MINERALS COUNCIL
SOUTH AFRICA

Facts & Figures
POCKETBOOK
2022

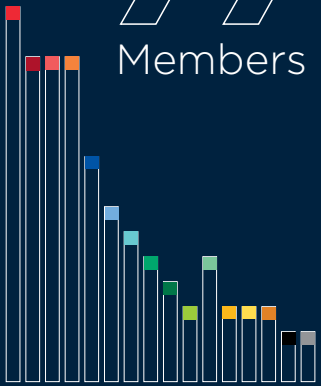
#MakingMiningMatter

FOREWORD

Mining plays a significant role in the economy of our nation. Publicly available data on the industry is therefore important so that stakeholders understand how the industry is performing.

The Minerals Council chief economist, Henk Langenhoven, and his team have compiled this document to showcase our industry and to provide some insight into what the numbers mean for our country and the future of our mining industry.

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



77 Members

TOGETHER THESE MEMBERS REPRESENTED 90% of South Africa's mining production in 2022

15	Platinum group metals	4	Diamonds
13	Coal	3	Associations
13	Chrome	5	Contractors
13	Other commodities	3	Vanadium
9	Manganese	3	Exploration
7	Gold	3	Investment companies
6	Copper	2	Zinc
5	Iron ore	2	Corporate

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

Statistics help South Africans to develop a better, more nuanced understanding of the current state of the mining industry. It also assists us to accurately represent the wider impact of mining on the country and its positive role in the economy and the benefits that flow through to broader society.

The Minerals Council's economics team 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.

This Facts & Figures 2022 publication is a comprehensive statistical reference guide to the South African mining sector.

In compiling the Facts & Figures publication, the Minerals Council relies on various primary data sources such as: Statistics South Africa (Stats SA), the Department of Mineral Resources and Energy (DMRE), the South Africa Reserve Bank (SARB), the World Bank and the United States Geological Survey.

As the Minerals Council depends on the latest but incomplete 2022 official data as published by various primary sources, this will result in subsequent revisions to the preliminary estimates and/or published numbers.

The mining sector in 2022*

employed

475,561

people

contributed

R73.6 BILLION

in taxes to South Africa

contributed

R493.8 BILLION

to GDP

** All 2022 figures are preliminary estimates*

CONTENTS

VISION

To ensure mining matters for South Africa.

MISSION

To play a leadership role in enabling the South African mining sector to achieve its real potential for investment, growth, transformation, and development in a socially and environmentally responsible manner.

VALUES

Members are obliged to conduct their business according to the agreed Minerals Council values, which dictate the minimum standards of conduct required of them in order to become or remain a member of the Minerals Council. The five values of the Minerals Council are:

Responsible citizenship

Respect

Trust

Honesty

Accountability

“The economic contribution of the mining industry to the fiscus remains a key source of revenue for the Government at a time when state-supplied electricity and transport logistics are dealing with crippling constraints and are negatively affecting the economy.”

Royalties paid

R14.2bn

(2021:11.8bn)

OUR HISTORY

1

1867
First diamond discovered in South Africa, near Hopetown – called Eureka, it weighed 21.25 carats

2

1886
George Harrison discovered the main gold reef on Langlaagte farm, leading to the Witwatersrand gold rush. Thousands of fortune seekers descend on Egoli, the 'city of gold'

3

1889
Witwatersrand Chamber of Mines established

4

1922
Rand Rebellion, an armed uprising of miners

13

2012
Marikana tragedy on the platinum belt

14

2014
Five-month platinum strike

15

2016
Mandela Mining Precinct opens its doors, aiming to boost the industry through R&D

16

2017
Chamber launched major health screening initiative

17

2018
Chamber of Mines formally renamed

18

2019
Khumbul'ekhaya health and safety initiative launched

19

2020
COVID-19 and B4SA initiatives launched

5

21 Jan 1960
Coalbrook mine disaster – 435 lives lost in South Africa's worst mining tragedy

6

1982
National Union of Mineworkers (NUM) formed

7

1987
Largest strike in the South African mining industry, with an estimated 340,000 people downing tools on the first day

8

10 May 1995
Vaal Reefs mine disaster – 104 mineworkers died in worst shaft accident in South Africa

9

1996
Mine Health and Safety Act (MHSA) passed

10

2001
Association of Mineworkers and Construction Union (AMCU) launched

11

2002
Mineral and Petroleum Resources Development Act (MPRDA) is promulgated into South African law

12

2004
Mining Charter is launched

20

2021
Successful COVID-19 vaccination programme sees 300,000 employees vaccinated

21

2022

Working closely with the Government resulted in members unlocking a 6,500MW pipeline of embedded energy projects valued at more than R100 billion

MESSAGE FROM THE CEO

“The mining industry remained a trillion rand industry for the second year running when measured in production value, despite the headwinds it endured in 2022.”

Roger Baxter
CEO – Minerals Council

GROWTH

The mining industry grew employment by more than 15,500 jobs during 2022 to reach 475,561 employees.

It is a pleasure to present the Minerals Council’s *Facts & Figures 2022* pocketbook in which we explore the annual contribution of South Africa’s mining industry to the country and the sector’s employees.

The most notable development of the year has been the significant step change in the industry’s safety performance. The number of fatalities reduced to 49 in 2022 from 74 deaths the year before. This is a result of the hard work, renewed focus and commitment of all stakeholders to improve safety, and the tireless work of mining companies to achieve zero harm. However, it still means that 49 people did not return home and we are doing our utmost to make the industry safer.

This is the first time the number of fatalities in South African mining is below 50 and it reverses two years of unacceptable regression in the industry’s safety performance after it achieved its lowest-ever number of deaths of 51 in 2019.

Ensuring safe and healthy working environments remains an unwavering commitment of the Minerals Council and its members. While the reduction in fatalities in 2022 is a welcome step change from the previous two years, the number of deaths on our mines remains unacceptable. The Minerals Council and its members are unwavering in their commitment to achieve zero harm.

The economic contribution of the mining industry to the fiscus remains a key source of revenue for the Government at a time when state-supplied electricity and transport logistics are dealing with crippling constraints and are negatively affecting the economy, the viability of many businesses, and threatening the jobs of so many people when unemployment has reached a record high. In fact, the impact of the electricity and rail crises have effectively curtailed South Africa's potential growth rate. The President's announced energy reforms in July 2022 are welcome and further significant reforms to enable greater private sector participation in rail and ports are now required.

The mining industry remained a trillion rand industry for the second year running when measured in production value, despite the headwinds it endured in 2022.

The mining industry grew employment by more than 15,500 jobs during 2022 to reach 475,561 employees. Employee earnings increased by 5% to R175 billion year on year.

The mining industry's contribution to South Africa's GDP was 4% higher at R494 billion. Direct payments into the fiscus included company tax generating R73.6 billion, and royalties rising by a fifth to R14.2 billion.

During 2023, we shall continue working closely with our business peers and other stakeholders to ensure there are sustainable and pragmatic solutions to the energy and transport constraints as well as progress addressing the deteriorating crime and security environment for not only the mining industry but the entire economy. If these blockages are resolved, with the inclusion of the private sector, the mining industry's role as a key contributor to the wellbeing of the South African economy will be fully unlocked to the benefit of all citizens. We will ensure we continue **#MakingMiningMatter**

Roger Baxter
Chief Executive Officer
February 2023

* *Estimates based on latest statistics available*

** *Fiscal Year*

MINING CONTRIBUTION SUMMARY 2022*

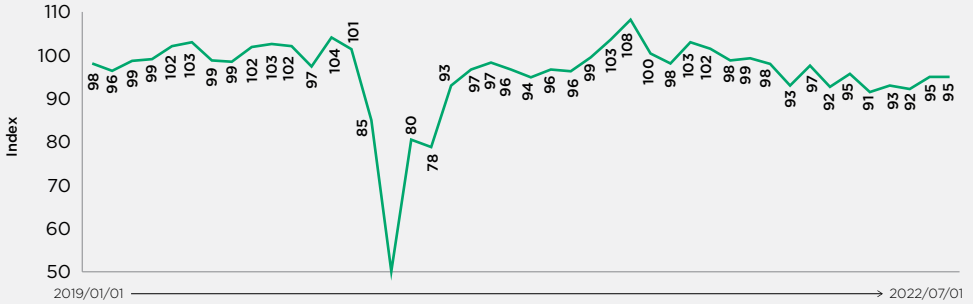
Value of production **R1.18tn** (2021: R1.1tn)		
Direct GDP contribution **R493.8bn** (2021: R475.0bn)	**% contribution to GDP** **7.53%** (2021: 7.56%)	**Total primary sales** **R914.5bn** (2021: R855.3bn)
Minerals exports **R877.6bn** (2021: R855.7bn)	**Employment** **475,561** (2021: 458,954)	**Employee earnings** **R174.9bn** (2021: R166.2bn)
PAYE by mining employees** **R27.1bn** (2021: R26.2bn)	**VAT** (net outflows)** **R28.9bn** (2021: R34.7bn)	**Company tax paid** **R73.6bn** (2021: R81.1bn)
Royalties paid** **R14.2bn** (2021: R11.8bn)	**Transfer duties paid**** **R8m** (2021: R12m)	**Employment tax incentive by SETA**** **R98m** (2021: R68m)

‘Uncertainty’ is the key word describing the underlying dynamics of the mining sector performance during 2022.

International uncertainty about global geopolitical and geoeconomics trends is keeping commodity prices at high levels, but simultaneously inhibiting fixed investment in mining capacity, resulting in extraordinary financial results with real economic decline while cost pressures keep increasing.

The **value of mining production** reached over a trillion rand (R1.1 trillion) for the first time during 2021 and grew further during 2022 to R1.18 trillion. However, **the volume of mining sector production** is now on average below the pre-COVID levels (base year moved to 2019) due to structural constraints.

Index of seasonally adjusted mining production



Sources: Stats SA, Minerals Council South Africa

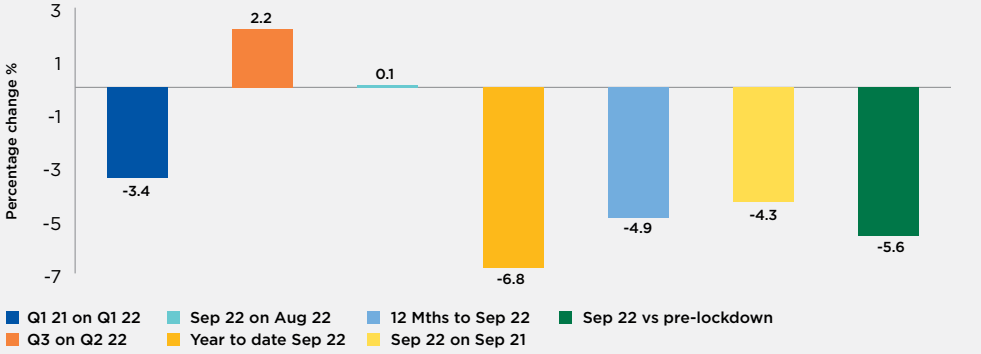
Production data

Variation in production performance (up to September 2022) over different time periods. The year to September (9 months) was nearly 7% lower than last year and over 12 months nearly 5% lower. It is estimated that the performance for the full year 2022 will show a decline of around 6%. The gravity of the situation is borne out by the near 6% decline during 2022 versus the pre-COVID year.

It is estimated that the performance for the full year 2022 will show a decline of around

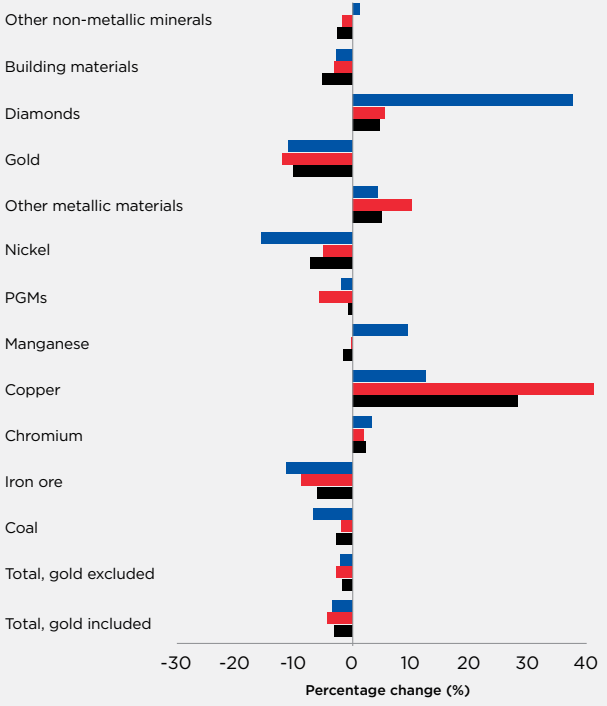
6%

Variation in production performance (up to September 2022) (different periods)



Sources: Statistics SA, Minerals Council South Africa

Commodity production performances



Sources: Stats SA, Minerals Council South Africa

The graph depicts individual commodity production performances up to September 2022 compared to similar periods during 2021.

