

# EXPLORATION STRATEGY FOR THE MINING INDUSTRY OF SOUTH AFRICA

Published under

GN 2026 in GG 46246 of 14 April 2022



## Table of Contents

List of Figures

List of Tables

Glossary

Strategic Overview

Vision

Goals

- 1 Contribution of mining to the national economy
- 2 Strategy focus
  - 2.1 Elements of the Strategy
  - 2.2 Objective
- 3 Mining industry landscape for exploration

- 3.1 Strengths
  - 3.1.1 Mineral Endowment and Publicly Available Geoscience Data
  - 3.1.2 Mining Experience
  - 3.1.3 Internationally Renowned Research Institutions
  - 3.1.4 Access to International Market
- 3.2 Weaknesses
  - 3.2.1 Energy Instability
  - 3.2.2 Lack of Precompetitive Geoscientific Data
  - 3.2.3 Infrastructure Challenges
  - 3.2.4 Unsatisfactory Policy Implementation
  - 3.2.5 Industrial Actions and Community Unrest
- 3.3 Opportunities
  - 3.3.1 Diverse Mineral Base
  - 3.3.2 Industry 4.0
  - 3.3.3 Rising Demand for Clean Energy
  - 3.3.4 Research and Development
- 3.4 Threats
  - 3.4.1 Competition for Global Capital
- 4 Targeted minerals commodities
- 5 Strategic initiatives and actions
  - 5.1 Investment Promotion
- 6 Critical roles of social partners
- 7 Monitoring and evaluation

## List of Figures

Figure 1: Elements of the strategy

Figure 2: Notable Mineral Reserves vs the world. Source: Investec Securities estimates, U.S. Geological Survey, Minerals Council SA

## List of Tables

Table 1: Targeted critical minerals and metals

Table 2: Strategic initiatives

Table 3: Roles and responsibilities

## Glossary

CGS	Council for Geoscience
COGTA	Department of Cooperative Governance and Traditional Affairs of South Africa
CSIR	Council for Scientific and Industrial Research
DFFE	Department of Fisheries, Forestry and Environment of South Africa
DHSWS	Department of Human Settlement, Water and Sanitation of South Africa
DMRE	Department of Mineral Resources and Energy of South Africa
DSI	Department of Science and Innovation of South Africa
GDP	Gross Domestic Products
GFC	Global Financial Crisis
GHGs	Greenhouse Gases
IRP	Integrated Resource Plan
MHSA	Mine Health and Safety Act of 1996
MPRDA	Minerals and Petroleum Resources Development Act of 2002
MW	Megawatts

NEDLAC	National Economic Development and Labour Council
PGMs	Platinum Group Metals
R&D	Research and Development
SA	South Africa

## Strategic Overview

South Africa's endowment with a wide range of minerals as well as their mining and export has historically positioned the country as a global mining powerhouse. This has been characterised by over 130 years of mining resulting in a sizeable contribution to the GDP. Consequently, South Africa's skills and expertise have a huge footprint in a number of high performing industries in the mining value chain across the world. The mineral endowment that South Africa still has is a major driving force to the conceptualisation of this Exploration Strategy for the Mining Industry in South Africa. Evidently, with the declining gold resources, the appeal of the South African mining industry lies in the minerals of the future. This strategy is designed to take South Africa on that path to bring back its shine in line with the green economy through the deployment of clean technologies.

Currently, Canada continues to be a top destination for exploration spending and globally offers unparalleled access to capital markets. However, as South Africa we should be up the [sic] with the best in attracting such foreign investments as we are innovative, have robust junior mineral exploration, clean technology, processing, and mining supply and services sectors to boost a reinvigorated mining exploration strategy.

## Vision

Unveil South Africa's mineral resources potential for a sustainable mining industry that responds to the needs of South Africa and the world.

## Goals

To attract mineral exploration investment, reignite mineral development, accelerate new mineral discoveries and encourage optimal utilisation of the South African mineral resources in line with the environmental, social, and corporate governance principles for sustainable growth and propel South Africa to a competitive position against other jurisdictions of comparable mineral endowment.

### 1 Contribution of mining to the national economy

The much-recorded number of years of mining in sectors such as gold, diamond and coal, indicates that the industry remains a significant contributor to the economy in terms of employment numbers, export earnings, as well as attracting foreign direct investment. In 2020, the mining industry accounted for about 1.5 million both indirect and direct (451,427) employment.

