



## Minerals and mining

South Africa's mineral wealth is staggering. Some of the country's most important minerals are:

- gold – the unique Witwatersrand Basin yields some 96% of South Africa's gold output
- diamonds – the country is among the world's top producers
- titanium – heavy mineral-sand occurrences containing titanium minerals are found along the coasts
- manganese – enormous reserves of manganese are found in the sedimentary rocks of the Transvaal Supergroup
- platinum-group metals (PGMs) and chrome – more than half of the world's reserves occur in the Bushveld Complex in Mpumalanga, Limpopo and North West
- vast coal and anthracite beds occur in the Karoo Basin in Mpumalanga, KwaZulu-Natal and Limpopo
- copper phosphate, titanium, iron, vermiculite and zirconium are found in the Phalaborwa Igneous Complex in Limpopo.

### Reserves

South Africa's reserves of the following seven commodities are the biggest in the world:

- manganese
- PGMs
- vanadium
- vermiculite.
- chromium
- gold
- alumino-silicates

## South Africa's mineral production, 2004

Commodity	Unit	Production	%	World rank
Aluminium	kt	866	2,6	10
Alumino-silicates	kt	234,4	54,4	1
Antimony	t	4 967	3,1	3
Chrome ore	Mt	7,4		
Coal	Mt	243	4,7	5
Copper	kt	102,6	0,7	18
Diamonds	k car	14 400	9	4
Ferrosilicon	kt	131 555		
Ferromanganese	kt	907,8		
Ferrochromium	Mt	2,8		
Fluorspar	kt	–	–	–
Gold	t	340,2	13,8	1
Iron ore	Mt			
Lead	kt	37,5	1,2	13
Manganese ore	kt	4 206,7		
Nickel	kt	40		
Phosphate rock	kt	–	–	–
Platinum-group metals	kg	286 733	57,8	1
Silicon metal	kt	50 470		
Silver	t	72		
Titanium minerals	kt	–	–	–
Uranium	t	887	2	4
Vanadium	kt	27	41	1
Vermiculite	kt	194,5	52,6	1
Zinc metal	kt	105	1,2	22
Zirconium minerals	kt	–	–	–

Mt=megaton, kt=kiloton, t=ton, kg=kilogram, k car=kilocarats

Source: Minerals Bureau

## Gold

World demand for gold decreased by 7,2% to 3 851 tons (t) in 2004. The average gold price traded at a 15-year high of \$409/oz.

World mine supply decreased by 128 t to 2 462 t, but South African gold production fell by 8,7% to 340,2 t in

2004. Provisional data for 2004 indicates that total gold sales increased by 4,1% to US\$4,55 billion.

### Coal

South Africa has around 28,6 billion t of recoverable coal reserves, making it the seventh-largest holder of coal reserves in the world.

### Platinum-group metals

South African PGM production increased by 7,7% to 286,7 t in 2004, while PGM revenue increased by 35,7% to \$5,17 billion. The average platinum price for 2004 was 22,2% higher at US\$846/oz, while the average palladium price was 14,7% higher at US\$230/oz.

### Base minerals

Refined copper, nickel, cobalt, titanium and zirconium concentrates dominate this sector, with support from zinc, lead and arsenic concentrates. The sector contributes some 12% and 4% respectively to total primary local sales and total primary export sales.

