



# FACTS AND FIGURES 2012



**Chamber of Mines of South Africa**

**Putting South Africa First**



# FACTS AND FIGURES 2012



## VISION

To achieve a policy, legislative and governance framework, which is widely supported and which will allow the mining industry to convert as great a part of the country's abundant mineral resources into wealth for the benefit of South Africa.

## MISSION

To position the Chamber as the most relevant and highly respected advocacy organisation in South Africa and as the recognised authoritative voice of mining in South Africa. To perpetuate our efforts to achieve the situation where all significant stakeholders will regard the Chamber and its staff as the leading knowledge-based resource on all issues pertinent to mining.

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# THE SOUTH AFRICAN MINING SECTOR IN 2012

## 1. Overview

### 1.1 Contribution to Investment and GDP

In 2012, the mining sector accounted for 8.3% of GDP directly, on a nominal basis. If the indirect multiplier and induced effects of mining are included then the overall contribution to GDP is closer to 17%. Nominal mining GDP of R262.7 billion was recorded in 2012.

Mining sector real fixed investment, which rose strongly in 2007 and 2008 (up 31.3% and 27.5%, respectively) was hard hit by the global financial crisis and domestic constraints, and consequently only grew by 4.3% in 2012. Not only did the financial crisis hit prices but domestic constraints including regulatory uncertainty, infrastructure constraints and other issues affected investment by mining companies.

However, mining still accounted for 19% of private sector investment and 11.9% of total investment in the economy in 2012. The mining sector continued to be a key component of the Johannesburg Securities Exchange (JSE) and accounted for 24.7% (R1.8 trillion) of the All-Share Index and 24.4% (R1.9 trillion) of the equities market capitalisation, at end 2012.

SA's total mining production contracted by 3.2% in 2012, with platinum group metal (pgm) production contracting by 13%, and gold production contracting by 12% – a much higher rate of decline versus the production recorded in 2011. The other commodity production increases were not sufficient to counter the contraction in pgm and gold production levels. Iron ore, manganese and coal production grew by 16%, 3% and 2%, respectively. The Department of Mineral Resources registered SA diamond production at 7.2 million carats in 2012, an increase of 3% from 7 million carats in the previous year.

### 1.2 SA Mineral Sales and Exports

South African mineral sales contracted by 1.9% to R363.8 billion in 2012 (Table 1).

The change in mineral sales in 2012 was driven by the 18% decrease in the value of pgm sales to R69.2 billion, the 10% growth in coal sales to R96.1 billion, the 12% rise in gold sales to R76.8 billion, the 16% contraction in iron ore sales to R52.6 billion, and the 4% contraction in chrome ore sales to R8.3 billion. In 2012, manganese sales increased by 9% to R10.8 billion, from R9.9 billion in the previous year. Gold, PGMs, iron ore and coal accounted for 81% of South Africa's total mineral sales in 2012.

Total primary mineral sales exports contracted by 5% to a total of R269 billion in 2012. This accounted for 38% of South Africa's total merchandise exports.

### 1.3 Contribution of SA Mining over the past decade

In the past decade, the mining sector has contributed just over R2.1 trillion to the country's GDP and R2.16 trillion to the country's export earnings, in real money terms (Figure 1).

Table 1: Commodity Summary

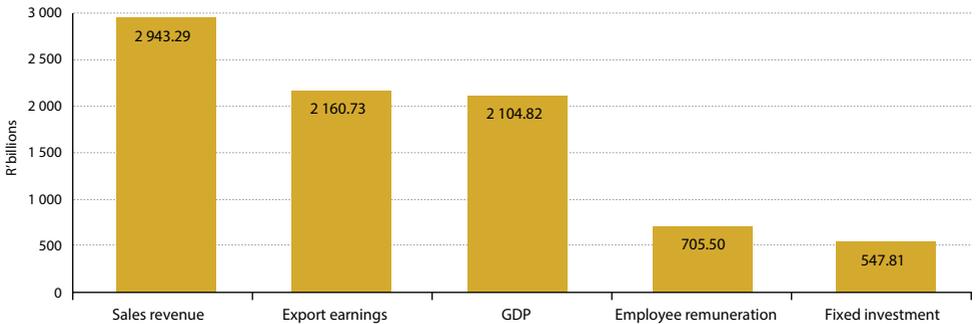
Commodity	January to December 2012			
	Local sales R1 000	Total sales R1 000	Total exports R1 000	% Exports Total sales
Gold	4 862 748	76 824 504	71 961 757	93.7
Platinum group metals	8 285 235	69 204 174	60 918 939	88.0
Silver	49 591	582 824	533 232	91.5
<b>Sub-total</b>	<b>13 197 574</b>	<b>146 611 502</b>	<b>133 413 928</b>	<b>91.0</b>
Chrome	4 683 023	8 277 305	3 594 282	43.4
Copper (content)	3 575 956	5 155 061	1 579 105	30.6
Iron ore	4 448 976	52 642 808	48 193 830	91.5
Lead concentrate	0	811 498	811 498	100.0
Manganese	1 134 842	10 820 654	9 685 812	89.5
Nickel	1 539 962	6 432 346	4 892 384	76.1
Other metallic	7 439	599 295	591 857	98.8
Coal	43 921 277	96 148 181	52 226 904	54.3
Feldspar	45 899	45 899	0	0.0
Limestone and lime	2 517 772	2 530 962	13 190	0.5
Other non-metallic	9 038 004	9 782 791	744 787	7.6
Miscellaneous*	10 525 991	23 898 166	13 372 175	56.0
<b>Sub-total</b>	<b>81 439 143</b>	<b>217 144 967</b>	<b>135 705 824</b>	<b>62.5</b>
<b>Grand total</b>	<b>94 636 717</b>	<b>363 756 469</b>	<b>269 119 751</b>	<b>74.0</b>

Source: Minerals Bureau, Department of Mineral Resources, as at June 2013.

\*Includes strategic and minor commodities otherwise not enumerated.

Note: Totals might not add due to rounding.

FIGURE 1: The contribution of mining to South Africa over the past decade expressed in 2012 real money terms



Source: Chamber of Mines Statistical unit.

## 2. Global exploration expenditure

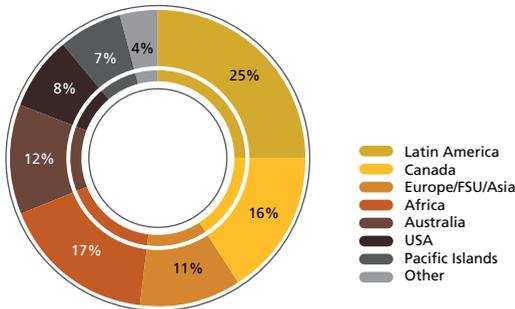
According to the Metals Economics Group (MEG), the global mining industry's aggregate exploration total jumped 44% in 2010 and a further 50% in 2011, as most mining companies increased their exploration budgets, lifting the industry's total budget to almost US\$17.3 billion in 2011. In 2012, despite a slowdown in China's economy, the threat of economic collapse in Europe, and political and economic uncertainty in the United States, world-wide exploration allocations rose a further 19% to US\$20.5 billion, setting a new all-time high.

Exploration allocations for all regions increased to record highs in 2012, led by the largest dollar increases in Latin America, Africa and Canada (Figure 2). Latin America remained the most popular exploration destination, attracting 25% of global spending in 2012, with the lion's share of allocations targeting gold.

Africa experienced the second-largest increase in both percentage and dollar terms, with its share of world-wide exploration budgets rising to 17% in 2012. For the second time in the past three years, the Democratic Republic of Congo held top place for exploration spending in Africa. An increased focus on West Africa translated into gold receiving the largest dollar increase in 2012, although gold's share of overall African budgets fell to 51% from 53% in 2011. Planned expenditures for other targets more than doubled, raising their share of overall budgets to 11% from 6%. Conversely, the percentage of total allocations devoted to diamonds fell for the sixth consecutive year to a record low of 6% in 2012.

After sitting in second place for exploration spending for more than a decade, Canada dropped to third place in 2012 after being overtaken by Africa. Allocations were up just 4% from 2011 – the smallest percentage and dollar increase of any region – and accounted for 16% of the world-wide total budget.

**FIGURE 2:** World-wide non-ferrous exploration budgets by region, 2012



Source: Metals Economics Group, 2013

Gold allocations dropped for the first time since 2009, lowering its share of Canada's total to 49% from 55% in 2011, while the percentage devoted to other targets, with an emphasis on potash, rose to 19% from 12%.

Eurasian countries made up the region with the fourth-largest budget, led by allocations for China and Russia, and by four other countries – Mongolia, Kazakhstan, Finland and Turkey – that each attracted more than US\$100 million in exploration budgets in 2012. Base metals replaced gold as the region's top target, led by major allocations for copper and nickel in China, Mongolia, Russia and Kazakhstan.

Allocations to Australia rose just 11% in 2012 – less than the 19% world-wide average increase – and lowered the country's share of overall budgets to 12% from 13% in 2011. Mining reforms at the national and state levels dominated the Australian minerals industry over the past several years, most of which industry watchers say will reduce investment and make the country's resource sector less competitive. Allocations to Western Australia accounted for more than half the country's 2012 non-ferrous exploration total, while South Australia edged Queensland for second place. Gold and base metals accounted for the bulk of Australia's 2012 exploration budget total, with allocations for all other commodities trailing by wide margins.

Gold and copper exploration in the United States kept it in sixth place regionally, ahead of the Pacific Islands. Nevada had the largest share (43%) of the country's 2012 exploration total, and three states – Nevada, Arizona and Alaska – together accounted for about 70% of the total. Gold continued to attract more than half (54%) of all spending in the United States, followed by base metals with 31%.

Among the Pacific Islands, exploration allocations for Indonesia, Papua New Guinea and the Philippines accounted for the bulk of the region's 7% of the world total, with budgets split mainly between gold (56%) and base metals (41%). The Pacific/Southeast Asia region experienced the largest percentage increase (35%) and the fourth-largest dollar increase (US\$353 million) of all regions in 2012, closing the gap between it and the United States.

## 3. Key mineral statistics for South Africa

Table 2: Key mineral industry

Description	Units of measure	2003	2004
<b>GROSS DOMESTIC PRODUCT</b>			
Direct contribution of mining to GDP	R'millions nominal terms	85 770	91 198
Direct contribution of mining to GDP	R'millions constant 2005 prices	103 355	104 915
Direct contribution of mining to GDP	R'millions 2012 money terms	138 356	145 348
Mining GDP growth rate	% YoY	3.4	1.5
Direct contribution of mining to GDP	US\$ equivalent	11 338	14 139
South African GDP	R'millions nominal terms	1 272 537	1 415 273
South African GDP	R'millions constant 2005 prices	1 427 322	1 492 330
Mining's contribution as % of total GDP nominal terms	%	6.7	6.4
Mining's contribution as % of total GDP real terms	%	7.2	7.0
<b>FIXED INVESTMENT</b>			
Direct contribution of mining to fixed investment (GFCF)	R'millions nominal terms	21 706	17 917
Direct contribution of mining to fixed investment (GFCF)	R'millions constant 2005 prices	23 461	18 950
Direct contribution of mining to fixed investment (GFCF)	R'millions 2012 money terms	35 014	28 555
Total private sector fixed investment (private GFCF)	R'millions nominal terms	142 386	165 866
Total SA fixed investment (GFCF)	R'millions nominal terms	196 999	226 180
Mining fixed investment growth rate	% YoY	5.0	(19.2)
Direct contribution to fixed investment (GFCF)	US\$ equivalent	2 869	2 778
Mining's contribution to private sector fixed investment (GFCF)	%	15.2	10.8
Mining's contribution as % of total investment	%	11.0	7.9
<b>SALES AND EXPORTS</b>			
<b>Total primary mineral sales</b>			
Total primary mineral sales	R'millions nominal terms	117 759	125 307
Total primary mineral sales	US\$ equivalent	15 567	19 428
Total primary mineral sales	R'millions 2012 money terms	189 958	199 709
<b>Mining industry primary exports</b>			
Mining industry primary exports	R'millions nominal terms	86 910	89 673
Mining industry primary exports	US\$ equivalent	11 489	13 903
Mining industry primary exports	R'millions 2012 money terms	140 195	142 917
<b>Total SA merchandise exports</b>			
Total SA exports (goods and services)	R'millions nominal terms	291 434	310 525
Primary mineral exports as % of total SA merchandise exports	R'millions nominal terms	376 158	394 923
Primary mineral exports as % of total SA exports	%	29.8	28.9
Primary mineral exports as % of total SA exports	%	23.1	22.7
Mining export earnings per unit of GDP created	ratio	1.0	1.0
<b>EMPLOYMENT</b>			
Mining industry direct employment	numbers	435 628	448 909
Total private non-agricultural employment	numbers	4 852 159	5 095 234
Total SA formal non-agricultural employment	numbers	6 395 847	6 660 960
Mining as % of total private non-agricultural employment	%	9.0	8.8
Mining as % of total non-agricultural formal employment	%	6.8	6.7
Remuneration paid to employees in mining	R'millions current	30 827	33 656
Remuneration paid to employees in mining	R'millions 2012 money terms	49 728	53 639
Average annual remuneration per mineworker	Rand	70 765	74 973
<b>EXCHANGE RATES</b>			
Rand per US\$ exchange rate	R/US\$	7.56	6.45
Rand per Euro	R/Euro	8.53	8.01
Rand real effective exchange rate	Rand index	103.23	110.13
<b>COMMODITY PRICES</b>			
Gold price	Rand per kilogram	88 092	84 785
Gold price	Rand/kg real 2012 money terms	142 101	135 126
Gold price	US\$/ounce	364	409
Platinum price	Rand per kg	168 268	175 382
Platinum price	Rand/kg real 2012 money terms	271 433	279 517
Platinum price	US\$/ounce	692	846
Palladium price	Rand per kg	48 791	47 701
Palladium price	Rand/kg real 2012 money terms	78 704	76 024
Palladium price	US\$/ounce	201	230
Rhodium price	Rand per kg	128 967	203 580
Rhodium price	US\$/ounce	530	982
PGM production weighted average basket price	Rand per 3E kg produced	128 427	138 228
PGM production weighted average basket price	Rand/3E kg 2012 real money terms	207 166	220 302
PGM production weighted average basket price	US\$ per 3E ounce produced	528	667
Coal price – average for local sales (received price)	R/tonne (FOB)	78	76
Coal price – average for export sales (received price)	R/tonne (FOB)	189	213

Sources: Chamber of Mines, SARB, StatsSA, DME, SACR, Johnson Matthey Platinum Reports. Prep: Chamber of Mines Economics Advisory Unit.