In addition, the sector contributed 8.2% to the Gross Domestic Product (GDP), attracted over R575 billion in export earnings, contributed R608 billion in total mineral sales, R27.2 billion in corporate taxes and R11.8 billion in royalties (Minerals Council SA, 2021 \*). Over and above direct contributions, the industry is an anchor to other sectors of the economy, including agriculture, infrastructure, and energy etc.

### 2 Strategy focus

The exploration strategy is drafted on the strength of South Africa being host to over 50 mineral commodities. It is anchored on three critical pillars of sustainable development, namely, economic growth, social benefits, and environmental care through good governance. It focuses on the attainment and availability of geoscience information to support exploration and development of mineral resources.

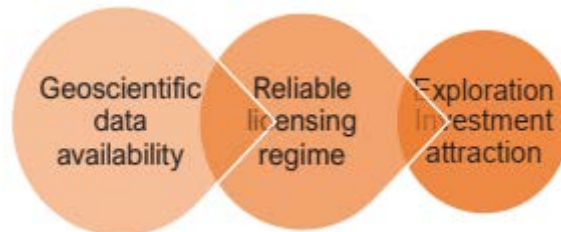
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\* Minerals Council of South Africa, 2021. Facts and figures pocketbook 2020.

The strategy further addresses significant steps to be taken by the Government, the industry, academia, and other relevant social partners in an effort to secure a minimum of 5% share in global exploration expenditure within a period of five years. The initiatives set herein commit each partner in executing their roles and responsibilities to ensure revitalisation of the exploration sector and be endorsed by signing a social compact.

## 2.1 Elements of the Strategy

The strategy is anchored on three rudiments



*Figure 1:  
Elements of the strategy*

## 2.2 Objective

To secure a 5% share of global exploration expenditure, catalyse mineral exploration to increase mining contribution to the economy of South Africa in the next five years.

## 3 Mining industry landscape for exploration

### 3.1 Strengths

#### 3.1.1 Mineral Endowment and Publicly Available Geoscience Data

South Africa prides itself on the quality of exceptional mineral endowment. The country is host to a number of minerals such as diamonds, gold, coal, iron ore, platinum group metals (PGMs), manganese, chromium, copper, and uranium amongst others. The country's production by quantities is dominated by coal (25%), PGMs (24%), gold (16%), and iron ore (11%). This mineral wealth presents South Africa with a comparative advantage in minerals such as manganese, chromium, and vanadium amongst others. As of 2021 the Government has made the geoscience data publicly available to improve transparency and accessibility. This is a big step towards realising the aspirations of the strategy milestone which is geared towards showcasing the country's mineral potential and supporting investment decisions.

#### 3.1.2 Mining Experience

South Africa prides itself on more than 130 years of exploring and exploiting minerals. Since the advent of the post 1994 democratic dispensation, there has been a greater emphasis that all the minerals beneath the soil must benefit the people of South Africa as a whole. Consequently, this led to the promulgation of the Minerals and Petroleum Resources Development Act (2002) which vested all minerals beneath the soil onto the State on behalf of all South Africans. Throughout the years, the country produced both traditional and contemporary minerals needed to fuel the current and future economies, such as iron ore and chrome. In many countries across the world, such minerals contributed to urbanisation and continue to anchor their growth and development in infrastructural upliftment. To date South Africa continues to be a global player in the PGMs sector, more particularly in minimising greenhouse emissions from cars amongst others.

