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# South African mining industry snapshot

## THE SOUTH AFRICAN MINING SECTOR IN 2010:

### Contribution to Investment and GDP

In 2010, the mining sector accounted for 8.6% 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 19%. In that same year, mining GDP grew by 5.8%, but this was insufficient to overcome the declined 5.6% and 4.2% in 2008 and 2009 respectively. Real mining GDP of R100.6-billion in 2010 was still smaller than peak mining GDP of R105.4-billion achieved in 2007 just prior to the global financial crisis.

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, falling to a 7.2% growth rate in 2009 and a 4.7% decline in 2010. 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 20% of private sector investment and 12.1% of total investment in the economy in 2010. The mining sector continued to be a key component of the Johannesburg Securities Exchange (JSE) and accounted for 43% or R1.9-trillion of the value of the JSE at the end of 2010.

Total 2010 mining production grew by 5.4% with platinum group metal (pgm) production up 5.9%, coal production up by 1.6%, iron ore production increased 6.1%, manganese production grew by 56.6% and diamond production improved 45.1% albeit off a low base in 2009. Gold production fell by 4.5%, a much slower rate of decline versus the 7.1% decline in production recorded in 2009.

### SA Mineral Sales and Exports

South African mineral sales rose by 24.9% to R302.2-billion in 2010. This means that the value of mineral sales in nominal terms is just back to the record sales recorded in 2008 prior to the global crisis.

The improvement in mineral sales in 2010 was driven by the 27.7% increase in the value of pgm sales to R73.8-billion, the 11.8% improvement in coal sales to R73.2-billion, the 9% rise in gold sales to R53.1-billion, the 60% rise in iron ore sales to R43.4-billion, the 90.8% rise in manganese sales to R10.7-billion and the 81.2% increase in chrome ore sales to R6.6-billion. The top five minerals accounted for 84.1% of South Africa's total mineral sales in 2010.

Total primary mineral sales exports increased by 26.8% to a total of R224.2-billion in 2010. This accounted for 35.9% of South Africa's total merchandise exports. If secondary beneficiated minerals are added to primary exports, such as pgm catalytic converters, ferro-alloys, steel, chemicals, and plastics, then the minerals complex accounted for about 50% of South Africa's total merchandise exports.

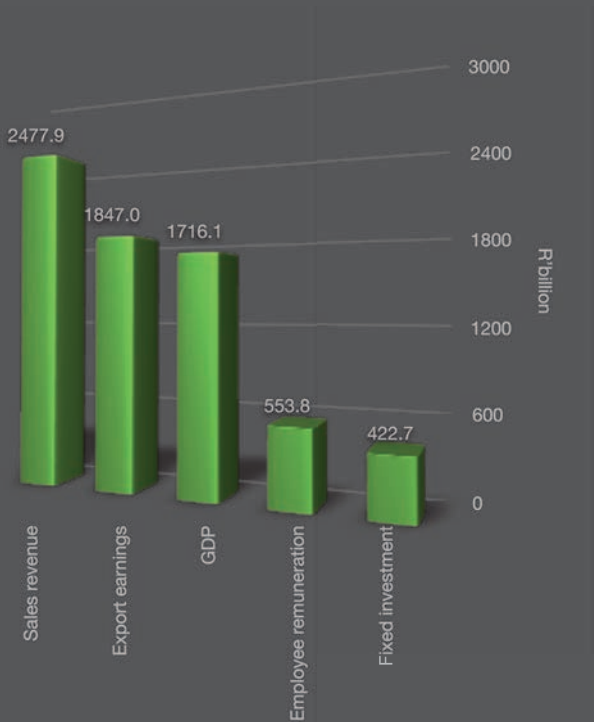
# South African mining industry overview 2010

## Income and expenditure of the South African Mining Industry

The South African mining industry's total income in 2010 was R424-billion while expenditure was R441-billion. R228.4-billion was spent on purchases and operating costs such as timber, steel, explosives, electricity, transport and uniforms. R78.4-billion was paid on salaries and wages for mine employees, R49-billion on capex, R17.1-billion in tax, R16.2-billion in dividends, R38-billion on depreciation and impairments and R13-billion on interest to the banks. Estimates by the Chamber suggest that only about R34-billion or 8% of the total expenditure is moved offshore. That means that 92% of the value of local mining expenditures are effectively captured in South Africa resulting in the creation of thousands of jobs and significant multiplier effects into the rest of the economy.

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

## The contribution of mining to SA over the past decade expressed in 2010 real rand terms



# Industry overview 2010

chemicals, fertilisers, waxes, polymers and plastics are fabricated using locally mined minerals and coal and 20% of the world's platinum catalytic converters are made in South Africa. The Chamber estimates that another R200-billion in sales value and 150 000 jobs can be attributed to the local downstream beneficiation sectors. All South Africa's gold and pgms are refined locally and more than 50% of diamonds by value are sold locally into the downstream diamond cutting and polishing industry.