As at 2 July 2013

statistics for South Africa

	2005	2006	2007	2008	2009	2010	2011	2012	Total/Average past decade	Year-on-year % change
	105 992	132 301	156 970	196 526	196 521	221 731	256 651	262 678	1 706 338	2.3
	105 992	105 364	105 336	99 996	94 057	99 383	99 672	95 637	1 013 107	(4.0)
	163 557	195 143	216 021	242 426	225 717	244 467	271 110	262 678	2 104 823	(3.1)
	1.0	(0.6)	0.0	(5.3)	(10.3)	(5.3)	(5.0)	(9.2)	(3.0)	
	16 661	19 550	22 251	23 816	23 292	30 282	35 385	31 995	228 711	(9.6)
	1 571 082	1 767 422	2 016 185	2 256 485	2 406 401	2 659 366	2 917 539	3 155 195	21 437 485	8.1
	1 571 082	1 659 121	1 751 165	1 814 594	1 786 897	1 842 052	1 905 736	1 954 303	17 204 602	2.5
	6.7	7.5	7.8	8.7	8.2	8.3	8.8	8.3	8.0	(5.4)
	6.7	6.4	6.0	5.5	5.3	5.4	5.2	4.9	5.9	(6.4)
	16 743	27 715	40 206	58 645	64 140	62 431	68 815	74 658	452 976	8.5
	16 743	24 904	32 705	41 690	44 124	41 709	45 107	47 062	336 455	4.3
	25 836	40 879	55 331	72 342	73 669	68 833	72 692	74 658	547 810	2.7
	196 267	236 118	281 869	343 405	323 470	324 121	346 331	369 470	2 729 303	6.7
	263 754	324 083	406 257	520 723	518 785	514 004	553 313	604 390	4 128 488	9.2
	(11.6)	48.7	31.3	27.5	5.8	0.0	8.2	4.3	10.00	
	2 632	4 095	5 699	7 107	7 602	8 526	9 488	9 094	59 891	(4.2)
	8.5	11.7	14.3	17.1	19.8	19.3	19.9	20.2	16.6	1.7
	6.3	8.6	9.9	11.3	12.4	12.1	12.4	12.4	11.0	(0.7)
	<b>143 448</b>	<b>194 358</b>	<b>224 325</b>	<b>302 633</b>	<b>241 345</b>	<b>300 292</b>	<b>370 640</b>	<b>363 756</b>	<b>2 383 864</b>	<b>(1.9)</b>
	22 548	28 721	31 799	36 675	28 605	41 011	51 101	44 307	319 762	(13.3)
	121 356	286 677	308 715	373 316	277 200	331 084	391 521	363 756	2 943 292	(7.1)
	<b>202 487</b>	<b>138 879</b>	<b>162 203</b>	<b>221 926</b>	<b>176 390</b>	<b>224 956</b>	<b>282 013</b>	<b>269 120</b>	<b>1 754 556</b>	<b>(4.6)</b>
	16 110	20 522	22 993	26 895	20 906	30 722	38 882	32 780	235 202	(15.7)
	158 148	204 846	223 223	273 758	202 595	248 023	297 901	269 120	2 160 726	(9.7)
	<b>358 361</b>	<b>447 690</b>	<b>537 516</b>	<b>704 293</b>	<b>556 432</b>	<b>625 359</b>	<b>746 518</b>	<b>767 230</b>	<b>5 345 358</b>	<b>2.8</b>
	459 719	571 540	683 074	857 898	691 267	761 820	892 461	940 063	6 628 923	5.3
	28.6	31.0	30.2	31.5	31.7	36.0	37.8	35.1	32.8	(7.1)
	22.3	24.3	23.7	25.9	25.5	29.5	31.6	28.6	26.5	(9.4)
	1.0	1.0	1.0	1.1	0.9	1.0	1.1	1.0	1.0	(6.8)
	444 132	456 337	495 150	518 729	491 794	498 906	512 878	524 632	4 827 095	2.3
	5 506 592	6 235 818	6 575 501	6 644 060	6 335 542	6 235 818	6 323 076	6 382 287	60 186 087	0.9
	7 110 705	7 910 778	8 322 650	8 469 409	8 218 498	8 156 954	8 332 118	8 426 801	78 004 721	1.1
	8.1	7.3	7.5	7.8	7.8	8.0	8.1	8.2	8.0	1.3
	6.2	5.8	5.9	6.1	6.0	6.1	6.2	6.2	6.2	1.1
	36 683	39 448	50 073	60 886	66 092	74 319	86 972	93 608	572 563	7.6
	56 606	58 185	68 910	75 107	75 910	81 939	91 872	93 608	705 504	1.9
	82 595	86 445	101 127	117 376	134 389	148 963	169 577	178 426	1 164 634	5.2
	6.36	6.77	7.05	8.25	8.44	7.32	7.25	8.21	7.37	13.2
	7.91	8.52	9.66	12.05	11.70	9.71	10.08	10.55	9.67	4.7
	112.50	108.88	105.05	94.09	101.41	113.85	110.89	104.09	106.41	(6.1)
	90 822	131 323	157 241	229 417	260 644	286 402	367 978	440 762	213 747	19.8
	140 148	193 700	216 394	282 999	299 367	315 770	388 709	440 762	255 508	13.4
	445	604	697	872	971	1 225	1 569	1 668	882	6.3
	183 488	248 431	295 684	418 164	326 977	379 171	401 374	410 346	300 728	2.2
	283 142	366 434	406 918	515 830	375 554	418 051	423 986	410 346	375 121	(3.2)
	897	1 142	1 304	1 576	1 205	1 611	1 721	1 555	1 255	(9.7)
	41 211	69 703	80 481	93 359	71 531	123 926	171 635	170 646	91 898	(0.6)
	63 593	102 812	110 758	115 163	82 158	136 633	181 304	170 646	111 780	(5.9)
	201	320	355	352	264	526	736	646	383	(12.2)
	420 597	990 292	1 404 040	1 741 395	431 741	578 595	472 179	336 612	670 800	(28.7)
	2 056	4 552	6 191	6 564	1 592	2 458	2 025	1 275	2 822	(37.0)
	156 896	248 214	316 359	414 208	257 083	309 889	334 044	324 505	262 785	(2.9)
	242 107	366 115	435 372	510 950	295 277	341 665	352 863	324 505	329 632	(8.0)
	767	1 141	1 395	1 561	948	1 316	1 432	1 229	1 098	(14.2)
	86	92	108	153	187	181	210	237	141	12.7
	296	314	361	737	512	561	735	687	461	(6)

**Table 3: South Africa's role in World Mineral Reserves, Production and Exports, 2011 (latest available data)**

Commodity	Reserves				Production				Exports			
	Unit	Mass	%	Rank	Unit	Mass	%	Rank	Unit	Mass	%	Rank
Aluminium <sup>#</sup>		*	*	*	kt	809.00	9.8	*	kt	592.00	*	6
Alumino-silicates	Mt	51.00	*	*	kt	*	*	*	kt	*	*	*
Antimony	kt	21.00	1.2	5	t	3 239.00	2.2	2	t	*	*	*
Chrome ore	Mt	3 100.00	85.0	1	kt	10 721.00	42.0	1	kt	1 929.00	22.3	2
Coal	Mt	30 156.00	3.5	8	Mt	252.80	3.3	7	Mt	68.80	6.0	6
Copper	Mt	11.00	1.6	9	kt	89.00	0.1	10	kt	26.00	0.3	11
Ferro chrome		*	*	*	kt	3 426.00	37.0	1	kt	3 048.00	55.2	1
Ferro-Mn/Fe-Si-Mn		*	*	*	kt	790.00	*	*	kt	751.00	*	*
Ferro-silicon		*	*	*	kt	128.00	2.4	6	kt	59.00	3.1	5
Fluorspar	Mt	41.00	17.1	1	kt	195.50	3.1	6	kt	175.40	*	*
Gold	t	6 000.00	11.8	2	t	180.20	6.5	5	t	175.50	*	*
Iron ore	Mt	650.00	0.7	10	Mt	58.10	3.2	6	Mt	51.90	4.4	5
Lead	kt	300.00	2.1	14	kt	54.00	1.2	12	kt	50.00	1.9	14
Manganese ore	Mt	150.00	23.8	2	kt	8 652.00	18.0	2	kt	6 773.00	29.1	1
Nickel	Mt	3.50	4.6	7	kt	43.30	2.4	10	kt	26.60	*	*
PGMs	t	63 000.00	95.5	1	t	288.90	59.0	1	t	244.00	*	*
Phosphate rock	Mt	1 500.00	2.1	5	kt	2 565.00	1.3	12	kt	1.90	*	*
Silicon metal		*	*	*	kt	46.40	2.5	8	kt	62.40	4.5	6
Silver		*	*	*	t	79.30	0.3	20	t	78.90	*	*
Titanium minerals	Mt	71.30	10.3	4	kt	1 250.00	17.3	2		*	*	*
Uranium	kt	295.00	5.5	5	t	582.00	1.1	11		*	*	*
Vanadium	kt	3 640.00	26.0	2	kt	21.70	35.0	2	kt	17.90	*	*
Vermiculite	Mt	14.00	*	*	kt	165.00	29.4	1	kt	162.40	*	*
Zinc	Mt	14.00	3.3	8	kt	37.00	0.3	26	kt	7.00	0.1	25
Zirconium	Mt	14.00	27.0	2	kt	380.00	26.9	2		*	*	*

Sources: USGS, BP Statistical Review of World Energy, 2011, SA Department of Mineral Resources, Mineral Economics Directorate, 2011.

Note: Full details given in respective commodity chapters, # – Resource and \* – Information not available.

Table 4: Provincial Overview (latest available data)

Capital	EC	FS	GP	KZN	LP	MP	NW	NC	WC
	Bisho	Bloemfontein	Johannesburg	Ulundi and PiMB	Polokwane	Nelspruit	Mafikeng	Kimberley	Cape Town
Total area (000 km <sup>2</sup> )	168 965	129 825	18 178	94 361	125 753	76 494	104 881	372 889	129 462
% of SA area	13.8	10.6	1.4	7.7	10.3	6.3	8.6	30.5	10.6
Total population – 2011	6 562 053	2 745 590	12 272 263	10 267 300	5 404 868	4 039 939	3 509 953	1 145 861	5 822 734
% of total SA population	12.7	5.3	23.7	19.8	10.7	7.8	6.8	2.2	11.2
Total GDP 2010 (R'billions – current prices)	204.0	145.0	898.0	421.0	192.0	187.0	177.0	61.0	376.0
Mining GDP 2010 (R'billions – nominal terms)	0.8	19.8	30.8	8.1	52.2	44.2	54.4	16.1	0.9
Mining – % contribution to provincial GDP, 2010	0.4	13.6	3.4	1.9	27.2	23.6	30.7	26.2	0.2
Official unemployment %, 2012	28.6	32.9	25.4	19.8	20.2	28.9	26.2	29.9	23.2
Number of people living on less than US\$2 per day (at PPP), 2011	241 759.0	66 641.0	108 300.0	491 337.0	166 983.0	107 926.0	107 370.0	19 897.0	36 024.0
Number of people that have access to piped water, 2011	1 332 345.0	625 003.0	1 964 164.0	1 660 935.0	982 455.0	604 009.0	720 641.0	186 993.0	983 015.0
Households without electricity, 2011 (%)	26.0	6.0	19.0	22.0	13.0	11.0	14.0	10.0	4.0
Prevalence of HIV, 2012 (%)	10.8	12.1	11.2	15.1	7.1	12.7	12.5	6.8	5.2

4. Safety: Fatalities and Fatality Frequency Rates (FFR) on SA mines

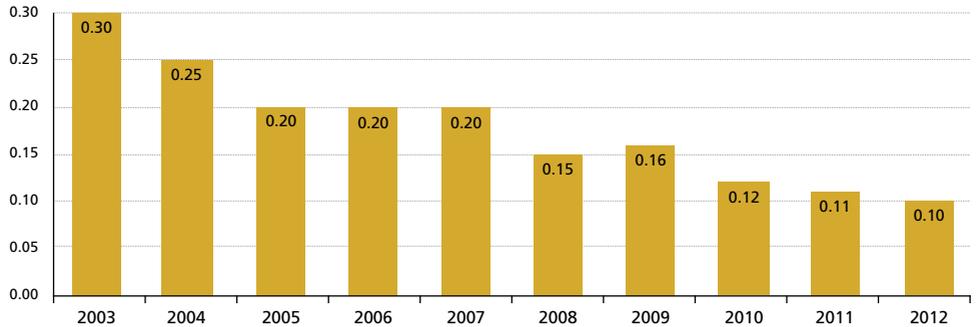
Table 5: Industry fatalities, 2003 – 2012

Commodity	2003	2004	2005	2006	2007	2008	2009	2010	2011	**2012
Gold	149	108	105	114	115	85	81	62	51	53
PGM's	58	65	47	40	53	36	41	34	37	28
Coal	23	20	16	20	15	20	18	12	12	11
Chrome	2	16	6	2	4	NIIO	NIIO	NIIO	NIIO	NIIO
Diamonds	15	15	7	3	12	NIIO	NIIO	NIIO	NIIO	NIIO
Copper	2	2	0	2	1	NIIO	NIIO	NIIO	NIIO	NIIO
Clay	0	3	3	2	8	NIIO	NIIO	NIIO	NIIO	NIIO
Iron ore	1	1	2	2	4	NIIO	NIIO	NIIO	NIIO	NIIO
Granite DS	0	2	0	0	1	NIIO	NIIO	NIIO	NIIO	NIIO
Limestone	0	3	5	5	1	NIIO	NIIO	NIIO	NIIO	NIIO
Other	20	11	10	10	6	30	28	19	23	20
<b>Total</b>	<b>270</b>	<b>246</b>	<b>201</b>	<b>200</b>	<b>220</b>	<b>171</b>	<b>168</b>	<b>127</b>	<b>123</b>	<b>112</b>

Source: DMR, as at June 2013.

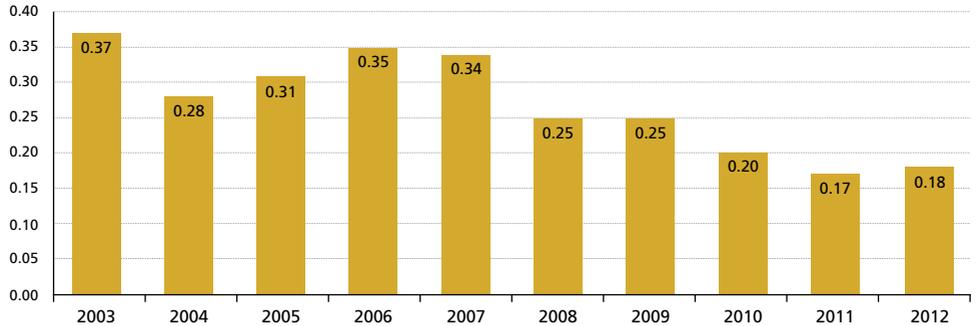
Notes: \*\*2012 data is provisional. NIIO – Now included in other.