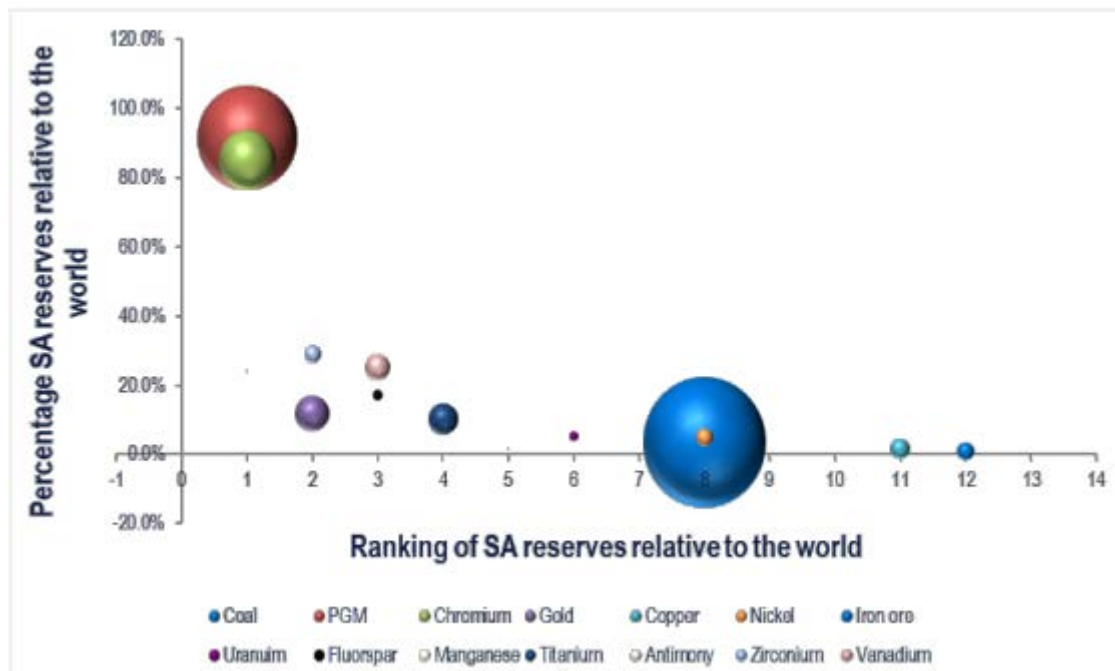


Figure 2:

Notable Mineral Reserves Vs the world.

Source: Investec Securities estimates, U.S. Geological Survey, Minerals Council SA

### 3.1.3 Internationally Renowned Research Institutions

The country has strong research institutions such as the Council for Geoscience (CGS), Mintek and the Council for Scientific and Industrial Research (CSIR), as well as top world ranking universities. This ensures that the country has high-quality geoscientific data, mineral technology innovation and relevant research and development initiatives that support exploration and mining sectors.

### 3.1.4 Access to International Market

South Africa's ports and terminals are catalysts for the country's economic growth. The country is located on one of the busiest international sea routes, critical to international maritime transportation. Due to its geographical location, the country's ports and terminals allow ease of access to major international markets such as China, Europe and Asia in general.

## 3.2 Weaknesses

### 3.2.1 Energy Instability

Since 2008, South Africa has been experiencing energy instability due to high demand as a result of population growth and the mass connection of households to the grid. This has been compounded by an aging infrastructure such as the grid itself as well as coal powered stations some of which are decommissioned as they reach their end of lifespan. However, the country is speedily implementing the Integrated Resource Plan (IRP 2019) to increase energy generation and supply capacity through an inclusive energy mix. This is largely dominated by clean energy sources as the country transitions to a low carbon economy.

### 3.2.2 Lack of Precompetitive Geoscientific Data

The country is currently at a below-par of 9% when it comes to the 1:50 000 geology map scale, which does not speak to exploration revitalisation efforts. The lack of geoscientific data at a requisite scale to inform investment decisions diminishes appetite towards exploration investment.

### 3.2.3 Infrastructure Challenges

In as much as South Africa has one of the best rail and road infrastructure compared to other African countries, there are notable concerns regarding network coverage, capacity, and proactive maintenance. These concerns have negative consequences on domestic, regional, and international trade. In an attempt to address this challenge, Government has budgeted R900 billion (until 2027) to build and maintain transportation infrastructure (International Trade Administration, 2020 \*).

### 3.2.4 Unsatisfactory Policy Implementation

According to investor perceptions, South Africa has developed world-class legislative frameworks that govern the sector. However, implementation remains a great concern and hinders the growth of mineral exploration. Thus, it is imperative that Government focus its attention on in-depth implementation of the available legislative frameworks governing the mining industry.

### 3.2.5 Industrial Actions and Community Unrest

South Africa's mining industry has experienced periodic instability due to reasons tied to the history of the industry and the relationship between social partners. The sector has experienced various periods of industrial actions wherein workers down tools and or due to community unrest with locals demanding economic opportunities from mining operations, which led to political instability. Accordingly, these actions, albeit necessary, sometimes led to decreased appetite by private investors due to political uncertainty concerns. The Executive nonetheless continues to reassure the world of its political willingness and measures taken to address any concerns of instability as periodically communicated through the Government Communication Information System (GCIS) and post Cabinet meeting briefings by the Presidency.