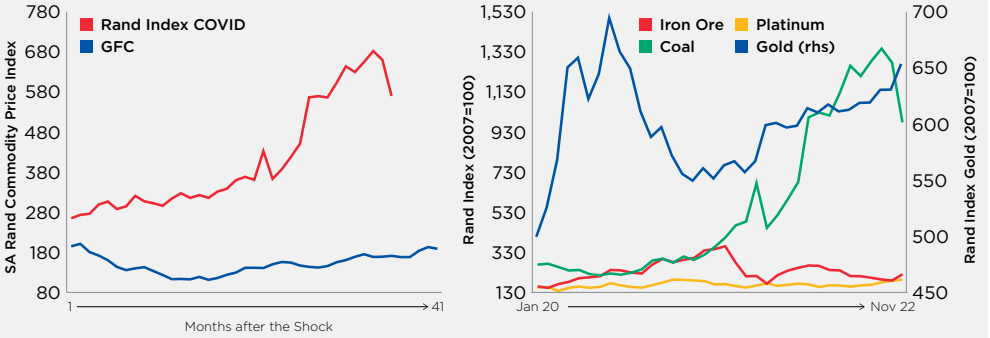
The **blue** bars show September production against the monthly averages of 2021, with building materials, gold, nickel, PGMs, iron ore and coal all still lower. The **red** and **black** bars compare 9- and 12-month averages of 2022 to 2021, respectively.

MINING OVERVIEW continued

Each commodity experienced unique circumstances that resulted in these outcomes. The latter applies to unique production dynamics and very different price trends resulting in no two being the same. The patterns per commodity (production and exports) are discussed in detail below.

Below is a comparison between price movements after the Global Financial Crisis (GFC) and COVID shocks; in short it took nearly four years for important South African commodity prices to recover after the former, while prices accelerated strongly within months after the COVID lockdowns were announced worldwide and was 100% higher (December 2022) than April 2020 when the COVID lockdown commenced. To the right are the individual commodity price patterns, showing how and when different commodities experienced strong price movements.

Price movements since GFC and COVID-19



Source: Minerals Council South Africa

Commodity price trends

The rand/dollar exchange rate

The variation in rand and dollar prices, as well as the rand exchange rate trends as of the middle of December 2022, are shown below.

Although South African commodity prices softened during the latter part of 2022, dollar prices were still over 90% higher than during 2021, and rand prices, near 70% higher than during 2021.

"Although South African commodity prices softened during the latter part of 2022, dollar prices were still over 90% higher than during 2021."

	Dollar Prices				Dollar Index
	Coal	Iron ore	Gold	Platinum	
Year to Dec 22	284.9	121.1	1,801.6	962.6	459.4
Year to Dec 21	119.8	161.7	1,799.6	1,091.1	239.9
Change Year to Date %	**137.7**	**-25.1**	**0.1**	**-11.8**	**91.5**
12 Mths to Dec 22	284.9	121.1	1,801.6	962.6	459.4
12 Mths to Dec 21	119.8	161.7	1,799.6	10,991.1	239.9
Change 12 Mths %	**137.7**	**-25.1**	**0.1**	**-11.8**	**91.5**
Change 1 Month %	**-23**	**16.9**	**4.9**	**3.2**	**-18.4**
Dec on 12 Mths	**-13.3**	**-9.9**	**0.4**	**6.1**	**-6.7**
Change Y-on-Y %	**73.3**	**-6.7**	**1**	**8.1**	**59.5**
Dec on pre-lockdown	**252.3**	**13.3**	**23.6**	**15.3**	**167.0**
12 M avg pre-lockdown	70.1	96.2	1,462.9	885.8	159.1

Sources: World Bank, SARB, Minerals Council South Africa

MINING OVERVIEW continued

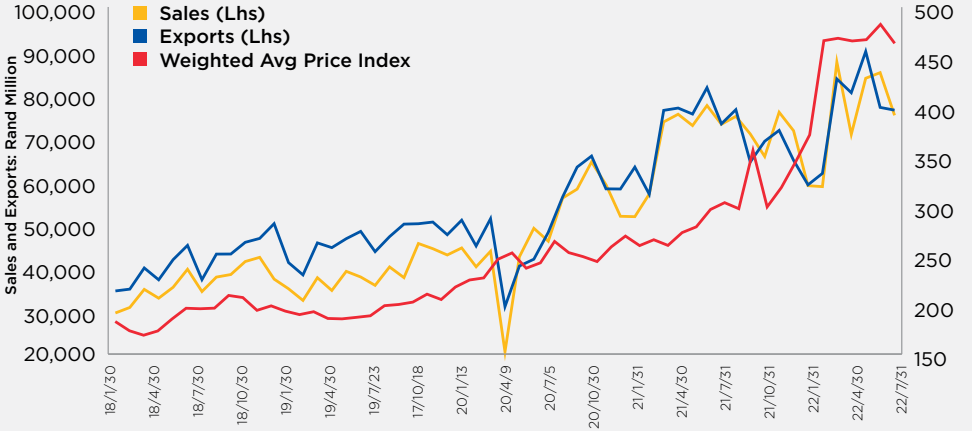
	Rand Prices					
	Coal	Iron ore	Gold	Platinum	Rand Index	Exchange Rate (c:$)
Year to Dec 22	4,688.7	1,960.5	29,408.4	15,725.8	583.8	1,645
Year to Dec 21	1,775.8	2,375.3	26,606	16,107	351.6	1,479
Change Y to Date %	**164**	**-17.5**	**10.5**	**-2.4**	**66.8**	**-10.1**
12 Mths to Dec 22	4,688.7	1,960.5	29,408.4	15,725.8	583.8	1,637
12 Mths to Dec 21	1,775.8	2,375.3	26,606	16,107	351.6	1,479
Change 12 Mths %	**164**	**-17.5**	**10.5**	**-2.4**	**66.8**	**-9.7**
Change 1 Month %	**-23.3**	**16.4**	**4.5**	**2.8**	**-13.6**	**0.4**
Dec on 12 Mths	**-8.3**	**-3.1**	**7.1**	**13.1**	**-2.5**	**-6**
Change Y-on-Y %	**90.2**	**2.3**	**10.9**	**18.6**	**47.3**	**-8.9**
Dec on bef lockdown	**315.19**	**33.73**	**45.36**	**35.92**	**130.96**	**-15.09**
12 M avg bef lockdown	1,036.1	1,420.8	21,673.6	13,082.1	246.4	1,478.7

Sources: World Bank, SARB, Minerals Council South Africa

Total commodity sales and exports

The graph shows total commodity sales (domestic and exported) and exports, the trends are obvious as is the correlation with the commodity price index (weighted average coal, iron ore, gold, platinum). The confirmation of an inflection point became stronger towards year end.

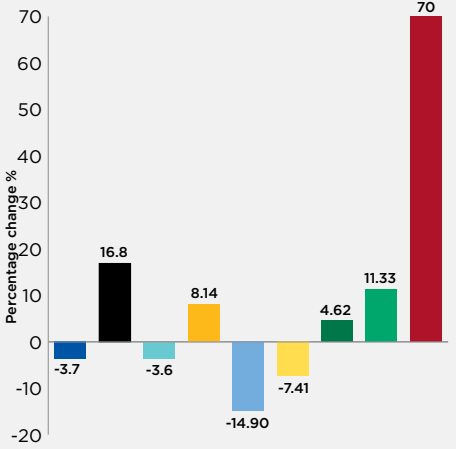
Export trends during the GFC and COVID-19 pandemic



Sources: World Bank, SARB, Stats SA, Minerals Council SA

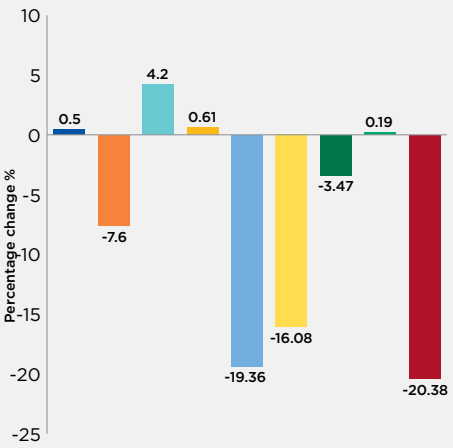
Having a closer look at exports shows important trends. (October 2022 value of exports was 70% higher than the pre-lockdown monthly averages.)

Export Rates of Change: Values



Q1 22 on Q4 21
Q3 on Q2 22
Oct on Sep
Oct 22 on 21
Oct vs pre-lockdown
Q2 on Q1 22
Y to date Oct 22
Oct on avg 12 Mths
12 Mths to Oct 22 on 21

Export Rates of Change: Volumes



Q1 22 on Q4 21
Q3 on Q2 22
Oct on Sep
Oct 22 on 21
Oct vs pre-lockdown
Q2 on Q1 22
Y to date Oct 22
Oct on avg 12m
12 Mths to Oct 22 on 21

Sources: South African Revenue Services, Stats SA, Minerals Council South Africa

For 10 months to October the values improved by

8%

but volumes were stagnant

Over 12 months to October, values increased by

11%

whereas volumes were stagnant

However, quarter 4 data showed serious deterioration. October export values were still

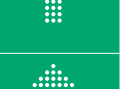
70%

higher than pre-lockdown averages, but volumes were down by more than 20%. In October, volumes fell by 20% on September and it is known that export disruptions continued during November, which probably resulted in exports declining during quarter 4 by around 20%.

The multi-facetted dynamic of uncertainty and its impact on the mining sector has to be understood.

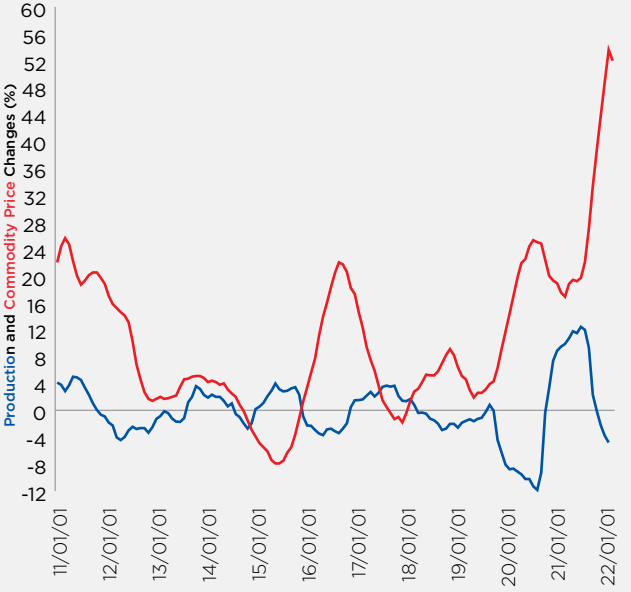
1 The impact of uncertainty on future commodity prices trends

It was mentioned earlier that commodity prices started to accelerate early during the COVID-19 pandemic and, although the rate of improvement has slowed down, prices have still not retracted (Rand Index = +70%). These uncertainties have, if anything, increased and are extending the commodities' price cycle.