FIGURE 3: Fatality Frequency Rates – all sectors

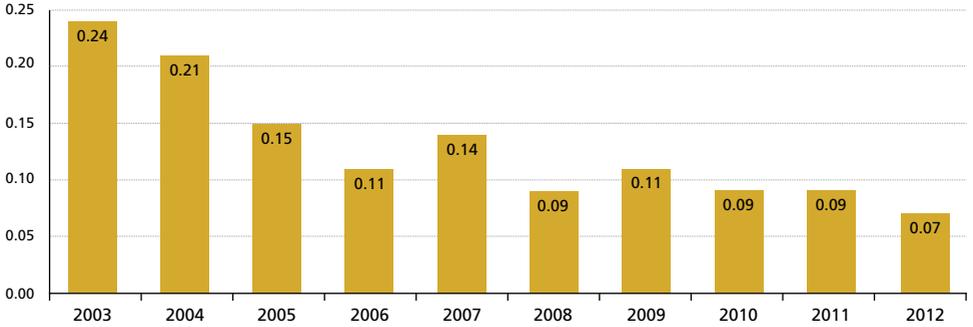


Source: Chamber of Mines.

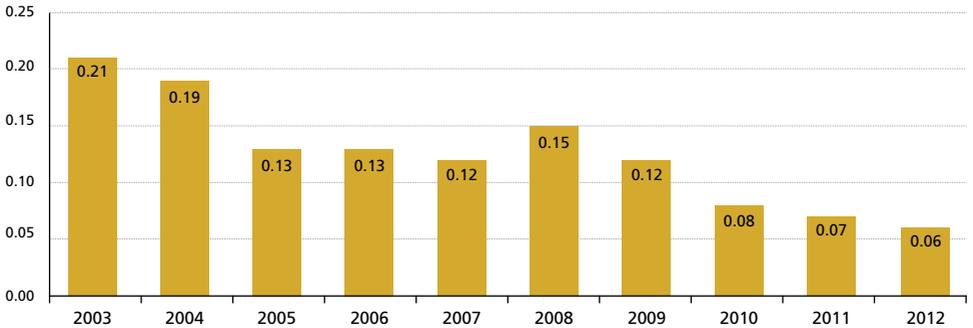
FIGURE 4: Fatality Frequency Rates – gold



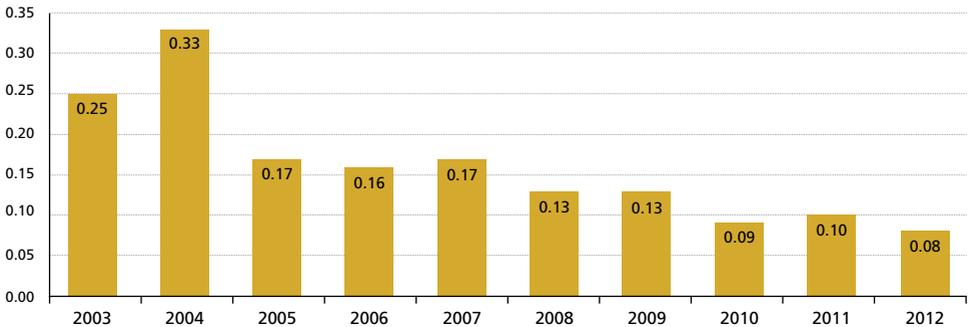
Source: Chamber of Mines.

**FIGURE 5: Fatality Frequency Rates – PGMs**

Source: Chamber of Mines.

**FIGURE 6: Fatality Frequency Rates – coal**

Source: Chamber of Mines.

**FIGURE 7: Fatality Frequency Rates – other mines**

Source: Chamber of Mines.

## 5. Employment and remuneration in SA Mining Industry, 2012

**Table 6: Labour history by commodity**

Year	Gold	PGMs	Iron ore	Copper	Chrome	Manga-nese	Dia-monds	Coal	Aggre-gate and sand	Other mines and quarries	South Africa
2003	198 465	127 672	5 961	4 952	5 784	2 623	17 949	47 239	3 801	21 182	435 628
2004	179 964	150 630	7 142	4 042	6 765	3 243	21 186	50 327	4 080	21 530	448 909
2005	160 634	155 034	7 493	3 746	7 893	3 336	22 033	56 971	5 210	21 782	444 132
2006	159 782	168 530	8 859	3 993	7 899	3 332	19 686	57 778	5 133	21 345	456 337
2007	169 057	186 411	13 858	N/A	9 796	3 240	19 471	60 439	5 833	27 045	495 150
2008	166 063	199 948	13 256	N/A	12 279	3 976	18 474	65 484	6 428	32 821	518 729
2009	159 925	184 163	13 727	N/A	10 966	5 003	11 602	70 791	6 852	28 765	491 794
2010	157 019	181 969	18 216	N/A	13 982	5 879	11 468	74 025	7 009	29 339	498 906
2011	144 799	194 745	22 361	N/A	16 911	7 460	12 046	78 579	7 123	28 854	512 878
2012	142 201	197 847	23 380	N/A	19 758	8 726	12 176	83 240	7 544	29 760	524 632

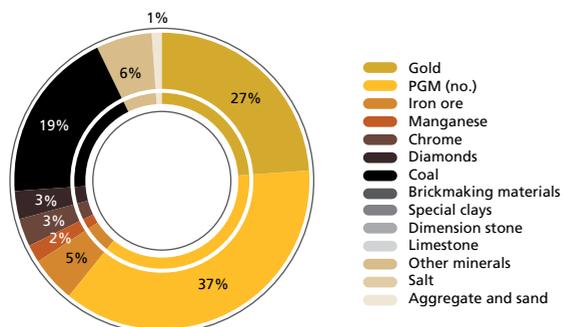
Source: DMR, as at June 2013.

**Table 7: Number of employees and earnings, 2012**

Commodity	Total employed	Total employee: earnings (R'millions)	Average earnings per employee (R)
Gold	142 201	22 238 337 605	156 386.65
PGM	197 847	34 406 150 171	173 902.81
Iron ore	23 380	4 690 572 852	200 623.30
Manganese	8 726	1 571 017 880	180 038.72
Chrome	19 758	3 430 888 847	173 645.55
Diamonds	12 176	2 404 916 429	197 512.85
Coal	83 240	17 437 196 532	209 480.98
Brickmaking materials	341	20 264 139	59 425.63
Special clays	353	35 154 041	99 586.52
Dimension stone	1 819	160 577 023	88 277.64
Limestone	2 811	438 208 188	155 890.50
Other minerals	23 703	5 855 099 684	247 019.35
Salt	733	48 679 273	66 411.01
Aggregate and sand	7 544	870 694 448	115 415.49
<b>Total</b>	<b>524 632</b>	<b>93 607 757 112</b>	<b>178 425.56</b>

Source: DMR, as at June 2013.

**FIGURE 8: Percentage of total earnings by commodity, on all SA mines including contractors, 2012**

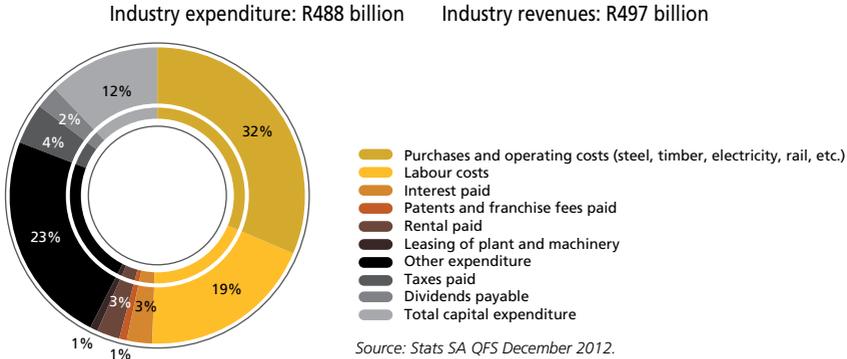


Source: DMR, as at June 2013.

## 6. Income and expenditure

The South African mining industry's total income in 2012, using quarterly unadjusted data was estimated at R497 billion while expenditure after accounting for depreciation and impairments was R488 billion (Figure 9).

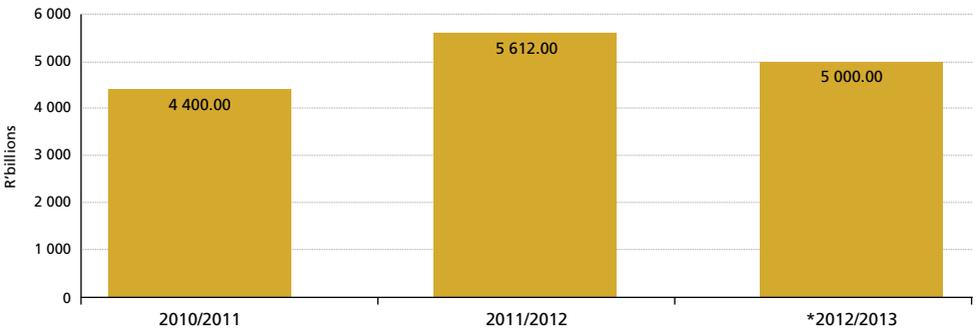
**FIGURE 9: Mining industry expenditure (ZAR mn), \*2012**



R154 billion was spent on purchases and operating costs such as timber, steel, explosives, electricity, transport and uniforms. R93 billion was paid on salaries and wages for mine employees, R59.2 billion on capex, R21.4 billion in tax, R11.6 billion in dividends and R14.3 billion paid on interest.

Furthermore, the mining industry also contributes to the national fiscus through royalties taxes, having paid R4.4 billion and R5.6 billion in 2010/2011 and 2011/2012, respectively. The estimated royalties for 2012/2013 is R5 billion (Figure 10).

**FIGURE 10: Mining industry, royalties paid**



*Source: National Treasury Revenue Estimates, 2013.*

In addition, it is important to dispel the myth that all mined products are exported in raw form with very little downstream beneficiation taking place locally. Nearly 100% of South Africa's cement and building aggregates are made locally and 80% of the country's steel is made locally from locally mined iron ore, chrome, manganese and coking coal using furnaces that are 95% powered by electricity from coal-fired power stations (the 20% imported steel is speciality steel products not made locally). Over 30% of the country's liquid fuels are produced within the country from locally mined coal and 95% of electricity is generated in power plants that use locally mined coal. Most domestic chemicals, fertilisers, waxes, polymers and plastics are fabricated using locally mined minerals and coal and 13% of the world's platinum catalytic converters are made in South Africa.

## 7. Aggregate and sand sales, employment and total earnings, 2003 – 2012

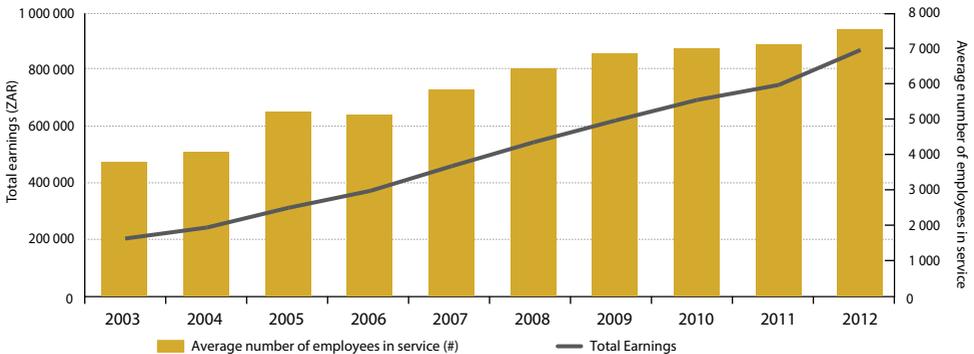
**Table 8: Aggregate and sand sales**

Year	Mass (1 000t)	Value (R1 000)
2003	32 400.7	1 350 491.2
2004	47 381.7	2 085 363.9
2005	50 186.6	2 233 340.9
2006	58 563.4	2 789 556.0
2007	63 872.8	3 374 162.2
2008	58 608.5	3 775 002.5
2009	53 603.6	3 895 685.7
2010	52 624.7	3 864 613.2
2011	52 285.6	4 066 141.8
2012	53 373.5	4 476 359.5

Source: DMR, June 2013.

In 2012, SA aggregate sand production increased by 2% to 53.4 million tonnes (MT), though the sales value increased by 10% to R4.5 billion (Table 8). The sector employed 7 544 people and paid a total of R870 694 in salaries (Figure 11).

**FIGURE 11: Employment and earnings – SA aggregate and sand quarries**



Source: DMR, as at June 2013.

## 8. Base minerals production and sales, 2003 – 2012: chromite, copper, iron ore and manganese

### 8.1 Chromite

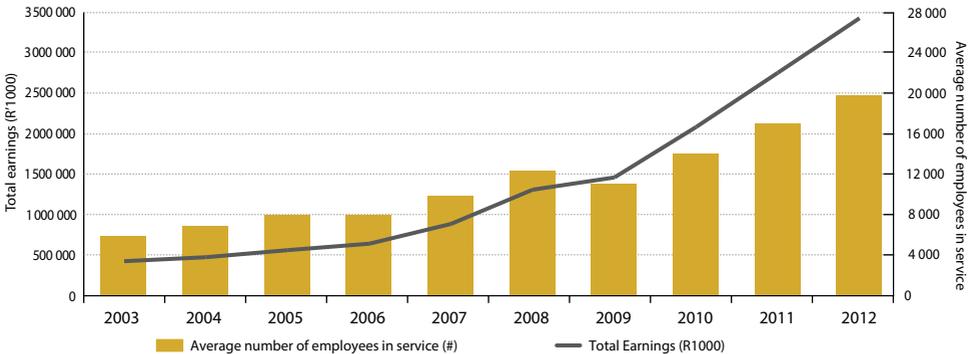
Table 9: SA chromite production and sales

Year	Production	Local sales		Export sales		Total sales	
	Metric tonnes	Mass 1 000t	Value R1 000	Mass 1 000t	Value R1 000	Mass 1 000t	Value R1 000
2003	7 405 391	6 333.8	976 689.7	502	177 807.7	6 835.6	1 154 497
2004	7 676 800	6 743.1	1 368 846.0	513	318 893.5	7 256.2	1 687 739
2005	7 552 237	6 128.2	1 468 520.7	657	442 045.1	6 785.3	1 910 566
2006	7 425 860	6 386.7	1 803 587.1	741	506 176.8	7 127.5	2 309 764
2007	9 664 656	7 388.6	2 346 981.8	893	659 466.6	8 281.6	3 006 448
2008	9 682 640	7 116.2	4 131 019.8	762	1 267 931.2	7 878.3	5 398 951
2009	7 560 938	4 879.8	2 081 057.7	1 709	1 257 310.7	6 589.1	3 652 368
2010	10 871 095	7 266.7	4 159 308.3	1 929	2 459 472.9	9 196.1	6 618 781
2011	10 721 360	7 434.0	5 382 327.0	2 000	3 237 218.9	9 433.8	8 619 547
2012	11 310 223	6 684.7	4 683 023.0	2 470	3 594 282.4	9 154.3	8 277 305

Source: DMT, as at June 2013.

In 2012, SA chromite production increased by 6% to 11.3 MT. Domestic sales contracted by 13% to R4.7 billion from R5.4 billion in the previous year, whilst export sales grew by 11% from R3.2 billion to R3.6 billion in 2012 (Table 9). Total sales contracted by 4% to R8.3 billion. The sector employed 19 758 people and paid a total of R3.4 billion in salaries (Figure 12).

