



# MINERAL RESOURCES



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The Department of Mineral Resources aims to formulate and implement policy to ensure optimum use of the country's mineral resources.

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

- the Witwatersrand Basin yields some 94% of South Africa's gold output and contains considerable resources of uranium, silver, pyrite and osmiridium
- the Bushveld Complex is known for its platinum-group metals (PGMs) (with associated copper, nickel and cobalt mineralisation), chromium and vanadium-bearing titanium iron-ore formations as well as large deposits of industrial minerals, including fluorspar and andalusite
- the Transvaal Supergroup contains enormous resources of manganese and iron ore
- the Karoo Basin extends through Mpumalanga, KwaZulu-Natal, Free State as well as 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 in the Northern Cape near Aggeneys.

### Policy

The Mineral and Petroleum Resources Development Act (MPRDA), 2002 aims to:

- recognise that mineral resources are the common heritage of all South Africans
- promote the beneficiation of minerals
- guarantee security of tenure for existing prospecting and mining operations
- ensure that historically disadvantaged individuals participate more meaningfully
- promote junior and small-scale mining.

In terms of the Act, new order rights may be registered, transferred and traded, while existing operators are guaranteed security of tenure. Mining rights are valid for a maximum of 30 years and renewable for another 30 years, while prospecting rights are valid for up to five years and renewable for another three.

In 2009/10, the Department of Mineral Resources concluded an assessment of the progress of the industry's transformation against the Mining Charter objectives as adopted in 2002.

The racial ownership pattern of the country's mining assets had remained largely unchanged, with only 8,9% black ownership attained by 2009 against the target of 15%. The reviewed Mining Charter, launched in September 2010, seeks to correct this, putting emphasis on 26% of South Africa's mining assets being Black Economic Empowerment-compliant by 2014.

It also provides for the complete elimination of hostels on South Africa's mines by 2014, and introduces a sustainable element, premised on the understanding that the social licence to operate includes the environment, health and safety performance.

Under the new charter, companies found not complying could face penalties, which could include the revoking of a mining company's licence.

### **Small-scale mining**

The Department of Mineral Resources deems the role of small-scale mining in community upliftment, job creation and poverty alleviation as critical.

The small-scale mining sector is faced with many challenges such as lack of access to finance and markets, shortage of skills and inadequate or non-compliance with regulatory requirements, all of which the Department of Mineral Resources is working towards addressing.

The small-scale mining sector has historically mainly comprised alluvial diamond and in-land salt mining, but lately the bulk of the demand for small-scale mining ventures is associated with industrial commodities, such as slate, sand, clay, sandstone, dolerite and granites for the production of infrastructural development products such as tiles, clay and cement bricks, aggregates and dimension stone for cladding.

At the end of February 2011, President Jacob Zuma launched the African Mining Exploration and Finance Company, a subsidiary of the Central Energy Fund. He said the role of the State could not merely be confined to that of a regulator, but the State must actively participate in the mining industry to ensure that national interests were protected and advanced.



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It is essential that small-scale miners in South Africa become integrated into the greater South African mining community and the mainstream economy. Government has taken active measures to promote the development of this sector.

The department assists aspiring small-scale miners in:

- establishing legal entities
- guiding towards the identification of mineral deposits
- doing environmental impact assessments, and feasibility and market studies
- legal and contractual arrangements and mineral rights
- developing mining equipment.

The Small-Scale Mining Board has been set up as a point of delivery for the services required by the small-scale mining sector. It coordinates a substantial amount of expert capacity and experience and specialises in planning and developing a viable mining project through pre-feasibility stages.

### Reserves

South Africa's reserves of the following commodities are the highest in the world: manganese, chromium, PGMs, gold, vanadium and alumino-silicates.

### Gold

South Africa's gold production decreased by 15,8% from 252,6 t in 2007 to 212,7 t in 2008, resulting in the country dropping in production ranking from second-largest producer to fourth-largest, mainly as a result of the mining of lower-grade ore, influenced by higher rand gold prices, temporary closure of shafts to maintain infrastructure, as well as new safety procedures, which involved the temporary closure of a shaft where a fatal incident had occurred to facilitate a safety audit.

About 4,1% of South Africa's gold production was benefited to coins and jewellery locally during 2008, generating revenue of R2 billion.

### Silver

South Africa does not have a primary silver mine and the metal is only produced as a by-product of other minerals. Silver was produced as a by-product from 13 gold operations, one uranium mine, two copper mines and two platinum mines in 2008. Despite the vagaries of the global economy, production increased by 8,1% to 2,7 million ounces of silver



According to the Chamber of Mines, the South African mining sector in 2008 employed 518 585 employees compared to 495 474 in 2007, an improvement of 4,7%. Mining accounted for 6,1% of total non-agricultural formal employment in the economy and 7,8% of total private-sector non-agricultural employment.