## 3.3 Opportunities

### 3.3.1 Diverse Mineral Base

The country hosts a diverse mineral base both tapped and untapped such as PGMs, chromium, iron ore and base metals which feature prominently in the renewable energy space and the minerals of the future. Unlocking the potential presented by these natural resources may usher in a new generation of the mining industry that is responsive to current and future market demands. For example, there are opportunities presented by the largely under-explored Northern Cape Province with known prospects for base metals and chrome amongst others.

### 3.3.2 Industry 4.0

Vast mineral reserves remain unexplored due to the lack of recent technology in the country. Furthermore, the country contains several sources of sustainable energy such as wind and solar, which could drive the market for and supports the exploitation of minerals such as the minerals of the future. The Department of Minerals Resources and Energy recently increased the threshold for embedded power generation from a mere 1 MW to a whopping 100 MW.

These minerals are instrumental in driving the Fourth Industrial Revolution (Industry 4.0), the ongoing automation and data exchange in manufacturing and industrial practices using modern technology. There is an imminent need for the country to feature Industry 4.0 in the sector whilst striking a balance between socio-economic needs and technological advancement.

### 3.3.3 Rising Demand for Clean Energy

South Africa should take advantage of the opportunities presented by the growing demand for minerals needed by the internet era with a high reliance on battery storage, artificial intelligence, robotics, electric vehicles, and clean energy with a growing market

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\* International Trade Administration, 2020. South Africa country commercial guide, 01 October 2020.

demand globally. The rising market demand for these minerals is mainly attributed to the growing need to reduce greenhouse gases (GHGs) as per the Paris Agreement on Climate Change, advancement in technologies and the rising government funding towards low carbon economies. The country contains known deposits of minerals that contribute to these markets, such as copper, nickel, lithium, rare earth metals, graphite, and cobalt amongst others, yet these remain largely under-explored.

### 3.3.4 Research and Development

While the country has made strides in research and development (R&D), South Africa lags amongst its peers when it comes to exploring innovative technologies. This presents an opportunity for more research in exploration geoscience to strengthen the sector and put the country in a more competitive position globally.

## 3.4 Threats

### 3.4.1 Competition for Global Capital

Competition for global capital is continuously increasing due to the green economy agenda and the need to address the social needs of communities ('social license to operate'). Of late, even financial institutions around the globe undertook to move away from funding fossil fuel projects and targeting those associated with low carbon sources. South Africa's IRP 2019 \* advocates for a 'Just Transition' as Government policy on energy generation. The country commits to systematically transition towards a low carbon economy but, acknowledges that this will happen over time as the country's economy is still developing. As part of the signed compacts between social partners, the industry undertook to contribute to the socio-economic development of local communities and labour sending areas. This undertaking goes a long way in ensuring that communities' needs are taken into consideration before mining activities occur.

## 4 Targeted minerals commodities

The strategy identifies critical minerals and metals that are essential for responding to shift towards the green economy (eg batteries for electric vehicles, solar, wind), low carbon economy, and digitisation amongst others. Furthermore, the strategy acknowledges South Africa's reality that the country is currently reliant on fossil fuels for power generation and the production of other fuels. These have been identified as critical for economic growth. The exploitation and development of these will be placed on a path towards a 'Just Transition' as advocated in the 2019 IRP.

**Table 1:  
Targeted critical minerals and metals**

<b>MINERALS</b>	<b>CURRENT/FUTURE NEEDS</b>
Cobalt Nickel Copper Zinc Lead Rare Earth Minerals	Minerals of the future/Green economy
Manganese Iron ore	Steelmaking
Coal Uranium	Energy Minerals
PGMs Chrome	Competitive advantage and hydrogen economy

\* South Africa's Department of Energy, 2019. Integrated Resource Plan, October 2019.



Vanadium Lithium	Battery minerals
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## 5 Strategic initiatives and actions

In order to take advantage of the country's mineral wealth, socio-economic imperatives, current and future minerals market demands and the need to fulfil obligations of the climate change protocol, the strategy identifies focus areas to aid in the change of the trajectory of the country's exploration sector. The table below outlines critical areas of recommendation of the strategy.