FIGURE 12: Employment and earnings – SA chromite mines



Source: DMR, as at June 2013.

## 8.2 Copper

**Table 10: SA copper production and sales**

Year	Production	Local sales		Export sales		Total sales	
	Metric tonnes	Mass 1 000t	Value R1 000	Mass 1 000t	Value R1 000	Mass 1 000t	Value R1 000
2003	120 920	76.1	1 073 733.8	46.4	567 502.4	122.5	1 641 236
2004	102 570	83.9	1 542 829.4	29.3	483.292.8	113.2	2 026 122
2005	103 856	82.0	1 926 378.3	30.0	656 721.4	112.0	2 583 100
2006	109 590	83.8	3 892 035.2	24.4	1 064 042.4	108.2	4 956 078
2007	117 066	76.6	4 025 724.8	37.4	1 828 126.1	113.9	5 853 851
2008	97 185	68.5	4 120 564.4	32.9	1 507 355.6	101.4	5 627 920
2009	92 884	68.0	2 835 737.2	26.8	1 024 013.8	94.9	3 859 751
2010	83 640	56.7	3 160 028.7	55.8	1 209 297.4	112.4	4 369 326
2011	89 298	60.4	3 937 749.1	25.5	1 495 100.3	85.9	5 432 849
2012	69 859	54.6	3 575 955.6	26.6	1 579 105.2	81.2	5 155 061

Source: DMR, as at June 2013.

In 2012, SA copper production contracted by 22% to 69 859 tonnes. Domestic sales value contracted by 9% to R3.6 billion from R3.9 billion in the previous year, whilst export sales grew by 6% from R1.5 billion to R1.6 billion in 2012 (Table 10). Total sales contracted by 5% to R5.2 billion from R5.4 billion in the previous year.

## 8.3 Iron ore

Global iron ore reserves are estimated to be at 170 billion tonnes of crude ore with an iron ore content of about 80 billion tonnes (USGS). Global iron ore production increased slightly by 2% even though prices fell to US\$128.5/dmt, below 2010 prices of US\$145.9/dmt. The increase in production was attributed to a 2% increase in global steel production. The slow growth rate in steel production was as a result of uncertainties in the global economic sphere.

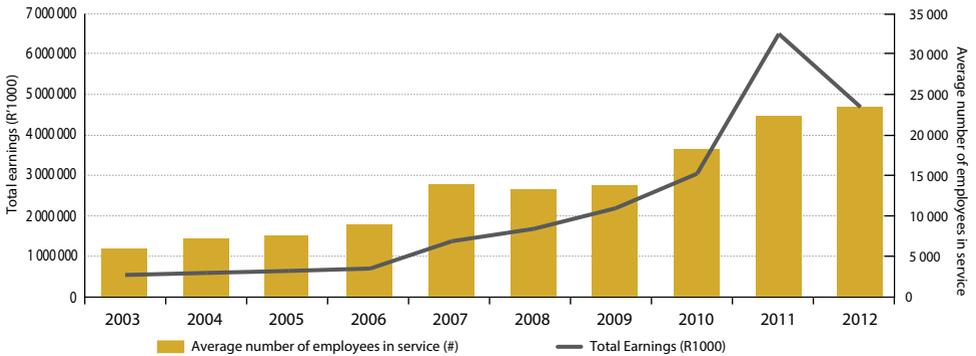
**Table 11: SA iron ore production and sales**

Year	Production	Local sales		Export sales		Total sales	
	Metric tonnes	Mass 1 000t	Value R1 000	Mass 1 000t	Value R1 000	Mass 1 000t	Value R1 000
2003	38 085 855	12 079.2	1 060 635.2	24 076	3 130 436.0	36 155	4 191 071.2
2004	39 322 050	12 430.9	1 145 600.0	24 745	3 439 885.1	37 176	4 585 485.1
2005	39 542 072	12 009.4	1 272 795.7	26 628	6 246 776.5	38 637	7 519 572.2
2006	41 371 896	12 035.8	1 398 450.0	27 371	8 532 831.2	39 407	9 931 281.2
2007	42 083 081	12 407.4	1 749 497.9	30 767	12 006 062.4	43 174	13 755 560.3
2008	48 982 537	11 258.0	1 974 629.3	32 766	20 267 206.3	44 024	22 241 835.7
2009	55 313 053	8 369.1	1 888 800.9	44 550	25 242 933.6	52 919	27 131 734.5
2010	58 709 330	10 560.9	3 270 326.5	47 493	40 148 279.1	58 053	43 418 605.5
2011	58 056 897	9 844.3	4 207 746.3	51 891	58 444 147.8	61 735	62 651 894.1
2012	67 100 474	8 392.8	4 448 978.2	57 110	48 193 829.7	65 503	52 642 808.0

Source: DMR, as at June 2013.

In 2012, South Africa produced 67.1 MT of iron ore, which was 15.6% higher on the previous year's total (Table 11). Domestic sales demand decreased by 15% to 8.4 MT while export sales demand grew by 10% to 57.1 MT. Local sales were valued at R4.4 billion while export sales realised R48.2 billion. Even though total iron ore sales by volume grew by 6%, the overall receipts contracted to R52.6 billion from R62.7 billion in 2011. Iron ore was the fourth largest component of the South African mining industry by sales value. Iron ore exports accounted for 18% of mining exports and 7% of total merchandise exports in 2012. In 2012, the sector employed 23 380 people and paid R4.7 billion in wages (Figure 13).

**FIGURE 13: Employment and earnings – SA iron ore mines**



Source: DMR, as at June 2013.

### 8.4 Manganese

South Africa accounted for 22% of the global manganese production in 2012 (USGS), followed by the USA (21%), China (19%) and Gabon (13%).

**Table 12: SA manganese production and sales**

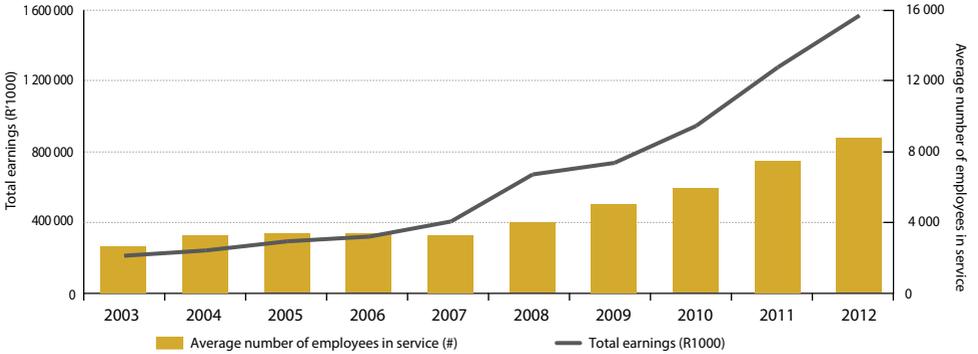
Year	Production	Local sales		Export sales		Total sales	
	Metric tonnes	Mass 1 000t	Value R1 000	Mass 1 000t	Value R1 000	Mass 1 000t	Value R1 000
2003	3 546 558	–	624 646.5	1 957	852 982.9	–	1 477 629.4
2004	4 281 960	–	656 434.7	2 403	1 082 284.6	–	1 738 719.4
2005	4 611 683	–	681 861.0	2 119	1 518 965.3	–	2 200 826.3
2006	5 213 338	–	727 182.4	2 846	1 518 652.5	–	2 245 835.0
2007	5 996 086	–	934 900.7	3 691	2 636 526.1	–	3 571 426.8
2008	6 807 059	–	1 761 848.5	4 689	15 581 559.6	–	17 343 408.0
2009	4 578 770	–	583 601.6	3 976	5 003 011.1	–	5 586 612.7
2010	7 171 745	–	1 320 564.4	5 986	9 340 025.7	–	10 660 590.2
2011	8 651 842	–	1 325 213.5	6 773	8 569 853.8	–	9 895 067.3
2012	8 943 415	–	1 134 842.4	7 498	9 685 811.5	–	10 820 654.0

Source: DMR, as at June 2013.

In 2012, SA manganese production increased by 3% to 8.9 MT. Of the total production, 7.5 MT was exported at a value of R9.7 billion, whilst the balance was sold domestically at a value of R1.1 billion (Table 12). The export sales value increased due to the price received per tonne, rising from R1 265/t in 2011 to R1 292/t in 2012.

The sector employed 8 726 people in 2012 (17% up from 2011), and paid a total of R1.6 billion in salaries and wages (Figure 14).

**FIGURE 14:** Employment and earnings – SA manganese mines



Source: DMR, as at June 2013.

### 9. Annual SA coal production, sales and exports, 2003 – 2012

In 2012, world total primary energy consumption grew at a slower pace as a result of the slowdown in global economic growth. Primary energy consumption in absolute terms fell in a number of advanced economies including the USA, Europe, Australia and Japan while energy demand grew in most emerging economies. China and India accounted for a significant portion of the growth in global energy consumption with coal being their fuel of choice. For the first time in history China accounted for over half of world coal consumption, while in the USA the use of cheaper natural gas has resulted in a decline in coal consumption. In 2012, world thermal coal consumption increased as demand in key markets such as China and India grew. As a result the seaborne thermal coal trade increased by 10.6% to 958 MT.

In 2012, South African coal production increased by 2% to 258.6 MT (Table 13).

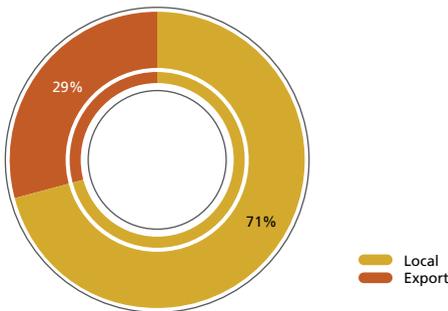
**Table 13: SA coal production and sales**

Year	Production	Local sales		Export sales		Total sales	
	Metric tonnes	Mass 1 000t	Value R1 000	Mass 1 000t	Value R1 000	Mass 1 000t	Value R1 000
2003	237 872.1	168 942.5	13 243 714.2	71 556.5	13 490 623.1	240 498.9	26 734 337.2
2004	243 371.5	178 674.9	13 644 186.2	67 946.5	14 494 479.4	246 621.4	28 138 665.6
2005	244 988.3	173 437.3	14 878 140.0	71 442.1	21 155 176.0	244 879.4	36 033 316.0
2006	244 832.4	177 049.0	16 245 873.7	68 747.3	21 620 934.2	245 796.3	37 866 807.9
2007	247 666.4	182 769.6	19 718 642.1	67 675.4	24 447 656.2	250 445.1	44 166 298.4
2008	252 699.1	197 033.0	30 104 160.8	60 630.7	44 706 203.8	257 663.7	74 810 364.6
2009	250 538.1	184 676.7	34 442 650.1	60 539.5	31 006 559.2	245 216.2	65 449 209.3
2010	257 205.8	186 366.2	33 702 228.7	66 769.8	37 477 184.4	253 136.0	71 179 413.1
2011	252 756.9	177 705.3	37 285 726.1	68 807.1	50 548 677.6	246 512.4	87 834 403.7
2012	258 575.8	185 668.7	43 921 277.0	76 008.7	52 226 904.3	261 677.3	96 148 181.3

Source: DMR, as at June 2013.

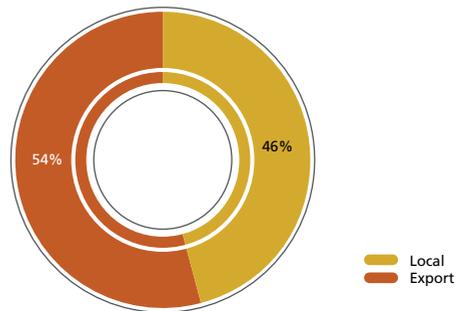
In 2012, total coal sales by value increased by 10% to R96.1 billion (Table 13). Approximately 71% of production was sold locally at a value of R43.9 billion, whilst the balance of production (29%) was exported at a value of R52.2 billion (Figure 15 and Figure 16). The coal sector accounted for 19% of mining exports and 7% of total merchandise export in 2012 – making it the third largest mineral export after gold and PGMs.

**FIGURE 15: Coal sales by volume**



Source: DMR.

**FIGURE 16: Coal sales by value**



Source: DMR.

The Richards Bay Coal Terminal (RBCT) has plans in the pipeline to increase the terminals capacity. Phase VI of the expansion plan will increase current capacity from 91MT to 110MT. Total exports through the RBCT increased by 4% to 68MT in 2012, still short of its full potential. Transnet Freight Rail (TFR) improved rail performance and railed 68.5 MT of coal to RBCT, an increase of 4% year-on-year.

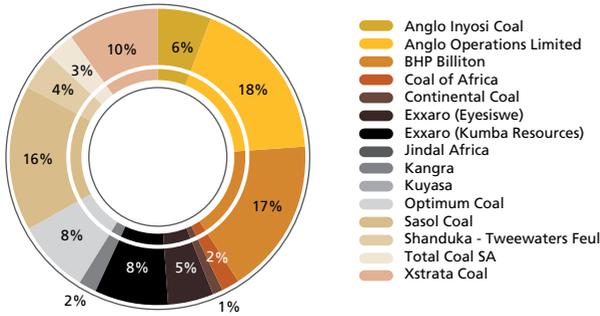
## 9.1 Analysis of coal sold by Chamber member coal producers

Table 14: Coal sales by Chamber members

Table 14: Coal sales by Chamber members					
Coal mine	2012 total	2012 total	Coal mine	2012 total	2012 total
	Sales tonnes	Sales value (R)		Sales tonnes	Sales value (R)
<b>Anglo Inyosi Coal</b>		<b>4 285 571 133</b>	<b>Exxaro (Kumba Resources)</b>		<b>6 242 157 951</b>
Kriel	8 096 879	1 581 985 484	Grootegeeluk	17 637 110	4 380 818
Zibulo Colliery	4 711 747	2 703 585 649	Leeuwpan	3 663 669	1 130 233 536
<b>Anglo Operations Limited</b>		<b>13 798 611 109</b>	Tshikondeni	339 159	730 967 597
Goedehoop	4 864 294	3 454 367 062	<b>Jindal Africa</b>	<b>0</b>	<b>0</b>
Isibonelo	5 400 321	709 487 119	Jindal Mining	0	0
New Denmark	3 401 173	1 322 747 784	<b>Kangra</b>		<b>1 837 738 640</b>
New Vaal	17 623 322	2 243 887 256	Savmore	3 177 901	1 837 738 640
SACE – Greenside	2 763 354	1 889 522 325	<b>Kuyasa</b>		<b>330 326 629</b>
SACE – Kleinkopje	3 883 809	1 370 541 839	Delmas	1 627 919	330 326 629
SACE – Landau	4 465 689	2 808 057 724	<b>Optimum Coal</b>		<b>5 946 050 646</b>
<b>BHP Billitonne</b>		<b>13 030 221 309</b>	Optimum	10 807 191	4 469 032 340
BHP Billitonne – Khutala	10 497 505	2 157 411 856	Koornfontein	2 938 470	1 477 018 306
BHP Billitonne – Klipspruit	8 052 383	4 526 787 932	<b>Sasol Coal</b>		<b>11 782 001 177</b>
BHP Billitonne – Middelburg	15 276 834	6 346 021 521	Sasol Mining	44 108 249	11 782 001 177
<b>Coal of Africa</b>		<b>1 394 010 711</b>	<b>Shanduka – Tweewaters Fuel</b>		<b>2 692 796 860</b>
Mooiplats	742 739	339 407 668	Springlake	397 238	366 971 953
Vele	136 499	68 249 285	Umcebo	6 310 962	2 325 824 907
Woestalleen + Vuna	2 515 730	986 353 758	<b>Total Coal SA</b>		<b>2 569 184 425</b>
<b>Continental Coal</b>		<b>558 630 447</b>	Dorstfontein	2 080 597	1 240 626 006
Mashala Resources – Ferreira Mine	481 590	343 686 002	Forzando	1 544 595	1 045 413 970
Ntshovelo Mining – Vlakvarkfontein	1 086 508	214 944 445	Tumelo	419 542	283 144 449
<b>Exxaro (Eyesiswe)</b>		<b>3 685 331 751</b>	<b>Xstrata Coal</b>		<b>7 714 200 592</b>
Arnot	2 081 218	930 630 994	iMpuzi Complex	1 947 658	880 176 174
Matla	10 940 954	1 828 080 277	Tweefontin Complex	13 485 910	6 834 024 418
New Clydesdale	622 140	413 967 125			
NBC – North Block Complex – Grootpan, Strathrae, Glisa	2 249 345	512 653 355			
			<b>TOTAL SALES VALUE</b>		<b>R75 866 833 380</b>

Source: DMR, as at June 2013.

