

REPORT R50/2005

**SOUTH AFRICA'S MINERAL  
PRODUCTION AND SALES  
1985-2004**

DIRECTORATE: MINERAL ECONOMICS



**mineral resources**

Department:  
Mineral Resources  
**REPUBLIC OF SOUTH AFRICA**

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## **1. INTRODUCTION**

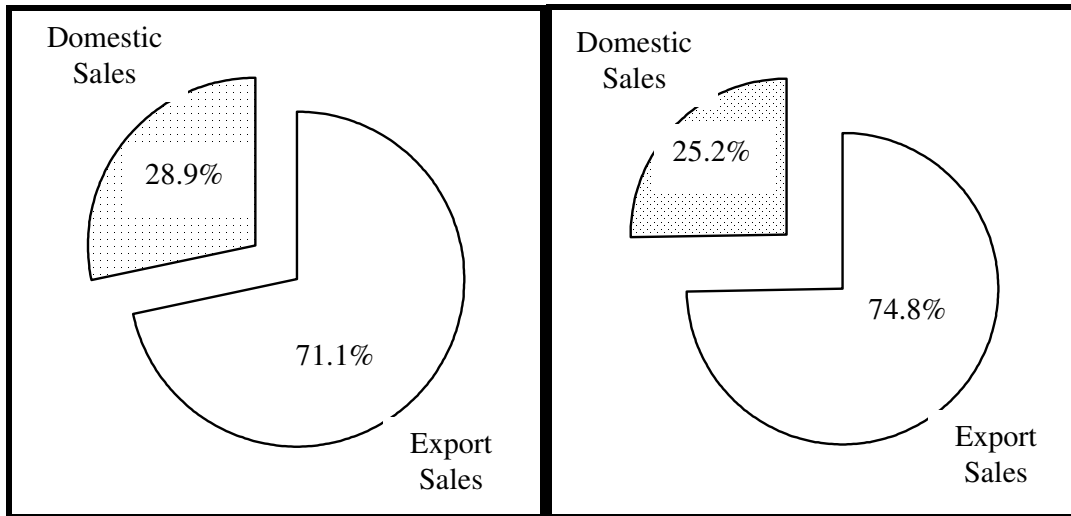
**This report analyses South Africa's annual mineral production and sales trends over 20 years (1985-2004). The latest mineral statistics (2004) are also presented and discussed. Eight sectors of the mineral industry are defined and analyzed separately, namely: gold, platinum-group-metals (PGMs), coal, ferrous, nonferrous, industrial, processed and other classified commodities. Sales values are expressed in dollars to eliminate the bias introduced by the Rand/Dollar exchange rate over the 20-year period. The cumulative exponential growth trend is computed from the annual data. In general, processed minerals recorded positive annual growth in dollar terms, elevating the weak revenue growth of primary minerals.**

**Although processed minerals are not strictly part of primary mineral production in internationally accepted trade classification norms, in South Africa they are included to underscore the importance of adding value to primary minerals during the period under review in contrast with selling relatively unbeneficiated products on world markets.**

## **2. MINERAL SALES IN 2004**

**In 2004, the South Africa's total primary mineral sales revenue was made up of 71.1 percent of export sales and 28.9 percent domestic sales, compared with 73.7 percent and 26.3 percent in 2003, respectively. The processed minerals were made up of 74.8 percent export sales and 25.2 percent domestic sales in 2004, compared with 75.2 percent and 24.8 percent in 2003 respectively. The apparent similarity in the spread of values is due to the fact that the South African mining industry is export orientated (Figure 1). However, these values show a slight tilt towards domestic sales when compared to 2003.**

**Figure 1: Primary Minerals, 2004    Processed Minerals, 2004**

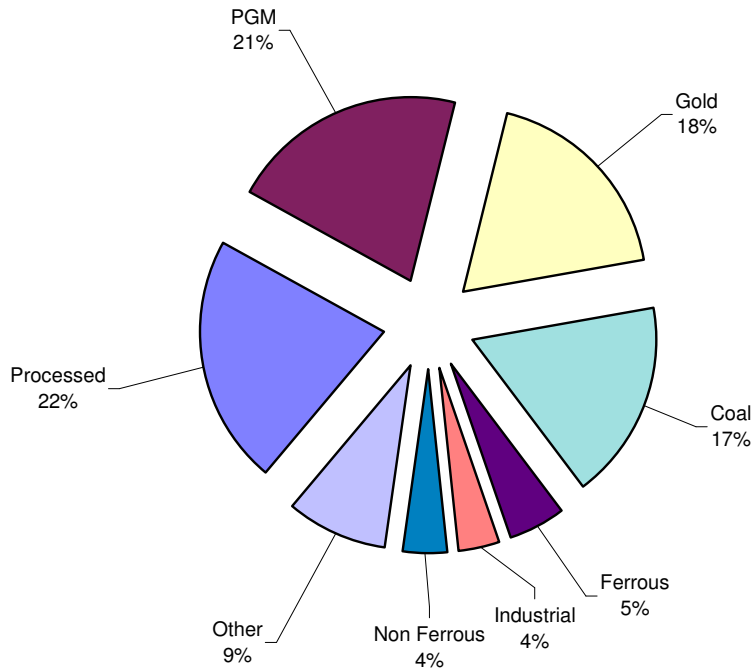


## **2.1 Contribution to Total, Export and Domestic Mineral Sales Values, 2004**

### **Total Mineral Sales, 2004**

South Africa's total mineral sales revenue, including that of processed minerals, was \$24.88 billion in 2004 (Table 1), an increase of 29.3 percent from \$19.24 billion in 2003. If processed minerals are excluded, however, total primary mineral sales revenue increased by 24.7 percent from \$15.57 billion in 2003 to \$19.41 in 2004. Contribution to the total primary mineral sales revenue was dominated by PGMs with 26.6 percent, followed by gold with 23.4 percent. However, when processed mineral sales are included, the contribution of gold and PGMs to the grand total revenues were reduced to 18.3 and 20.7 percent respectively. For the first time ever, the processed minerals sector, with its contribution of 22 percent to the grand total, outperformed gold's and PGMs' contribution, underpinning the importance and benefits that could be derived from increased mineral beneficiation (Table 1 and Figure 2).

