) was reduced in 2014 from 0.1 mg/m<sup>3</sup> to 0.05 mg/m<sup>3</sup>. The goal is that, by 2024, 95% of all silica exposure measurement results should be below 0.05 mg/m<sup>3</sup>. In the 10-year period the proportion of measurements that may be above the new milestone level is to be reduced from 18% in 2015 to the targeted 5% in 2024. There has already been a massive reduction from 16.1% in 2015 to 8.7% in 2016.

Due to the RCS milestone target reduction, Minerals Council members were taken through a workshop on the new milestones' concepts, at which mines investigated various methods of improving the milestone data quality. This was done by investigating their current practices on sampling strategy, sampling methodology, sampling media, sampling equipment, analytical laboratories, data interpretation and data reporting. As a result, the Minerals Council also introduced a health information reporting system in 2016, and Minerals Council members were required to report their progress against the milestones.

In addition, many mining companies introduced further engineering controls to reduce exposures, as illustrated in the gold mine graphic below.

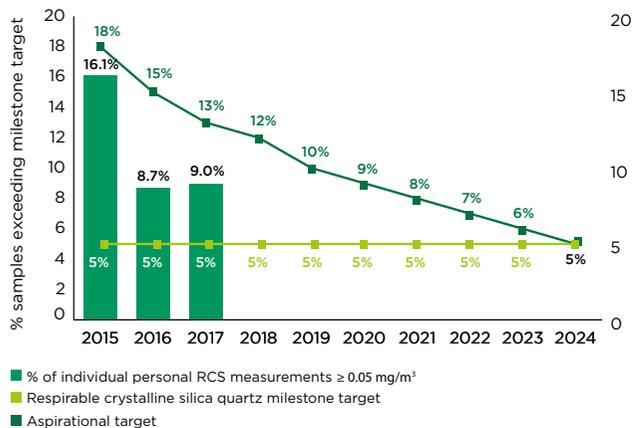


The above graphic indicates multiple interventions that the gold mining industry implemented to reduce exposures over time, highlighting that exposures cannot be prevented through a single, once-off solution. The information in this graphic formed part of the discussions around a gold mine case study at MineSAFE 2018, an annual conference that focuses on improving health, safety and environmental impact in the mining industry, while highlighting the specific actions to be taken.

# OVERVIEW OF THE SOUTH AFRICAN MINING INDUSTRY

## CONTINUED

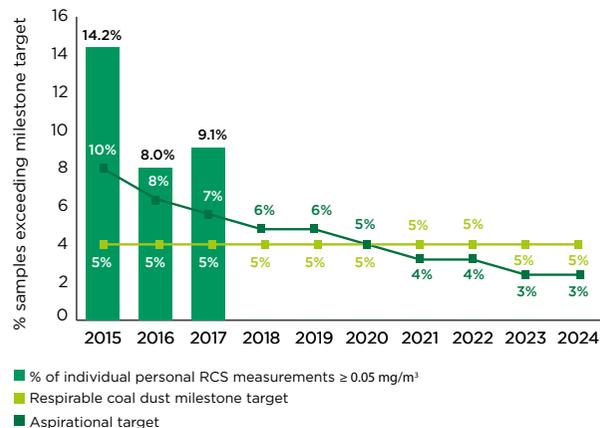
Progress towards respirable crystalline silica milestone: 2015-2017



The industry is currently on target to meet the milestone for respirable crystalline silica.

The RCS performance by our members in 2017 was well within the set aspirational target of 13%. The 2016 and 2017 exposure results, however, indicate that the industry seems to have hit a plateau, and needs to redouble its efforts to maintain its achievements and further reduce silica dust exposures.

Coal mines progress towards coal milestone: 2015-2017



The industry is NOT on target to meet the milestone for respirable coal dust.

### Other occupational diseases

The number of cases of occupational diseases reported nationally decreased by 3% from 4,632 in 2016 to 4,483 in 2017.

Noise induced hearing loss (NIHL) cases increased from 966 in 2016 to 1,141 in 2017. The total number of individual pieces of machines emitting noise levels of more than 107 dB (A) decreased from 3,222 in 2015 to 2,577 in 2017. The MHS elimination of NIHL milestone is sound pressure levels of less than 107dB(A). Further effort is required to achieve the milestone targets such as increased collaboration with the MOSH (Mining Industry Occupational Safety and Health) team and encouragement of companies to adopt the relevant leading practices and other noise risk reduction initiatives such as the Industry-wide Buy and Maintain Quiet Initiative (IBMQI).



Royal Bafokeng Platinum - Bafokeng Rasimone Platinum Mine

# OVERVIEW OF THE SOUTH AFRICAN MINING INDUSTRY

## CONTINUED

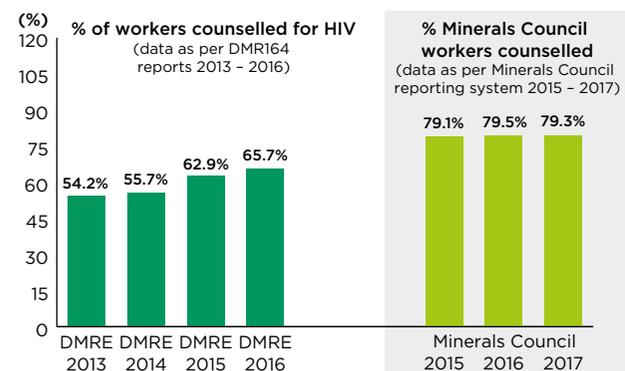
There was an increase in the number of silicosis cases reported, from 635 in 2016 to 652 in 2017. However, there was a slight decrease noted in TB cases reported from 2,580 in 2016 to 2,247 in 2017.

There was a slight reduction in overexposures to occupational hygiene stressors, except for thermal heat, which increased in 2017 compared to 2016. Airborne overexposures HEGS (homogenous exposure groups) A and B collectively reduced from 21.45% in 2016 to 20.93% in 2017, while noise over-exposure HEGS A and B collectively reduced from 68.4% in 2016 to 67.9% in 2017.

### Prevention of TB and HIV/AIDS

The percentage of employees counselled for HIV/AIDS plateaued at approximately 72% between 2015 and 2017, below the 100% milestone for HIV/AIDS.

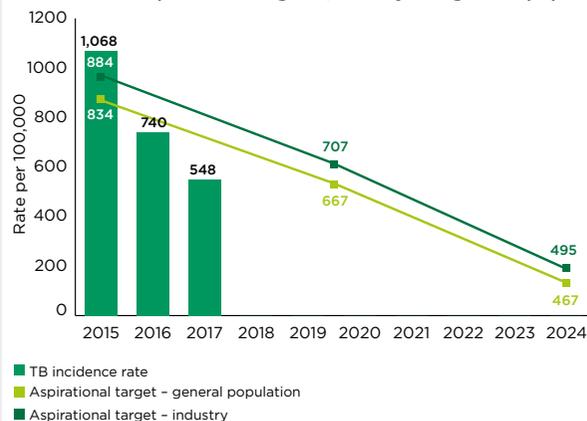
Percentage of workers counselled for HIV (2013-2017)



Source: Department of Mineral Resources and Energy

The percentage of employees screened for TB plateaued at approximately 90% in the period 2015 and 2017. Latest data suggests good progress is being made in respect of the milestone which states that, by December 2024, the TB incidence rate should be at or below the national TB incident rate. Currently, that goal is being met. TB incidence, as per Minerals Council data, has almost halved from 1,148/100,000 in 2015 to 548/100,000 in 2017. The graph below shows the DMRE total TB incidence in comparison to the South African population.

TB incidence aspirational targets (Industry and general population)



Source: Department of Mineral Resources and Energy

The extrapolation of the industry's TB incidence compared to the South African population indicates that the milestone target can be achieved if the industry continues to reduce the TB occurrence rate at the current rate.



Sibanye-Stillwater

# OUR METALS AND MINERALS



Glencore - Tweefontein Colliery



# COAL

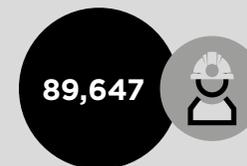
MC Mining - Vele

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| Diamonds   | 35 |
| Aggregate and sand   | 37 |
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Tonnes produced



Direct employees



Total sales

# OUR METALS AND MINERALS - COAL CONTINUED

Coal sales totalled approximately R146 billion in 2018. Historically, exports have accounted for an average of over 50% of sales since 1993. In the same period, coal export earnings averaged 12% of total merchandise exports, highlighting the industry's importance as a foreign exchange earner.

South Africa derives over 70% of its energy requirement (electricity and liquid fuels) from coal. The country exports coal mainly to India, representing 57% - or R41.6 billion - of total export sales in 2018. The European Union and western Asia are the second and third most important markets, with respective shares of 15.7% and 14.3% in 2018. In terms of volumes, exports were 28% of total production in 2018.