**FIGURE 17: Percentage of coal value by Chamber members**



Source: Chamber of Mines Statistical Unit.

**Table 15: Monthly analysis of coal sales by Chamber members, 2012**

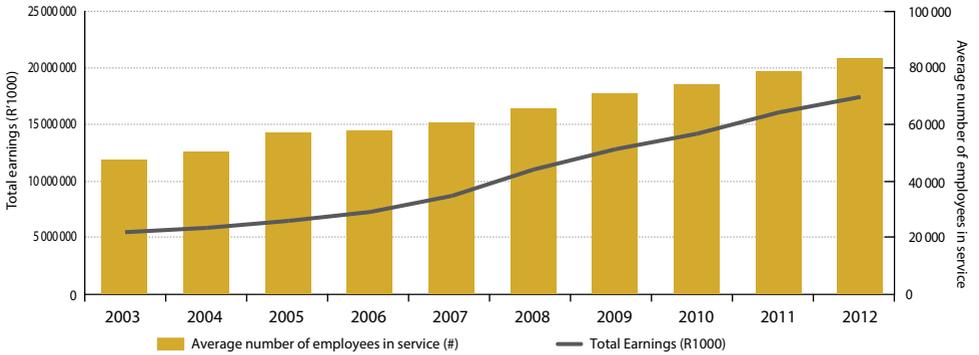
Month	Sales tonnes (metric tonnes)	Sales value (R)
January	18 583 420	6 657 035 409
February	17 202 912	6 744 356 536
March	19 191 476	6 916 813 154
April	17 845 563	6 352 235 069
May	17 693 686	5 493 305 932
June	18 503 028	6 293 170 052
July	18 764 305	6 257 227 157
August	19 310 117	6 352 948 544
September	17 340 632	5 636 764 330
October	18 891 052	5 951 897 611
November	19 076 854	6 432 134 635
December	17 977 158	6 778 944 951
<b>Total</b>	<b>220 380 203</b>	<b>75 866 833 380</b>

Source: Chamber of Mines Statistical Unit.

## 9.2 Employment on SA coal mines, 2012

In 2012, the number of people employed in the local coal mining industry increased by 6% to 83 240, with employees earning R17.4 billion in salaries and wages (Figure 18).

**FIGURE 18:** Employment and earnings – SA coal mines

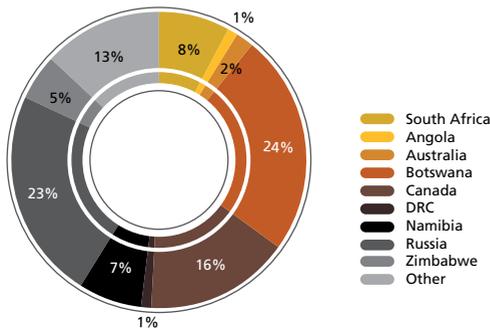


Source: DMR, as at June 2013.

## 10. Diamond production and sales, 2003 – 2012

In 2012, global diamond production as estimated by the Kimberley Process Certification Scheme (KPCS) increased by 3% to 128 million carats, from an adjusted 124 million carats in 2011. Leading producers by volume include Russia (27%), DRC (17%), Botswana (16%) and Canada (8%). Leading producers by value are Botswana (24%), Russia (23%), Canada (16%) and South Africa (8%), as indicated in Figure 19. The global value of rough diamonds produced contracted by 12% to approximately R12.6 billion (Figure 19). South African diamond production increased by 3% from 7 million carats in 2011 to 7.2 million carats in 2012 (Table 16).

**FIGURE 19:** Global diamond production for 2012, per country, by value in US\$ (total value \$12.6 billion)



**Table 16:**  
SA production (carats)

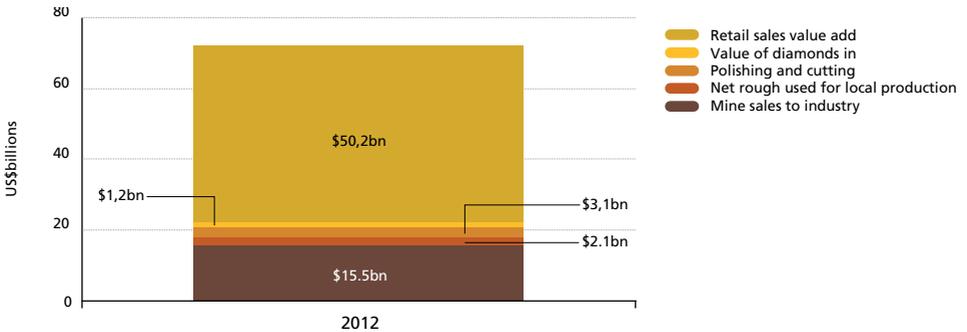
2003	12 647 702
2004	14 295 000
2005	15 776 427
2006	15 153 542
2007	15 250 215
2008	12 894 875
2009	6 112 834
2010	8 868 390
2011	7 046 644
2012	7 245 402

Source: DMR.

Source: KPCS Annual Global Summary, 2012.

In 2012, global diamond retail sales rose by 2% to US\$72.1 billion, with the US market accounting for 38% (Figure 20). The balance of the sales was covered by Japan (8%), Indian (12%), China (11%), Gulf Region (7%) and Hong Kong (2%).

**FIGURE 20:** The diamond pipeline 2012 (value addition per step)

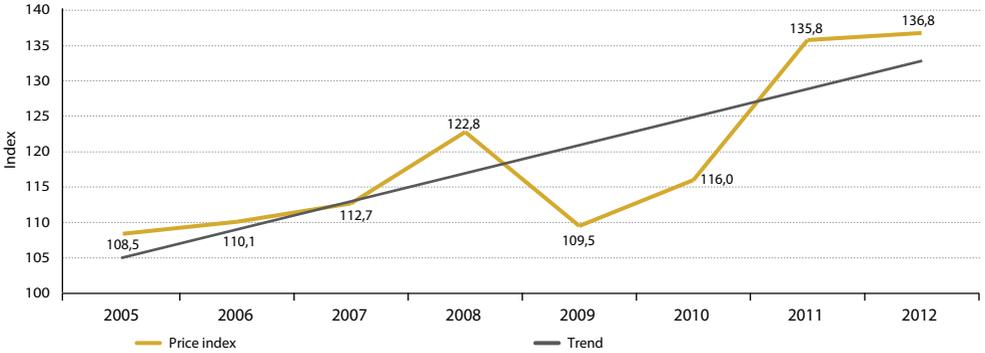


Source: IDEXONLINE, 2013.

Research by Tacy Ltd. and Mumbai-based Pharos Beam indicates that polished diamond supply to retailers increased by 2.2% in 2012, a much lower growth rate than 2011 of 10.3%.

This clearly shows that the pace of growth in the diamond jewellery retail markets has stagnated. Furthermore, the sales from the cutting centres to the jewellery manufacturers were affected by the reverse ripple effect and industry destocking. After a year-on-year increase of 19.4% in 2011, these ex-cutting centre sales declined by 8.4% to US\$20.7 billion in 2012. The pipeline (Figure 20) shows this contraction. Global polished sales dropped to US\$20.7 billion from US\$22.6 billion, and rough declined to US\$15.2 billion from US\$18.3 billion.

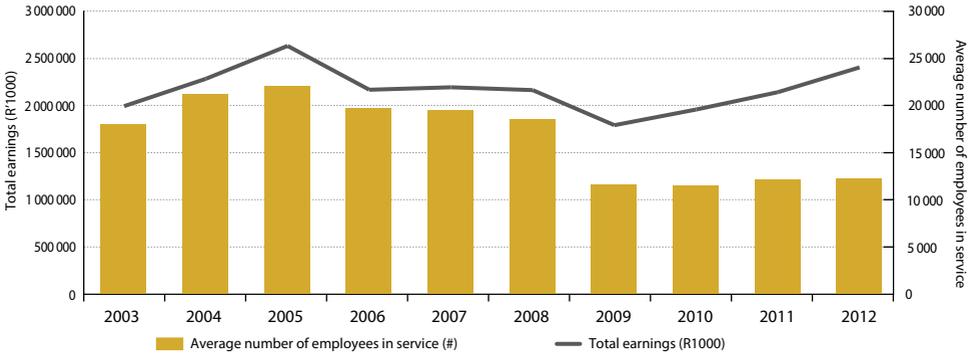
**FIGURE 21:** IDEX Online polished diamond price index (annual average), 2005 – 2012



Source: INDEXONLINE, 2012.

The IDEX Diamond price index estimated diamond prices appreciating slightly by 1% in 2012 to 136.8 (Figure 21).

**FIGURE 22:** Employment and earnings – SA diamond mines



Source: DMR, as at June 2013.

In 2012, the number of people employed in the local diamond mining industry increased by 1% to 12 176, with employees earning R2.4 billion in salaries and wages (Figure 22).

## 11. Gold production: Global totals and SA contribution

In 2012, global gold production increased by 0.8% to 2 860 tonnes. The largest growth was seen on the African continent, with production in two countries rising by 4 tonnes or more. South Africa slipped to 6th position in the world rankings, at 167.2 tonnes, producing an estimated 5.8% of the global total (Table 17). This is 12% lower than its 2011 levels. The 2012 GFMS number for South Africa at 177.8 tonnes is slightly more than the 167.2 tonnes recorded by the Chamber, as the GFMS number includes an estimate for the production of illicit gold from the country.

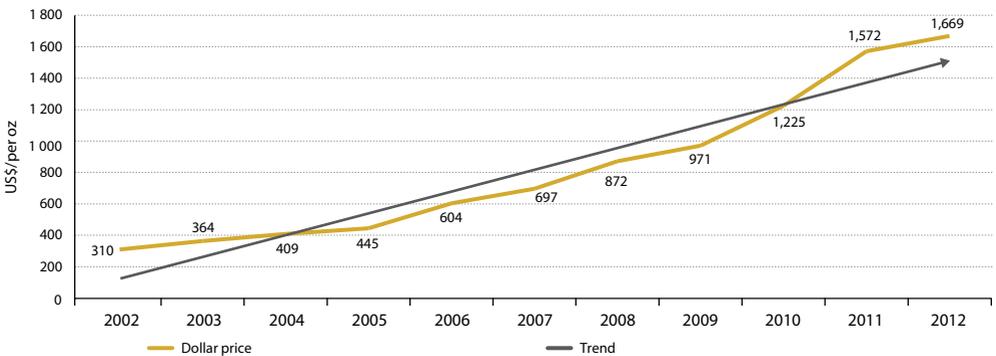
**Table 17: Global gold production**

Year	World gold production (tonnes)	SA gold production (tonnes)	SA percentage of total
2003	2 630.6	375.8	14.3
2004	2 504.0	342.0	13.7
2005	2 560.3	297.3	11.6
2006	2 495.4	275.1	11.0
2007	2 497.8	254.7	10.2
2008	2 429.9	217.6	9.0
2009	2 612.0	204.9	7.8
2010	2 739.0	195.3	7.1
2011	2 838.1	191.0	6.7
2012	2 860.6	167.2	5.8

Source: GFMS Thomson Reuters, Chamber of Mines.

In 2012, the gold price rose to a record US\$1,669 an ounce on the back of increased global uncertainty (Figure 23). The continued fragility of the global economy and debt overhangs in advanced economies, together with vulnerable housing and equity markets, continue to force policy makers in advanced economies to be cautious, which supported gold prices in 2012.

**FIGURE 23: Gold price (annual average), US/ounce**



Source: Stats SA, SARB.

Table 18: SA gold output

Year	Metric tonnes treated (1 000)	Fine gold (kg)	Realised value (R1 000)
2003	77 169.6	375 786.9	32 908 857.7
2004	66 517.2	341 997.9	28 877 446.7
2005	53 817.1	297 311.6	27 214 684.9
2006	52 743.0	275 119.4	36 414 037.7
2007	56 361.5	254 685.4	38 394 267.2
2008	53 639.7	217 648.5	47 660 255.2
2009	48 870.0	204 922.8	51 246 219.0
2010	49 923.9	195 316.2	55 865 874.0
2011	50 968.8	191 013.6	70 352 730.0
2012	43 522.2	167 235.5	73 326 883.0

Source: DMR, as at June 2013.

Note: Date includes non-members of the Chamber – compiled from Government sources of information.

The gold mining sector remained a key contributor to the South African economy in 2012 and accounted for R72 billion in foreign currency earnings or 10% of total merchandise exports (the largest mineral export) and about 2% of GDP (if the multipliers and induced effect are included).

Approximately 6% of production was sold locally at a value of R4.9 billion, whilst the balance of production (94%) was exported at a value of R72 billion.