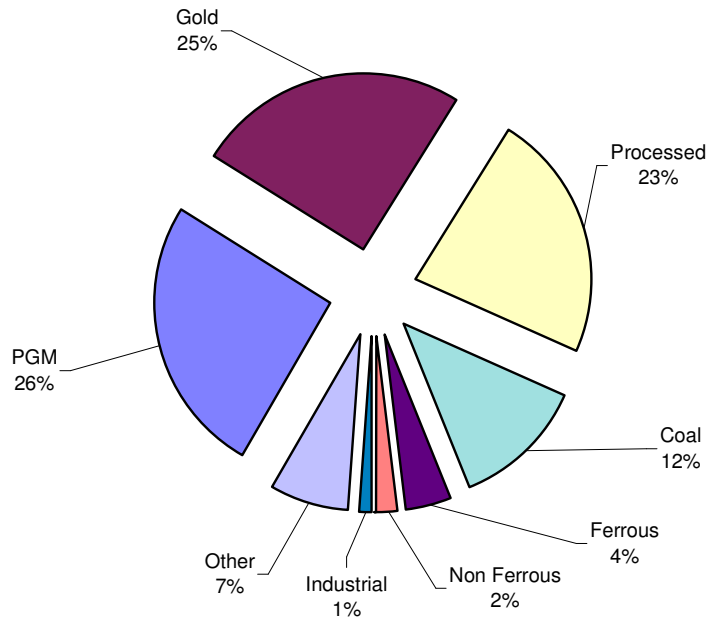
**FIGURE 2: PERCENTAGE SECTORAL CONTRIBUTION TO TOTAL MINERALS SALES REVENUE, 2004**



**Export Mineral Sales, 2004**

In 2004, total export sales values, inclusive of processed minerals, were \$17.98 billion, an increase of 26.3 percent from \$14.24 billion in 2003. With the exclusion of processed mineral sales, revenues were increased by 20.9 percent from \$11.48 billion in 2003 to \$13.88 billion in 2004. Similar to total primary mineral sales revenue, the contribution to the export primary mineral sales revenue was dominated by PGMs with 33.0 percent, followed closely by gold with 32.3 percent, a confirmation that the South Africa’s mineral sales are export orientated (Table 1). Processed mineral sales contributed almost 23 percent to the grand total of export mineral sales revenue. (Table 1 and Figure 3).

**FIGURE 3: PERCENTAGE SECTORAL CONTRIBUTION TO EXPORT MINERAL SALES REVENUE, 2004**

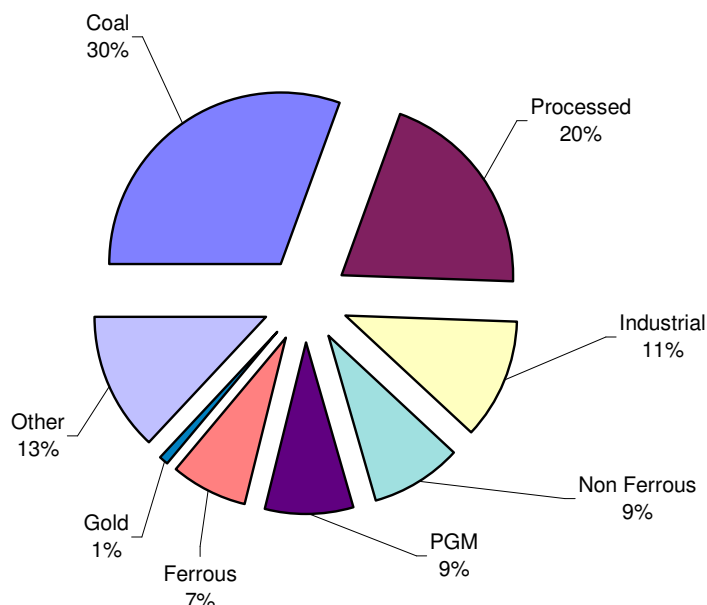


**Domestic Mineral Sales, 2004**

Domestic mineral sales revenues, including the processed minerals sales, increased by 38.0 percent from \$5.00 billion in 2003 to \$6.90 billion in 2004. With the exclusion of processed mineral sales, revenues increased by 35.0 percent from \$4.09 billion in 2003 to \$5.52 billion in 2004. Contribution to the domestic mineral sales revenue was dominated by coal with almost 40.0 percent, followed by industrial minerals with 14.4 percent (Table 1). Processed mineral sales contributed 20 percent to the grand total (Figure 4 and Table 1).



**FIGURE 4: PERCENTAGE SECTORAL CONTRIBUTION TO DOMESTIC MINERAL SALES REVENUE, 2004**



## 2.2 Sectoral Contribution to Primary Mineral Sales Revenue, 2004

### Precious Metals

The PGMs sector dominated total and export sales revenues in 2004, contributing \$5 165 million (26.6 percent) and \$4 577 million (33.0 percent), respectively. Compared with 2003, the total PGMs sales revenue increased by 35.6 percent from \$3 810 million, while the export sales revenue increased by 35.5 percent from \$3 378 million. PGMs occupied the third position in domestic sales, contributing a \$587 million (10.7 percent) to the revenue, compared with \$433 million in 2003.

Total and export sales revenue of gold followed that of PGMs, contributing \$4 547 million (23.4 percent) and \$4 494 million (32.3percent) in 2004, respectively.

**TABLE 1: TOTAL, EXPORT AND LOCAL MINERAL SALES, 2004**

SECTOR	TOTAL SALES VALUE		EXPORT SALES VALUE		LOCAL SALES VALUE	
	2004 \$ Billion	Share* %	2004 \$ Billion	Share* %	2004 \$ Billion	Share* %
<b>Processed Minerals**</b>						
	5.47	22.3	4.10	22.8	1.38	20.0
<b>Contribution to Primary Minerals</b>						
PGM	5.16	26.6	4.58	33.0	0.59	10.7
Gold	4.55	23.4	4.49	32.3	0.05	0.9
Coal	4.35	22.4	2.24	16.2	2.11	38.2
Ferrous	1.24	6.5	0.75	5.4	0.49	8.8
Nonferrous	0.94	4.8	0.35	2.5	0.59	10.7
Industrial	0.94	4.8	0.16	1.2	0.78	14.2
Other Minerals	2.23	11.5	1.31	9.4	0.90	16.3
Grand Total <sup>p</sup>	24.88	100.0	17.98	100.0	6.90	100.0
Total (Excluding Processed Minerals)	19.41	100.0	13.88	100.0	5.52	100.0

\* a share of all primary mineral sales (i.e. excluding processed minerals)

\*\* Ferro-alloys, Vanadium and Aluminium. Share as a percent of grand total

p includes both primary and processed minerals

Compared with 2003, the total gold sales revenue increased by 4.1 percent from \$4 369 million, while the export sales revenue increased by 3.7 percent from \$4 333 million. Gold slipped to the last position in domestic sales, contributing a mere \$54 million (0.9 percent) to the revenue, compared with \$37 million in 2003.