In 2018, the coal industry employed 89,647 people, representing about 19% of total employment in the mining sector.



Anglo American Coal - Isibonelo Colliery

## South African coal production and sales

|             | Production  | Local sales |            | Export sales |            | Total sales |             |
|-------------|-------------|-------------|------------|--------------|------------|-------------|-------------|
|             | Tonnes '000 | Tonnes '000 | R'000      | Tonnes '000  | R'000      | Tonnes '000 | R'000       |
| <b>2007</b> | 247,666     | 182,770     | 19,718,642 | 67,675       | 24,447,656 | 250,445     | 44,166,298  |
| <b>2008</b> | 252,699     | 197,033     | 30,104,161 | 60,631       | 44,706,204 | 257,664     | 74,810,365  |
| <b>2009</b> | 250,538     | 184,677     | 34,442,650 | 60,539       | 31,006,559 | 245,216     | 65,449,209  |
| <b>2010</b> | 257,206     | 186,366     | 33,702,229 | 66,770       | 37,477,184 | 253,136     | 71,179,413  |
| <b>2011</b> | 250,706     | 177,889     | 37,253,525 | 68,807       | 50,548,678 | 246,697     | 87,802,202  |
| <b>2012</b> | 259,012     | 185,548     | 44,091,664 | 76,009       | 52,226,904 | 261,556     | 96,318,568  |
| <b>2013</b> | 256,563     | 183,950     | 49,603,015 | 74,566       | 51,813,484 | 258,516     | 101,416,499 |
| <b>2014</b> | 261,949     | 184,416     | 55,255,702 | 75,823       | 51,452,471 | 260,239     | 106,708,172 |
| <b>2015</b> | 252,176     | 179,135     | 56,574,200 | 75,376       | 47,543,139 | 254,511     | 104,117,339 |
| <b>2016</b> | 250,566     | 181,271     | 61,445,037 | 68,905       | 50,465,927 | 250,176     | 111,910,965 |
| <b>2017</b> | 252,271     | 181,306     | 69,055,857 | 70,049       | 61,277,987 | 251,355     | 130,333,844 |
| <b>2018</b> | 253,257     | 179,898     | 72,899,501 | 71,948       | 73,104,572 | 251,846     | 146,004,073 |

Source: Department of Mineral Resources and Energy

## THE IMPACT OF THE DRAFT INTEGRATED RESOURCE PLAN (IRP) 2018 ON THE COAL INDUSTRY

### Reduction in coal consumed by Eskom will affect jobs

According to the government's draft IRP, in 2030, Eskom will produce 33,847MW of power using coal, a decline from 39,126MW in 2017. This represents a 5,279MW reduction and is equivalent to 6,566,654 tonnes of coal. This translates to 2,310 direct jobs lost in the coal mining industry. With an employment multiplier of 4 this means that over 9,000 jobs will be affected in 'downstream' industries. In 2017, the coal industry indirectly employed 336,804 people. Most of these jobs are in Mpumalanga. It is therefore important that 'energy transition' projects are earmarked for this province. Failure to do so will result in untold social, economic and political instability. Already mining companies operating in the province are experiencing disruptions arising from community protests.

# OUR METALS AND MINERALS



Anglo American Platinum - Tumela Mine



## PGMs

Ivanplats - Mokopane

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## OUR METALS AND MINERALS – PGMs CONTINUED

Total nominal sales in the PGMs industry amounted to R104 billion in 2018, up from the R97 billion of mineral sales a year earlier. Although platinum prices remained under pressure throughout 2018, the basket price was assisted by strong gains in palladium and rhodium, which in dollar terms increased 18% and 100%, respectively, when compared to 2017. Between 2017 and 2018, platinum prices decreased by 7.1% (in USD).

In 2018, the PGMs industry employed 167,041 people, who earned R51 billion. During the last 10 years, employment peaked in 2012 at 197,752 people. This represents a 15% decrease in employment, compared with 2018. In nominal terms, employment earnings increased 49.4% over the same period.

An increase in the adoption of fuel cells technology, influenced by pressure to reduce carbon footprints, is expected to be supportive of PGM demand. The introduction of stricter emission standards for motor vehicles is also expected to contribute to PGM demand (platinum, palladium and rhodium) which are used in the making of catalytic converters.

Other uses of PGMs are in catalysts for bulk-chemical production and petroleum refining; in computer hard disks; in hybridised integrated circuits; in multilayer ceramic capacitors; in glass manufacturing; in jewellery; and in laboratory equipment. Platinum is used in the medical sector while platinum and palladium, along with gold-silver-copper-zinc alloys, are used as dental restorative materials. PGMs (platinum and palladium) are also used for investment purposes in exchange traded funds (ETFs).

### Platinum supply

| '000 ounces                  | 2009         | 2010         | 2011         | 2012         | 2013         | 2014         | 2015         | 2016         | 2017         | 2018         |
|------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Mine production</b>       |              |              |              |              |              |              |              |              |              |              |
| South Africa                 | 4,603        | 4,75         | 4,74         | 4,182        | 4,368        | 3,22         | 4,522        | 4,273        | 4,289        | 4,318        |
| Russia                       | 793          | 785          | 818          | 803          | 741          | 687          | 721          | 678          | 708          | 683          |
| North America                | 294          | 238          | 389          | 338          | 337          | 397          | 365          | 396          | 363          | 345          |
| Others                       | 358          | 411          | 457          | 472          | 565          | 541          | 529          | 619          | 606          | 607          |
| <b>Total mine production</b> | <b>6,048</b> | <b>6,183</b> | <b>6,404</b> | <b>5,796</b> | <b>6,011</b> | <b>4,844</b> | <b>6,137</b> | <b>5,966</b> | <b>5,966</b> | <b>5,959</b> |
| Autocatalyst scrap           | 786          | 904          | 996          | 927          | 1,090        | 1,134        | 1,107        | 1,203        | 1,262        | 1,328        |
| Old jewellery scrap          | 542          | 681          | 778          | 864          | 752          | 731          | 679          | 695          | 661          | 746          |
| <b>Total supply</b>          | <b>7,377</b> | <b>7,768</b> | <b>8,178</b> | <b>7,587</b> | <b>7,854</b> | <b>6,710</b> | <b>7,924</b> | <b>7,865</b> | <b>7,889</b> | <b>8,033</b> |

Source: GFMS, Thomson Reuters, London Bullion Market Association

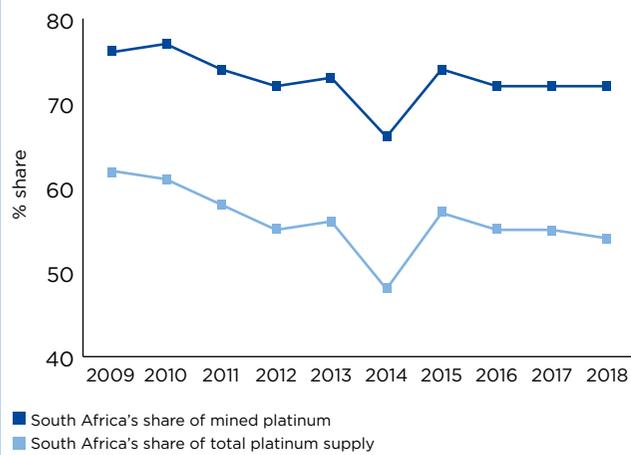
### Platinum demand

| '000 ounces                  | 2009         | 2010         | 2011        | 2012         | 2013          | 2014         | 2015         | 2016         | 2017         | 2018         |
|------------------------------|--------------|--------------|-------------|--------------|---------------|--------------|--------------|--------------|--------------|--------------|
| Autocatalysts                | 2,539        | 3,017        | 3,094       | 2,96         | 2,952         | 3,086        | 3,157        | 3,196        | 3,255        | 3,268        |
| Jewellery                    | 2,678        | 2,291        | 2,42        | 2,595        | 2,744         | 2,662        | 2,597        | 2,318        | 2,204        | 2,136        |
| Chemical                     | 283          | 482          | 487         | 398          | 435           | 587          | 439          | 588          | 573          | 609          |
| Electronics                  | 278          | 283          | 256         | 227          | 202           | 195          | 183          | 178          | 197          | 204          |
| Glass                        | 91           | 505          | 338         | 361          | 22            | (71)         | 189          | 274          | 333          | 436          |
| Petroleum                    | 163          | 168          | 144         | 126          | 107           | 122          | 96           | 135          | 172          | 180          |
| Other industrial             | 431          | 494          | 559         | 621          | 649           | 700          | 681          | 742          | 784          | 808          |
| Retail investment            | 313          | 95           | 312         | 282          | 136           | 141          | 582          | 550          | 303          | 292          |
| <b>Total demand</b>          | <b>6,776</b> | <b>7,335</b> | <b>7,61</b> | <b>7,571</b> | <b>7,247</b>  | <b>7,423</b> | <b>7,924</b> | <b>7,981</b> | <b>7,822</b> | <b>7,933</b> |
| Physical surplus/ (deficit)  | 601          | 434          | 568         | 16           | 566           | (754)        | (42)         | (193)        | (53)         | (280)        |
| Stock movements              | 281          | (579)        | (256)       | (538)        | (1,891)       | 1,079        | 142          | 35           | 15           | (100)        |
| of which ETF release/(build) | (384)        | (579)        | (156)       | (238)        | (891)         | (221)        | 192          | (15)         | 15           | (100)        |
| <b>Net balance</b>           | <b>882</b>   | <b>(146)</b> | <b>312</b>  | <b>(522)</b> | <b>-1,325</b> | <b>325</b>   | <b>99</b>    | <b>(158)</b> | <b>(38)</b>  | <b>(380)</b> |