• Current uncertainty about world economic growth	
• Droughts curtailing energy supply, disruptive COVID restrictions as well as property market concerns curtailing demand for some commodities in China	
• The geopolitical ramifications of the Russian-Ukraine war	
• Shortages of certain metals/commodities due to the sanctions	
• The energy shortages in Europe reintroducing additional world coal demand	
• The continuing and accelerating 'green industrial revolution' with new alternatives and innovations appearing for the usage of metals, shifting demand for 'essential' metals from availability 'just in time', to stocking up 'just in case' it would be needed	
• Worldwide logistical constraints due to disruptions	

2 The production response from the mining sector has been weakened by structural constraints.

The rates of change in mining production vs rand commodity prices



Sources: World Bank, SARB, Stats SA, Minerals Council South Africa

The graph clearly shows how production could not respond to the substantially better commodity prices. This is mainly due to domestic constraints.

A deeper analysis of physical production and export tonnages reveals a relatively strong correlation. A real concern, and growing likelihood, is that the declining 'volume effect' will overtake the 'value/price effect' if production and export constraints intensify.

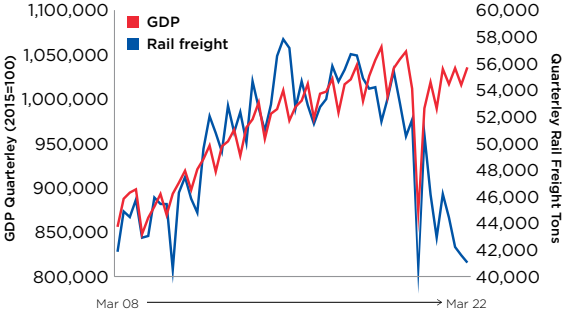
"The constraints around transport, logistics and border posts remain, and are increasingly, hampering export volumes."

3 Transport and logistical constraints

The constraints around transport, logistics and border posts remain, and are increasingly hampering export volumes. Minerals Council South Africa estimates are that the sector missed out on R35 billion worth of exports in 2021 and will be losing R50 billion more in lost export opportunities during 2022. The opportunity costs for mining export earnings are even more profound when considering that achieving infrastructure design capacities plus some efficiency gains on the bulk ore lines could result in R150 billion higher exports.

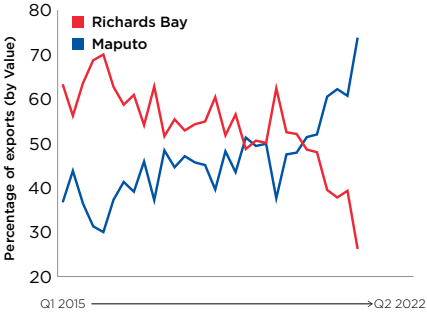
The slide to the left shows how much rail freight has been lost by Transnet and redirected to road. The right-hand slide shows how much (chrome ore) freight has been diverted away from Richards Bay to Maputo due to inefficiencies (on rail and at the port).

Rail freight lost by Transnet: 30% since 2014



Sources: Stats SA, rail freight data

Shift of chrome ore exports from from Richards Bay



Source: SARS export data by commodity and harbour

The SARB's 'composite supply chain pressure index' gives a broader view of this dilemma for South Africa. Both mining (R40 billion against R90 billion) and the country (R200 billion against R400 billion) spend twice as much on transport and logistics as on electricity (2021). The mining sector accounts for 80% of Transnet Freight Rail's income and 50% of Transnet income (although the container lines are of much higher importance from a GDP perspective, but Transnet only has a 10% share of freight).

The mining sector accounts for

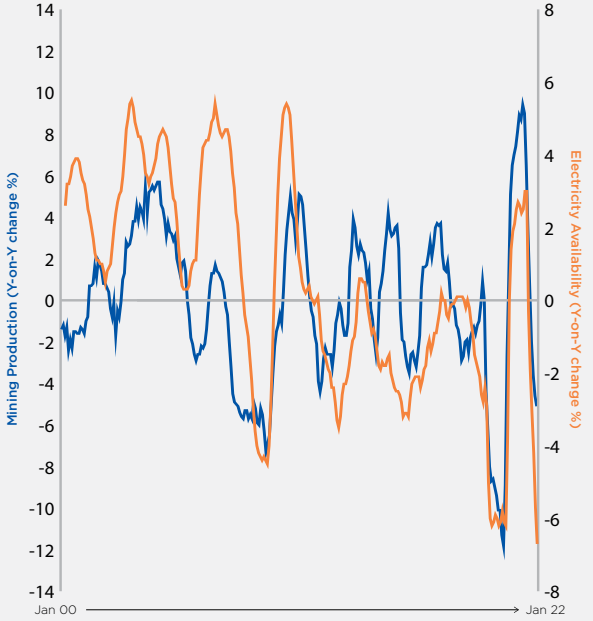
80%

of rail income and 50% of Transnet income

Seriti – Kriel Colliery

4 Electricity supply and energy costs

Mining production variation with electricity availability from Eskom



Source: Stats SA, Minerals Council South Africa

Mining is one of the highest energy consuming sectors in the economy. The graph shows how closely mining production varies with electricity availability from Eskom. As mining operations are 24-hour operations they use baseload electricity and are, therefore, highly dependent on Eskom's coal-fired power stations. The more than 500% rise in electricity costs (over a decade) has had a major impact on cost structures and competitiveness in mining.

From anecdotal evidence it seems that mining operations are running at 20% to 30% under capacity due to the electricity constraint, either through loadshedding or load curtailment.

The reality is that delayed instalment of electricity

generation capacity resulted in a shortfall of 4GW to 6GW for the country. All the tranches for new generation capacity are late and fundamental changes have been made to the institutional framework to enable faster expansion of generation capacity. This has resulted in a pipeline of around 10GW of self-generation projects (7GW from the mining sector), at different stages of completion).

However, the fixed investment needed to effect changes in the electricity supply industry (over R 100 billion) will take time to deliver new electrons becoming available on the grid.

Electricity supply and energy costs

Coal remains a critical baseload source of South Africa's electricity and export earner.

The mining industry is leading the move by the private sector into renewable energy, decarbonising operations, ensuring export markets, which will take pressure off Eskom's grid.

Mining industry has 89 energy projects by 29 companies for

6.5GW of electricity

Solar	Wind
6.2GW	**0.2GW**
Battery storage	**Biomass**
84MW	**8MW**

Project value in excess of R100 billion or US$6 billion

MAJOR REFORMS IN ELECTRICITY

- Presidential team focused on unlocking private sector
- National Energy Crisis Committee of Ministers (NECCOM) established
- Focus on stabilising Eskom
- Liberalise electricity supply industry to unlock flood gates on private sector investment
- ERA amendments, day ahead market, setup ISMO

State streamlining the application and regulatory processes to expedite projects.

Cap on embedded electricity generation projects from 100MW scrapped

Source: Eskom

"From anecdotal evidence it seems that mining operations are running at 20% to 30% under capacity due to the electricity constraint, either through loadshedding or load curtailment."

5 The pervasiveness of crime and its impact on mining

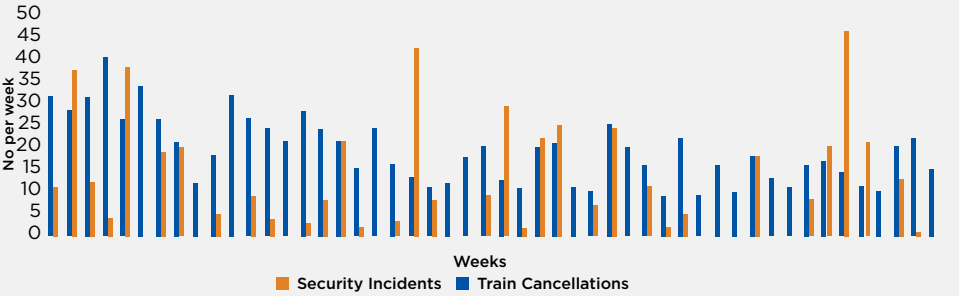
Crime manifests itself primarily in three ways:

- The theft and/or vandalism of public infrastructure (e.g, overhead power cables). This is having a disastrous impact on transport and logistics. The incidences result in trains, or even road transport, being disrupted, and are often accompanied by theft of the cargo while immobile. The graph shows crime incidences on the coal corridor and the numbers of trains cancelled per week. Private security augmentation has reduced the number of incidences by near 40%, but it still continues, and road transport is augmenting rail shortfalls as a result (the latter not without accidents and accelerated road infrastructure damage).

Security Incidents vs Resulting train cancellations

Period October 2021 to October 2022

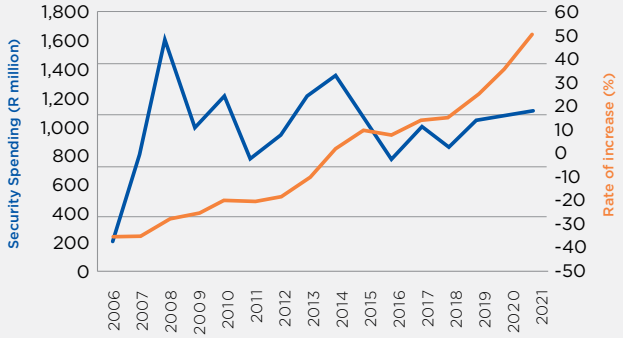
Year on year reduction 37%



A recent proposal (gazetted on 30 November 2022) from government was a wide-ranging ban on all scrap metal (and some 'unworked commodities') exports which, if implemented, would affect as much as 50% of all mining exports, by value. The industry asked for a blanket exemption for mining, which is in force on some commodities.

- Attacks on mining installations with the purpose of stealing equipment and/or product. This has happened several times at precious metals facilities, for example, with huge losses occurring.
- Community unrest in efforts to gain employment or procure lucrative supply contracts from mines, amidst dysfunctional local authorities are also widespread. The graph shows spending on security services by the mining sector.
- Illegal mining has a highly organised criminal syndicate element to it and is very difficult to curb. It also corrupts societies surrounding these operations, by offering 'employment' to individuals, and bribery and corruption of established mining employees so as to get access to unworked areas of operational mines.

Security spending by the mining sector

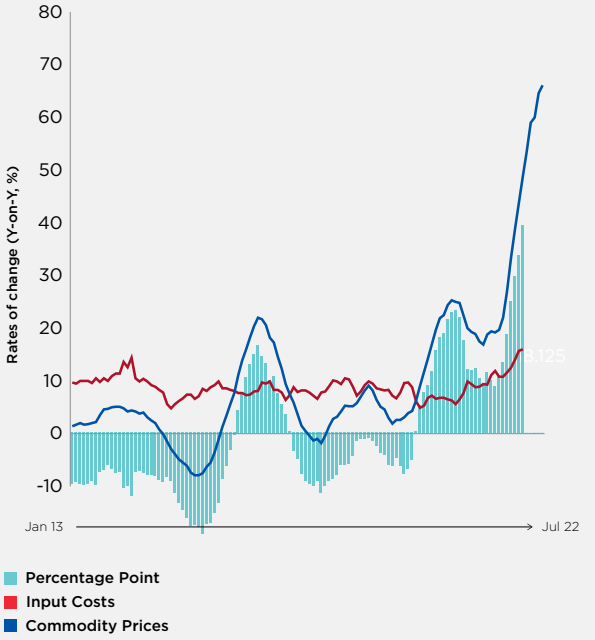


Source: Stats SA, Annual Financial Surveys

Extensive involvement with government and the security establishment is ongoing to try and curb this scourge. The costs involved in efforts to prevent this, as well as the operational disruptions experienced are detrimental to the sector.

6 Rapidly rising domestic input costs

Changes in mining input costs and commodity prices



Sources: World Bank, SARB, Stats SA, Minerals Council South Africa

The mining sector depends on public sector provided products or services delivered by, or products controlled by administered prices for nearly 45% of its intermediary inputs (ex-labour). The costly inefficiencies discussed above contribute to the cost pressures. Mining input costs have been rising much faster than the country's production price index.