### **Processed Minerals**

**Processed minerals, with ferro-alloys and aluminium as the key performers, for the first time occupied the first position in total mineral sales revenue when included in primary minerals, contributing \$5 474 million, or 22.3 percent (Figures 2 and 3). Although aluminium may be classified as a nonferrous product, in the case of South Africa, it is classified as a processed mineral product since its entire production is derived from the processing of imported raw material (Bauxite). The processed mineral sector moved down to third and second positions in export and domestic sales revenue, respectively, contributing \$4 095 million and \$1 377 million (Table 1, Figures 2 and 3). Compared with 2003, the total processed mineral sales revenue increased by 49.1 percent from \$3 672 million, export sales revenue by 48.3 percent from \$2 761 million and domestic sales revenue by 51.2 percent from \$911 million. This increase may be indicative of a growing support from the mining industry for increasing the level of mineral beneficiation activity in South Africa.**

### **Coal**

**Coal dominated domestic sales revenues in 2004, contributing \$2 109 million, or 38.2 percent (Table 1 and Figure 4). However, in respect to both the total coal sales of \$4 353 million (22.4 percent) and export sales of \$2 244 million (16.2 percent), it slumped to fourth position (Figures 2 and 3). Compared with 2003, the total coal sales revenue increased by 23.3 percent from \$3 530 million, export sales revenue by 25.8 percent from \$1 783 million and domestic sales revenue by 20.7 percent from \$1 747 million.**

### **Ferrous Minerals**

**Ferrous minerals occupied fifth position in total and export mineral sales in 2004, contributing \$1 242 million (6.5 percent) and \$751 million (5.4 percent), respectively (Table 1, Figures 2 and 3). However, this sector fell to a fifth position in local sales revenue, contributing \$491 million, or**

8.8 percent. Compared with 2003, the total ferrous minerals sales revenue increased by 38.0 percent from \$900 million, export sales revenue by 36.5 percent from \$550 million and domestic sales revenue by 40.3 percent from \$350 million.

#### **Industrial Minerals**

The industrial mineral sector, with aggregate and sand, lime and limestone and granite as its key performers, occupied sixth position in total sales and seventh position in export sales revenue in 2004, contributing \$943 million

(4.8 percent) and \$163 million (1.2 percent), respectively (Table 1, Figures 2 and 3). This sector moved up to third position in domestic sales revenue, contributing \$780 million or 14.2 percent (Table 1, Figure 4). Compared with 2003, the total ferrous minerals sales revenue increased by 25.6 percent from \$751 million, export sales revenue decreased by 10.4 percent from \$182 million and domestic sales revenue increased by 37.1 percent from \$569 million.

#### **Nonferrous Minerals**

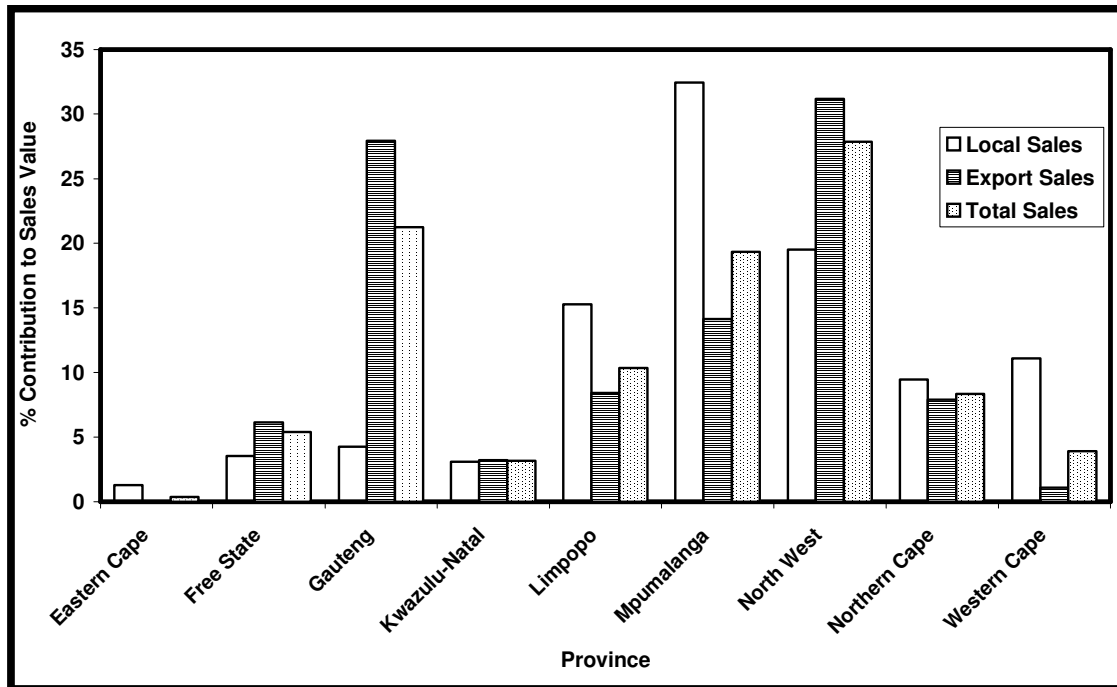
The nonferrous mineral sector also occupied a seventh position in total sales revenue, contributing \$941 million (4.8 percent), and occupied a sixth position in export mineral sales revenue with a contribution of \$351 million, or 2.5 percent (Table 1, Figure 2 and 3). This sector moved up to fourth position in local mineral sales revenue, contributing \$589 million or 10.7 percent (Table 1, Figure 4). Compared with 2003, the total nonferrous minerals sales revenue increased by 51.0 percent from \$623 million, export sales revenue by 42.7 percent from \$246 million and domestic sales revenue by 56.2 percent from \$377 million.