If the indirect and induced effects of mining are included, then another 500 000 jobs are estimated to exist in addition to the direct mining jobs.

In 2008, about R60,7 billion was paid in wages and benefits to mine employees. This accounted for about 6% of the total compensation paid to all formally employed people in South Africa.

in 2008, mainly due to a modest increase from one to two silver-producing platinum mines.

## Coal

South Africa's saleable coal production increased by 1,8% to reach 252,2 Mt in 2008. Local sales increased by 7,8% to 197,1 Mt while export sales declined by 14,5% to 57,9 Mt. The value of local sales rose by 57,4% to R30,1 billion while revenue from export sales increased by 73,7% to R42,4 billion.

## Platinum-group metals

South African PGM production decreased by 9,3% to 275,8 t in 2008 from 304 t in 2007. The production of platinum and palladium fell by 9,2% to 146,1 t and by 9,7% to 75,5 t respectively, while production of rhodium dropped by 8,1% to 19,3 t. PGM export sales revenue increased by 23,1% to R66 billion, due to a higher average rand basket price for 2007.

## Non-ferrous minerals

Production of primary non-ferrous metals and minerals, with the exclusion of titanium and zircon, increased by 3,2% to 238,8 kt in 2008, compared to 2007, while sales decreased by 22% to R12,5 billion.

Domestic sales revenue decreased by 18% to R5,9 billion and exports revenue decreased by 25,3% to R6,5 billion in 2008. The total sales of non-ferrous metals and minerals (primary and processed), excluding titanium slag and aluminium, decreased by 23,8% to R14,1 billion in 2008.

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### **Ferrous minerals**

Sales of primary ferrous minerals contributed R44,9 billion (11,6%) to total South African mineral sales, including primary plus processed. Sales of processed and primary ferrous minerals contributed R82,2 billion (28,5%) to total mineral exports in 2008 and the combined sales revenue of primary and processed ferrous minerals in 2008 amounted to R97,1 billion (\$11,7 billion), representing 25,1% of the total value of all primary and processed minerals sold. The significantly higher contributions of both export and total ferrous mineral sales revenue in 2008 compared with 2007 is testimony to the growing importance of ferrous metals in South Africa's mineral industry.

### **Industrial minerals**

There are about 674 producers of industrial minerals in South Africa, of which almost half are in the sand and aggregate sector. There are some 149 producers of clays (brick-making and special), 40 limestone and dolomite, 61 dimension stone, 27 salt and 16 silica producers. Sales of primary industrial minerals in South Africa grew steadily at an annualised compound growth rate of 18% from 2004 to 2008.

### **Processed minerals**

Total sales revenue of processed minerals increased by 57,1% from R54,8 billion in 2007 to R86,1 billion in 2008 and export sales accounted for 80% of total sales. The value of local sales of processed mineral products increased by 32,8% from R13,1 billion in 2007 to R17,4 billion in 2008.

The largest contributors to total sales were classified commodities at 44% as well as chromium alloys at 36,9%. Total production of processed minerals decreased by 7,9% to 8,1 Mt in 2008.

### **Mine health and safety**

The levels of death, ill health and injuries at mines remain a serious concern for the Department of Mineral Resources. During 2009, the mining industry managed to record a 3% improvement in fatalities due to mine accidents when compared with the previous year, when 171 miners lost their lives followed by 165 miners in 2009.

In July 2010, the Minister of Mineral Resources, Ms Susan Shabangu, launched the Matla Diamond-Polishing Plant in the Eastern Cape. The plant will enable South Africa to process more of its own diamonds.



The R102-million project is a partnership between Matla Beneficiation Company, the East London Industrial Development Zone, the Industrial Development Corporation and Gold Eastern Holdings of China.

The automated plant is equipped with technology worth R35 million from China, and is expected to be eight times more efficient than a similar-sized manual operation.

It will produce a maximum of 20 000 carats a month, translating into R100 million in monthly revenue.

The department has introduced the Mine Health and Safety Amendment Act, 2008, which aims to enhance the State's ability to address the mine-health and safety challenge of high injuries, ill health and deaths.

The Amendment Act introduces more strict sanctions for non-compliance with health and safety standards by individuals and corporate bodies as well as prosecution.

The Act establishes the Mine Health and Safety Inspectorate as a juristic person. This amendment is significant as it provides a platform upon which the critical question of capacity to effectively enforce health and safety regulatory requirements can be addressed.