The mining sector depends on products, or services delivered by, or products controlled by, administered prices for

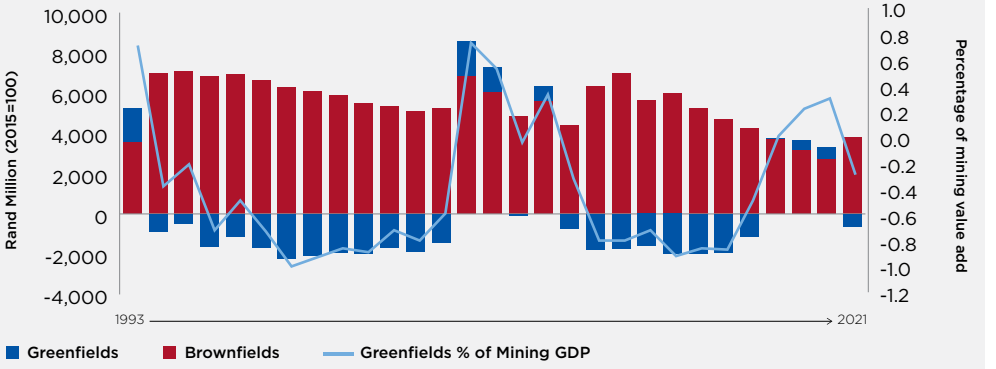
45%

of its intermediary inputs (ex-labour).

7 Institutional bottlenecks, administrative failures, and red tape

Unclear or continuously changing policy issues affecting mining include mining charter requirements for prospecting rights, carbon taxes, a plethora of institutions and rules involved to enable self-generation of electricity, a disastrous and failed cadastral system for mining rights administration and backlogs in processing of exploration and mining rights, to name but a few.

Exploration 'deconstructed' and as % of mining GDP



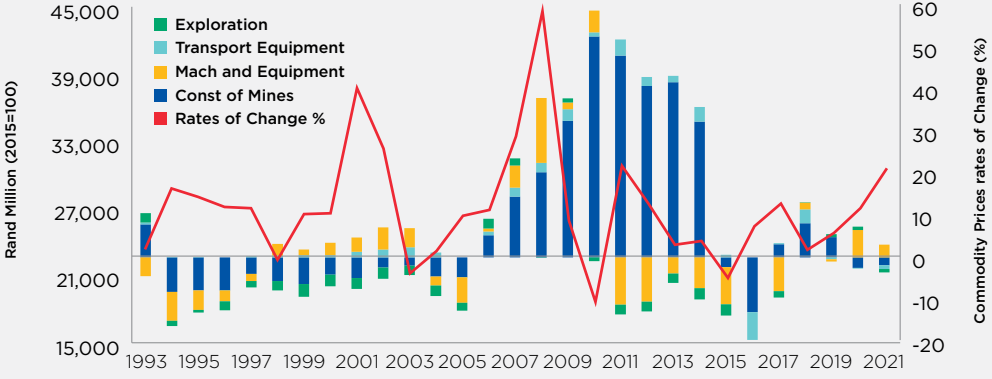
Sources: SARB, Minerals Council South Africa

The regulatory uncertainties and inability of the industry to transparently, quickly and efficiently apply for mining and prospecting rights in a corruption-free manner has had severe consequences. This is glaringly evident in exploration, which has virtually ground to a halt. The mining sector spends only about 9% of the levels attained during peaks in 1990 and 2006, and mostly on brownfields (existing licence areas) versus greenfields (new unexplored areas).

Gross fixed capital formation

Higher commodity prices have not resulted in higher fixed investment in mining, due to the structural domestic constraints and uncertainty over the durability of elevated commodity prices. Data seems to indicate that the aftermath of the GFC (which led to a dramatic decline in net fixed investment) and the subsequent COVID-19 disruptions followed by the geopolitical uncertainties have led to a fundamental shift in fixed investment behaviour.

Net fixed investment 'deconstructed' components



Sources: World Bank, SARB, Stats SA, Minerals Council South Africa

Mining gross fixed capital formation on the Fraser Institute perception index

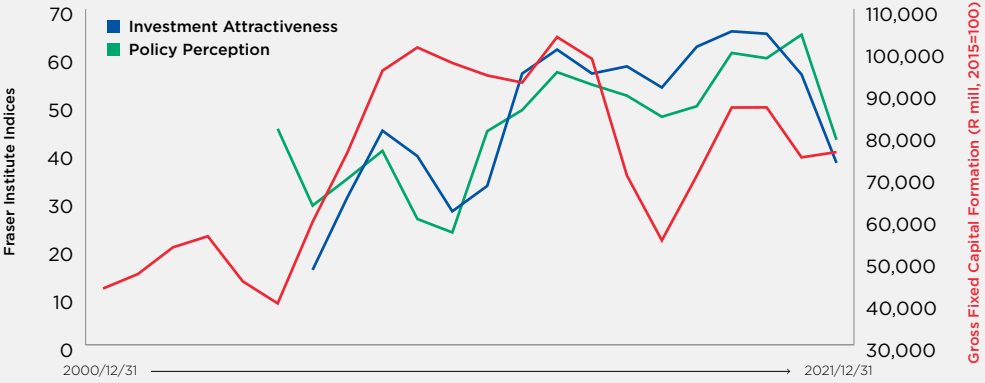
The mining sector spent, on average, around 30% of its value add on fixed investment over the last 15 years. The percentage of net investment of value added has been below 6%.

Investor perceptions around fixed investment in mining have turned decidedly negative since 2018, as shown by the Fraser Institute survey results on investment and policy attractiveness.

The percentage of net investment of value added has been below

6%

Mining gross fixed capital formation on the Fraser Institute Perception Index



Sources: SARB, Fraser Institute, Minerals Council South Africa

The result of these dynamics manifests in the changes in the distribution of value added:

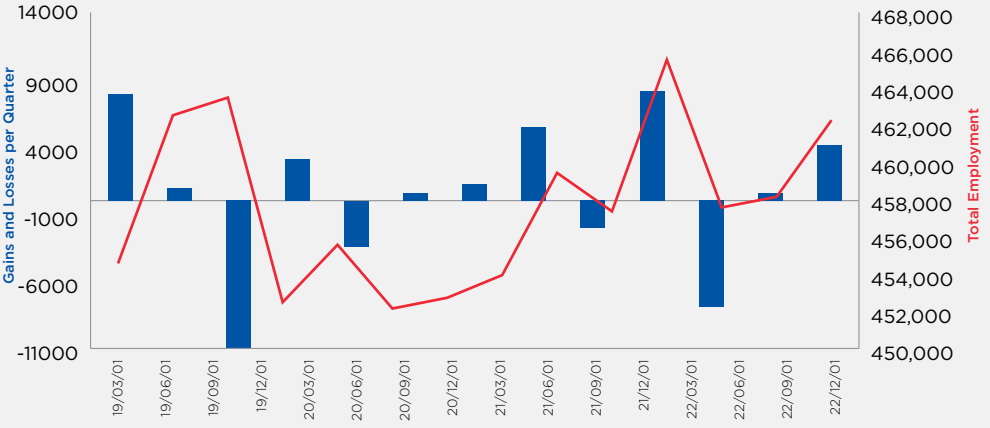
- compensation of employees has slowly increased but its share remained constant;
- cross operating surplus has increased substantially and is reflected in substantially higher profits before taxes and dividend payouts to shareholders;
- the 'depreciation' portion of gross fixed capital formation has increased but net investment (especially in new projects) has dwindled to almost zero; and
- taxes paid to government have substantially increased, saving the country's fiscus from dangerous debt metrics, exacerbated by the COVID-19 lockdown and contraction.

Sibanye-Stillwater – Northwest Platinum Operation

Employment

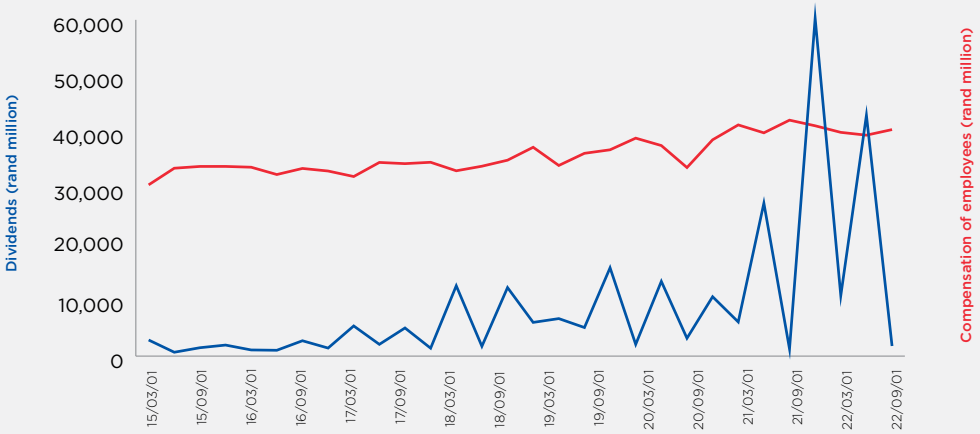
The employment data is a conundrum; companies are reporting higher employment numbers now than before the COVID lockdown, but compensation of employees remained fairly constant, rising slowly over time.

Employment numbers reported by companies



Sources: Quarterly Employment Survey, Stats SA, SARB, Minerals Council South Africa

Compensation of employees and dividends paid



Sources: Sources: Quarterly Employment Survey, Stats SA, SARB, Minerals Council South Africa

Mining GDP trends

Quarter 3, 2022, annualised, seasonally adjusted GDP for mining was published at the time of writing. Although quarter 3 showed growth of just over 2%, the level of production, evaluated from different angles, seemed to indicate that 2022 GDP for mining will have declined by 6%.

2022 GDP for mining will have declined by

6%

SUMMARY

The positive impact of rising commodity prices continued to benefit mining performance, but **volumes of production** and **exports** remain a concern. The longer-term production trend is unstable and struggling to break out of its low trajectory.

The **value of production** reached over R1 trillion during 2022, which was a 12% real improvement on 2021; however, a real decline of 6% is expected for 2022.

Commodity prices kept on improving from 24% in 2020 to 19% in 2021 and a further 70% up to December 2022 (rand terms). Dollar prices rose by 90% (by December 2022) but a strengthening exchange rate took some 'shine' off that, hence the rand-dollar differences.

Exports amounted to close to R900 billion (2022) or 5% higher than in 2021. This is tempered by an expected decline in volumes. Exports were 70% higher (values) but 20% lower (volumes) compared to pre-lockdown 2019.

Transport and logistics (rail, harbour, electricity) constrained export growth to such a degree that monthly volumes were equal to 2017 levels; only in 2019 were 15 million tons exported but volumes have dropped again below that level.

Employment numbers are estimated to have been around 475,561 in 2022.

Mining input costs have been rising at over 15% on average during 2022.

Early indications (from a sample of companies) are that **fixed investment** stagnated in 2022, although self-generation electricity projects may turn the tide in 2023. The latter, however, boil down to 'stay in business investment', and not mining capacity expansion.

OUR METALS AND MINERALS

OUR METALS AND MINERALS
PLATINUM GROUP METALS

PGMs consist of six noble metals namely: platinum, palladium, rhodium, ruthenium, osmium and iridium. Platinum, palladium and rhodium are the primary metals of significant economic value. They are mostly used for jewellery and in the automotive industry due to their excellent catalytic properties.

The PGMs are at the centre of the 'green metal/industrial revolution' and confronted with uncertainties emanating from 'real time' technological advances, impacting on market conditions.

Industry developments in 2022:

- PGM industry sales continue to be the largest contributor to total mining sector sales, having surpassed coal sales in 2020.
- However, our production forecast estimates a decline in PGM production of 15.2% at 242 tonnes for 2022. Due to loadshedding by Eskom and persistent electricity supply issues, concentrators and smelters were not able to function at capacity. This has led to a build-up in work-in-progress inventory for most PGM producers. Production is still below pre-COVID levels and the sustained declines in physical output continue to be a concern.
- As a result of lower levels of production, total PGM sales for 2022 decreased by 17.1% compared to the previous year. The significant drop in sales is in line with lower refined production outputs due to electricity constraints.
- Due to the high prices fetched by rhodium and palladium, the two metals account for 73% of the PGM basket income split for PGM producers. Platinum, iridium and ruthenium account for the balance. This is noteworthy, considering that a decade ago platinum alone accounted for 79% of the income split.
- International PGM prices were lower in 2022 with the dollar price of platinum, palladium and rhodium falling by 11.7%, 11.5% and 22.8% respectively. However, the rand price decrease was softer due to a weakening in the rand/dollar exchange rate. The rand price of platinum only fell by 2.4% in 2022 after accounting for the exchange rate effect.