### **2.3 Contribution To Total Primary Mineral Sales by Province**

Of South Africa's nine provinces, North West, Gauteng and Free State contributed more to both total and export primary mineral sales, while Mpumalanga, Limpopo, Northern Cape and Western Cape were the main contributors to local sales (Figure 5). KwaZulu-Natal contributed almost

equal proportions to local, export and total sales, while Eastern Cape's contribution was almost negligible.

**FIGURE 5: CONTRIBUTION TO PRIMARY MINERAL SALES BY PROVINCE, 2004**



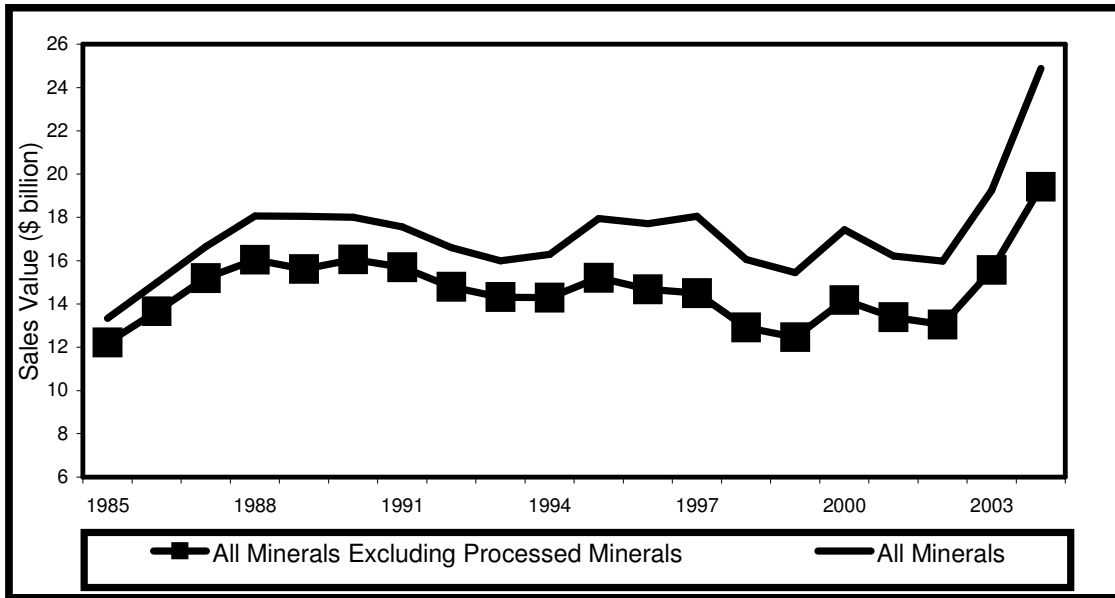
### 3. SOUTH AFRICA'S MINERAL PRODUCTION AND SALES TREND FOR THE PAST 20 YEARS (1985-2004)

#### 3.1 Total, Export and Domestic Mineral Sales Revenue Trends, 1985-2004

##### Total Mineral Sales Revenue Trend, 1985-2004

The South Africa's total primary mineral sales revenue trends over the past 20 years (1985-2004) show a positive exponential growth in dollar terms of 0.1 percent per annum. When the processed minerals are included, the total minerals sales revenue shows a growth rate of 0.6 percent per annum (Figure 6).

**FIGURE 6: TOTAL MINERAL SALES REVENUE, 1985 – 2004**

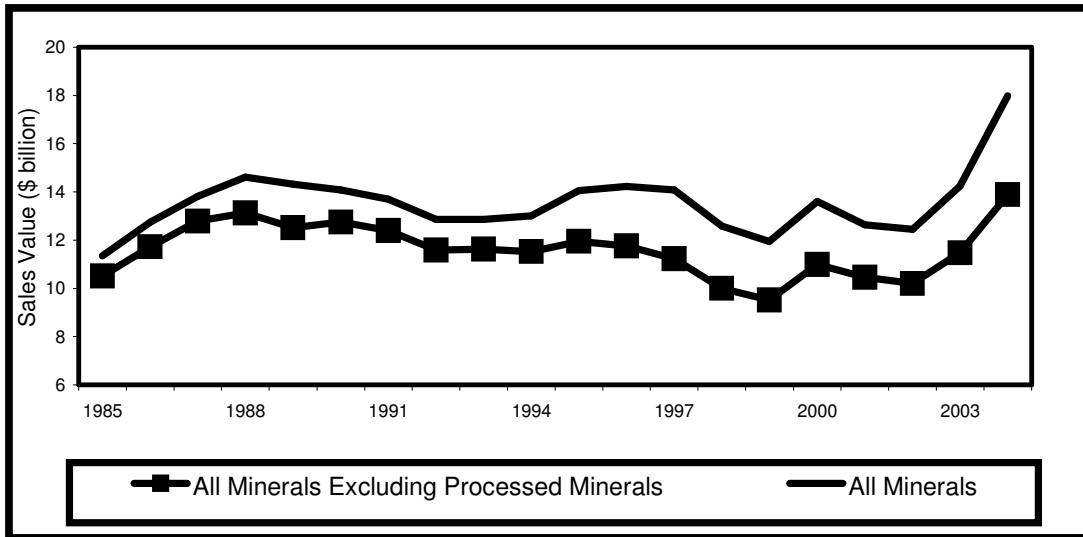


Total mineral sales took an upward and downward swing during this period mainly because of changes in metal and mineral prices probably due to variations in volumes.