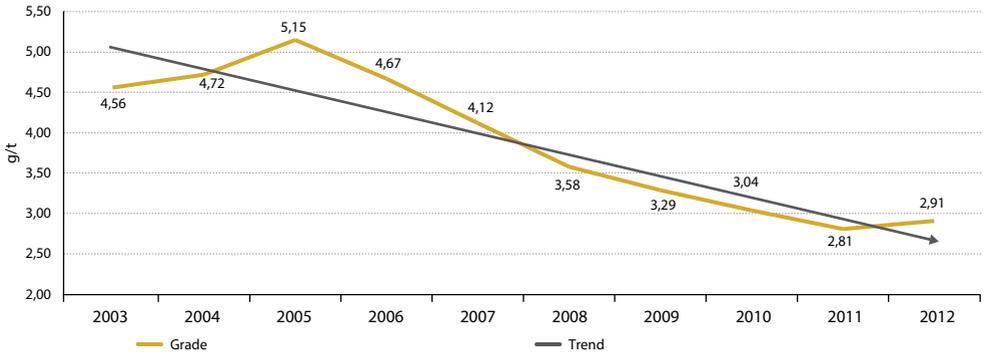
Table 19: Chamber gold production, ore milled and grade/tonne

Year	Ore milled, metric tonnes (1 000)	Production (kg)	Grade (g/m tonne)
2003	68 215	311 257.8	4.56
2004	59 702	282 030.6	4.72
2005	49 609	255 290.4	5.15
2006	50 349	235 042.5	4.67
2007	53 257	219 223.1	4.12
2008	50 999	182 489.8	3.58
2009	65 545	170 298.2	3.29
2010	73 803	160 646.4	3.04
2011	75 569	149 708.1	2.81
2012	66 119	124 252.0	2.91

Source: Chamber of Mines, as at June 2013.

South Africa's grade per tonne has dropped from 5.15 in 2005 to 2.91 in 2012, though slightly higher than its 2011 level of 2.81 (Table 19, 20, Figure 24).

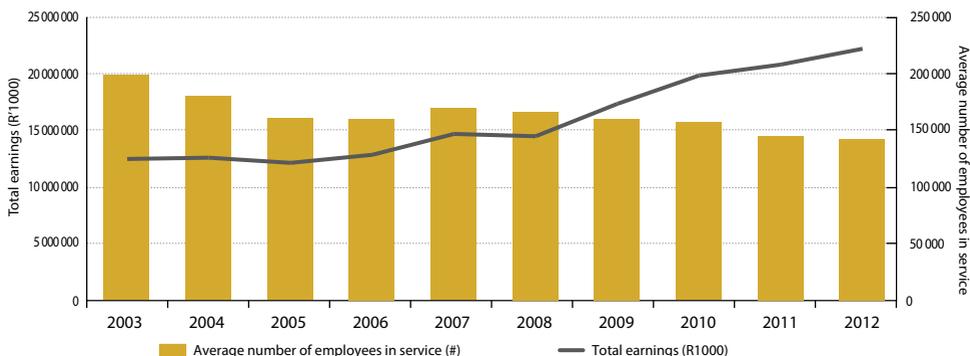
**FIGURE 24: SA gold grades (g/m tonne)**



Source: Chamber of Mines, as at June 2013.

In 2012, the local gold mining industry employed 142 201 people, with employees earning R22.2 billion in salaries and wages (Figure 25).

**FIGURE 25: Employment and earnings – SA gold mines**



Source: DMR, as at June 2013.

### 11.1 Annual gold production and average grade of Chamber member gold producers, 2012

**Table 20: Chamber gold producers**

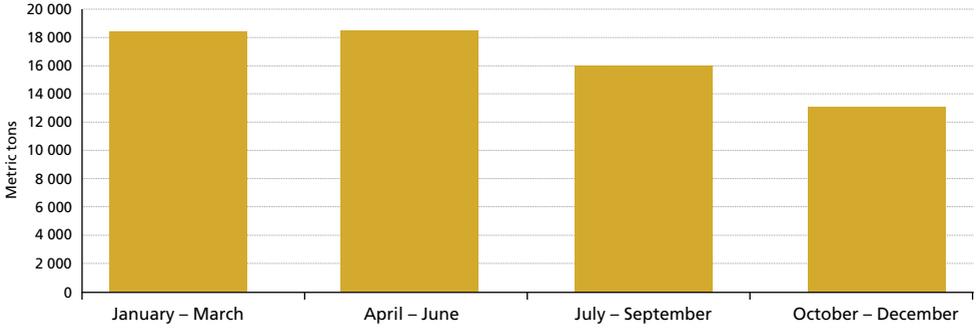
Production of major gold producers				
Quarter	Ore milled, metric tonnes (1 000)	Kilograms, fine gold (total)	Grade (g/tonne) milled	Total fine gold (kg)
January to March	18 422.00	31 728.70	2.79	33 838.30
April to June	18 478.00	35 528.20	3.05	38 097.60
July to September	16 057.40	33 792.95	3.01	37 973.30
October to December	13 162.27	23 202.17	2.74	26 899.60
<b>Totals/average</b>	<b>66 118.67</b>	<b>124 252.02</b>	<b>2.91</b>	<b>136 808.80</b>
Revenue				
Quarter	Operating revenues (R1 000)	Revenue/metric tonne milled (R)		Net sundry revenue and expenditure
January to March	13 291 574.00	721.51	DR	167 888.00
April to June	14 640 733.00	792.33	DR	265 778.00
July to September	14 620 910.00	910.54	DR	273 709.00
October to December	11 828 083.00	898.64	DR	400 351.00
<b>Totals/average</b>	<b>54 381 300.00</b>	<b>822.47</b>	<b>DR</b>	<b>1 107 726.00</b>
Profits				
Quarter	Operating profit/metric tonne milled (R)	Total operating profit (R1 000)		Total profit (R1 000)
January to March	294.60	5 427 044.00		3 122 526.00
April to June	333.28	6 158 275.00		3 816 466.00
July to September	361.48	5 804 393.00		3 377 774.00
October to December	306.17	4 029 886.00		1 820 451.00
<b>Totals/average</b>	<b>323.95</b>	<b>21 419 598.00</b>		<b>12 137 217.00</b>

Source: Chamber of Mines Statistical Unit.

NB: For detailed company working results, go to [www.chamberofmines.org.za](http://www.chamberofmines.org.za)

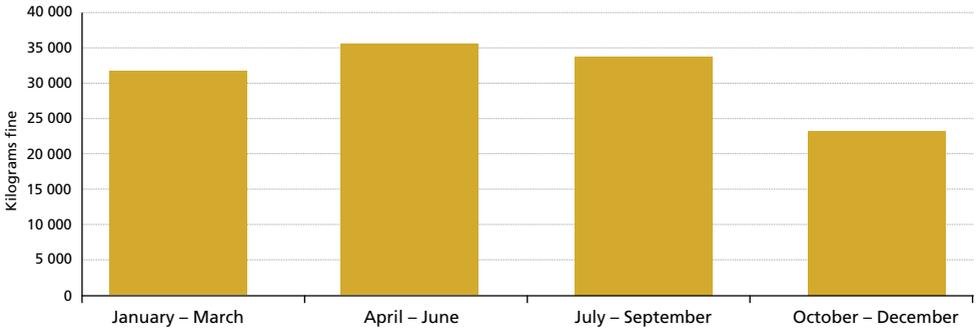
Notes: Operating revenue includes revenue from gold and silver and, in certain cases, revenue from other sources, but excludes revenue from uranium and sulphuric acid. Certain mines have entered into gold hedging transactions, the effect of which is brought into account in gold revenue. Net sundry revenue and expenditure includes interest royalties, payments to Far West Rand Dolomite Water Association, tribute revenue, etc.

**FIGURE 26:** Ore milled, 2012: Chamber member gold mines



Source: Chamber of Mines Statistical Unit.

**FIGURE 27:** Kilograms, fine gold, 2012: Chamber member gold mines



Source: Chamber of Mines Statistical Unit.

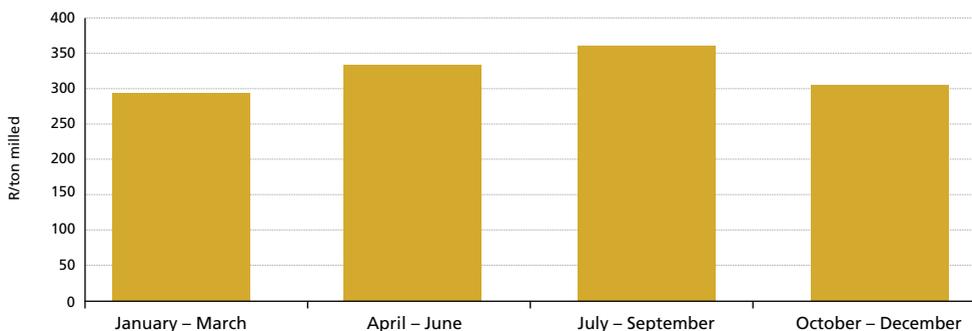
Table 21: Chamber gold producers

Cash operating costs				
Quarter	Total (R1 000)	Costs/metric tonne milled	Costs/kilogram gold (R)	Total other costs
January to March	7 864 530.00	426.91	247 868.02	2 136 630.00
April to June	8 482 458.00	459.06	238 752.82	2 076 031.00
July to September	8 816 517.00	549.06	260 898.12	2 152 910.00
October to December	7 798 197.00	592.47	336 097.68	1 809 084.00
<b>Totals/average</b>	<b>32 961 702.00</b>	<b>498.52</b>	<b>265 281.01</b>	<b>8 174 655.00</b>
Taxation/Capex/Dividends				
Quarter		Tax and State's share of profits (estimated) (R)	Capex (less recoupments) R1 000	Dividends (R)
January to March	CR	38 639.00	2 807 472.00	383 704 145.00
April to June	CR	1 065 682.00	3 417 352.00	384 084 200.00
July to September	CR	511 287.00	3 590 293.00	192 047 861.00
October to December	CR	519 182.00	3 738 169.00	192 073 915.50
<b>Totals/average</b>	<b>DR</b>	<b>2 057 512.00</b>	<b>13 553 286.00</b>	<b>1 151 910 122.00</b>

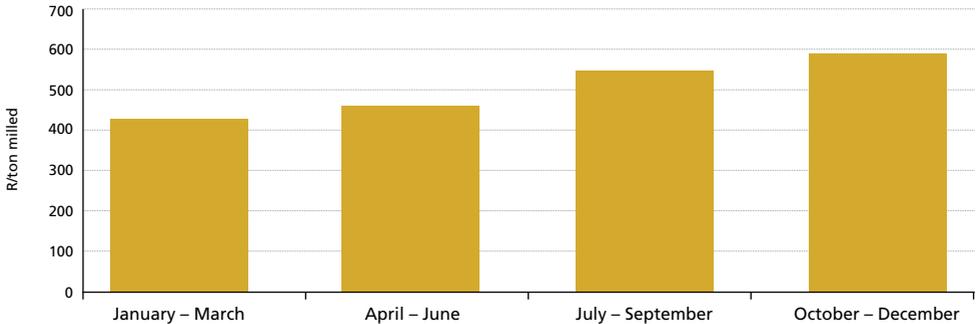
Source: Chamber of Mines Statistical Unit

Notes: In addition, gold production by non-Chamber members has been ascertained to be 30 426.7 kgs. The gold producers above, treated 2 311 925 metric tonnes of material to produce 550 458 kilograms of Uranium Oxide of grade = 0,238 kg/tonne. The financial results are published in accordance with international financial accounting standards. AngloGold Ashanti: Grade calculation excludes remilling and retreatment surface tonnes (= 7 432 618 tonnes) and kilograms gold produced (= 955.7 kg) as from July 2012. Also, AngloGold Ashanti's profit from sales of the by-products uranium and acid/lor pyrite, is offset against cash costs, in accordance with the Gold Institute definition. DRDgold's data above is until 30 June 2012. As Blyvooruitzicht, the underground operation, was sold, DRDgold no longer has underground tonnage and therefore their production is included in "Other" Chamber members section as from July 2012. The grade calculation for January to June 2012 above excludes surface tonnes (= 12 278 705 tonnes) and kilograms gold produced (= 2 387 kg) from second and third time million and treatment OPs. Harmony Free State: Grade calculation excludes surface tonnes (= 5 108 000 tonnes) and kilograms gold produced (= 809 kg) from Phoenix Treatment Ops. The data in this report refers to South African operations only. Retrenchment costs are included net of other costs. Totals may not add due to rounding.

FIGURE 28: Operating profit per tonne milled, 2012: Chamber member gold mines



Source: Chamber of Mines Statistical Unit.

**FIGURE 29: Cash operating costs per tonne milled, 2012: Chamber member gold mines**

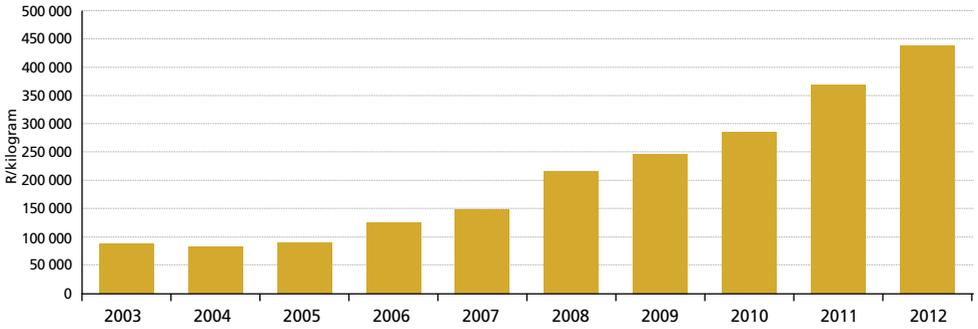
Source: Chamber of Mines Statistical Unit.

**Table 22: Annual average costs and profits: Chamber gold producers**

Year	Operating revenue/metric tonne (R)	Operating revenue/kilogram (R)	Cash operating costs/metric tonne (R)	Cash operating costs/kilogram (R)	Operating profits/metric tonne (R)
2003	405.17	87 522	313.67	67 755	91.50
2004	393.53	83 304	335.16	70 949	58.37
2005	464.29	90 223	376.02	73 070	88.27
2006	588.79	126 126	366.21	78 447	222.58
2007	616.23	149 702	406.09	98 653	210.14
2008	776.36	216 967	449.27	125 557	327.09
2009	644.15	247 927	400.03	153 967	244.12
2010	622.42	285 947	388.93	178 679	233.49
2011	729.84	368 405	405.73	204 800	324.11
2012	822.47	437 670	498.52	265 281	323.95

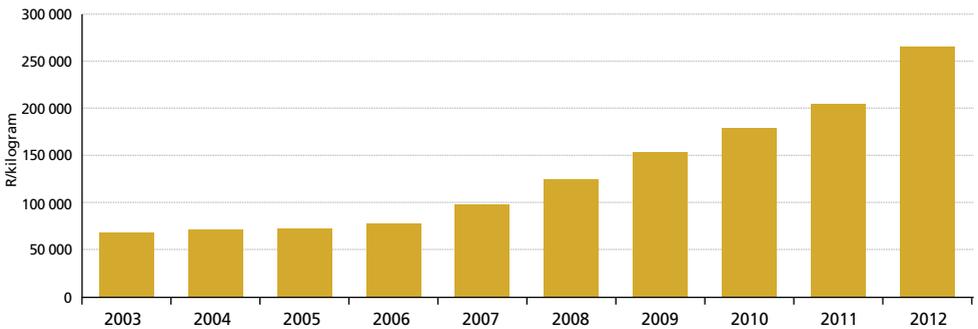
Source: Chamber of Mines Statistical Unit.

**FIGURE 30: Operating revenue/kg (annual), 2012: Chamber member gold mines**



Source: Chamber of Mines Statistical Unit.