- Intermediate input costs in the industry continue to increase significantly which, coupled with lower prices, negatively impacts the profitability of the sector.

Industry constraints:

- The single biggest constraint facing the industry is the ongoing electricity supply challenge from South African utility provider Eskom, which inhibits PGM production and exports. The unreliable nature of electricity supply coupled with steep increases in electricity prices is a binding constraint on the industry.
- Despite plans to build their own generation plants (approximately 480MW publicly communicated and/or planned by PGM producers), regulatory and policy hurdles remain a hindrance to these projects.

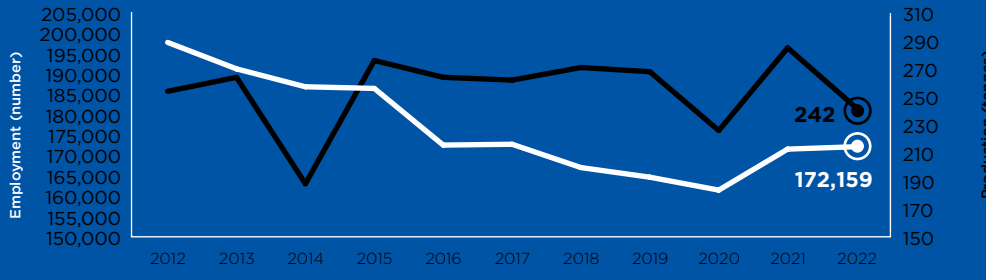
Industry outlook:

- The impact of economic and trade sanctions on Russian PGM production due to the Russian-Ukraine war continues to put PGM supply under pressure, creating market uncertainty.
- As a result of sanctions on Russian PGM production and a rebound in economic activity following COVID-19, the platinum market is expected to go into a supply deficit of around 303,000 ounces in 2023 after two years of significant surpluses.
- Changing demand and production trends for vehicles, along with emissions and environmental legislation and new technological advancements in automotive powertrain development, are all expected to positively affect PGM demand in 2023.

Direct Employees

172,159

PGM industry production and employment: 2012 – 2022



Source: *DMRE, Minerals Council South Africa*

PGM	2022	% Change on prior year	2019 to 2022
Direct Employees (number)	172,159	0.3%	4.6%
Employee Earnings (rand billion)	66.8	-0.8%	20.3%
Royalties (rand billion)	5.7	106.1%	409.5%
Production (tonnes)	242	-15.2%	-9.8%
Total Sales (rand billion)	287.4	-17.1%	111.3%
Percentage of value exported 22	92.7%		

Source: DMRE, Minerals Council South Africa

OUR METALS AND MINERALS
COAL

As the largest component of mining by production volumes, coal is a critical source of primary energy driving the South African economy.

In 2022 coal production was forecast to be some 3 million tonnes lower than the previous year, registering 231.2 million tonnes. This represents a 1.2% decline. Compared to 2019, the year before the COVID pandemic, production is expected to be 10.7% lower in 2022.

Industry developments in 2022:

- In 2022 coal companies continued to use their own resources to secure the over 600 km rail line to Richard's Bay in a bid to mitigate the effects of cable theft and vandalism. The outcome of the intervention has predominantly been positive, significantly reducing the number of incidents.
- The Minerals Council's Coal Leadership Forum, like the other bulk commodity forums, continues to engage Transnet, the Department of Public Enterprises (DPE), and the DMRE in a coordinated effort to find a permanent solution to the challenges in the rail and port spheres.
- The Minerals Council has developed a Climate Change Position Statement. This Position Statement acknowledges the global challenges posed by climate change and the recent climate goals set by the global community to limit global mean temperature increases to 2°C above pre-industrial levels and to pursue a 1.5°C increase limit. The statement recognises South Africa's dependence on fossil fuels, especially in power generation and more pertinently, the mining sector, which results in high levels of greenhouse gas emissions.

Industry constraints:

- Inadequate supply of locomotives and inefficient rail and port operations have had a negative effect on coal exports.
- Global sentiments against coal use have negatively affected long-term investment in the industry.

Industry outlook

- In the short term the global energy crunch caused by Russia's invasion of Ukraine will keep demand for coal high.

- Domestically the decommissioning of coal power plants will significantly reduce coal demand by Eskom. In the 2020/21 Integrated Report Eskom indicated that it burnt 104.87 million tonnes of coal.

Approximately 24,100MW of coal-fired generation capacity is to be decommissioned in the period beyond 2030.

This reduction in domestic coal demand will mean the export market will become key to maintaining mining and logistics jobs in South Africa.

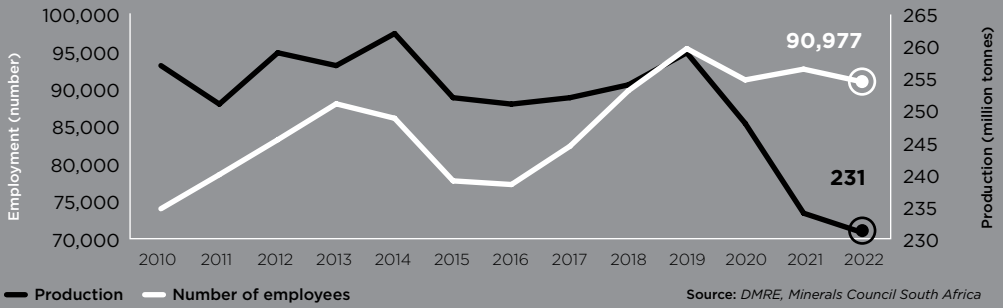
"The decommissioning of coal-fired generation capacity beyond 2030 will reduce Eskom's coal demand to below 50 million tonnes annually. The export market will therefore be key in maintaining mining and logistics jobs."

Seriti – New Vaal Colliery

Direct Employees

90,977

Coal industry production and employment: 2010 – 2022



Source: *DMRE, Minerals Council South Africa*

Coal	**2022**	**% Change on prior year**	**2019 to 2022**
Direct Employees (number)	90,977	-1.8	-4.7
Employee Earnings (rand billion)	31.7	0.8	8.5
Royalties (rand billion)	1.97	13.2	-4.3
Production (million tonnes)	231.2	-1.2	-10.7
Total Sales (rand billion)	252.3	63.0	-13.1
Percentage of value exported 22	56.7%		

Source: DMRE, Minerals Council South Africa

OUR METALS AND MINERALS
GOLD

Gold remains one of the world's most coveted metals as it is revered for its beauty and symbolism and is held as a store of value. This versatile metal is malleable, conductive and does not tarnish, making it ideal for use in jewellery and many industrial applications.

In recent years the COVID-19 pandemic, ensuing economic uncertainty and double-digit inflation figures in almost half of the world have re-emphasised the safe haven characteristic of gold as a long-term store of value.

Industry developments in 2022:

- The US$ price of gold remained relatively unchanged at $1,800/oz in 2022 while rand prices increased by 10.5% year-on-year, mostly assisted by the weakening of the exchange rate.
- In addition, the stimulus expenditure pumped into the global economy in the wake of COVID-19 has led to inflationary pressures which are eroding the value of cash, thereby making gold an attractive investment given its storer of value characteristics.
- On the local front, South African gold production decreased by 20.42% to around 84 tonnes in 2022. Sporadic and unreliable electricity supply is a significant constraint on production in the industry along with various other constraints such as illegal mining, crime, theft and policy uncertainty.
- Our estimates also show that total gold sales decreased by 13.11% in 2022. Overall, the industry has seen production and employment steadily decrease over the past decade.

Industry constraints:

- South Africa's gold sector is characterised by deep-level underground mining. This brings with it risks and hazards that require constant adherence to high safety and health standards and procedures. High temperatures and humidity at deep levels also create difficult working conditions for labour which decreases productivity.
- The industry experiences costly electricity and water supply shortages that are particularly cumbersome in deep-level underground mining of gold.
- Decreasing ore grades are also a significant challenge faced by the sector, which makes production less efficient.
- Investment prospects in the sector are expected to remain weak, as there

is a lack of investment in exploration and a skills shortage. This, along with the structural constraints mentioned above, continue to discourage investment in gold mining.

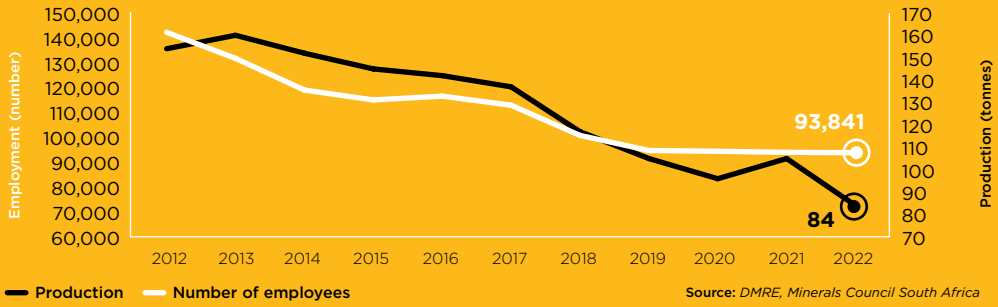
Industry outlook:

- In the current high-interest rate environment, where idle cash balances earn substantial returns, the opportunity cost to hold gold as opposed to cash balances increases; hence the expectation that there will be decreased demand for gold if the current monetary policy environment holds.
- However, global uncertainty such as the Russia-Ukraine war as well as the energy crisis in Europe is expected to drive demand for gold as a safe store of value for investors. In the presence of Russian and other sanctions, central banks are also purchasing substantial amounts of gold to facilitate transactions and shield against inflation that drives up demand.
- Lastly, in the absence of urgent structural solutions to the electricity crisis in South Africa, the investment prospects of the sector are expected to remain bleak. Electricity accounts for a significant portion of intermediate input costs, given the deep-level operations that characterise the country's gold mines. The intermittent nature of the electricity supply raises health and safety concerns, while the steep price trajectory of electricity tariffs is also a major concern from an input cost perspective.

Direct Employees

93,841

Gold industry production and employment: 2012 – 2022



Source: *DMRE, Minerals Council South Africa*

Gold	**2022**	**% Change on prior year**	**2019 to 2022**
Direct Employees	93,841	-0.2%	-0.09%
Employee Earnings (rand billion)	28.9	-6.0%	9.1%
Royalties (rand million)	608	238.2%	111.5%
Production (tonnes)	84	-20.4%	-20.5%
Total Sales (rand billion)	88.8	-13.1%	15.9%
Percentage of value exported 22	93.2%		

Source: DMRE, Minerals Council South Africa

OUR METALS AND MINERALS
IRON ORE

The fourth biggest contributor to South African mining volumes, iron ore is the main ingredient in steel making. Steel is used in various applications around the world including structural engineering, manufacturing of cars, and ships and general machinery.

In 2022 iron ore production is expected to have declined by 9.3% to 66.3 million tonnes compared to 2021. Comparing 2022 to 2019, production is expected to have gone down by 8.4% while the value of total sales is expected to have been R104.1 billion, representing an increase of 47.3%. However, comparing 2022 to 2021 the value of total sales is expected to have declined by 14%.

Industry developments:

- The Minerals Council's Northern Cape Mines Leadership Forum (predominantly representing iron ore, manganese and diamond producers) has had a series of engagements with the provincial government and the Department of Water Affairs and Sanitation to structure a suitable collaboration arrangement to ensure a sustainable, cost-effective supply of water from the Vaal Gamagara Water Supply Scheme.
- The Minerals Council members in the Northern Cape started a collaborative initiative with The Impact Catalyst with the objective of scaling projects that will change the lives and livelihoods of communities in the areas where they operate. These projects deliver greater economic benefits to local communities. Two programmes attracted 4,000 stipends for the youth in the province and involved the removal of alien vegetation around mines; while the other was a tyre recycling project that will build an integrative tyre recycling park. The latter conform to the new strategy of the Department of Forestry, Fisheries and the Environment.

Iron ore, as part of the bulk minerals (including coal, chrome and manganese), faces the same inadequate and inefficient rail and port challenges.