#### Export Mineral Sales Revenue Trends, 1985-2004

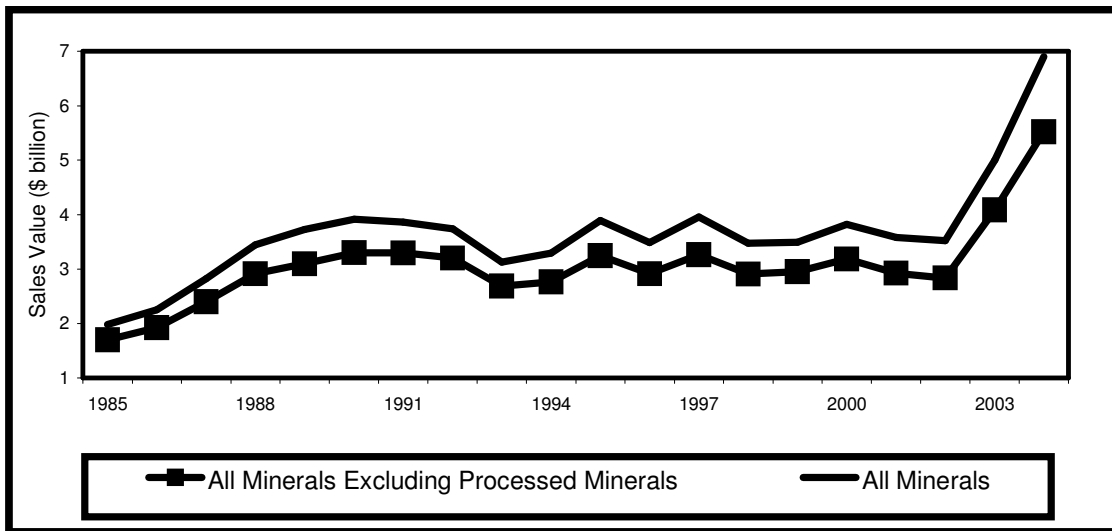
Export sales revenue of primary minerals has almost been constant from 1985 to 2004. With the processed minerals included, the revenue showed an increase of 0.1 percent annually, indicating a significant impact of processed minerals on export mineral sales (Figure 7).

**FIGURE 7: EXPORT MINERAL SALES REVENUE, 1985 – 2004**



A comparison between the sales trends of export minerals and total minerals indicates that the South Africa’s mineral industry is export orientated, backed-up by the strong influence of total and export sales trends of precious metals.

**FIGURE 8: LOCAL MINERAL SALES REVENUE, 1985 – 2004**



### **Domestic Mineral Sales Revenue Trends, 1985-2004**

From 1985 to 2004 the domestic sales revenue has been growing at a notable 2.5 percent annually. The inclusion of processed minerals shows that the domestic mineral sales revenue has been growing at 3.0 percent annually (Figure 8). Main contributors to this growth may be coal, nonferrous and industrial mineral sales.

### **3.2 Sectoral Contribution to Total Minerals Sales Revenue, 1985 – 2004**

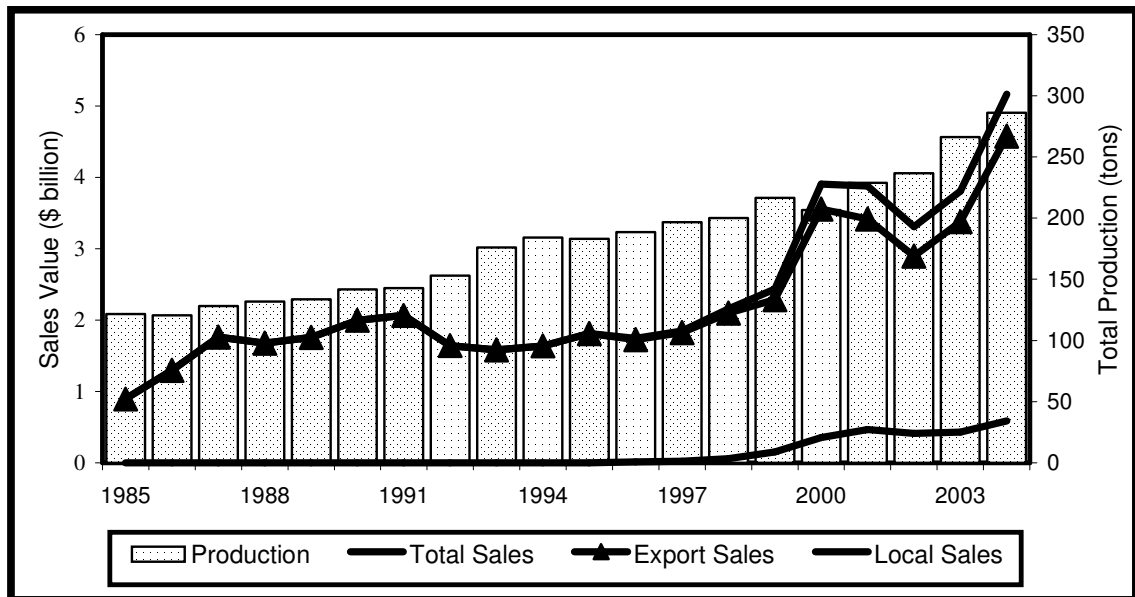
#### **Precious Metals, 1985-2004**

The main contributors to this sector are PGMs and gold. During the last two decades, total PGMs sales revenue increased exponentially at a rate of

6.3 percent per annum (Figure 9). Total sales experienced a steeper increase of 96.1 percent from \$897 million in 1985 to \$1 759 million in 1987, maintaining these high values until 1991. This increase was due to increasing demand for rhodium, which resulted in almost twofold price increases in 1984, and anticipated cuts of platinum imports by the US from South Africa because of the Apartheid Legislation passed by the US congress, which resulted in increases of platinum price in 1986. The total PGM sales revenue experienced a slide in 1992 due to declining platinum prices caused by announcements by Ford Motor Company that it had developed a platinum-free automobile catalyst. This was followed by a rise in PGMs sales revenue in 2000 when platinum and palladium prices increased, stimulated by uncertainty over Russian platinum exports and a strong industrial demand for palladium, which later suffered supply shortages from Russia.



