



Mineral Resources

South Africa is by far the wealthiest mineral jurisdiction in the world. Government's industrialisation policy calls for a paradigm shift in mineral development, strategic investment in assets to maximise long-term growth beneficiation projects, enhanced value of exports, increased sources for consumption of local content, and creation of opportunities for sustainable jobs.

In May 2013, the Department of Mineral Resources (DMR) was tasked to develop a rescue plan for the platinum and gold sectors to ensure long-term sustainability.

The platinum and gold sectors had been negatively affected by the persistent global economic market environment, which had an adverse bearing on their long-term viability.

The rescue plan is expected to enable the department to find appropriate government-wide measures for appropriate sector-wide responses. The particular focus is on supply- and demand-side interventions.

Platinum and gold are among the largest sectors of South Africa's mining industry in terms of employment, investment and revenue generation.

South Africa's mineral wealth is typically found in the following geological formations and settings:

- the Witwatersrand Basin yields some 93% of South Africa's gold output and contains considerable uranium, silver, pyrite and osmiridium resources
- the Bushveld Complex is known for platinum group metals (PGMs) (with associated copper, nickel and cobalt mineralisation), chromium and vanadium-bearing titanium-iron ore formations and industrial minerals, including fluor spar and andalusite
- the Transvaal Supergroup contains enormous deposits of manganese and iron ore
- the Karoo Basin extends through Mpumalanga, KwaZulu-Natal, the Free State and Limpopo, hosting considerable bituminous coal and anthracite resources
- the Phalaborwa Igneous Complex hosts extensive deposits of copper, phosphate, titanium, vermiculite, feldspar and zirconium ores
- kimberlite pipes host diamonds that also occur in alluvial, fluvial and marine settings
- heavy mineral sands contain ilmenite, rutile and zircon
- significant deposits of lead-zinc ores associated with copper and silver are found near Aggeneys in the Northern Cape.

Beneficiation strategy

In October 2013, the first National Jewellery Forum was held in Johannesburg.

The forum brings together mining and jewellery manufacturing associations and government to create entrepreneurs with the requisite skills to enable South Africa to become a global jewellery hub.

Mining qualifications authority

The future of mining in the country depends largely on the successful implementation of skills development initiatives.

Particular focus is placed on artisan and artisan aid as well as other technical skills. Capacity building within the DMR and associated institutions has also been prioritised in respect of identified critical areas of skills shortage and necessary interventions have been introduced, which include learnership programmes and bursary schemes.

The Mining Qualifications Authority was established as a sector education and training authority and facilitates the development of appropriate knowledge and skills in the mining, minerals and jewellery sectors.

Shale gas exploration

The potential of shale gas exploration and exploitation provides an opportunity for South Africa to begin exploring the production of its own fuel and marks the beginning of the re-industrialisation of the economy.

In October 2013, Cabinet approved the gazetting of technical regulations on petroleum exploration and exploitation.

Reserves

Gold

There are 35 large-scale gold mines operating in South Africa. In 2013, South Africa had fallen from being the world's biggest gold producer to the number six position with a 6% contribution to the total global gold production, despite still having an abundance of gold reserves in the ground.

Coal

Government resolved that coal should be declared strategic national resources, based on the balance of evidence. In mid-2013, the findings of the coal resources and reserves report concluded by the Council for Geosciences were released.

Platinum

Platinum mining in South Africa is supported by the country possessing over 80% of the world's PGM reserves.

The Merensky Reef, stretching from southern Zimbabwe through to the Rustenburg and Pretoria regions, is the centre of platinum mining in South Africa.

Palladium

South Africa is the world's second largest palladium producer. All of South Africa's production is sourced from the Bushveld Igneous Complex, which hosts the world's largest resource of PGMs.

Palladium, together with platinum, is more abundant than any of the other PGMs. It has the lowest melting point (1 554°C) of all the PGMs. Its most remarkable property is its ability to absorb enormous amounts of hydrogen at room temperature.

Ferrous minerals

In March 2013, the Minister of Mineral Resources unveiled the R1-billion expansion project at BHP Billiton's Metalloys manganese smelter in Meyerton, south of Johannesburg.

It is the largest new investment in the manganese industry in the country and supports government's drive to increase the beneficiation in South Africa.

The furnace is designed to produce 120 000 kt of High Carbon Ferro Manganese a year, and includes improvements to ensure increased reliability, availability and also improved pollution control during the production process.

Copper

Palabora, a large copper mine, smelter and refinery complex managed by the Palabora Mining Company in Limpopo is South Africa's only producer of refined copper.

Producing about 80 000 t per year, it supplies most of South Africa's copper needs and exports the balance.

Useful byproduct metals and minerals include zirconium chemicals, magnetite and nickel sulphate as well as small quantities of gold, silver and platinum.

Palabora's large block cave copper mine and smelter complex employs approximately 2 200 people.

Manganese

South Africa has significant proven manganese reserves, but exploitation of the mineral has not reflected its development potential.

Diamonds

South Africa plans to process a greater proportion of its gems locally to keep more profit in the country.

Government wants to cut and refine 70% of the diamonds mined in South Africa by 2023.

Stability in the mining sector

In July 2013, mining companies, trade unions and government departments met to sign the Framework Agreement for a Sustainable Mining Industry, which is aimed at resolving problems in the industry, rooting out unrest and restoring investor confidence in the sector.

Mine health and safety

The DMR continues to place particular emphasis on the health and safety of mine workers, which is crucial to the sustainability of the mining sector. As a result progress has been made in improving the record of fatalities, injuries and occupational diseases.

The Mine Health and Safety Inspectorate of the DMR pursued a strategy to eliminate silicosis and noise-induced hearing loss, also known as occupational deafness, by 2013.

The department finalised the HIV and Tuberculosis (TB) Reporting Form.

Mining Companies are expected to report on the programmes implemented in relation to HIV and TB annually to the department.

The department, in collaboration with the Mine Health and Safety Council, finalised the review of the Guidance Note on Management of TB in South African Mines.

The guidelines on Minimum Standards of Fitness to Perform Work in a Mine, and Prevention of Flammable Gas Coal Dust Explosions in Collieries were also reviewed.

Two new guidelines were developed: Incapacity Due To Ill-Health and Injury Guideline and the Compilation of a Mandatory Code of Practice for Risk-Based Emergency Care. The Regulations on Reporting of Occupational Diseases were gazetted during 2013/14.

Illegal mining

In July 2013, the Minister of Mineral Resources requested that law-enforcement agencies conduct sting operations at several mine dumps to root out illegal mining. In 2013, emergency teams had to be dispatched to disused mines and dump sites where illegal miners had lost their lives while drilling rocks underground. The illegal activity was not only a threat to the health of the illegal miners, but also negatively affected the economy.

Rehabilitation of mines

The mine-rehabilitation programme has had a positive impact on communities where the projects are. This includes economic growth due to sourcing labour and material locally. By March 2013, the department had rehabilitated 13 mine sites. A total of 284 jobs were created as part of the programme.

Acid mine drainage (AMD)

By November 2013, significant progress had been made towards addressing the critical challenge of AMD. In September 2013, Rand Water received a United States patent for an acid mine water treatment process. The magnesium-barium-hydroxide (MBO) process, which removes metals and sulphate from mine water, offered South Africa a technically sound and cost-effective solution for the acid mine water problem. Removing metals and sulphate with the MBO process could produce water that contained levels low enough to be acceptable as drinking water.