OUR METALS AND MINERALS
IRON ORE

Industry constraints:

- Iron ore, as part of the bulk minerals (which include coal, chrome and manganese), faces the same inadequate and inefficient rail and port challenges.
- Transnet cannot presently discharge its contractual commitments to its existing customers because of poor performance. The iron ore rail channel's nameplate capacity is 60 million tonnes per annum, and it continues to under-perform at around 51 million tonnes per annum.
- Water remains a challenge in the Northern Cape.

Industry outlook

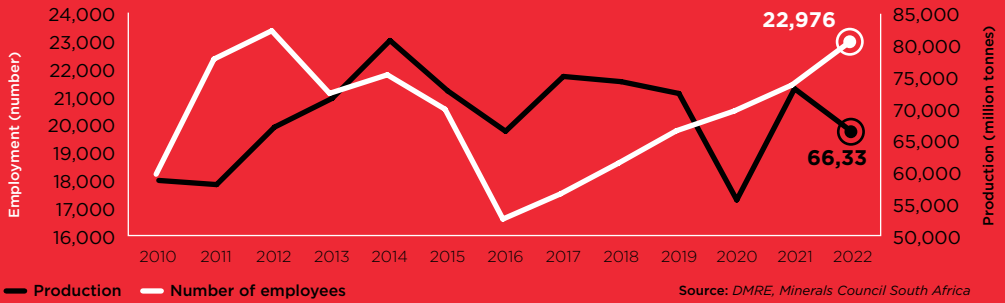
- Inadequate rail capacity and inefficiencies will continue to affect iron ore exports in the short- to medium-term.

Direct Employees

22,976

Kumba Iron Ore – Saldanha

SA Iron Ore industry production and employment: 2010 – 2022



Source: *DMRE, Minerals Council South Africa*

Iron ore	2022	% Change on prior year	2019 to 2022
Direct Employees (number)	22,976	7.2	16.2
Employee Earnings (rand billion)	8.9	4.2	0.6
Royalties (rand billion)	4.19	-5.1	101.6
Production (million tonnes)	66.3	-9.3	-8.4
Total Sales (rand billion)	104.1	-14.0	47.3
Percentage of value exported 22	95.8%		

Source: DMRE, Minerals Council South Africa

OUR METALS AND MINERALS
MANGANESE

Manganese continues to be the fourth most used metal globally in terms of tonnage, after iron, aluminium, and copper.

It is used in various applications where it helps improve the corrosion resistance and mechanical properties of alloys and compounds including objects made of steel, portable batteries, and aluminium beverage cans. Manganese also assists in making steel resistant to corrosion and abrasion and is a key ingredient in lithium-ion batteries.

Its main use is in iron and steel manufacturing (which accounts for around 90% of manganese demand) to reduce brittleness and strengthen steel products.

Although South Africa is estimated to host around 80% of the world's identified manganese reserves, it only accounts for approximately 45% of the global manganese market share in terms of exports. The manganese industry performed well relative to pre-pandemic levels with production and sales at higher levels in 2022 compared to 2019.

Industry developments in 2022:

- Of the estimated 18.96 million tonnes of manganese produced, 87.5% was exported in 2022. Of this export share, 89.9% went to Asia (70.4% to China and 14.5% to India) followed by the European Union at 8.94%. This is mostly driven by the demand for steel in these countries.
- Sales for the year were up by nearly a third compared to 2021 (around 30% higher at R48 billion) but due to structural constraints in rail and electricity supply as well as labour disruptions, the industry saw its physical production volumes decline slightly by 0.56% year-on-year.
- The increased sales were, therefore, driven by prices that were 17.3% higher on average compared to 2021 and not by increased production.

Industry constraints:

- Rail and port capacity constraints that cause bottlenecks, labour disruptions, equipment breakdowns and a lack of maintenance on the Cape Corridor line disrupt day-to-day performance and efficiency.
- Rail and port disruptions and constraints at Gqeberha and Saldanha harbours (which in 2022 processed around 66%

and 24% of all manganese exports respectively) hampers manganese export performance.

- Rail limitations and disruptions result in output being transported via road, which carries a higher cost premium.

Industry outlook:

- China has eased its zero-COVID policy stance, which is expected to drive domestic demand for industrial minerals including manganese and steel.
- Planned rail and port infrastructure upgrades at Gqeberha and Saldanha are expected to increase overall rail and port capacity by 2 to 5Mt, which could help the industry capitalise on its competitive advantage.
- The World Bank expects economic growth of around 4.6% in Asia in 2023 (up from 3.2% in 2022). As the biggest market for South African manganese exports, there is an expectation that demand for manganese will increase due to an expansion in construction and international trade where steel plays a crucial role.

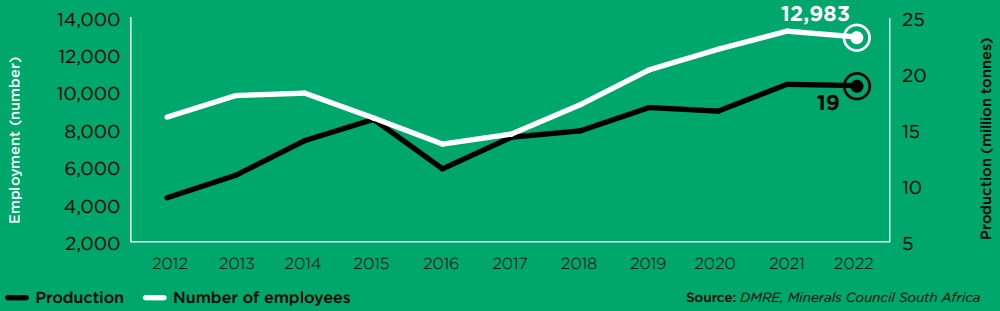
Direct Employees

12,983

Tshipi é Ntle Manganese Mining – Tshipi Borwa mine

OUR METALS AND MINERALS
MANGANESE continued

Manganese industry production and employment: 2012 – 2022



Source: *DMRE, Minerals Council South Africa*

Manganese	2022	% Change on prior year	2019 to 2022
Direct Employees	12,983	-2.3%	15.7%
Employee Earnings (rand billion)	4.9	-5.7%	26.1%
Royalties (rand million)	158	-79.9%	-80.3%
Production (million tonnes)	19.0	-0.6%	11.5%
Total Sales (rand billion)	48.1	30.2%	6.8%
Percentage of value exported 22	95.6%		

Source: DMRE, Minerals Council South Africa

OUR METALS AND MINERALS
CHROME ORE

Chrome is known for its high corrosion resistance and hardness. It is essential in the production of stainless steel, which accounts for 85% of its commercial use.

Comparing 2022 to 2021, production volumes are expected to have increased by 5.6% while the value of total sales is expected to have soared by 50.3% on account of higher international commodity prices. The number of people employed is expected to have decreased marginally by 1.9% in 2022 compared to 2021, which translated to employment of 18,969 people. Comparing 2019 to 2022 production would have increased by 9.9% to 19.4 million tonnes. Employment, on the other hand, is anticipated to have been 9.9% lower in 2022 compared to 2019.

Industry developments in 2022:

- The Minerals Council continues to engage Transnet on unlocking key rail and port constraints. The minister of the DPE was also consulted on several occasions.
- The Transnet strike and floods in the KwaZulu-Natal also affected export volumes.

Industry constraints:

- An increase in, and the prevalence of crime on the chrome rail line is adversely impacting on exports and resulting in increased expenditure in security by chrome producers.
- Inadequate supply of locomotives is another challenge preventing South African chrome producers from taking advantage of high international commodity prices.
- Inadequate port handling equipment at some of the ports is also negatively affecting export volumes.
- Illegal mining at industrial scale is a problem that deprives the fiscus of tax revenue.

Direct Employees

18,969

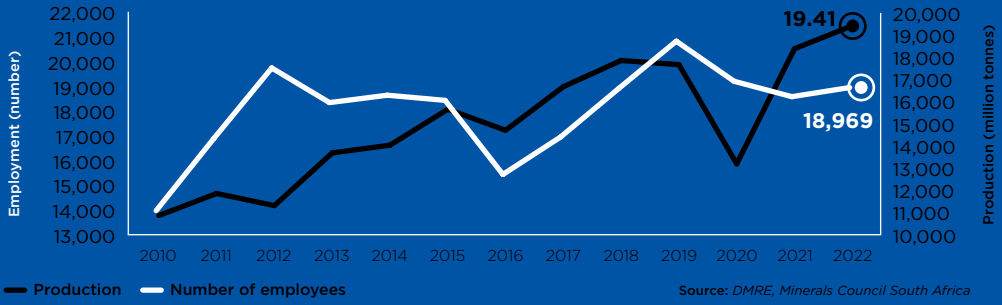
- Local chrome beneficiation is constrained by inadequate electricity supply. Coupled with double-digit annual electricity tariff increases the local industry has been losing global competitiveness, especially in ferrochrome production and export.

Industry outlook:

- Chrome export volumes performed surprising well by largely switching logistics away from inefficient South African rail and port facilities to road via the Komatipoort border post to Maputo harbour. However, road transportation comes at a premium of roughly 40% compared to rail use. From Mozambique the chrome is exported to China.
- Crime (cable theft and vandalism) continue to plague the chrome line and, while producers have pooled resources to try and secure the line, this is not sustainable for the industry.

Bauba Platinum – Moeijelijk Chrome Mine

Chrome industry production and employment: 2010 – 2022



Source: *DMRE, Minerals Council South Africa*

Chrome ore	2022	% Change on prior year	2019 to 2022
Direct Employees (number)	18,969	-1.9	-9.0
Employee Earnings (rand billion)	6.4	5.1	0.6
Royalties (rand billion)	n/a	n/a	n/a
Production (million tonnes)	19.4	4.3	9.9
Total Sales (rand billion)	33.0	50.3	48.9
Percentage of value exported 22	46.1%		

Source: DMRE, Minerals Council South Africa

OUR METALS AND MINERALS
INDUSTRIAL MINERALS

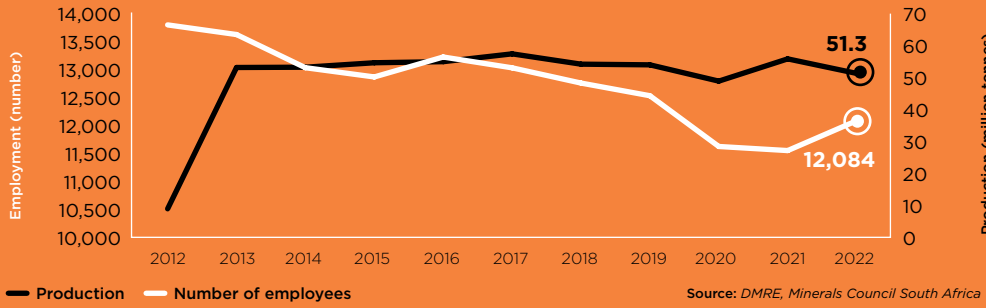
South Africa is richly endowed with a vast array of minerals. The country not only ranks highly in the resource or reserve in some commodities, relative to the global endowment, but also in the diversity of minerals available. In 2022, we estimate that total industrial mineral sales amounted to R21.3 billion.

Non-metallic sales saw substantial growth in 2022 with sales up by around 30% at R9.29 billion. This sector, which includes minerals such as silica, vermiculite and feldspar, contributed 43.6% to total sales. This was followed by the aggregate and sand sector and the limestone and lime sector each contributing 31.1% and 18.9% respectively.

Direct Employees
12,084

Pretoria Portland Cement

Industrial minerals production and employment: 2012 – 2022



Source: *DMRE, Minerals Council South Africa*

Industrial minerals	2022	% Change on prior year	2019 to 2022
Direct Employees (number)	12,084	4.6%	-3.6%
Employee Earnings (rand billion)	2.4	2.2%	5.7%
Royalties (rand million)	596	31.7%	156.3%
Production (million tonnes)	51.3	-8.1%	-5.0%
Total Sales (rand billion)	21.3	12.5%	19.3%
Percentage of value exported 22	30.6%		

Source: DMRE, Minerals Council South Africa

OUR METALS AND MINERALS
DIAMONDS

Diamonds have a crystalline structure that makes them harder than any other form in nature. They are not only very popular in jewellery and adornment, but also desirable in high-tech cutting, grinding, and polishing tools.