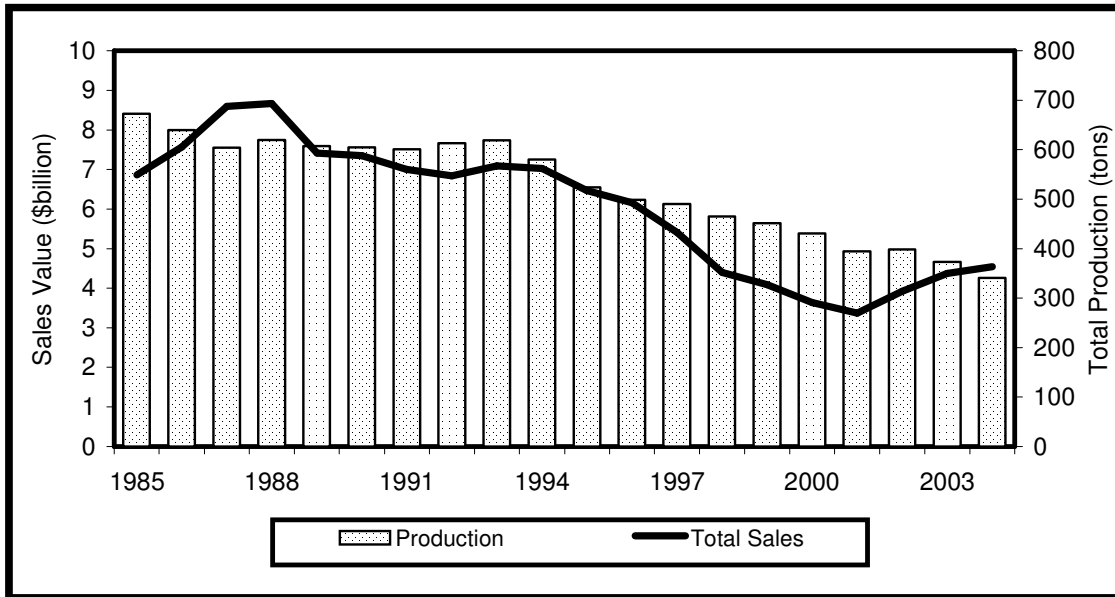
**FIGURE 9: PLATINUM GROUP METALS: TOTAL PRODUCTION AND SALES, 1985 - 2004**



Generally, the PGMs production maintained strong positive growth at 4.4 percent per annum from 1985 to 2004, despite a 4.5 percent decrease from 216.8 t in 1999 to 206.5 t in 2000. This general growth can be attributed to several mine and plant expansions and new operations in the Bushveld Complex, especially due to the opportunities of growth contained in the new legislation.

However, the spark in the precious metal sector brought by the increase of PGMs sales revenue over the past two decades was diminished by the value of gold sales that have declined steadily at an average rate of 4.5 percent per annum in dollar terms, during the period under review (Figure 10). The decreasing annual production caused by depleting reserves, a declining gold price and higher costs of production aggravated by mining at greater depths, are responsible for the slide in gold's contribution to South Africa's mineral sales revenue.

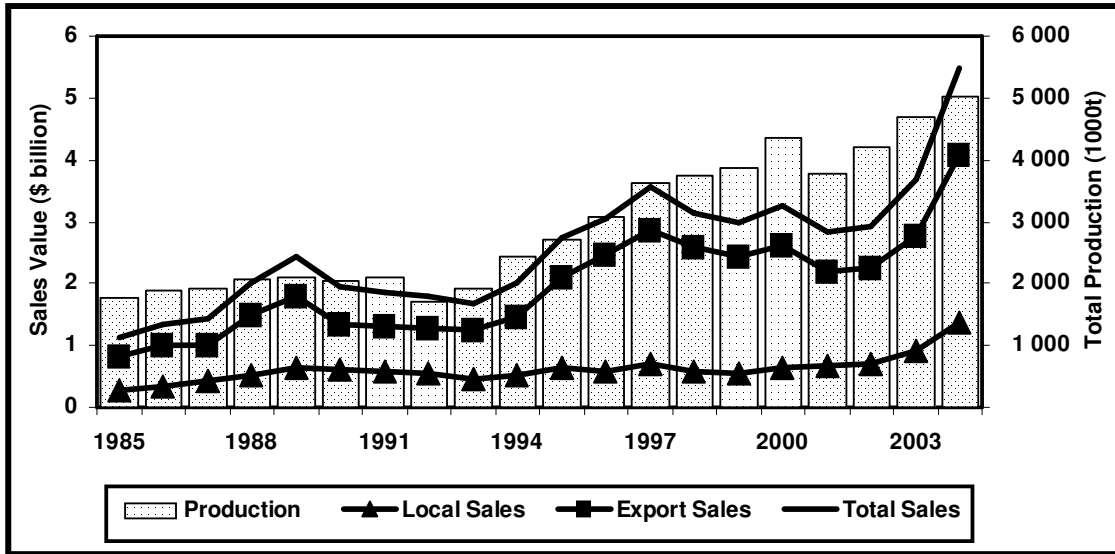
**FIGURE 10: GOLD: TOTAL PRODUCTION, TOTAL, EXPORT AND DOMESTIC SALES, 1985 - 2004**



**Processed Minerals**

The main contributors to this sector are ferrous alloys and aluminium. The total processed mineral sales revenue and production have both grown at an almost same rate of 5.9 percent per annum from 1985 to 2004 (Figure 11).

**FIGURE 11: PROCESSED MINERALS: TOTAL PRODUCTION, TOTAL, EXPORT AND LOCAL SALES, 1985 - 2004**



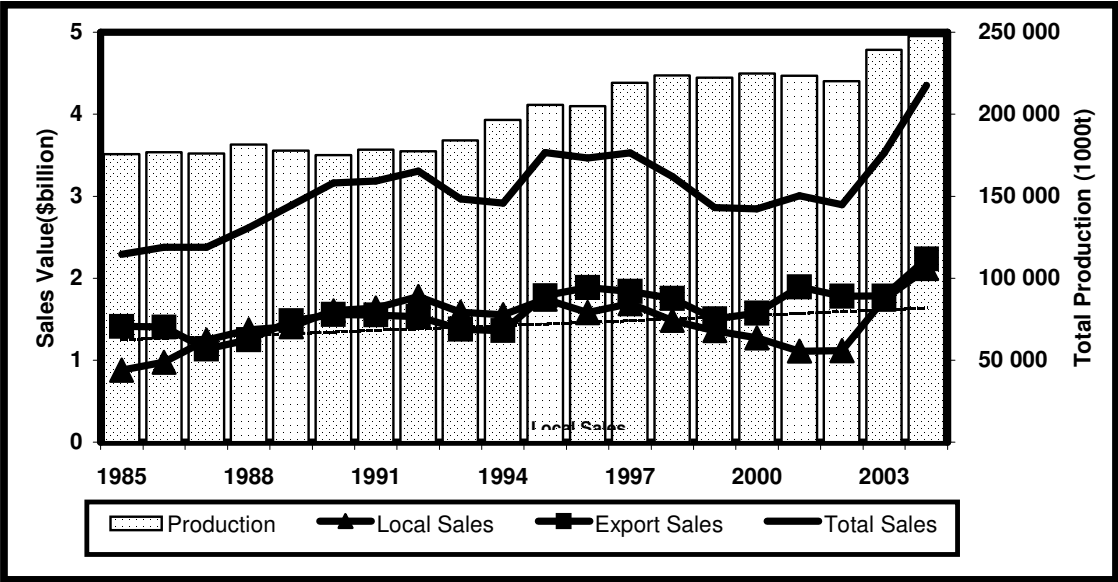
The total production and total sales trends of processed minerals may be skewed by the sales of aluminium derived from entirely imported ore.