Source: GFMS, Thomson Reuters, London Bullion Market Association

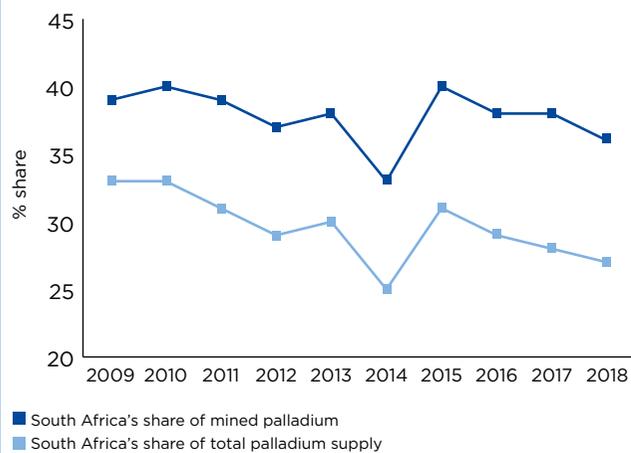
# OUR METALS AND MINERALS - PGMs CONTINUED

South Africa's share of platinum supply



Source: GFMS, Thomson Reuters, London Bullion Market Association, Minerals Council

South Africa's share of palladium supply



Source: GFMS, Thomson Reuters, London Bullion Market Association, Minerals Council

## Palladium supply

| '000 ounces            | 2009         | 2010         | 2011         | 2012         | 2013         | 2014        | 2015         | 2016         | 2017         | 2018         |
|------------------------|--------------|--------------|--------------|--------------|--------------|-------------|--------------|--------------|--------------|--------------|
| <b>Mine production</b> |              |              |              |              |              |             |              |              |              |              |
| South Africa           | 2,481        | 2,646        | 2,686        | 2,391        | 2,432        | 2,008       | 2,653        | 2,467        | 2,529        | 2,417        |
| Russia                 | 2,677        | 2,722        | 2,704        | 2,624        | 2,527        | 2,582       | 2,575        | 2,526        | 2,728        | 2,68         |
| North America          | 688          | 726          | 959          | 953          | 934          | 978         | 925          | 932          | 896          | 967          |
| Others                 | 475          | 518          | 512          | 528          | 575          | 568         | 561          | 615          | 588          | 589          |
| Total mine production  | 6,321        | 6,612        | 6,861        | 6,497        | 6,468        | 6,136       | 6,713        | 6,54         | 6,741        | 6,653        |
| Autocatalyst scrap     | 1,077        | 1,307        | 1,514        | 1,472        | 1,587        | 1,826       | 1,763        | 1,956        | 2,16         | 2,265        |
| Old jewellery scrap    | 217          | 215          | 194          | 203          | 182          | 118         | 82           | 65           | 47           | 52           |
| <b>Total supply</b>    | <b>7,615</b> | <b>8,134</b> | <b>8,569</b> | <b>8,172</b> | <b>8,238</b> | <b>8,08</b> | <b>8,558</b> | <b>8,561</b> | <b>8,948</b> | <b>8,969</b> |

Source: GFMS, Thomson Reuters, London Bullion Market Association

|                                      | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|--------------------------------------|------|------|------|------|------|------|------|------|------|------|
| SA % Share of mined palladium        | 39%  | 40%  | 39%  | 37%  | 38%  | 33%  | 40%  | 38%  | 38%  | 36%  |
| SA % Share of total palladium supply | 33%  | 33%  | 31%  | 29%  | 30%  | 25%  | 31%  | 29%  | 28%  | 27%  |

## Palladium demand

| '000 ounces                  | 2009         | 2010         | 2011         | 2012          | 2013         | 2014          | 2015         | 2016         | 2017          | 2018          |
|------------------------------|--------------|--------------|--------------|---------------|--------------|---------------|--------------|--------------|---------------|---------------|
| Autocatalysts                | 4,032        | 5,324        | 5,667        | 6,159         | 6,361        | 6,745         | 7,057        | 7,613        | 7,88          | 8,09          |
| Jewellery                    | 1,11         | 797          | 674          | 595           | 525          | 478           | 324          | 293          | 285           | 280           |
| Dental                       | 602          | 590          | 567          | 546           | 511          | 475           | 449          | 426          | 408           | 394           |
| Chemical                     | 306          | 369          | 385          | 379           | 409          | 385           | 374          | 459          | 506           | 498           |
| Electronics                  | 1,14         | 1,26         | 1,25         | 1,242         | 1,134        | 1,109         | 991          | 938          | 892           | 852           |
| Other industrial             | 84           | 101          | 103          | 110           | 110          | 117           | 116          | 113          | 124           | 123           |
| Retail investment            | 170          | 80           | 61           | 37            | 38           | 45            | 45           | 45           | 53            | 59            |
| <b>Total demand</b>          | <b>7,444</b> | <b>8,521</b> | <b>8,707</b> | <b>9,068</b>  | <b>9,089</b> | <b>9,354</b>  | <b>9,355</b> | <b>9,887</b> | <b>10,148</b> | <b>10,297</b> |
| Physical surplus/(deficit)   | 171          | (388)        | (138)        | (896)         | (850)        | -1,273        | (797)        | -1,326       | -1,201        | -1,327        |
| Stock movement               | 593          | (290)        | 1,282        | (148)         | (300)        | (299)         | 577          | 877          | 294           | 190           |
| of which ETF release/(build) | (507)        | -1,09        | 532          | (448)         | 0            | (899)         | 727          | 637          | 384           | 350           |
| <b>Net Balance</b>           | <b>765</b>   | <b>(677)</b> | <b>1,143</b> | <b>-1,044</b> | <b>-1,15</b> | <b>-1,572</b> | <b>(220)</b> | <b>(449)</b> | <b>(907)</b>  | <b>-1,137</b> |

Source: GFMS, Thomson Reuters, London Bullion Market Association

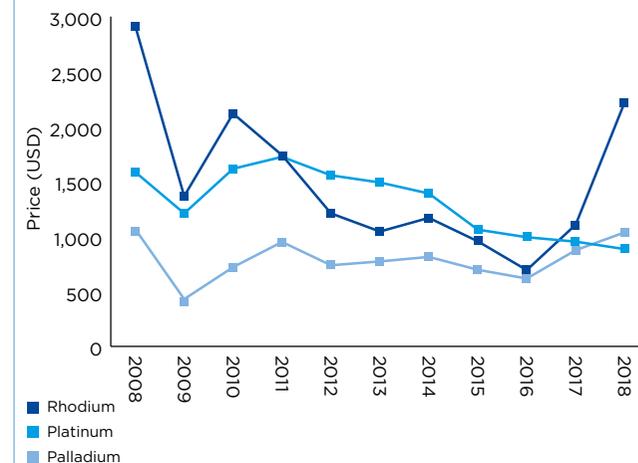
# OUR METALS AND MINERALS - PGMs CONTINUED

## South African PGM production

|      | Production | Local sales |            | Export sales |            | Total sales |             |
|------|------------|-------------|------------|--------------|------------|-------------|-------------|
|      | Tonnes     | Tonnes      | R'000      | Tonnes       | R'000      | Tonnes      | R'000       |
| 2008 | 276        | -           | 13,448,280 | 223          | 77,904,355 | -           | 91,352,635  |
| 2009 | 271        | -           | 4,322,869  | 251          | 53,459,307 | -           | 57,782,176  |
| 2010 | 287        | -           | 7,892,570  | 244          | 65,894,341 | -           | 73,786,910  |
| 2011 | 289        | -           | 10,619,219 | 244          | 73,234,047 | -           | 83,853,266  |
| 2012 | 254        | -           | 8,285,235  | 211          | 60,918,939 | -           | 69,204,174  |
| 2013 | 264        | 28          | 8,886,103  | 239          | 75,348,535 | 266         | 84,234,637  |
| 2014 | 188        | 28          | 10,644,402 | 202          | 66,860,760 | 230         | 77,505,163  |
| 2015 | 276        | 32          | 11,149,886 | 254          | 82,988,098 | 286         | 94,137,984  |
| 2016 | 264        | 31          | 11,093,840 | 250          | 85,318,461 | 282         | 96,412,301  |
| 2017 | 262        | 32          | 11,966,660 | 251          | 85,069,237 | 283         | 97,035,896  |
| 2018 | 271        | 24          | 10,668,195 | 244          | 94,228,661 | 268         | 104,896,855 |