For the first time since the 2008 GFC local production of diamonds is expected to have exceeded the 10 million-carat mark. Comparing 2022 to 2019, production is expected to have been 42.2% higher at 10.2 million carats. Comparing 2022 to 2021, production figures are likely to have been 5.1% higher.

The value of total diamond sales are expected to have climbed 30.3% in 2022 compared to the previous year mainly on account of higher international prices. Compared to 2019 the total value of sales is projected to have been more than 110% higher in 2022.

Industry developments in 2022:

- In March 2022 the DMRE published the Artisanal and Small-Scale Mining Policy with the aim of enabling the industry to "operate optimally in a sustainable manner while also contributing to the economy in the form of taxes and royalties".
- 2022 saw an increase in constructive engagements between diamond producers, the South African Diamond and Precious Metals Regulator (SADPMR), and the State Diamond Trader (SDT) in trying to remove the constraints affecting the industry. The engagements are quarterly and, while progress is slow, the regulator and the SDT officials must be commended for the continual consultations with the industry.
- The Minerals Council continues to engage the National Treasury and SARS on the removal of the following:
  - The requirement for a provisional VAT on imported rough diamonds which would aid the cash flow position of beneficiators.

Direct Employees

14,577

- VAT payment on the local sale of diamond jewellery purchases exceeding R10,000 by tourists. This will mean that tourists will not have to go through the highly administrative process of claiming back VAT by submitting proof of where they obtained the cash – whether it be from an ATM, a bank, or a Bureau de Change. The process limits the number of diamond sales the local industry can make to tourists.
- Provisional VAT payments on temporary imports to South Africa which applies to shipments higher than R14,000. SARS requires jewellery firms from neighbouring countries to pay this amount upfront. The result is that neighbouring firms are dissuaded from acquiring domestic services for repairs, warranty claims, sending gemstones for grading and sending sweeps, filings.

Industry constraints:

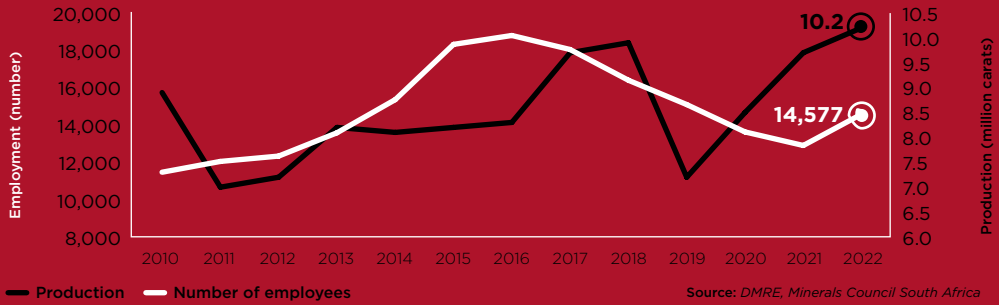
The industry faces a number of challenges such as the Diamond Export Levy Act, the role of the SDT and the Diamond Exchange and Export Centre (DEEC), and the Section 74 Exemption in the Diamond Act, among others.

- For example, regarding the Diamond Export Levy Act the view of the Minerals Council is that it unfortunately does not take into account the economic circumstances of the downstream cutting and polishing industry. There have been instances where downstream players buy diamonds on dealer licences and then export the diamonds without beneficiation.

Industry outlook:

- The industry still has a long way to go to reach pre-2008 production levels.
- The volatility in the global economy hardly fosters consumer confidence, save to mention that the US economy, which consumes more than 50% of diamonds globally, continues to grow in spite of higher than usual consumer inflation.
- Locally, one of the major constraints to beneficiation and increased consumption of diamonds is VAT. The Minerals Council continues to advocate the removal of VAT on the sale of all rough diamonds.

Diamond industry production and employment: 2010 – 2022



Source: *DMRE, Minerals Council South Africa*

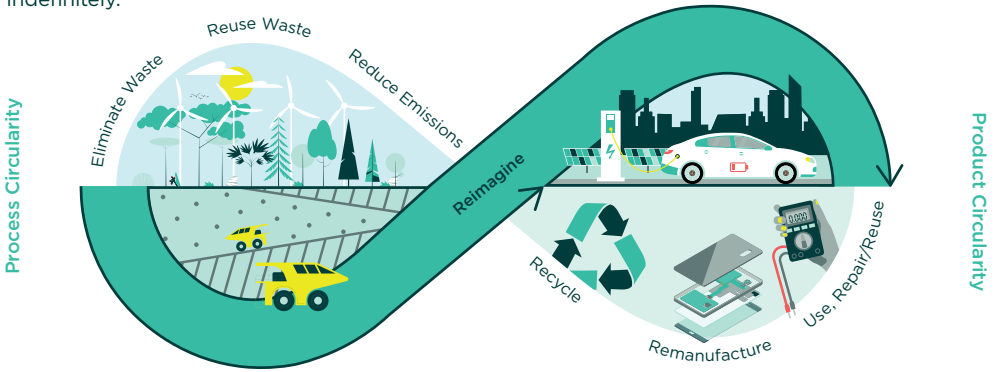
Diamonds	2022	% Change on prior year	2019 to 2022
Direct Employees	14,577	13.0	-3.4
Employee Earnings (rand billion)	5.7	17.2	15.8
Royalties (rand million)	29	-69.7	-92.1
Production (million tonnes)	10.2	5.1	1.0
Total Sales (rand billion)	27.7	30.3	110.6
Percentage of value exported 22	54.7%		

Source: DMRE, Minerals Council South Africa

Mining and Metals in a Circular Economy

ICMM

A circular economy results from mining processes that minimise, reuse and ultimately eliminate waste, and from product design and collection processes that harvest and reuse metals indefinitely.



Process and product are tied together. For materials to be truly circular, the way they are produced and consumed must be circular. In the case of mining, this means having operations that have a net positive contribution to the environment and society, and are working with the wider metals supply chain to promote the responsible use and recovery of metals after they enter markets.

Dramatic improvement in safety performance recorded in 2022 for the first time in its history, the South African mining industry has recorded less than 50 lives lost in a calendar year.

The mining industry's safety performance in 2022 showed a marked reduction to below 2019's 51 lost lives, which was the lowest on record. Provisional statistics (as of 10 January 2023) indicate that 49 employees lost their lives in 2022, compared to 74 in 2021.

The 2022 safety performance bears testimony to the hard work and dedication of all stakeholders in the mining industry towards ensuring the safest possible working conditions in South Africa's mines to achieve zero harm. The heightened focus on safety halted and reversed the two-year regression in safety as the Minerals Council and its members urgently addressed the unacceptable safety performance of the industry during and immediately after the COVID-19 pandemic in 2020 and 2021.

The many collaborative initiatives by the Board of the Minerals Council and the mining industry's leadership through the CEO Zero Harm Forum had a significant impact in the operational safety of member companies. The Minerals Council called an urgent Board meeting in September 2022 to revitalise safety interventions after a worrying regression in August.

The year-on-year reduction in the loss of life is 34%. The platinum and gold sectors were the highest contributors to the overall loss of life with 17 and 16 deaths in 2022 respectively. This is also the first time that the loss of lives in another sector exceeded the number of lives lost in the gold sector. The coal sector recorded 6 deaths while the other commodities accounted for 10 deaths. All sectors reduced their loss of lives by between 15% and 43%, with the gold sector having the biggest reduction of 43%.

An analysis of the loss of life trends indicates that the number of deaths resulting from falls of ground has shown a marked 73% reduction to 6 in 2022. Transportation and Machinery is the only area that saw a regression, with 17 deaths compared to 16 in the previous year.

The Minerals Council Board and the CEO Zero Harm Forum continue to monitor the progress on the Trackless Mobile Machinery project that will address transport-related incidents. The industry continued to implement several “low-hanging fruit” with a focus on traffic flow and risk analysis.

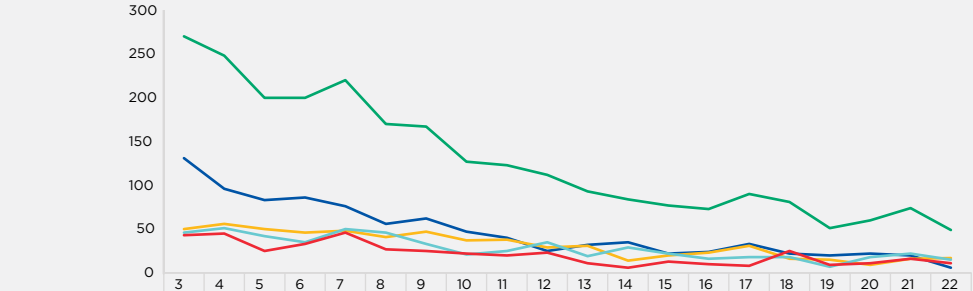
The Fall of Ground Action Plan approved by the Minerals Council Board and the CEO Zero Harm Forum in July 2021 has delivered encouraging results. The programme has six pillars which include the adoption of new leading practices aimed at minimising uncontrolled rock damages, underground visibility and eliminating the risk of working under unsupported rock, skills development related to rock engineering, including the updating of learning material for the Chamber of Mines Strata Control Certificate and Rock Mechanics Certificates. The need for more research and development (R&D) related to barring technology, seismic hazard rating and support designs forms part of the pillar under R&D. The Fall of Ground Action Plan includes an investment of R46 million over five years.

All sectors reduced their loss of lives by between 15% and

43%

Anglo American Platinum – Dishaba

Fatalities by Agency



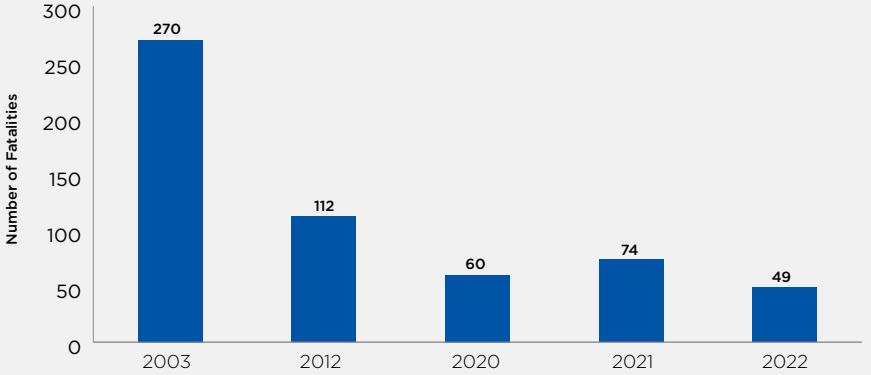
	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Falls of ground	131	96	83	86	76	56	62	47	40	25	32	35	22	24	33	22	20	22	20	6
T&M	50	56	50	46	48	41	47	37	38	29	31	14	20	23	31	16	15	9	16	17
General	46	51	42	35	50	46	33	21	25	35	19	29	22	16	18	18	7	18	22	15
Other	43	45	25	33	46	27	25	22	20	23	11	6	13	10	8	25	9	11	16	11
All	270	248	200	200	220	170	167	127	123	112	93	84	77	73	90	81	51	60	74	49

Source: DMRE

Reduction in injuries

The industry recorded an 8% reduction in serious injuries with a total of 1,946 compared to 2,123 in 2021. The gold sector has shown the most improvement with a reduction of 25% whilst the platinum sector saw a 1% reduction in serious injuries. Coal and other commodities regressed by 1% and 11% respectively.

Number of fatalities by year



Source: DMRE

AngloGold Ashanti – Mponeng

COVID-19 statistics

The global pandemic of COVID-19 that hit the industry in 2020 and 2021 receded in 2022. The table below shows cases and deaths from COVID-19 from 2020 to 2022.

Reports from all mines showed a decrease of

4.42%

in the total number of occupational diseases reported by mines

COVID-19 cases and deaths in mining industry as of 14 December 2022

Year	Cases diagnosed	Deaths from COVID-19
2020	23,195	226
2021	39,517	520
2022	4,359	9
Total	**67,071**	**755**

Source: Minerals Council South Africa

Occupational disease, tuberculosis (TB) and HIV Statistics

There continues to be a reduction in the occupational diseases reported both to the DMRE and to the Minerals Council.