- The Council for Geosciences (CGS) to increase 1:50 000 mapping footprint from 9% to 14% in the next five years. This means that the strategy targets 1% extra 1:50 000 mapping coverage each year for a duration of five years. This exercise will improve the country's geoscience data and information and encourage investment in the exploration space. In the past 3 to 5 years, the country has moved from 5% to 9% coverage in the public funded mapping sphere.
- This mapping programme led to the identification of the prospective corridors such as the Garamokoka anomaly in the North-West province, Kenhardt in the Northern Cape, Kleinfontein in Gauteng and Giyani in Limpopo and Ntaba Kandoda in the Eastern Cape. Targeted mapping exercise through public funding has over the years proven to be essential in accelerating investment in the exploration sector. The value to be generated from this programme will reveal new opportunities, de-risking exploration and drive significant exploration investment in the country.
- Through the strategy, the exploration sector commits to increasing the number of exploration drilling projects in the country. The sector aims to implement at least 25% of active prospecting rights with the remaining period of 3 years or more in the next five years. Accordingly, this step seeks to re-introduce the 'use it or lose it' principle to fast-track use of licenses at the same time encouraging investment in the sector.
- Government will incentivize exploration through the following mechanisms:
  - (i) Government through **DMRE will direct more support to junior exploration companies.**
  - (ii) The DMRE will identify projects with the greatest geological potential over the next five years, provide both technical and financial support to these projects until feasibility stage, if positive. This initiative will be in the form of public-private partnership (PPP) and will target junior exploration companies with at least 51% Historically Disadvantaged South Africans (HDSA) ownership in the right. The CGS will be fundamental in assessing the potential of projects to be funded at any given time. Attached to this initiative will be mandatory training of geoscientists through an internship programme.

### 5.1 Investment Promotion

- The strategy targets **to attract 5% share of global exploration expenditure** by 2025. The global exploration expenditure is estimated to be in the region of \$18 Billion in 2025. Thus, South Africa aims to claim approximately \$0.9 Billion in 2025 as a result of the outlined interventions as per the strategy.
- In line with the national investment drive, **the exploration and mining investment promotion plan** will be outlined focusing on promoting the country's minerals industry cognisant of the global trends within the mining and metals sector, and the economic realities of the country such as unemployment and slow economic growth. The country's exploration sector will form part of the broader mining industry's local and international investment promotion programme, A robust marketing campaign, utilising both targeted and mass campaigns, will be employed depending on the intended market and objectives of the campaign. The



exploration strategy document is an adaptive framework that is flexible to market sentiment, commodity interest, tailor-made technological and political changes to keep the South African mining jurisdiction competitive.

### Strategic initiatives

INITIATIVES	INTENDED BENEFITS	RESPONSIBILITY	TIMEFRAMES
Full application of Exploration Implementation Plan.	<ul style="list-style-type: none"> <li>• Unlocked regulatory bottlenecks.</li> <li>• Sufficiently funded geoscience programme.</li> <li>• Conducive environment for exploration.</li> <li>• A functional and effective cadastral system.</li> </ul>	Social partners	<b>Five years</b>
Collaborative research between relevant research institutions in the field of exploration geoscience. Focused funding is critical.	<ul style="list-style-type: none"> <li>• Improved availability of geoscience data, information and innovative technology.</li> </ul>	Government institutions such as DSI, CGS, industry, Universities and other research institutions.	<b>Five years</b>
Increased Exploration investment.	<ul style="list-style-type: none"> <li>• Accelerated exploration activities.</li> </ul>	CGS and Mining Companies	<b>Five years</b>
Streamlining regulatory requirements across licensing departments.	<ul style="list-style-type: none"> <li>• Aligned regulatory processes amongst departments.</li> <li>• Improved turnaround time on the processing of prospecting rights.</li> </ul>	DMRE, DHSWS, DFFE and COGTA	<b>12 months</b>

## 6 Critical roles of social partners

In order to achieve the strategic objectives of this strategy, Government, industry and other social partners will play a specific role as per the initiatives identified. Table 3 identifies social partner roles and responsibilities.

**Table 2:  
Roles and responsibilities**

PARTNER	EXPECTATIONS
Government	<ul style="list-style-type: none"> <li>• Funding of public geoscience data and research.</li> <li>• Create an investor-friendly environment through efficient regulation and licensing.</li> <li>• Promote South Africa's mining industry as an investment destination of choice.</li> </ul>
Industry	<ul style="list-style-type: none"> <li>• Invest in the exploration sector to achieve the objective of the strategy.</li> <li>• Collaborate with Government on various research and development initiatives.</li> </ul>
Organised Labour	<ul style="list-style-type: none"> <li>• Provide a conducive environment for exploration activities to take place through compacting with the industry workforce.</li> </ul>

## 7 Monitoring and evaluation

Review on performance and impact of the strategy will be undertaken on an annual basis. Section 28 of the MPRDA will be applied for this purpose.