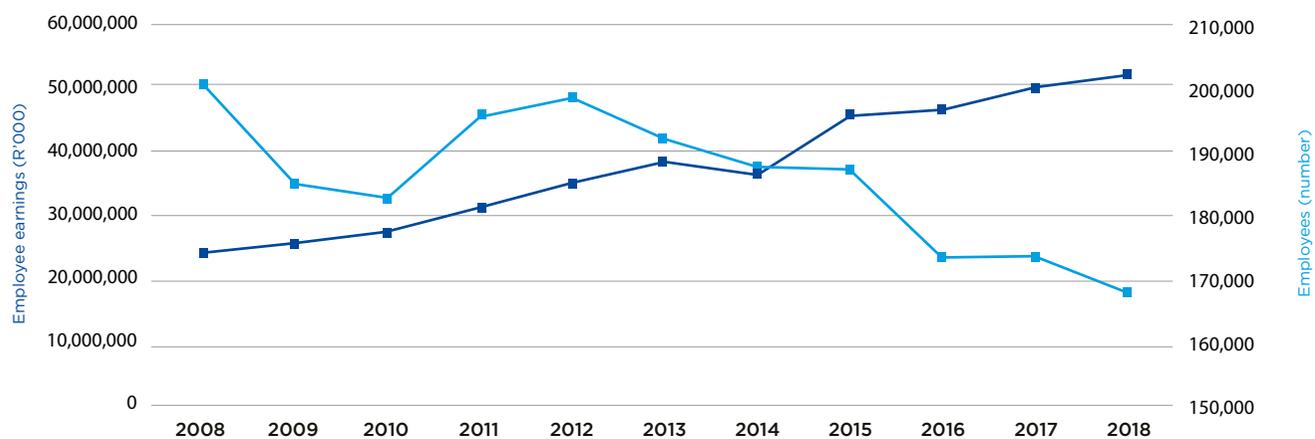
Source: GFMS, Thomson Reuters, London Bullion Market Association

## PGM (3E) selling prices



Source: Department of Mineral Resources and Energy, Minerals Council

## PGM sector employment and earnings



Source: Department of Mineral Resources and Energy



# OUR METALS AND MINERALS



# GOLD

Sibanye-Stillwater - West Wits Gold Plant

## KEY 2018 FEATURES



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# OUR METALS AND MINERALS - GOLD CONTINUED

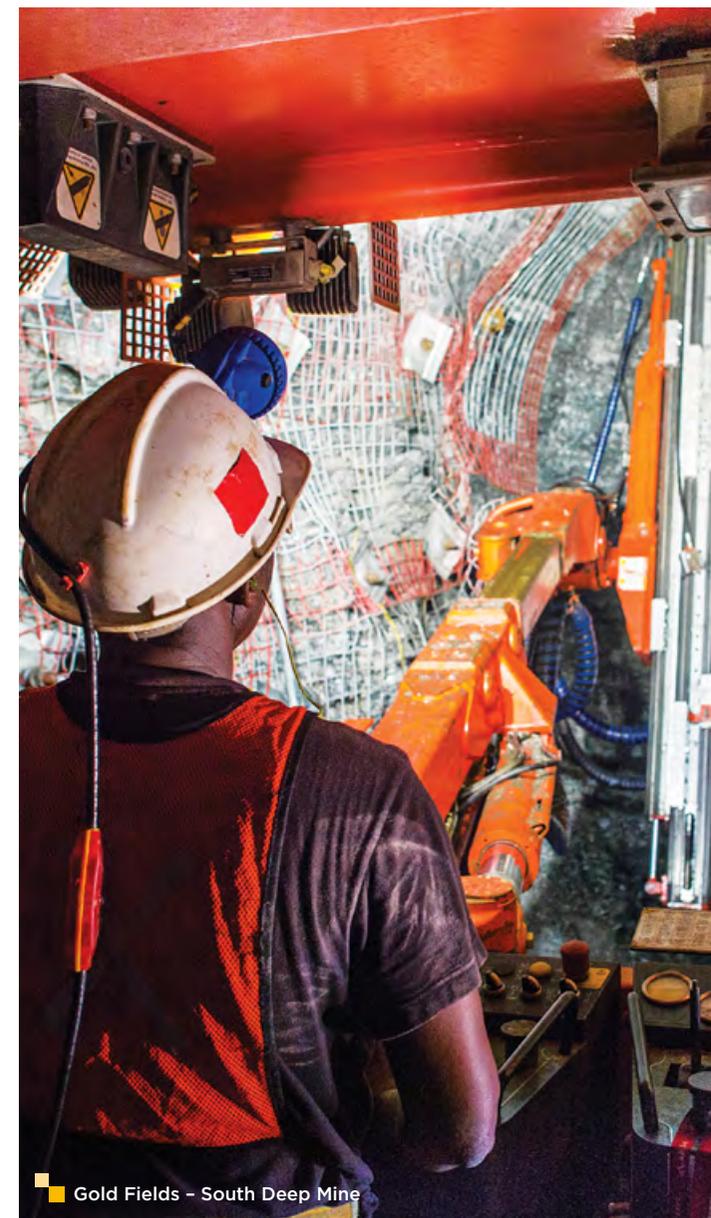
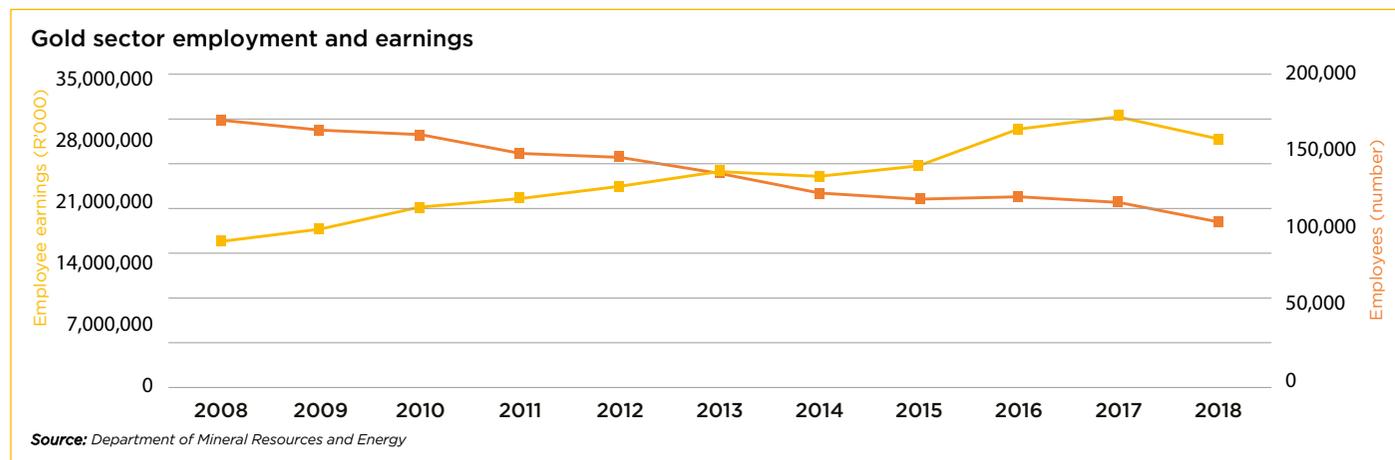
South Africa was responsible for 3.3% of global gold production in 2018. And while the country has the deepest gold mines in the world it has the third largest gold reserves (6,000 tonnes) after Australia (9,500 tonnes) and Russia (8,000 tonnes).

While the number of people employed in the sector has been on the decline since 2007, total employee earnings have soared from R15.9 billion in 2008 to R27.6 billion in 2018.