### Coal

During the two decades from 1985 to 2004, total coal sales revenue has shown a positive growth at a rate of 1.8 percent per annum (Figure 12). This trend was, however, accompanied by a steep decline between 1992 and 1993 and another gradual decrease between 1997 and 1999, due to downward trend in coal prices.

Coal production has generally been constant between 1985 and 1992, but increased steadily from 1993 to 2004 after the lifting of sanctions in 1993. The result of this was a positive growth rate of 1.9 percent per annum in coal production during the two decades under review.

**FIGURE 12: COAL: TOTAL PRODUCTION, TOTAL SALES, EXPORT SALES AND LOCAL SALES, 1985 - 2004**

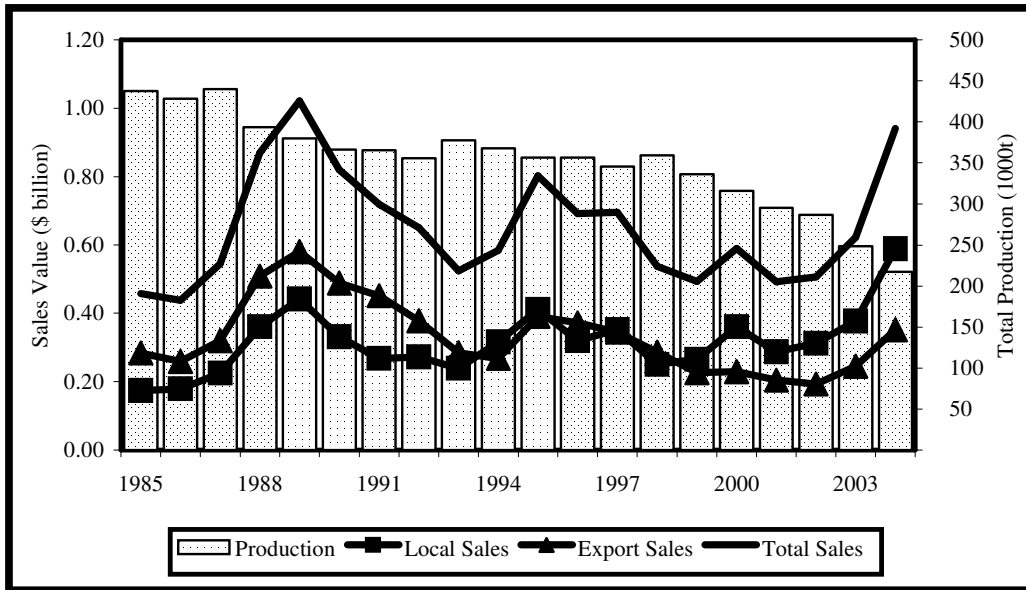


**Nonferrous Minerals**

During the past two decades, the total nonferrous mineral sales revenue has almost been constant due to sluggish off-take in most consumer countries, although accompanied by sharp rises in 1989, 1995 and 2004 (Figure 13).

This scenario can be attributed to low warehouse inventory of most base metals at the London Metal Exchange (LME) in 1989 and robust economic growth that characterised 1994 and first quarter of 1995, both resulting in strong price increases and high sales revenues. The sector’s production figures have been declining at a steady rate of 2.7 percent from 1985 to 2004, indicating a possibility of matured and diminishing reserves.

**FIGURE 13: NONFERROUS MINERALS: TOTAL PRODUCTION, TOTAL SALES, EXPORT SALES AND LOCAL SALES, 1985 - 2004**



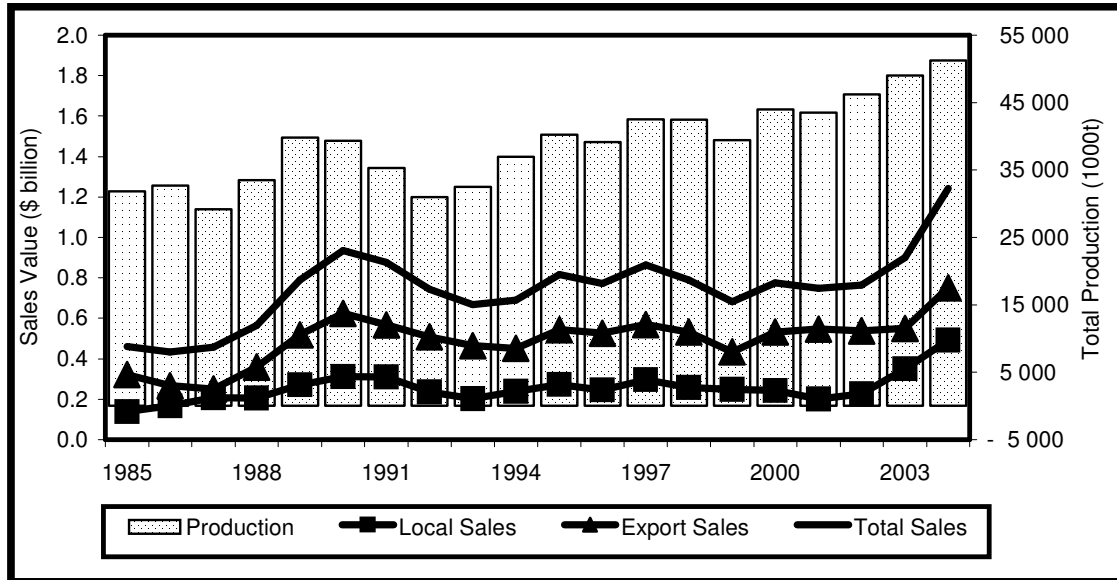
### Ferrous Minerals

In the two decades from 1985 to 2004, the total ferrous mineral sales revenue growth trend has been at positive rate of 3.0 percent per annum due to generally good demand over the period (Figure 14). Sales revenue has shown an exceptionally strong increase, more than double from \$457 million in 1987 to \$936 million in 1989 due to increased domestic steel production following an increase in world demand for steel-making commodities during the 1988-90 period. An almost similar trend appears in 2004.