All mines report annually to the DMRE on occupational diseases, TB and HIV. The Minerals Council has an Occupational Health Reporting System where any company can report on the Mine Health and Safety Council milestones for 2024 as well as the indicators set by the Masoyise Health Programme. Statistics from both organisations are reported on.

Occupational diseases reported to the DMRE

Reports from all mines showed a decrease of 4.2% in the total number of occupational diseases reported by mines, from 2,013 cases in 2020 to 1,924 cases in 2021.

Harmony – Target 1 Shaft

Total number of occupational diseases reported by commodity for 2020 and 2021

	Silicosis		Pulmonary TB		Silicosis and Pulmonary TB		Noise-induced hearing loss (NIHL)	
	2020	2021	2020	2021	2020	2021	2020	2021
Gold	233	225	367	358	8	12	298	406
Platinum	33	11	297	285	0	0	278	247
Coal	0	2	110	97	0	0	88	64
Diamond	0	0	5	3	0	0	1	0
Copper	0	0	3	3	0	0	3	2
Chrome	4	0	26	19	0	0	39	21
Manganese	0	0	12	5	0	0	0	1
Iron ore	0	0	8	2	0	0	1	3
All other	1	2	21	21	0	0	30	32
TOTAL	**271**	**240**	**849**	**793**	**8**	**12**	**738**	**776**

Source: DMRE

AngloGold Ashanti – Mponeng

Total number of occupational diseases reported by commodity for 2020 and 2021 continued

	Coal workers' pneumoconiosis		Asbestosis		Other		Total		Percentage Rate Change
	2020	2021	2020	2021	2020	2021	2020	2021	
Gold	0	0	0	0	61	57	967	1,058	9.41
Platinum	0	0	0	1	24	19	632	563	-10.92
Coal	19	11	0	0	30	7	247	181	-26.72
Diamond	0	0	0	0	0	2	6	5	-16.67
Copper	0	0	0	0	0	0	6	5	-16.67
Chrome	0	0	2	0	3	2	74	42	-43.24
Manganese	0	0	0	0	2	0	14	6	-57.14
Iron ore	0	0	0	0	10	0	10	5	-50.00
All other	0	0	0	0	5	4	57	59	3.51
Total	**19**	**11**	**2**	**1**	**126**	**91**	**2,013**	**1,924**	**-4.42**

Source: DMRE

Village Main Reef – Kopanang

TB and silicosis declined by 6.6% and 11.4% respectively while noise induced hearing loss (NIHL) increased by 5.1%. There are significant numbers of NIHL cases reported in the industry.

TB and HIV reported to DMRE for 2021

Mines are required to report on TB and HIV, and for the 2020/21 financial year 789 mines reported, representing approximately 460,000 employees. This is compared to 775 mines that reported with approximately 453,000 employees in 2019/2020.

HIV counseling and TB screening regressed from 73.5% and 93.3% in 2020 respectively. This is most likely due to the impact of COVID-19 on health services.

Occupational diseases, TB and HIV reported to Minerals Council

Through the Minerals Council's flagship Masoyise Health Programme, performance against the industry occupational health milestones is monitored and it is reported on below.

In 2021, 114 companies representing 397,820 employees registered on the Minerals Council Occupational Health Information Management System. This accounted for 394 mines in South Africa, which represent about 86.5% of the estimated 460,000 employees in the mining industry.

Harmony – Tshepong

JUNIOR AND EMERGING MINERS

While junior mining generally refers internationally to prospecting companies involved in the early stages of mining development, in South Africa the term is used more broadly to include exploration as well as small to mid-tier producers.

Emerging miners is also a South African term used to refer to smaller new entrants to the industry typically being black economic empowerment companies.

The latest estimates of the size of this sector indicates that the overall revenue and expenditure of the junior and emerging mining sector in South Africa is as follows:

Revenue	R million
Interest received	543
Dividends received	4,655
Royalties received	7
Received rental on land and buildings	68
Received rental on plant and machinery	304
Profit on assets	1,707
Other income	1,911
Total turnover	**88,211**

Source: Minerals Council South Africa

Expenses	R million
Purchases	37,442
Employment costs	16,648
Interest paid	1,942
Royalties paid	682
Paid rental on land and buildings	1,713
Paid rental on plant and machinery	3,338
Depreciation	4,804
Losses on assets	561
Other expenditure	20,347
Total expenditure	**87,477**

Source: Minerals Council South Africa

In addition, the sector employs 45,000 in direct jobs, which is about 10% of the total industry. In terms of the commodities mined, the highest concentration is in industrial minerals followed by diamonds, coal, iron ore and manganese, gold, chrome and PGMs.

While in South Africa the junior sector comprises mainly smaller producers, there is a smaller exploration sector. This sector has become the target of the Minerals Council's thrust to attract more investment into exploration. Over the past ten-year period South Africa's share of global exploration dollars has dropped from 2% to below 1% currently. This is in contrast to countries such as Canada and Australia, for example, which attract anything between 5% and 7% of global exploration dollars annually.

This is also reflected in the various stock exchanges: the JSE has less than ten listed junior companies, whereas the Toronto Stock Exchange has over twelve hundred listed junior companies.

The Minerals Council is involved in active lobbying efforts with the DMRE, the Council for Geoscience National Treasury and the JSE to improve the regulatory environment and the financial services industry in order to support exploration in South Africa.

Orion Minerals – Prieska

MODERNISATION

The Minerals Council has a five-year Strategic Partnership for People-Centric Modernisation with the Research Institute for Innovation and Sustainability (RIIS).

Our three key objectives for the 2022-2026 cycle are:

1. **Implement medium-term modernisation programmes**
2. **Strengthen collaboration with member companies**
3. **Strengthen the external research, development and innovation (RD&I) ecosystem**

Undertaking a review of the current state of the Mining Innovation Ecosystem in South Africa where we assessed the relative performance and strength of key performance indicators that characterise a healthy innovation ecosystem was a key priority for 2022.

The key components progressed over 2022 include:

- **TECHNOLOGY INNOVATION FOR IMPROVED SECURITY IN MINING**

  Recognising the major risk of security issues in South African mining, the Minerals Council facilitated sharing of leading practices in technology innovation for improved security through a dedicated Day of Learning. Applications included: artificial intelligence to enhance closed-circuit television, various movement detection systems, drones, body cams on guards deployed on the ground, and various types of sensors that improve accuracy of surveillance.

- **IMPROVED DATA COLLECTION AND ANALYSIS OF RD&I EXPENDITURE TRENDS IN MINING**

  Since RD&I investment is critical to the global competitiveness of members, the Minerals Council is partnering with the Human Sciences Research Commission's Centre for Science, Technology and Innovation Indicators to understand the investment better and advise on ways in which this could be improved.

- **POLICY ADVOCACY FOR R&D TAX INCENTIVE RENEWAL AND AMENDMENTS**

  The Minerals Council facilitated engagements between the National Treasury, the Department of Science and Innovation, the mining industry and suppliers to advocate

extension of the research and development incentive under Section 11D of the Income Tax Act beyond the sunset date of 2022. The incentive was extended, and the Minerals Council will continue to advocate an incentive that delivers most value for members.

- **INNOVATION ECOSYSTEM REVIEW**

  Since 2017 the Minerals Council has driven people-centric modernisation initiatives aiming to strengthen the innovation ecosystem in the South African mining cluster collaboratively and inclusively. In 2021, the Modernisation partnership was extended by five years to address more medium-term issues like climate change. The ecosystem was reviewed extensively during 2022 using international guidelines. It was found that, during the first phase of the partnership, significant progress has been made on innovation culture, network assets and collective approach.

- **TAILINGS STORAGE FACILITY RISK ASSESSMENT**

  Prompted by the recent Jagersfontein tailings storage facility (TSF) breach and humanitarian consequences to which it led, the Minerals Council leveraged its geographic information system (GIS) and data capabilities to undertake an initial analysis on satellite imagery and available GIS data. The analysis covered Jagersfontein pre and post the breach, as well as the identification of TSFs that are active and not managed by Minerals Council members. Further work in this regard will continue.

- **MINERALS COUNCIL CLIMATE CHANGE POSITION ADOPTION**

  Through the Strategic Partnership, the Minerals Council facilitated the development and approval of the Climate Change Position Statement.

- **HYDROGEN**

  The Hydrogen Leadership Forum was established as an executive-led forum for strategic reflection and advocacy. The Minerals Council accelerated members' understanding of hydrogen economy opportunities and facilitated engagements with the Deputy Director-General of Science and Innovation, Rebecca Maserumele, and Sasol CEO, Fleetwood Grobler.

JUST ENERGY TRANSITION

The just energy transition refers to the shift towards using renewable energy sources, such as solar and wind power, to generate electricity and power transportation, instead of fossil fuels in a way that is equitable and beneficial for all members of society.

The mining industry plays a key role in this transition as many renewable energy technologies rely on critical materials that are mined, such as lithium for electric vehicle batteries, copper for wind turbines and solar panels, and PGMs for hydrogen fuel cells, autocatalysts and elecrolysis in the manufacture of hydrogen.

Critical minerals are defined as minerals that are essential for the economic and national security of a country. These minerals are often used in high-tech industries such as defence, renewable energy, and electronics, and are considered critical because they are subject to supply chain disruptions, have few substitutes, and are mined and processed primarily outside of the country that uses them.

Global warming and its accompanying negative effects on the environment have been the motivating force behind the move from fossil fuels to renewable sources of energy. Developed countries such as the UK, Germany and Japan, among others, have proactively identified key minerals that are key to the just energy transition. They have developed strategies aimed at securing the future supply of minerals that are critical for the just energy transition. South Africa is endowed with several critical minerals or what is also referred to as the minerals of the future. The tables below contain the critical minerals that are key to certain renewable energy technologies. They also indicate whether South Africa is in possession of reserves of these minerals and materials. It must be noted that some minerals and materials are indicated on the lists as unavailable in the country when, in fact, there are deposits. This is because these can be found in small amounts. For example, lithium and tantalum are indicated as unavailable in the country and yet commercially viable concerns are in operation.

The key to unlocking the country's mineral potential is encouraging and incentivising greenfield exploration by the Government. Not only will this create jobs, but it could also serve to assuage the effects of the just transition on jobs that will be lost in the coal industry.

Raw materials used in batteries				
		Is it classified as a critical material in ...		Is the material/mineral available in SA?
	Element	EU?	UK?	
1	Aluminium	Y	N	N
2	Cobalt	Y	Y	Y
3	Copper	N	N	Y
4	Graphite	Y	Y	Y
5	Lithium	Y	Y	N
6	Manganese	N	Y	Y
7	Nickel	N	Y	Y
8	Niobium	Y	Y	N
9	Silicon	Y	Y	Y
10	Titanium	Y	N	N

Source: European Commission, Minerals Council South Africa

	Raw materials used in wind turbines	Is the material/mineral available in SA?
1	Aluminium	N
2	Boron	N
3	Chromium	Y
4	Copper	Y
5	Dyspromium	N
6	Iron ore	Y
7	Lead	Y
8	Manganese	Y
9	Molydenum	N
10	Neodymium	N
11	Nickel	Y
12	Niobium	N
13	Paseodymium	N

Source: European Commission, Minerals Council South Africa

	UK list of critical minerals	Is the material/minerals available in SA?
1	Antimony	N
2	Bismuth	N
3	Cobalt	Y
4	Gallium	N
5	Graphite	Y
6	Indium	N
7	Lithium	N
8	Magnesium	N
9	Niobium	N
10	Palladium	Y
11	Platinum	Y
12	Rare earth elements	Y
13	Silicon	Y
14	Tantalum	Y
15	Tellurium	N
16	Tin	Y
17	Tungsten	Y
18	Vanadium	Y
19	Iridium	Y
20	Manganese	Y
21	Nickel	Y
22	Phosphates	Y
23	Ruthenium	Y

Source: UK Government, Minerals Council South Africa

Anglo American Platinum – Mototolo

MINERALS COUNCIL
SOUTH AFRICA

#MakingMiningMatter

www.mineralscouncil.org.za

T +27 11 498 7100
E info@mineralscouncil.org.za

@Mine_RSA
www.facebook.com/Mine

Rosebank Towers, 19 Biermann Avenue
Rosebank, Johannesburg, 2196
PO Box 61809, Marshalltown 2107