## South African gold production and sales

|      | Production |        | Local sales |        | Export sales |        | Total sales |         | World production | SA share |
|------|------------|--------|-------------|--------|--------------|--------|-------------|---------|------------------|----------|
|      | Tonnes     | Tonnes | R'000       | Tonnes | R'000        | Tonnes | R'000       | Tonnes  | (%)              |          |
| 2007 | 253        | 13     | 2,081,731   | 229    | 35,953,993   | 243    | 38,035,724  | 2,497.8 | 10.1             |          |
| 2008 | 213        | 9      | 1,997,761   | 190    | 43,994,483   | 199    | 45,992,244  | 2,429.9 | 8.7              |          |
| 2009 | 198        | 7      | 1,701,334   | 181    | 46,994,169   | 187    | 48,695,503  | 2,612.0 | 7.6              |          |
| 2010 | 189        | 7      | 2,055,698   | 177    | 51,037,449   | 184    | 53,093,147  | 2,793.6 | 6.8              |          |
| 2011 | 180        | 10     | 3,633,111   | 176    | 65,258,302   | 186    | 68,891,413  | 2,880.8 | 6.3              |          |
| 2012 | 155        | 11     | 4,862,748   | 165    | 71,961,757   | 176    | 76,824,504  | 2,959.1 | 5.2              |          |
| 2013 | 160        | 10     | 4,192,863   | 151    | 65,793,912   | 162    | 69,986,775  | 3,118.1 | 5.1              |          |
| 2014 | 152        | 9      | 3,450,902   | 136    | 59,898,125   | 145    | 63,349,026  | 3,202.9 | 4.7              |          |
| 2015 | 145        | 16     | 7,385,852   | 118    | 55,314,075   | 134    | 62,699,927  | 3,289.5 | 4.4              |          |
| 2016 | 142        | 25     | 14,919,703  | 104    | 60,572,047   | 129    | 75,491,750  | 3,397.3 | 4.2              |          |
| 2017 | 137        | 34     | 17,799,800  | 120    | 65,099,682   | 154    | 82,899,482  | 3,441.9 | 4.0              |          |
| 2018 | 117        | 66     | 35,201,487  | 64     | 34,482,018   | 130    | 69,683,505  | 3,502.6 | 3.3              |          |

Source: Department of Mineral Resources and Energy, World Gold Council



Gold Fields - South Deep Mine

# OUR METALS AND MINERALS



Kumba Iron Ore - Sishen Mine

## KEY 2018 FEATURES



# IRON ORE

Kumba Iron Ore - Kolomela Mine

18,613



Direct employees

R6.6  
BILLION



Employee earnings

R51.2  
BILLION



Total sales

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# OUR METALS AND MINERALS - IRON ORE CONTINUED

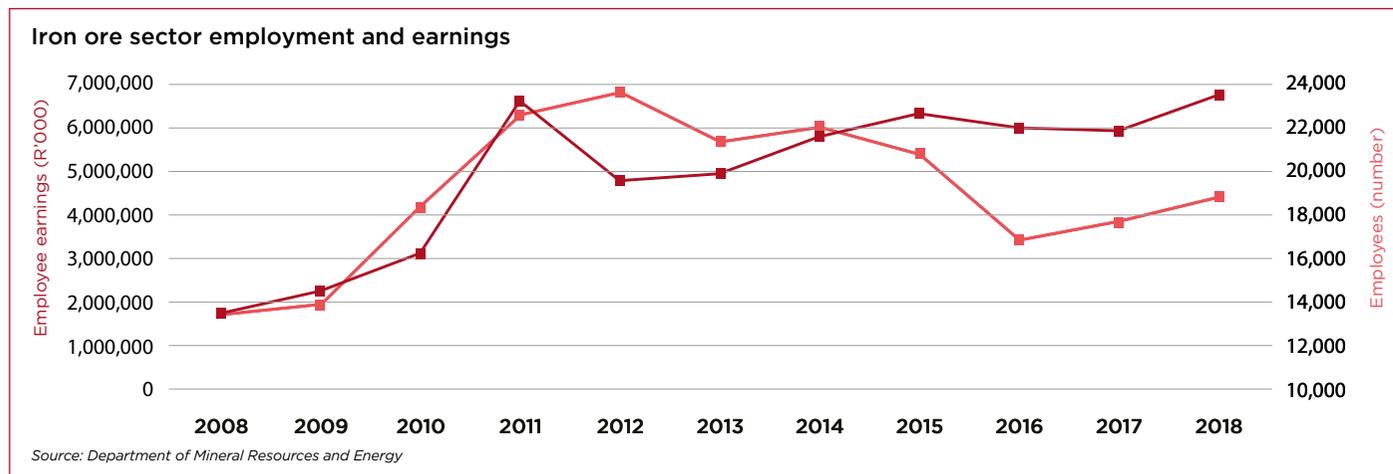
In 2018, total iron ore rand sales increased by 3.7% and tonnes sold by 2.7%. This is despite a weaker dollar price for iron ore, which decreased 2.7% and a flat exchange rate between 2017 and 2018. The higher quality of South African iron ore is supportive of strong external demand. Export sales of iron ore have doubled over the last decade to 61 million tonnes in 2018 up from 32 million tonnes in 2008.

Employment in the industry increased by 6.2% between 2017 and 2018 to 18,613 and R6.6 billion was paid to employees.

## South African iron ore production and sales

|      | Production | Local sales |           | Export sales |            | Total sales |            |
|------|------------|-------------|-----------|--------------|------------|-------------|------------|
|      | Tonnes     | Tonnes      | R'000     | Tonnes       | R'000      | Tonnes      | R'000      |
| 2008 | 48,982,537 | 11,258,013  | 1,974,629 | 32,765,740   | 20,267,206 | 44,023,753  | 22,241,836 |
| 2009 | 55,313,053 | 8,369,099   | 1,888,801 | 44,550,151   | 25,242,934 | 52,919,250  | 27,131,735 |
| 2010 | 58,709,330 | 10,560,910  | 3,270,326 | 47,492,581   | 40,148,279 | 58,053,491  | 43,418,606 |
| 2011 | 58,056,897 | 9,844,323   | 4,207,746 | 51,890,937   | 58,444,148 | 61,735,260  | 62,651,894 |
| 2012 | 67,100,474 | 8,392,835   | 4,448,978 | 57,109,694   | 48,193,830 | 65,502,529  | 52,642,808 |
| 2013 | 71,644,761 | 9,295,336   | 5,776,442 | 58,180,390   | 57,360,500 | 67,475,726  | 63,136,942 |
| 2014 | 80,741,034 | 9,571,453   | 5,741,815 | 61,944,607   | 52,944,638 | 71,516,060  | 58,686,453 |
| 2015 | 72,805,534 | 7,512,691   | 5,071,073 | 64,175,896   | 34,394,014 | 71,688,587  | 39,465,086 |
| 2016 | 66,450,089 | 6,160,597   | 3,855,830 | 58,392,326   | 39,240,118 | 64,552,923  | 43,095,948 |
| 2017 | 74,789,394 | 7,177,079   | 5,187,033 | 60,678,253   | 44,188,638 | 67,855,332  | 49,375,671 |
| 2018 | 74,263,738 | 8,024,561   | 5,730,332 | 61,709,422   | 45,496,775 | 69,733,983  | 51,227,106 |

