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 98% 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 seven commodities are the biggest in the world.

These are:

- manganese
- chromium
- PGMs
- gold

- vanadium
- alumino-silicates
- vermiculite.

South Africa's total primary minerals output increased by 17,1% to R115,2 billion in 2002. Total processed mineral sales increased by 8,4% in 2002 to some R24,5 billion.

South Africa's mineral production, 2002*

Commodity	Unit	Production	%	World rank
Aluminium	kt	707		7
Alumino-silicates	kt	161,8	36,9	1
Antimony	t	5746	4,1	3
Asbestos	kt	•	*	*
Chrome ore	kt	6 436	49,5	1
Coal	Mt	221,5	5,8	6
Copper	kt	130		
Diamonds	kcar	-	-	-
Ferrochromium	kt	2 351		
Ferromanganese	kt	934		
Ferrosilicon	kt	184		
Fluorspar	kt	232	5	3
Gold	t	399	15,7	1
Iron ore	Mt	36	3,3	8
Lead	kt	49	1,7	8
Manganese ore	kt	33 22	17,1	2
Nickel	kt	38,5	2,9	9
Phosphate rock	kt	-	-	-
Platinum-group metals	kg	239 761	65,9	1
Silicon metal	kt	42	1,0	7
Silver	t	113	0,6	
Titanium minerals	kt	2 643	53,9	2
Uranium	t	998		
Vanadium	kt	25	37,6	2
Vermiculite	kt	210	58	1
Zinc in minerals	kt	64	0,7	
Zirconium minerals	kt	425	46,7	1

Mt = megaton, kt = kiloton, t = ton, car = carats, kcar = kilocarats
* Preliminary data • Production ceased – Confidential information

Source: Minerals Bureau

Gold

World supply and demand for gold decreased by 1,5% to 3 978 tons (t) in 2002.

The average gold price traded at a five-year high of $310/oz. However, by the end of 2003 this had recovered to over $400/oz.

World mine supply decreased by 36 t to 2 587 t in 2002, but South African gold production increased for the first time since 1993 to 397 t, while revenue rose by 22,4% to £3,94 billion.

The country's first new underground gold mine in 20 years, Avgold's Target Mine, was officially opened in March

South Africa's mineral reserves, 2002

Commodity	Unit	Reserves	%	World ranking
Alumino-silicates	Mt	51	37,4	1
Antimony	kt	250	6,4	4
Asbestos	Mt	Moderate		
Chrome ore	Mt	5 500	77,5	1
Coal	Mt	55 333	10,7	5
Copper	Mt	13	2	13
Diamonds	kcar	*	*	*
Fluorspar	Mt	80	18,2	3
Gold	t	36 000	40,4	1
Iron ore	Mt	2 300	3,4	10
Lead	Mt	3,0	2,1	7
Manganese ore	Mt	4 000	80	1
Phosphate rock	Mt	2 500	5,3	4
Platinum-group metals	t	70 000	70,0	1
Silver	kt	10	*	
Titanium minerals	Mt	220	30	2
Uranium	kt	284	9,1	4
Vanadium	kt	12 000	31,6	2
Vermiculite	Mt	80	40	2
Zinc	Mt	15	3,5	5
Zirconium minerals	Mt	14	19,4	2

Mt = megaton, kt = kiloton, t = ton, car = carats
* Confidential information, kcar = kilocarats

Source: Minerals Bureau

2002. Two months later ARMgold, the country's largest black-controlled gold producer, listed on the JSE Securities Exchange. During 2002, the company was South Africa's largest, and the world's 11th largest producer of gold.

Coal

Revenue from coal increased by $163 million, or 5,7%, in 2001 to regain the $3-billion level that was last exceeded in the 1995 to 1998 period.