During this period, the production trend has generally coincided with that of total sales, showing a positive growth rate at 2

.3 percent per annum.

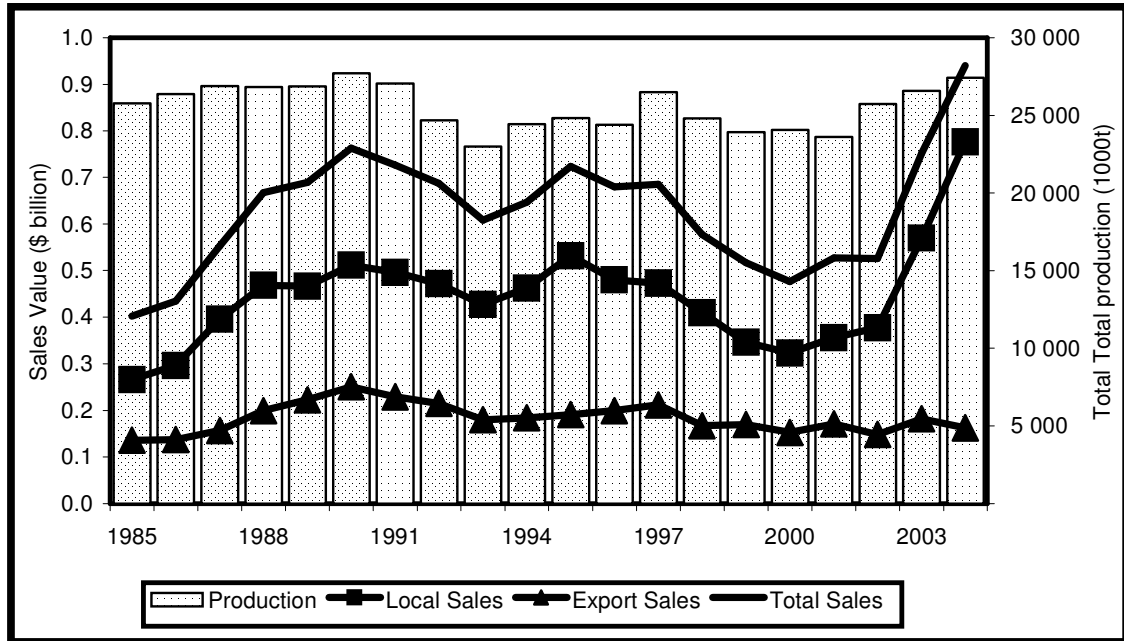
**FIGURE 14: FERROUS MINERALS: TOTAL PRODUCTION, TOTAL SALES, EXPORT SALES AND LOCAL SALES, 1985 - 2004**



**Industrial Minerals**

Total industrial mineral sales revenue trend shows marginal growth of 0.9 percent per annum during the two decades from 1985 to 2004, suppressed mainly by a declining production rate of 0.3 percent per annum (Figure 15). A steady, almost twofold increase from \$377 million in 1985 to \$727 million in 1990, supported the positive growth of total sales values. This was caused by increased production of vermiculite and baddeleyite, following the expansion of a processing plant at Palabora Mining Company in 1986; and an increase in asbestos prices in 1988 resulting from the strong demand from countries requiring economic construction material.

**FIGURE 15: INDUSTRIAL MINERALS: TOTAL PRODUCTION, TOTAL SALES, EXPORT SALES AND LOCAL SALES, 1985 - 2004**



**4. CONCLUSION**

Twenty years ago South Africa relied on gold for the bulk of the value derived from its mining production. Since then, the value of gold sales has declined steadily at an average rate of 4.5 percent per annum in dollar terms, with gold accounting for only 23.4 percent of total sales in 2004.

Gold’s declining importance has been compensated for by rising growth in earnings contributed by PGMs, coal, ferrous mineral commodities and processed minerals. Thus, total sales of all mineral commodities have recorded a modest growth of 0.6 percent per annum in dollar terms, over the 20-year period. However, if processed minerals were excluded, the total value of primary minerals has in fact increased by an almost negligible 0.1 percent per annum over this period.

Decreasing annual output due to depleting reserves, a declining gold price and higher costs of production related to mining at greater depths, are responsible for the slide in gold's contribution to South Africa's mineral sales revenue. An almost negligible 20-year growth recorded by all primary mineral sales in dollar terms may indicate a decrease in real commodity prices in world markets over the period.

On the other hand, the positive growth rates in the PGMs' total sales and production of 6.3 percent and 4.4 percent per annum, respectively, may be a rescuer of the precious metal sector in South Africa for some years to come.

The positive growth recorded when processed minerals are included vindicates the need for beneficiating or adding value to the minerals produced in South Africa before selling them in world markets, as well as for the processing of certain imported ores.

## **5. OUTLOOK**

Total mineral sales revenue, mainly influenced by processed minerals, is expected to grow modestly over the next ten years (2005 – 2014). The primary mineral commodities that could contribute significantly to this growth are PGMs, coal and the ferrous mineral groups.



## APPENDIX A

<b>1985</b>	<b>2.2278</b>
<b>1986</b>	<b>2.2835</b>
<b>1987</b>	<b>2.0357</b>
<b>1988</b>	<b>2.2726</b>
<b>1989</b>	<b>2.6222</b>
<b>1990</b>	<b>2.5852</b>
<b>1991</b>	<b>2.7559</b>
<b>1992</b>	<b>2.8516</b>
<b>1993</b>	<b>3.2759</b>
<b>1994</b>	<b>3.5497</b>
<b>1995</b>	<b>3.6270</b>
<b>1996</b>	<b>4.2964</b>
<b>1997</b>	<b>4.6073</b>
<b>1998</b>	<b>5.5316</b>
<b>1999</b>	<b>6.1131</b>
<b>2000</b>	<b>6.9353</b>
<b>2001</b>	<b>8.6031</b>
<b>2002</b>	<b>10.5165</b>
<b>2003</b>	<b>7.5647</b>
<b>2004</b>	<b>6.4499</b>