Source: Department of Mineral Resources and Energy



Kumba Iron Ore - Sishen Mine

# OUR METALS AND MINERALS



## KEY 2018 FEATURES

Ntsimbintle – Tshipi é Ntle Manganese Mining



# MANGANESE

Ntsimbintle – Tshipi é Ntle Manganese Mining

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9,971



Direct employees

R3  
BILLION



Employee earnings

R45  
BILLION



Total sales

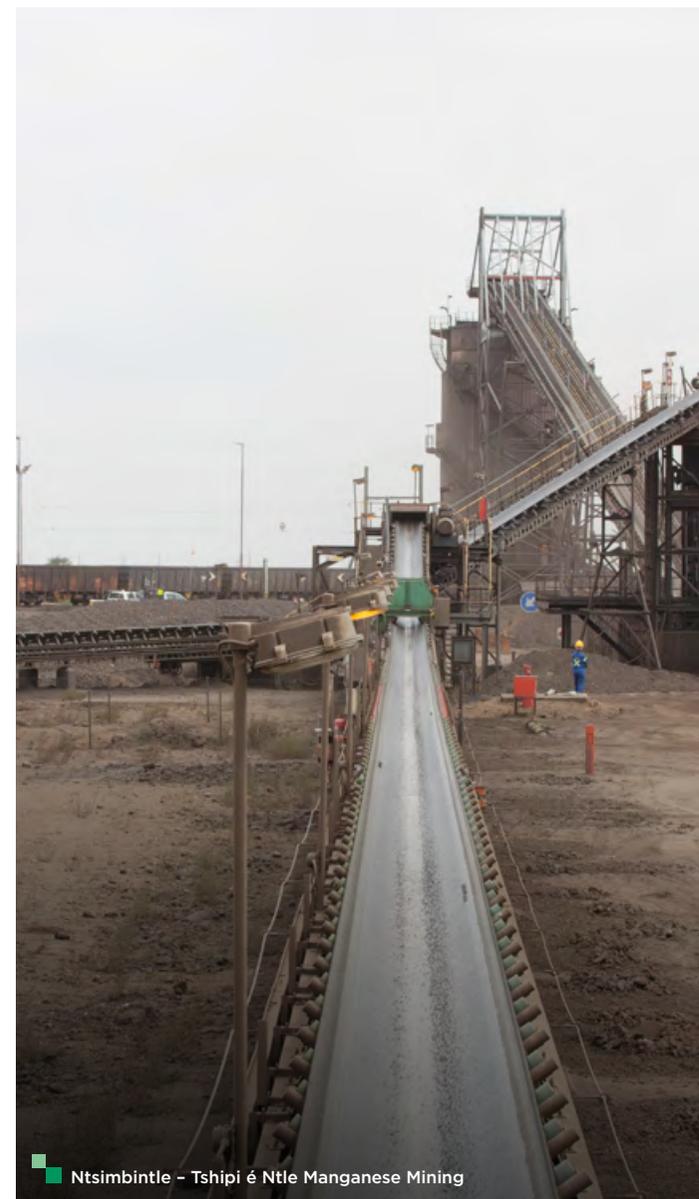
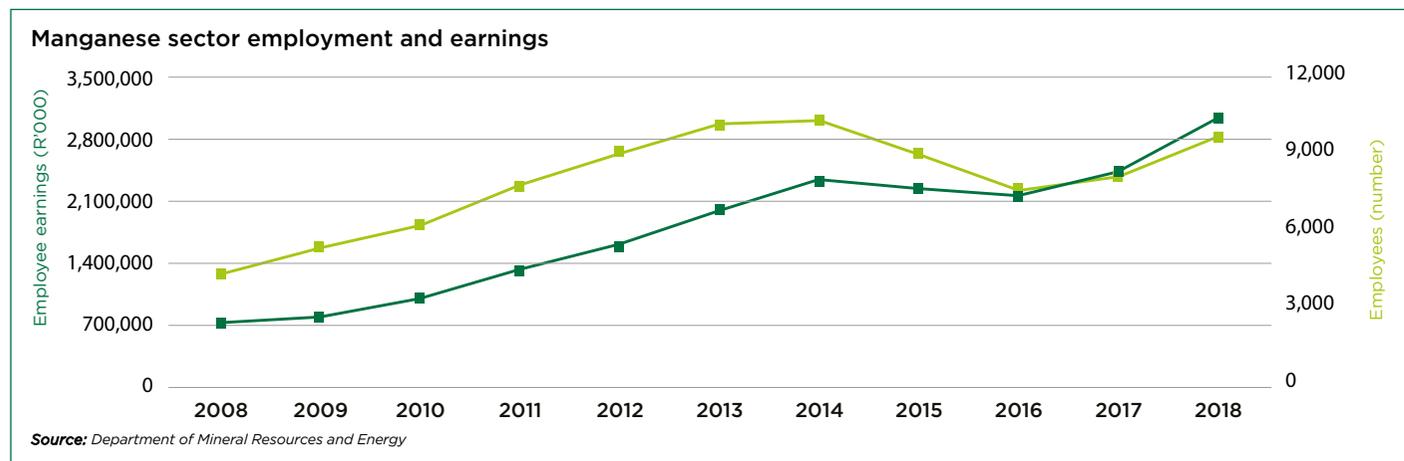
# OUR METALS AND MINERALS - MANGANESE CONTINUED

South Africa is the world's leading producer of manganese, producing more than 14.9 million tonnes in 2018, up from 14.3 million tonnes in 2017. South Africa accounts for about 78% of the world's identified manganese resources, with Ukraine accounting for approximately 10%, in second place. There are currently no satisfactory substitutes for manganese. Most manganese produced locally is exported. Since peaking at 9,971 in 2014, employment numbers have declined to 9,352 in 2018. Employee earnings amounted to R3 billion in 2018.

## South Africa Manganese production and sales

|      | Production | Local sales |           | Export sales |            | Total sales |            |
|------|------------|-------------|-----------|--------------|------------|-------------|------------|
|      |            | Tonnes      | R'000     | Tonnes       | R'000      | Tonnes      | R'000      |
| 2007 | 5,996      | 2,305       | 934,901   | 3,691        | 2,636,526  | 5,996       | 3,571,427  |
| 2008 | 6,807      | 2,118       | 1,761,848 | 4,689        | 15,581,560 | 6,807       | 17,343,408 |
| 2009 | 4,579      | 603         | 583,602   | 3,976        | 5,003,011  | 4,579       | 5,586,613  |
| 2010 | 7,172      | 1,185       | 1,320,564 | 5,986        | 9,340,026  | 7,172       | 10,660,590 |
| 2011 | 8,652      | 1,879       | 1,325,213 | 6,773        | 8,569,854  | 8,652       | 9,895,067  |
| 2012 | 8,952      | 1,454       | 1,134,842 | 7,498        | 9,685,812  | 8,952       | 10,820,654 |
| 2013 | 10,456     | 2,495       | 1,506,434 | 7,961        | 12,969,545 | 10,456      | 14,475,979 |
| 2014 | 12,027     | 2,382       | 1,644,399 | 9,644        | 14,734,415 | 12,027      | 16,378,814 |
| 2015 | 11,034     | 1,007       | 860,474   | 10,027       | 12,657,775 | 11,034      | 13,518,249 |
| 2016 | 10,806     | 986         | 896,947   | 11,245       | 18,860,231 | 12,232      | 19,757,177 |
| 2017 | 14,350     | 1,310       | 1,726,702 | 13,040       | 30,614,192 | 14,350      | 32,340,893 |
| 2018 | 14,918     | 1,361       | 1,066,479 | 13,557       | 43,746,990 | 14,918      | 44,813,469 |

Source: Department of Mineral Resources and Energy



# OUR METALS AND MINERALS



KEY 2018 FEATURES

Glencore - Tweefontein Colliery

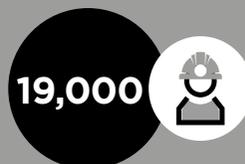


## CHROME ORE

Palabora Mining Company

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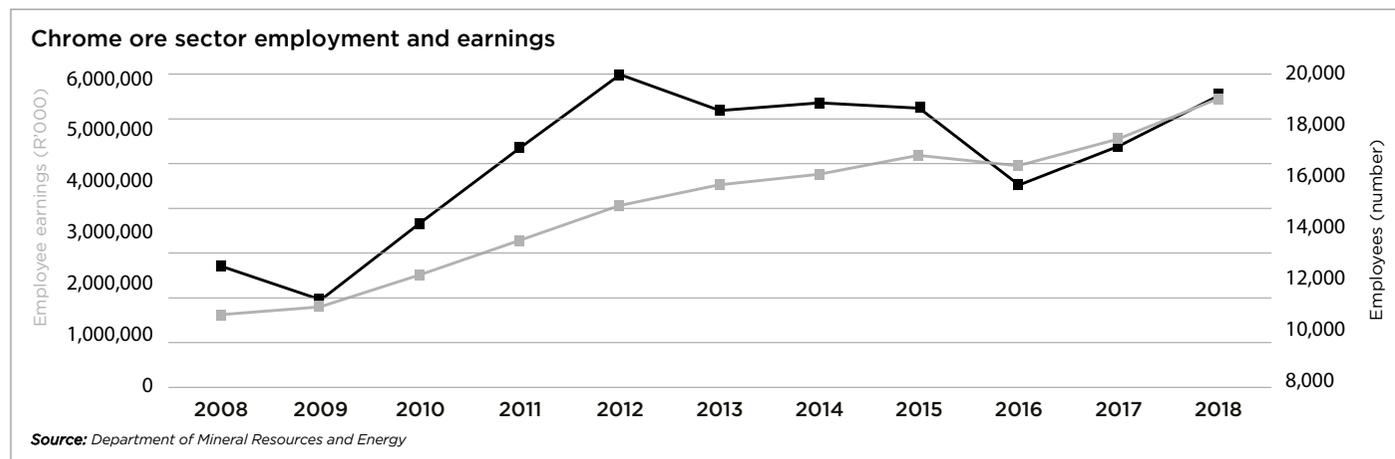
# OUR METALS AND MINERALS - CHROME ORE CONTINUED

Global chrome reserves are estimated to be in the region of 12 billion tonnes. According to the US Geological Survey (2018), South Africa and Kazakhstan host 95% of the world's chromium reserves (shipping grade), at 200,000 tonnes and 230,000 tonnes, respectively. South Africa has 72% of the world's chrome resources. While domestic sales have been volatile, demand in the export market has soared, from 762,164 tonnes in 2008 to 4 million tonnes in 2018. Likewise, employment in the industry has increased from 12,200 in 2008 to 19,000 in 2018. Employees earned R5.5 billion in 2018.