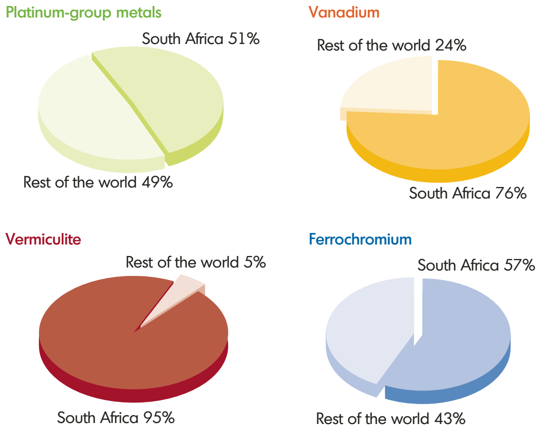
Just over 30% of production was exported, accounting for 63% of revenue.

Platinum-group metals

South African PGM production increased by 4,7% to 240 t in 2002, but PGM revenue decreased by 14,6% to $3,31 billion. The average platinum price for 2002 was

South Africa's share of world mineral exports

This country is also a world leader in terms of exports of several minerals. Its share of world exports include:



Source: *South Africa Yearbook 2003/04*

The Department of Minerals and Energy played a leading role in the establishment of the Kimberley Process, which aims to prevent conflict diamonds from getting into the global diamond-market and to protect legitimate trade.

By May 2003, all the world's diamond industries and approximately 70 countries were participating.

2% higher at $540/oz, while the average palladium price was 44,1% lower at $337/oz. (At the end of 2003, platinum prices were comfortably over $800/oz).

In five years, domestic sales grew from almost zero to $415 million in 2002, largely because of the rise in local production of vehicle catalysts.

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.

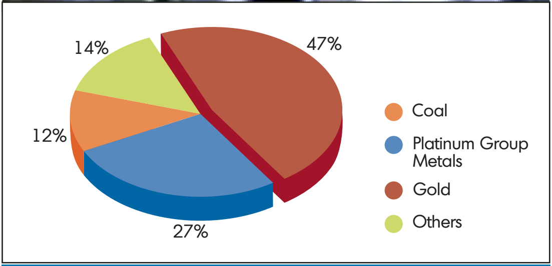
Ferrous minerals

This sector consists of the ores of iron, manganese and chrome, 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 almost 3% annually. The worldwide recession in 2001, however, negatively affected demand.

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. Through investment in beneficiation, this has been the outstanding

Employment in mining in 2002



Source: *South Africa Yearbook 2003/04*

performer in the mineral industry over the last 16 years, with revenue in Dollar terms growing at 5,5% annually.

Other minerals

Dominated by diamonds, this segment recorded sales in 2002 of almost $1 billion.

The industry

In 2002, mining contributed R30,6 billion or 8,5% of gross value added, an improvement of R13,86 billion from 2001. Mining's contribution to gross value added had declined between 1996 and 2001.

Mining employment rose 1,5% from 407 154 in 2001 to 413 087 in 2002.

Sales of primary mineral products accounted for 34,3% of South Africa's total export revenue during 2001. Including processed mineral products, this came to more than 40%.

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

In 2001, earnings from platinum surpassed those from gold for the first time, with revenue from PGMs reaching $3,88 billion compared with gold revenue of $3,37 billion.

There is still great potential for growth in the exploitation of minerals, especially where the country is ranked number one in terms of reserves. For example, in manganese, chrome and PGMs, South Africa has 80%, 77% and 70% of the world's reserves respectively.

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.

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 persons 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

FACT

Only 84 derelict and/or ownerless asbestos dump complexes in South Africa still need to be rehabilitated. It is envisaged that the rehabilitation will be finalised within the next 10 years at a cost of R100 million.

Number of mining operations	
Diamonds	90
Coal	57
Gold	33
Chrome	20
PGMs	17
Others	561

Source: Chamber of Mines, *The South African Mining Industry Fact Sheet, 2002.*

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 historically disadvantaged people within five years
- 40% of junior and senior management positions to be held by previously disadvantaged South Africans 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 to upgrade their operations into economically viable units. The first step is to legalise these mines.

Funding to assist small-scale mines was increased from R5,1 million in 2002/03 to R15 million in 2003/04.