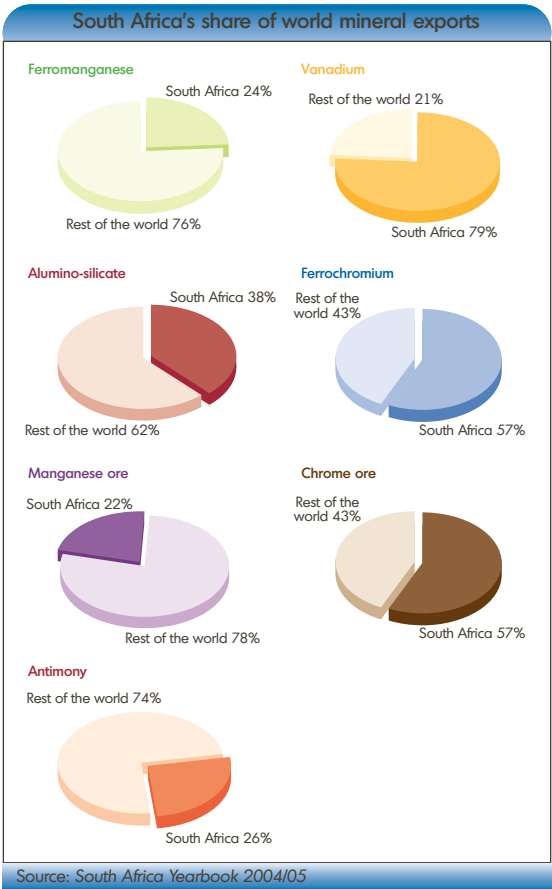
About 44% of total revenue is made up of local sales for further added-value operations.

### Ferrous minerals

This sector consists of the ores of iron, manganese and chrome, and is dominated by iron ore. It has been a leading performer in the primary minerals industry in recent years, with revenue in dollar terms growing at about 10,3% annually. Demand depends on the fortune of the world's steel and stainless steel industries.

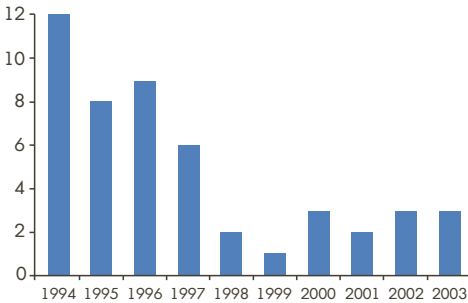
Gold mining, with 45,7% of the mining industry's labour force, was the largest employer in 2003, followed by platinum-group metals mining with 28,8%. The coal industry employed 11% of the labour force in 2003.

fact



Export earnings from ferrous minerals went up a considerable 16,3% from R4,16 billion in 2003, to R4,84 billion in 2004, despite the fact that higher dollar earnings were severely discounted by a much higher average rand-dollar exchange rate ratio for 2004. Higher prices also affected total ferrous sales, which rose by 18,9% to R6,81 billion.

## Major mining accidents, resulting in four or more fatalities



Source: Chamber of Mines, Annual Report, 2004

## Industrial minerals

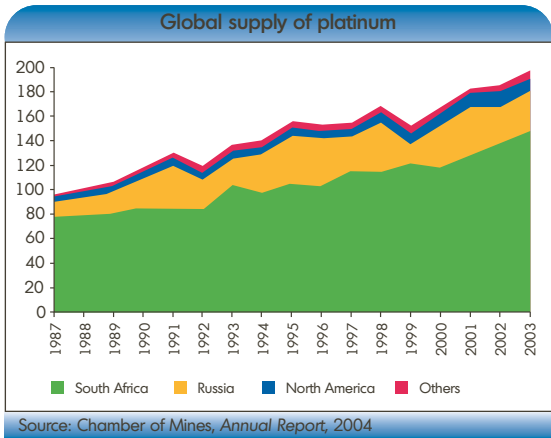
This sector comprises a wide variety of mineral products, from which over 80% of revenue is local sales. In dollar terms, domestic total sales increased by 25% in 2004 to US\$942 million. In rand terms, local sales increased by 15% to the value of R5,0 billion, while export sales decreased by 21% to R1,0 billion.

During 2004, 83% of local sales comprised aggregate and sand (38%), limestone and lime (24%), phosphate rock concentrate (data withheld) and sulphur (4%).

Exports were dominated by dimension stone (33%), vermiculite (14%), andalusite (20%), fluorspar (17%), and phosphate rock concentrate (data withheld).

The mining industry's safety performance improved in 2004. A fatality rate of 0,56 deaths per 1 000 employees was recorded compared with a fatality rate of 0,65 deaths per 1 000 employees in 2003. The reportable injury rates also improved from 10,32 per 1 000 employees in 2003 to 9,63 per 1 000 in 2004. These rates corresponded to 4 254 injuries in 2004 and 4 301 injuries in 2003.

fact



### Processed minerals

Ferro-alloys and aluminium dominate this sector, with solid support from titanium slag, phosphoric acid, vanadium, zinc metal and low-manganese pig-iron.