## Chrome ore production and sales

|      | Production | Local sales |            | Export sales |            | Total sales |            |
|------|------------|-------------|------------|--------------|------------|-------------|------------|
|      | Tonnes     | Tonnes      | R'000      | Tonnes       | R'000      | Tonnes      | R'000      |
| 2008 | 9,686,945  | 7,120,470   | 4,135,871  | 762,164      | 1,267,931  | 7,882,634   | 5,403,802  |
| 2009 | 6,962,140  | 4,855,393   | 2,066,278  | 1,132,368    | 1,248,337  | 5,987,761   | 3,314,615  |
| 2010 | 10,853,574 | 7,249,519   | 4,149,027  | 1,927,577    | 2,457,008  | 9,177,097   | 6,606,035  |
| 2011 | 11,016,860 | 7,255,825   | 5,250,590  | 2,077,609    | 3,458,691  | 9,333,434   | 8,709,281  |
| 2012 | 11,310,225 | 6,684,739   | 4,683,023  | 2,469,551    | 3,594,282  | 9,154,290   | 8,277,305  |
| 2013 | 13,661,244 | 8,483,087   | 5,870,717  | 4,168,240    | 5,891,833  | 12,651,327  | 11,762,549 |
| 2014 | 14,037,722 | 10,047,716  | 7,771,424  | 3,695,092    | 5,834,876  | 13,742,808  | 13,606,301 |
| 2015 | 15,653,045 | 9,841,821   | 8,098,789  | 4,820,551    | 8,104,128  | 14,662,372  | 16,202,917 |
| 2016 | 14,707,518 | 8,726,059   | 8,164,657  | 4,684,049    | 9,541,381  | 13,410,108  | 17,706,038 |
| 2017 | 16,613,206 | 8,919,825   | 10,894,320 | 4,687,250    | 12,560,328 | 13,607,075  | 23,454,648 |
| 2018 | 17,853,383 | 9,959,459   | 11,756,993 | 4,065,101    | 10,045,204 | 14,024,560  | 21,802,197 |

Source: Department of Mineral Resources and Energy



# OUR METALS AND MINERALS



KEY 2018 FEATURES

Petra Diamonds - Koffiefontein Mine



# DIAMONDS

De Beers

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# OUR METALS AND MINERALS - DIAMONDS CONTINUED

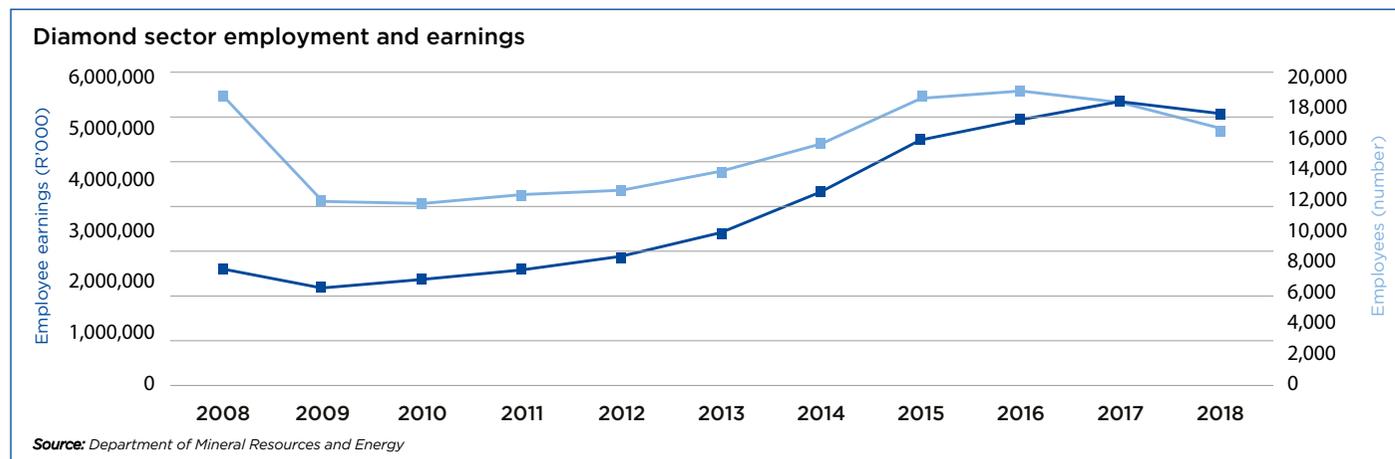
South Africa ranks among the top 10 diamond producers globally, producing 10% of the world's diamonds. In 2018 about 9.9 million carats of diamonds were produced locally.

Total employee earnings decreased between 2017 and 2018, from R5.4 billion to R5.2 billion, in line with a 9.2% decrease in employment between the same years. The industry employed 16,361 people in 2018.

## South Africa diamond production and sales

|      | Production | Local sales |           | Export sales |            | Total sales |            |
|------|------------|-------------|-----------|--------------|------------|-------------|------------|
|      | Carats     | Carats      | R'000     | Carats       | R'000      | Carats      | R'000      |
| 2008 | 12,892,729 | -           | -         | -            | -          | -           | -          |
| 2009 | 6,103,189  | -           | -         | -            | -          | -           | -          |
| 2010 | 8,869,532  | -           | -         | -            | -          | -           | -          |
| 2011 | 7,046,277  | -           | -         | -            | -          | -           | -          |
| 2012 | 7,245,402  | -           | -         | -            | -          | -           | -          |
| 2013 | 8,159,531  | 3,425,339   | 7,552,445 | 3,768,082    | 4,792,191  | 7,193,421   | 12,344,635 |
| 2014 | 8,095,037  | 3,168,609   | 8,800,678 | 5,619,831    | 7,730,529  | 8,788,440   | 16,531,206 |
| 2015 | 8,229,657  | 3,138,546   | 8,613,267 | 4,650,483    | 5,811,860  | 7,789,029   | 14,425,128 |
| 2016 | 8,302,110  | 1,609,160   | 8,325,338 | 9,002,389    | 12,435,825 | 10,611,549  | 20,761,163 |
| 2017 | 9,678,752  | 1,015,882   | 7,912,460 | 9,118,652    | 10,230,438 | 10,134,534  | 18,142,898 |
| 2018 | 9,914,000  | 1,427,328   | 7,196,612 | 8,878,341    | 10,078,127 | 10,305,669  | 17,274,739 |

Source: Department of Mineral Resources and Energy



# OUR METALS AND MINERALS



## KEY 2018 FEATURES

 Pretoria Portland Cement – Koffiefontein Mine



## AGGREGATE AND SAND

 Pretoria Portland Cement – Koffiefontein Mine

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| Silver  | 41        |
| Uranium   | 43        |
| <b>Contact details</b>  | <b>45</b> |

6,121



Direct employees

R1.5  
BILLION



Employee earnings

R7  
BILLION



Total sales

# OUR METALS AND MINERALS – AGGREGATE AND SAND

## CONTINUED

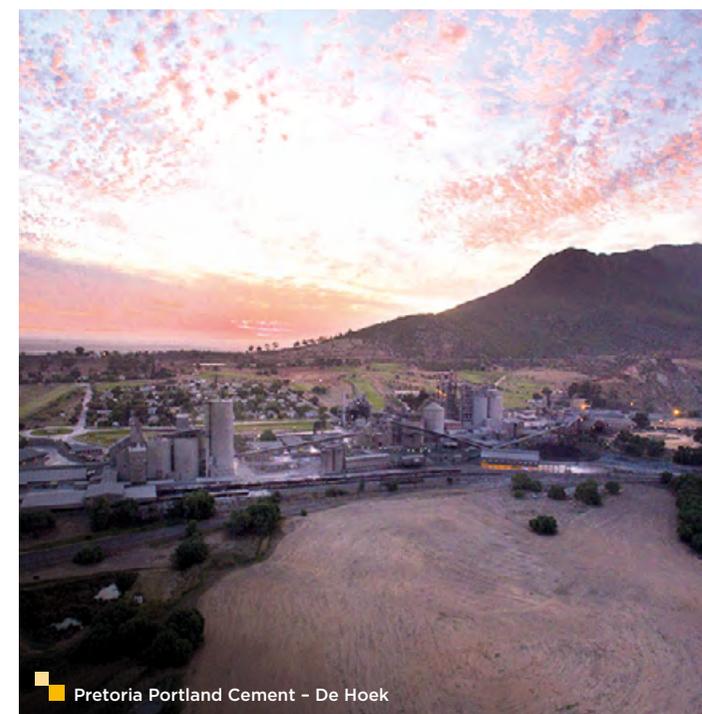
The aggregate and sand industry is closely linked to the construction sector.

The industry is the smallest contributor to mining sector employment with 6,121 employees in 2018. Employee earnings amounted to R1.5 billion in the same year.