**FIGURE 31: Cash operating costs (annual), 2012: Chamber member gold mines**



Source: Chamber of Mines Statistical Unit.

## 12. PGM and platinum production in SA

### 12.1 PGM industry in crisis mode

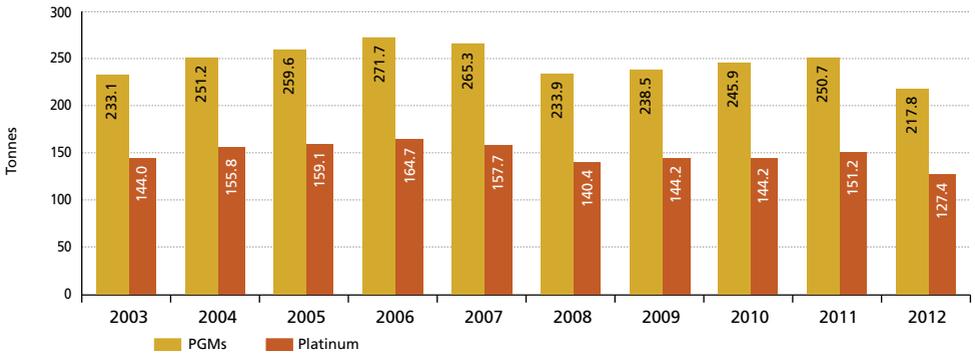
The South African PGM mining sector is one of the largest components of the South African mining sector on the basis of GDP, export earnings and is a significant contributor to the South African economy: In 2012, the PGM mining industry generated R69 billion in sales, was responsible for 23% of the country's mining exports (9% of total merchandise exports); and has significant direct, indirect and induced multipliers into the rest of the economy, and is a significant contributor to the fiscus.

Despite the significant role and contribution of the platinum mining sector to the South African economy, the platinum mining industry is currently in a challenging position. The industry has been hit by the combined impact of slowing global demand, market surpluses and therefore falling prices, rapidly escalating domestic production costs (that have added to the high cost structure of the industry) and the impact of the wildcat strikes that hit the industry in 2012. Weakness in the main PGM market of Europe combined with increased availability of scrap and recycled metal and some substitution of platinum by palladium has exacerbated the weakness in the platinum market. The tarnishing of the reputation of South Africa as a reliable supplier of platinum to global markets has accelerated the move to greater secondary recycling. Based on prices of about US\$1 600 per ounce of platinum and, when combining cash costs and sustaining capital expenditure, approximately 59% of the platinum mining industry is either marginal or loss-making. This is an untenable situation and restructuring and job losses are inevitable.

### 12.2 PGM production and labour

South Africa's PGM production contracted by 13% from 250.7 tonnes to 217.8 tonnes in 2012 (Figure 32). Platinum production also contracted by 16% to 127.4 tonnes.

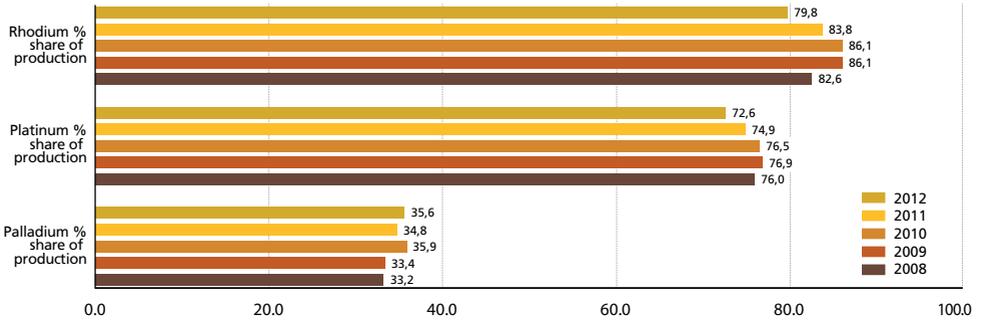
**FIGURE 32: SA production (Platinum, palladium and rhodium)**



Source: Johnson Matthey, Platinum 2013.

In 2012, South Africa accounted for 79.8% of primary global rhodium production, 72.6% of primary platinum production and 35.6% of primary palladium production (Figure 33).

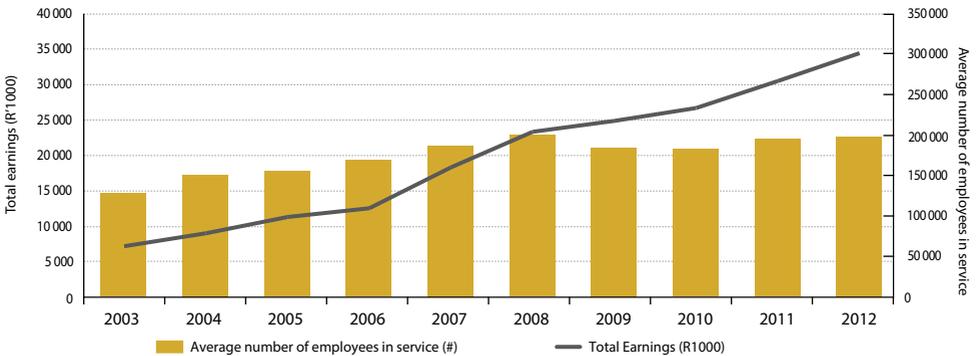
**FIGURE 33: SA share of global PGM production (new ounces)**



Source: Johnson Matthey, Platinum 2013.

The PGM sector employed 197 847 people in 2012, an increase of 2% from 2011, with employees earning R34.4 billion in salaries and wages (Figure 34).

**FIGURE 34: Employment and earnings – SA PGM mines**



Source: DMR, as at June 2013.

### 12.3 Platinum supply and demand, 2003 – 2012

The global platinum market swung into oversupply of approximately 13.9 tonnes in 2011 to an estimated deficit of 11.7 tonnes in 2012. Global supply fell by 13% to 175.4 tonnes – the lowest level in 12 years. The main reason for this change was that platinum shipments from SA fell by 16% to 127.4 tonnes in 2012, due to legal and illegal strike action, safety stoppages and mine closures. Recycling contracted slightly from 64 tonnes in 2011 to 63 tonnes in 2012.

Industrial demand in 2012 contracted by 21% to 49 tonnes, mostly due to a downturn in purchasing by the glass and electrical sectors, whilst investment demand remained steady at 14.2 tonnes (Table 23). The growth in demand for platinum autocatalysts rose slightly in 2012. This was despite a decrease in demand for light vehicle output in Europe, combined with a lower market share for diesel vehicles in the region. This contraction in Europe was offset by the growth in demand for vehicles in Japan, an increase in the production of diesel vehicles from India and Thailand as well as an increase in the production diesel pick-up trucks from North America.

Table 23: Annual platinum demand, by application (metric tonnes)

		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Autocatalyst	gross	101.7	108.6	118.1	121.5	128.9	113.7	68.0	95.6	99.1	100.8
	recycling	(20.1)	(21.5)	(24.0)	(26.8)	(29.1)	(35.1)	(25.8)	(33.7)	(38.6)	(35.1)
Chemical		10.0	10.1	10.1	12.3	13.1	12.4	9.0	13.7	14.6	14.0
Electrical	gross	8.1	9.3	11.2	11.2	7.9	7.1	5.9	7.2	7.2	5.1
	recycling	–	–	0.0	0.0	0.0	(0.2)	(0.3)	(0.3)	(0.3)	(0.3)
Glass		6.5	9.0	11.2	12.6	14.6	9.8	0.3	12.0	16.0	5.6
Investment		0.5	1.4	0.5	(1.2)	5.3	17.3	20.5	20.4	14.3	14.2
Jewellery	gross	78.1	67.2	76.6	68.2	65.6	64.1	87.4	75.3	77.0	86.5
	recycling	–	–	(15.5)	(17.2)	(20.4)	(21.6)	(17.6)	(22.9)	(25.2)	(27.7)
Medical and biomedical		–	–	7.7	7.8	7.2	7.6	7.8	7.2	7.2	7.3
Petroleum		3.7	4.7	5.4	5.6	6.5	7.5	6.5	5.3	6.5	6.2
Other		14.6	14.6	7.0	7.4	8.2	9.0	5.9	9.3	10.0	10.6
<b>Total net demand</b>		<b>203.1</b>	<b>203.4</b>	<b>208.3</b>	<b>201.4</b>	<b>207.8</b>	<b>191.6</b>	<b>167.6</b>	<b>189.1</b>	<b>187.8</b>	<b>187.2</b>
<b>Movements in stocks</b>		<b>(10.3)</b>	<b>(1.6)</b>	<b>(1.8)</b>	<b>11.0</b>	<b>(2.5)</b>	<b>(6.8)</b>	<b>19.8</b>	<b>(0.8)</b>	<b>14.0</b>	<b>(11.7)</b>

Source: Johnson Matthey, Platinum 2013.

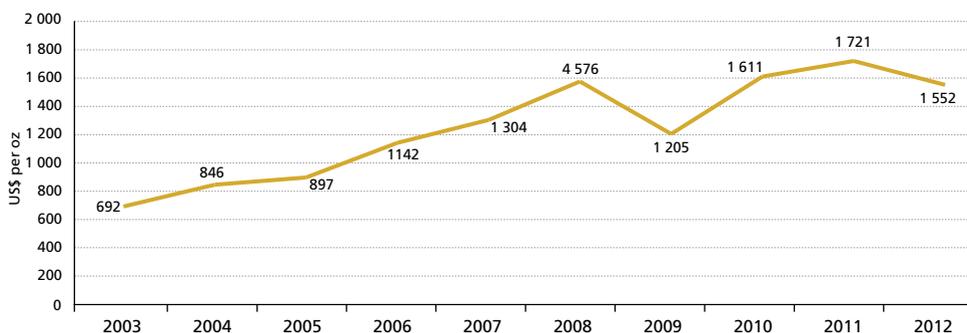
Totals may not add due to rounding.

Before 2005 "Jewellery" and "Electrical" demand is net of recycling.

Before 2005 "Medical and biomedical" was included in "Other".

Jewellery demand (gross) remained strong at 86.5 tonnes, up 12% from its 2011 levels (Table 23), driven by demand from China. The surge of buying by Chinese manufacturers in order to supply the growing number of retail outlets in cities, as well as manufacturers taking advantage of the lower platinum price, pushed up platinum jewellery demand. Furthermore, there was a wider distribution of platinum jewellery in India's retail network.

FIGURE 35: Platinum price (annual average), US/ounce



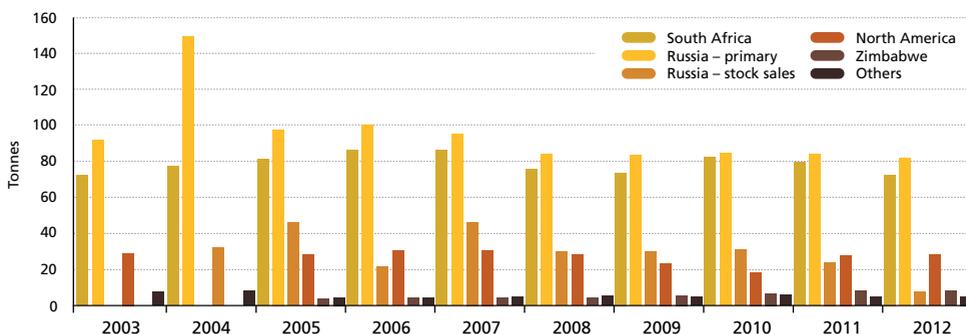
Source: Stats SA, SARB.

The platinum price in 2012 averaged US\$1,552 per ounce, trading about 10% lower than the 2011 average of US\$1,721 per ounce (Figure 35). This is largely due to the slowdown in European demand, and continued concerns on Europe's economic recovery. Platinum reached a high of US\$1,729 in February when Impala Platinum went on strike, then reaching lows of US\$1,390 just before August of the same year.

### 12.4 Palladium supply and demand, 2003 – 2012

The global supply of palladium declined by 11% to 203.5 tonnes in 2012. Russian mine supplies fell by 3% to 81.8 tonnes, whilst sales from State stocks fell by two-thirds to 7.8 tonnes (Figure 36). Palladium, being a platinum by-product, was also affected by the strike action in South Africa. Palladium production from South Africa, contracted by 9% from 79.6 tonnes in 2011 to 72.5 tonnes in 2012.

**FIGURE 36: Annual palladium supply by country**



Source: Johnson Matthey, Platinum 2013.

Gross palladium demand (excluding recycling) increased by 16% to 307.8 tonnes in 2012. Net demand for palladium in the automotive sector, increased by 15 tonnes to 154 tonnes and countered the contraction of palladium demand in the electrical and jewellery sectors (net), which contracted to 24 tonnes and 8 tonnes, respectively (Table 24).

Palladium jewellery demand fell in China for the 5th consecutive year, while it remained relatively unchanged in other markets. Chinese manufacturers and retailers produced palladium jewellery and kept stocks at a minimum, as consumers remained anaemic to the commodity. Furthermore, the recycling of palladium jewellery also contracted to 5.9 tonnes in 2012, from levels of 6.5 tonnes in 2011. Net physical investment demand for palladium reached 14.6 tonnes in 2012, a huge swing from the decline recorded in 2011 (Table 24). This was primarily due to a return to net investment in the ETF market, following heavy profit taking in 2011.

**Table 24: Annual palladium demand, by application (metric tonnes)**

		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Autocatalyst	gross	107.3	117.9	120.2	124.9	141.4	138.9	126.0	173.6	191.4	205.7
	recycling	(12.8)	(16.5)	(19.4)	(25.0)	(31.6)	(35.5)	(30.0)	(40.7)	(52.7)	(51.6)
Chemical		8.2	9.6	12.9	13.7	11.7	10.9	10.1	11.5	13.7	16.5
Dental		25.7	26.4	25.3	19.3	19.6	19.4	19.8	18.5	16.8	16.5
Electrical	gross	28.0	28.6	39.7	46.5	48.2	42.6	42.6	43.9	42.8	37.3
	recycling	0.9	6.2	(9.5)	(9.0)	(9.8)	(10.7)	(12.3)	(13.7)	(14.9)	(13.4)
Investment		8.1	28.9	6.8	1.6	8.1	13.1	19.4	34.1	(17.6)	14.6
Jewellery	gross	3.4	2.8	46.3	35.5	29.5	30.6	24.1	18.5	15.7	13.8
	recycling	181.6	220.5	(1.9)	(4.2)	(7.3)	(4.0)	(2.2)	(3.1)	(6.5)	(5.9)
Other		0.0	0.0	8.2	2.6	2.6	2.3	2.2	2.8	3.4	3.3
<b>Total net demand</b>		<b>350.5</b>	<b>424.6</b>	<b>228.8</b>	<b>205.7</b>	<b>212.4</b>	<b>207.6</b>	<b>199.7</b>	<b>245.3</b>	<b>192.1</b>	<b>236.9</b>
<b>Movements in stocks</b>		<b>31.7</b>	<b>62.8</b>	<b>32.7</b>	<b>40.5</b>	<b>54.4</b>	<b>19.8</b>	<b>21.2</b>	<b>(16.5)</b>	<b>36.9</b>	<b>(33.3)</b>

Source: Johnson Matthey, Platinum 2013.