International prices of processed minerals surged strongly during 2004 on the back of vigorous growth in demand in China and the East, and as a result, export sales earnings were at an all-time high of US\$4,096 billion in 2004, up 42% from US\$2,889 billion in 2003.

### Other minerals

This sector is dominated by diamonds, with support from hydrocarbon fuel, uranium oxide and silver.

Due to the strong Rand, revenue from these minerals slumped by 12,6% to R117,8 million in 2003.

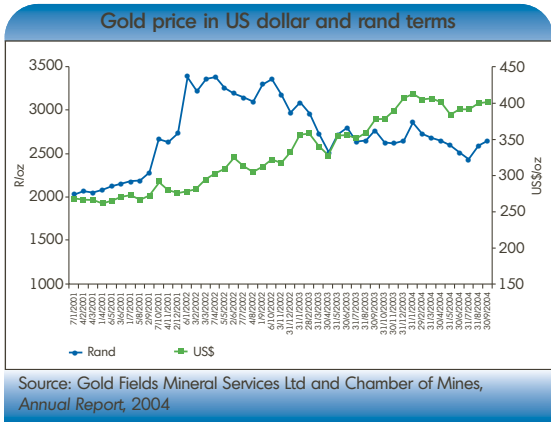
New investment potential remains strong in this sector, which has recovered enormously through new investments



fact

The biggest diamond ever found, the Cullinan diamond, was found in South Africa. Its largest fragments today adorn Britain's crown jewels.





in operations since 1994, compensating for the rapid demise in the demand for uranium oxide in nuclear applications since the late 1980s.

## The industry

Mining continues to play an important role in the national economy. Preliminary figures for 2004 indicate that South Africa’s mining contributed R87,1 billion or 7,1% gross value added, an increase of R8,6 billion from the previous year. The trend where foreign revenue earnings are dominated by PGMs at US\$4,6 billion, followed by gold at US\$4,5 billion, also continued in 2004.

Over the last few years, South African mining houses have transformed into large, focused mining companies that include Anglo Platinum, AngloGold, De Beers, Implats and Iscor. The Chamber of Mines represents 85% of mining production.

Including suppliers and considering the multiplier effect, many millions rely on the industry for their livelihood.



## South Africa's mineral reserves, 2004

Commodity	Unit	Reserves	%	World ranking
Alumino-silicates	kt	50	37	1
Antimony	t	250	6,4	3
Chrome ore	Mt	5 500	72,4	1
Coal	Mt	33,8	3,6	7
Copper	kt	13	1,4	14
Fluorspar	Mt	80	17	2
Gold	t	36 000	40,7	1
Iron ore	Mt	1 500	0,9	9
Lead	Mt	3	2,1	7
Manganese ore	kt	4 000	80,0	1
Phosphate rock	kt	2 500	5	n/a
Platinum-group metals	kg	70 000	87,7	1
Silver	t	10	1,8	9
Titanium minerals	kt	244	29	2
Uranium	t	298	1,0	4
Vanadium	kt	12 000	44,4	1
Vermiculite	kt	14	40	1
Zinc metal	kt	15	3,3	6
Zirconium minerals	kt	14	19,4	2

Mt=megaton, kt=kiloton, t=ton, n/a=not available, kg=kilogram

Source: Minerals Bureau

## Policy

The Minerals and Petroleum Resources Development Act, 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 people (HDP) 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, renewable for another 30 years, while prospecting rights are valid for up to five years, renewable for another three.

An empowerment charter for the industry, which is supported by mining houses and labour, targets:

- 15% ownership of mines by HDP within five years
- 40% of junior and senior management positions to be held by HDP within five years
- 26% ownership within 10 years
- 10% participation by women within five years.

Government is committed to helping junior and small-scale miners upgrade their operations into economically viable units. The first step is to legalise these mines.

The South African Small-Scale Mining Chamber was launched in July 2005 in Kimberley in the Northern Cape.