### South African aggregate and sand sales

|      | Local sales |           | Total sales |           |
|------|-------------|-----------|-------------|-----------|
|      | Kilotonnes  | R'000     | Kilotonnes  | R'000     |
| 2006 | 58,563      | 2,789,556 | 58,563      | 2,789,556 |
| 2007 | 63,873      | 3,374,162 | 63,873      | 3,374,162 |
| 2008 | 58,608      | 3,775,003 | 58,608      | 3,775,003 |
| 2009 | 53,604      | 3,895,686 | 53,604      | 3,895,686 |
| 2010 | 52,625      | 3,864,613 | 52,625      | 3,864,613 |
| 2011 | 51,595      | 4,062,483 | 51,595      | 4,062,483 |
| 2012 | 54,649      | 4,562,068 | 54,649      | 4,562,068 |
| 2013 | 60,375      | 5,250,636 | 60,375      | 5,250,636 |
| 2014 | 62,192      | 5,916,648 | 62,192      | 5,916,648 |
| 2015 | 63,779      | 6,502,085 | 63,779      | 6,502,085 |
| 2016 | 64,478      | 6,981,878 | 64,478      | 6,981,878 |
| 2017 | 64,161      | 7,041,618 | 64,161      | 7,041,618 |
| 2018 | 61,715      | 6,972,075 | 61,715      | 6,972,075 |

Source: Department of Mineral Resources and Energy



# OUR METALS AND MINERALS



KEY 2018 FEATURES

Rio Tinto - Richards Bay Minerals



# COPPER

Palabora Mining Company

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47,000  
TONNES



Total production

R2  
BILLION



Local sales

R4  
BILLION



Total sales

## OUR METALS AND MINERALS - COPPER CONTINUED

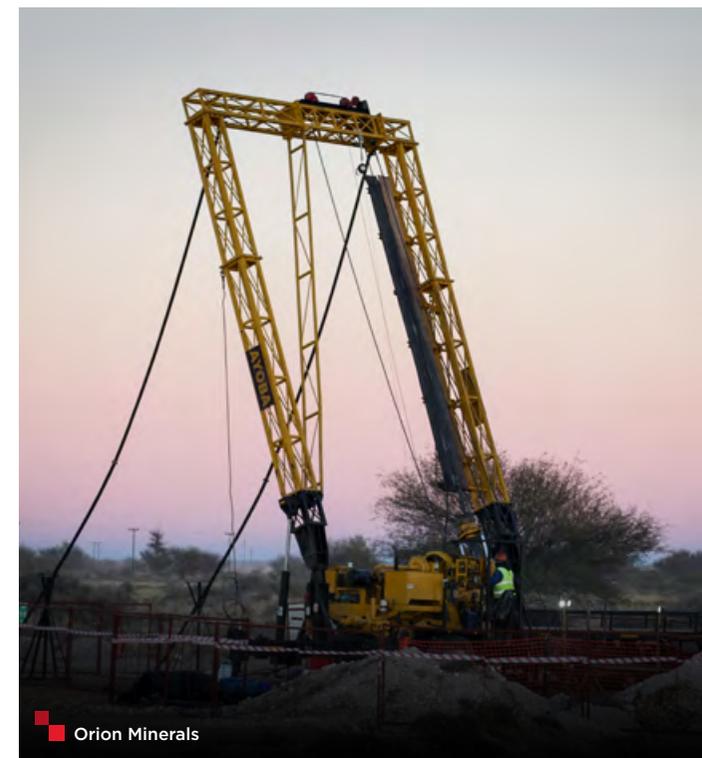
In 2018, total iron ore rand sales increased by 3.7% and tonnes sold by 2.7%. This is despite a weaker dollar price for iron ore, which decreased 2.7% and a flat exchange rate between 2017 and 2018. The higher quality of South African iron ore is supportive of strong external demand. Export sales of iron ore have doubled over the last decade to 61 million tonnes in 2018 up from 32 million tonnes in 2008.

Employment in the industry increased by 6.2% between 2017 and 2018 to 18,613 and R6.6 billion was paid to employees.

### South African copper production and sales

|      | Production | Local sales |           | Export sales |           | Total sales |           |
|------|------------|-------------|-----------|--------------|-----------|-------------|-----------|
|      | Kilotonnes | Kilotonnes  | R'000     | Kilotonnes   | R'000     | Kilotonnes  | R'000     |
| 2006 | 110        | 84          | 3,892,035 | 24           | 1,064,042 | 108         | 4,956,078 |
| 2007 | 117        | 77          | 4,025,725 | 37           | 1,828,126 | 114         | 5,853,851 |
| 2008 | 97         | 68          | 4,120,564 | 33           | 1,507,356 | 101         | 5,627,920 |
| 2009 | 93         | 68          | 2,835,737 | 27           | 1,024,014 | 95          | 3,859,751 |
| 2010 | 84         | 57          | 3,160,029 | 25           | 1,209,297 | 82          | 4,369,326 |
| 2011 | 89         | 60          | 3,937,749 | 26           | 1,495,100 | 86          | 5,432,849 |
| 2012 | 70         | 55          | 3,575,956 | 27           | 1,579,105 | 81          | 5,155,061 |
| 2013 | 81         | 56          | 4,056,792 | 26           | 1,760,781 | 82          | 5,817,573 |
| 2014 | 79         | 45          | 3,483,784 | 37           | 2,466,769 | 82          | 5,950,553 |
| 2015 | 77         | 37          | 2,703,423 | 38           | 2,497,528 | 75          | 5,200,951 |
| 2016 | 65         | 27          | 1,923,681 | 27           | 1,821,207 | 54          | 3,744,887 |
| 2017 | 66         | 26          | 2,120,088 | 30           | 2,207,458 | 56          | 4,327,545 |
| 2018 | 47         | 23          | 2,027,485 | 27           | 2,050,357 | 50          | 4,077,841 |

Source: Department of Mineral Resources and Energy



Copper is one of three base metal by-products of PGM mining

# OUR METALS AND MINERALS



KEY 2018 FEATURES

 Vedanta Zinc International

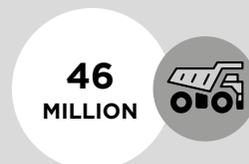


## SILVER

 Impala Platinum Refineries

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Tonnes produced



Local sales



Total sales

# OUR METALS AND MINERALS - SILVER CONTINUED

Silver production has a long history in South Africa. For the last decade, silver production has been on a steady decline from 75 tonnes in 2008 to 46 tonnes in 2018.

Silver is used in electronics, brazing solders and alloys, and photography. Demand from these areas is expected to decline. On the other hand, demand for silver in ethylene oxide production is projected to remain unchanged and its use in photovoltaics is projected to increase.

In 2018, total silver sales amounted to R382 million, with export earnings accounting for 90% of total sales.

## South African silver production and sales

|             | Production | Local sales |        | Export sales |         | Total sales |         |
|-------------|------------|-------------|--------|--------------|---------|-------------|---------|
|             | Tonnes     | Tonnes      | R'000  | Tonnes       | R'000   | Tonnes      | R'000   |
| <b>2008</b> | 75         | 8           | 28,272 | 87           | 318,573 | 95          | 346,845 |
| <b>2009</b> | 78         | 8           | 30,906 | 70           | 256,198 | 78          | 287,103 |
| <b>2010</b> | 79         | 8           | 35,639 | 79           | 350,440 | 87          | 386,079 |
| <b>2011</b> | 73         | 10          | 80,001 | 71           | 531,932 | 81          | 611,933 |
| <b>2012</b> | 67         | 6           | 49,591 | 70           | 533,232 | 76          | 582,824 |
| <b>2013</b> | 69         | 6           | 43,179 | 62           | 409,672 | 68          | 452,851 |
| <b>2014</b> | 37         | 4           | 27,011 | 55           | 315,097 | 59          | 342,107 |
| <b>2015</b> | 48         | 3           | 21,717 | 56           | 343,179 | 60          | 364,896 |
| <b>2016</b> | 55         | 4           | 28,338 | 55           | 384,476 | 58          | 412,814 |
| <b>2017</b> | 63         | 3           | 21,788 | 53           | 339,889 | 56          | 361,677 |
| <b>2018</b> | 46         | 6           | 35,536 | 57           | 347,209 | 63          | 382,745 |

Source: Department of Mineral Resources and Energy



Royal Bafokeng Platinum - Bafokeng Rasimone Platinum Mine

# OUR METALS AND MINERALS



Harmony – Doornkop Mine

KEY 2018 FEATURES



188,300 KILOGRAMS 

Total production

**A BY-PRODUCT OF GOLD MINING**

## URANIUM

Gold Fields - South Deep

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# OUR METALS AND MINERALS - URANIUM CONTINUED

Uranium production, a by-product of gold mining, has been in decline in tandem with lower gold production for at least the past decade. After the Fukushima Daiichi nuclear disaster in Japan, as well as the increased usage of green and renewable energy sources, the use of nuclear energy has stagnated. Very few new nuclear power stations are being built outside China.

## South African uranium production

|      | Production<br>Kilograms |
|------|-------------------------|
| 2006 | 639,2                   |
| 2007 | 618,7                   |
| 2008 | 654,3                   |
| 2009 | 629,0                   |
| 2010 | 682,3                   |
| 2011 | 656,1                   |
| 2012 | 550,6                   |
| 2013 | 626,3                   |
| 2014 | 667,7                   |
| 2015 | 527,8                   |
| 2016 | 450,1                   |
| 2017 | 303,7                   |
| 2018 | 188,3                   |

Source: Department of Mineral Resources and Energy



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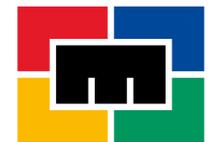
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