Totals may not add due to rounding.

Before 2005 sales from Russian state stocks are incorporated in total Russian supply.

Before 2005 "Zimbabwe" supply is incorporated in "Other".

Before 2005 jewellery and electrical demand is net of recycling.

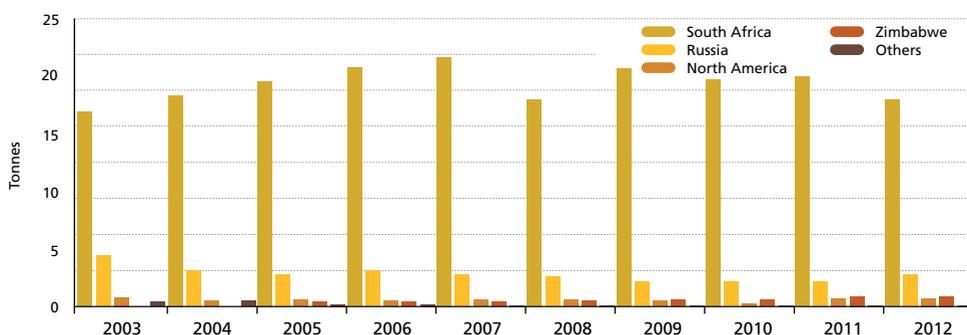
The palladium price in 2012 averaged US\$643 per ounce, trading about 12% lower than the 2011 average of US\$733 per ounce. The palladium price broadly showed the platinum price movements, reaching a high of US\$722 in February, with a low of US\$564 in July before being bolstered by the strike action in South Africa.

## 12.5 Rhodium supply and demand, 2003 – 2012

The supply and demand for rhodium in 2012 came close to balance after earlier years of surpluses. This was due to a reduction in mine supply, principally from South Africa as well as a reduction in the rhodium processing of end-of-life autocatalysts. This fall in supply was countered by increased demand for new autocatalyst manufacture and physical investment.

Total supply contracted by 6% to 22.4 tonnes in 2012. South African rhodium production decreased by 10% to 17.9 tonnes. Rhodium production from Russia increased by 27% to 2.8 tonnes, believed to be due to the processing of stored mine concentrates to supplement the regular newly mined output from Norisk Nickel (Figure 37).

**FIGURE 37: Annual rhodium supply by country**



Source: Johnson Matthey, Platinum 2013.

Gross autocatalyst demand increased by 9% to 24.3 tonnes due to a rebound in Japanese vehicle production after the catastrophic natural disasters in 2011, and the buoyant markets for cars in North America (Table 25).

**Table 25: Annual rhodium demand, by application (metric tonnes)**

		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Autocatalyst	gross	20.5	23.6	25.8	26.8	27.6	23.9	19.3	22.6	22.2	24.3
	recycling	(3.9)	(4.4)	(4.3)	(5.3)	(6.0)	(7.1)	(5.8)	(7.5)	(8.6)	(8.1)
Chemical		1.2	1.3	1.5	1.5	2.0	2.1	1.7	2.1	2.2	2.5
Electrical		0.2	0.2	0.3	0.3	0.1	0.1	0.1	0.1	0.2	0.2
Glass		0.8	1.4	1.8	2.0	1.8	1.1	0.6	2.1	2.4	1.0
Other		0.4	0.4	0.6	0.7	0.7	0.7	0.7	0.7	1.2	2.1
<b>Total net demand</b>		<b>19.3</b>	<b>22.7</b>	<b>25.7</b>	<b>26.1</b>	<b>26.3</b>	<b>20.8</b>	<b>16.5</b>	<b>20.1</b>	<b>19.6</b>	<b>22.0</b>
<b>Movements in stocks</b>		<b>3.2</b>	<b>(0.3)</b>	<b>(2.2)</b>	<b>(1.1)</b>	<b>(0.6)</b>	<b>0.8</b>	<b>7.5</b>	<b>2.7</b>	<b>4.2</b>	<b>0.5</b>

Source: Johnson Matthey, Platinum 2013.

The 74% increase in Other demand to 2.1 tonnes, was largely due to the increased demand for the physically-backed rhodium ETF that was launched by Deutsche Bank in May 2011 (Table 25).

The rhodium price in 2012 averaged US\$1,276 per ounce, trading about 37% lower than the 2011 average of US\$2,022 per ounce. When the Anglo Platinum mines in South Africa went on strike in September 2012, the rhodium price reached a high of US\$1,400 before relapsing.

### 13. Silver: Annual SA output and sales, 1910 – 2012

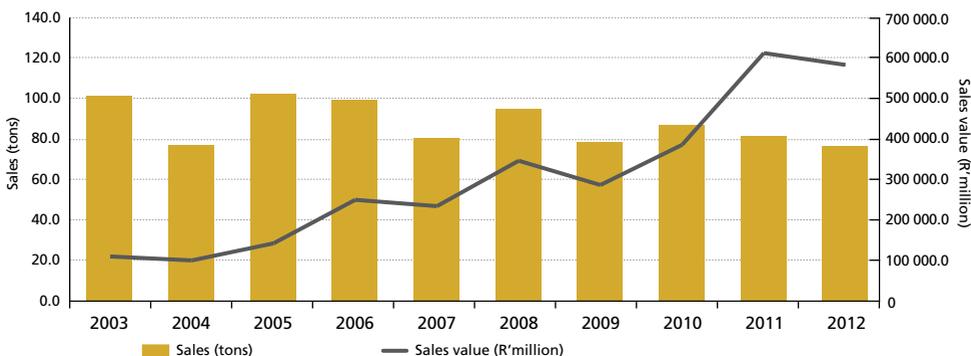
Table 26: Annual SA silver output and sales

Year	Production (kg, fine)	Sales value (R)	Year	Production (kg, fine)	Sales value (R)	Year	Production (kg, fine)	Sales value (R)	Year	Production (kg, fine)	Sales value (R)
1910	25 287	181 580	1936	33 456	194 102	1962	79 289	1 952 200	1988	199 746	79 469 224
1911	27 888	197 014	1937	34 233	198 926	1963	85 126	2 511 941	1989	179 829	69 628 311
1912	31 695	248 748	1938	35 314	199 348	1964	90 718	2 720 349	1990	161 003	57 314 758
1913	29 629	231 644	1939	36 780	217 000	1965	97 403	2 902 564	1991	170 832	38 329 339
1914	27 706	204 942	1940	40 195	259 108	1966	97 480	2 936 887	1992	190 462	55 816 450
1915	30 051	212 490	1941	45 123	313 128	1967	95 286	3 536 449	1993	182 513	67 922 850
1916	30 137	212 622	1942	45 957	312 810	1968	103 794	3 546 137	1994	195 794	78 913 490
1917	29 180	345 994	1943	41 493	282 432	1969	103 718	4 114 099	1995	163 048	68 640 332
1918	27 294	375 216	1944	37 730	256 818	1970	109 701	4 392 365	1996	155 529	83 012 940
1919	27 723	457 608	1945	38 675	315 144	1971	105 071	4 566 873	1997	187 402	102 261 000
1920	27 763	491 742	1946	37 554	489 072	1972	102 443	5 239 165	1998	160 828	122 821 438
1921	25 826	274 882	1947	35 697	436 124	1973	113 591	7 331 163	1999	160 807	153 509 773
1922	34 701	342 854	1948	36 421	439 526	1974	83 940	8 207 660	2000	168 617	169 937 577
1923	42 734	395 776	1949	36 061	475 536	1975	95 923	10 012 472	2001	126 482	141 723 487
1924	43 450	424 940	1950	34 809	604 230	1976	87 736	10 617 725	2002	118 256	168 674 333
1925	36 126	333 796	1951	36 161	754 214	1977	97 364	12 607 089	2003	101 119	111 215 548
1926	30 523	253 160	1952	36 591	728 796	1978	96 559	14 695 091	2004	76 594	101 478 216
1927	31 469	237 062	1953	37 111	735 226	1979	100 664	29 872 517	2005	102 265	143 503 595
1928	32 079	248 128	1954	38 426	756 526	1980	222 188	82 520 689	2006	99 343	250 621 132
1929	32 092	227 006	1955	45 876	958 074	1981	228 834	55 822 121	2007	80 549	235 040 623
1930	32 660	166 828	1956	49 712	1 054 066	1982	242 748	53 171 269	2008	94 830	346 844 987
1931	33 065	139 520	1957	54 975	1 135 762	1983	201 752	71 139 799	2009	78 198	287 103 382
1932	34 857	131 678	1958	55 843	1 163 186	1984	217 068	66 186 353	2010	86 735	386 078 880
1933	33 126	173 708	1959	62 853	1 325 562	1985	208 384	75 010 169	2011	81 221	611 933 219
1934	31 172	191 374	1960	69 243	1 471 882	1986	222 241	73 975 331	2012	76 413	582 823 745
1935	32 416	271 806	1961	71 173	1 576 355	1987	208 150	74 187 998			

Source: DMR, as at June 2013.

From 1981 the figures represent sales of silver.

FIGURE 38: Silver sales (tonnes and value)



Source: DMR, as at June 2013.

## 14. Uranium output of Chamber members and total annual SA production, 1970 – 2012

**Table 27: Uranium output and production**

Year	Metric tonnes treated (1 000)	Total uranium oxide produced (kg)	Grade (kg per tonne treated)	Total SA uranium production
1970	13 976	3 736 819	0.267	3 737
1971	14 253	3 800 007	0.267	3 800
1972	14 609	3 629 265	0.248	3 778
1973	12 828	3 093 982	0.241	3 230
1974	14 654	3 074 418	0.210	3 177
1975	14 873	2 809 490	0.189	2 902
1976	17 267	3 111 366	0.180	3 288
1977	19 855	*3 873 795	0.179	3 972
1978	21 976	*4 531 157	0.171	4 687
1979	26 096	*5 539 081	0.168	5 637
1980	30 841	*6 086 442	0.166	7 295
1981	31 362	*6 030 171	0.157	7 234
1982	30 415	*5 733 188	0.160	6 863
1983	32 010	*6 138 282	0.169	7 128
1984	29 490	*5 896 062	0.180	6 762
1985	25 856	*5 114 008	0.175	5 751
1986	24 836	*4 799 301	0.172	5 460
1987	21 805	*3 920 002	0.159	4 735
1988	20 174	*3 783 364	0.163	4 583
1989	15 326	*3 185 428	0.179	3 456
1990	14 213	*2 697 125	0.178	2 913
1991	10 145	1 885 257	0.186	2 034
1992	9 768	1 854 946	0.190	1 971
1993	9 675	1 912 921	0.198	2 008
1994	9 250	1 818 717	0.197	1 906
1995	8 345	1 554 210	0.186	1 701
1996	8 661	1 594 506	0.184	1 706
1997	6 536	1 198 742	0.183	1 324
1998	4 810	1 061 492	0.221	1 138
1999	4 021	997 297	0.248	1 093
2000	3 098	894 109	0.289	1 015
2001	2 824	1 024 838	0.363	1 065
2002	2 789	979 865	0.351	998
2003	2 836	915 861	0.323	894
2004	2 799	880 943	0.315	887
2005	2 638	793 943	0.301	795
2006	2 705	630 103	0.233	639
2007	2 462	557 525	0.226	619
2008	2 502	582 001	0.233	654
2009	2 471	654 086	0.265	629
2010	2 437	691 359	0.284	682
2011	2 174	626 117	0.288	656
2012	2 312	550 458	0.238	551
<b>Total</b>	<b>775 199</b>	<b>177 615 141</b>	<b>0.217</b>	<b>189 797</b>

\* Includes production from Free State Cons gold mines metallurgical scheme. These figures are excluded from the grade calculation.

\*\* Total production includes non-members of the Chamber.

## Cumulative uranium output, from start of operations to December 2012 – Chamber Members

Table 28: Uranium output – Chamber members

Name of company	Note	Date commenced production	Cumulative metric tonnes treated (1 000)	Cumulative uranium produced (kg)	Grade (kg per tonne treated)
Anglogold Ashanti	(i)	May 1956	211 376	49 610 735	0.235
Blyvooruitzicht		April 1953	37 947	6 551 267	0.173
Buffelsfontein (Buffels)		July 1957	83 820	18 237 778	0.218
Daggafontein		April 1953	11 183	2 160 591	0.193
Dominion Reefs		June 1955	3 578	1 822 873	0.510
Doornfontein		October 1956	1 835	266 238	0.145
Driefontein Cons (West Driefontein)		October 1956	20 529	3 915 762	0.191
East Champ d'Or		February 1954	1 371	552 993	0.396
Ellatonne		October 1954	2 153	329 585	0.153
Freddies Cons	(g)	February 1955	4 555	580 667	0.127
Free State Saaiplaas	(h)	February 1955	350	45 545	0.130
Harmony	(a)	July 1955	103 261	12 490 823	0.121
Hartebeestfontein		November 1956	103 426	16 456 207	0.159
Lorraine		November 1956	2 807	330 969	0.118
Luipaardsvlei		January 1955	4 518	3 518 258	0.779
Merriespruit	(b), (c)	March 1956	518	14 249	0.028
President Brand	(h)	February 1955	4 521	566 693	0.125
President Steyn	(h)	February 1955	5 566	736 015	0.132
Randfontein		February 1954	45 248	12 060 225	0.266
St. Helena (Beisa section)		January 1982	2 298	1 061 698	0.462
Stilfontein		October 1953	7 328	987 707	0.135
Virginia	(c)	September 1955	22 067	5 279 693	0.239
Vogelstruisbult		April 1955	3 480	844 797	0.242
Welkom	(h)	May 1957	3 453	491 898	0.142
West Rand Cons	(d)	September 1952	22 332	13 035 712	0.584
Western Areas		January 1982	9 408	4 037 235	0.429
Western Deep Levels		February 1970	17 136	2 553 326	0.149
Western Reefs	(e)	October 1953	34 933	8 475 181	0.243
Zandpan	(f)	March 1966	4 205	1 419 095	0.337
Free State Cons joint metallurgical scheme		1977	–	8 583 087	–
Miscellaneous producers – Chamber members		1978	–	598 240	–

Source: Chamber of Mines.

## Notes:

- Consolidated operations of the company and its wholly-owned subsidiaries.
- Ceased production in October 1956, due to flooding and subsequently became a wholly-owned subsidiary of Harmony.
- Became a wholly-owned subsidiary of Harmony.
- Ceased uranium production at the end of 1974 – resumed production 1976 and ceased uranium production in 1981.
- Includes Joint Production Scheme with Vaal Reefs. As from 20 September 1971, merged with Vaal Reefs.
- As from 1 July 1972, merged with Hartebeestfontein.
- As from 1977, merged with Free State Geduld – see note (h).
- These mines together with Free State Geduld; Free State Saaiplaas; and Western Holdings – as from 1977, are participants in the Anglo American OFS joint metallurgical production scheme, which has merged with Free State Cons (South Region).
- As from 1999, Vaal Reefs renamed Vaal River operations and reports under the name Anglogold.



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