Commodity	Local sales R1 000	Total sales R1 000	Total exports R1 000	% Exports Total sales
<b>Precious metals</b>				
Gold	2 055 698	53 093 147	51 037 449	96.1
PGMs	7 892 570	73 786 910	65 894 341	89.3
Silver	35 639	386 079	350 440	90.8
<b>Sub total</b>	<b>9 983 906</b>	<b>127 266 136</b>	<b>117 282 230</b>	
<b>Base minerals</b>				
Chrome	4 159 308	6 618 781	2 459 473	37.2
Copper (content)	3 160 029	4 369 326	1 209 297	27.7
Iron ore	3 270 326	43 418 606	40 148 279	92.5
Lead concentrate	0	696 738	696 738	100.0
Manganese	1 320 564	10 660 590	9 340 026	87.6
Nickel	1 073 291	5 984 753	4 911 462	82.1
Other metallic	295 931	474 748	178 817	37.7
Coal	36 455 545	73 202 529	36 746 983	50.2
Feldspar	56 204	56 204	0	0.0
Limestone & lime	2 263 991	2 277 270	13 279	0.6
Other non-metal	8 083 319	8 440 893	357 574	4.2
Miscellaneous*	7 826 648	18 707 970	10 881 322	58.2
<b>Sub total</b>	<b>67 965 157</b>	<b>174 908 407</b>	<b>106 943 250</b>	<b>61.1</b>
<b>Grand total</b>	<b>77 949 063</b>	<b>302 174 543</b>	<b>224 225 480</b>	

## NOTES:

\* Includes strategic and minor commodities otherwise not enumerated  
Commodity Summary as at 31/5/2011.

Source: Minerals Bureau, DMR

Totals might not add due to rounding.

# Exploration: global expenditures by region

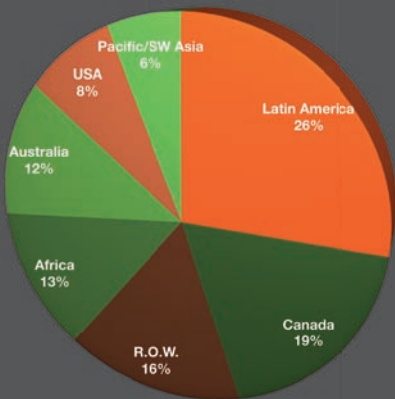
## GLOBAL EXPLORATION EXPENDITURE

**G**lobal exploration expenditures recovered sharply in 2010 after the global financial crisis induced slowdown in 2008/2009. According to the Metals Economics Group (MEG), global non-ferrous metals exploration budgets grew by 44.9% in 2010 to US\$12.1-billion, when compared to US\$8.4-billion spent in 2009. Grassroots exploration remained weak as the established mining companies concentrated on late stage and mine-site spending away from the more risky grassroots spending. Grassroots exploration spending was about 32% of the total spend compared to the recent high of 50% in 2001. Nevertheless, exploration expenditure by junior resource companies picked up in 2010 and accounted for 42% of the exploration spend versus about 38% for the major mining companies.

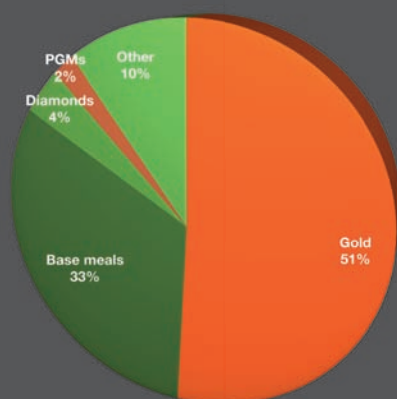
According to MEG, Latin America again attracted the majority of exploration spending with 26% of the total, followed by Canada with 19%, Africa with 13% and Australia with 12%. South Africa, despite having the world's largest in situ value of mineral deposits, only accounted for about 1.4% of total global exploration expenditure. While South Africa accounted for 34% of Africa's exploration expenditure in 2003, this had dropped to 12% by 2010. This coincides with the country's decline in the Fraser Institute's rankings of the attractiveness of a country's mineral policies to exploration managers. In 2005/06, South Africa was ranked 53 out of 65 countries, but had slipped down the rankings to 67 out of 79 mining jurisdictions in 2010/11. Policy uncertainty and government changing the rules are considered to be key reasons for South Africa's fall in the global rankings and why the country is attracting an every-decreasing share of the African and global exploration spends.

According to MEG, gold accounted for 51% of exploration expenditures followed by base metals at 33%, diamonds at 4% and pgms at 2%.

**Worldwide exploration expenditure by region, 2010 (MEG)**



**Worldwide nonferrous exploration budgets by target, 2010 (MEG)**



# Key mineral industry statistics for SA

Description	Units of measure	2001	2002
<b>GROSS DOMESTIC PRODUCT</b>			
Direct contribution of mining to GDP	R'millions nominal terms	77 214	92 730
Direct contribution of mining to GDP	R'millions constant 2005 prices	99 019	99 960
Direct contribution of mining to GDP	R'millions 2010 money terms	131 674	143 638
Mining GDP growth rate	% YoY	-0.1	1.0
Direct contribution of mining to GDP	US\$ equivalent	8 975	8 818
South African GDP	R'millions nominal terms	1 020 007	1 171 086
South African GDP	R'millions constant 2005 prices	1 337 382	1 386 435
Mining's contribution as % of total GDP nominal terms	%	7.6	7.9
Mining's contribution as % of total GDP real terms	%	7.4	7.2
<b>FIXED INVESTMENT</b>			
Direct contribution of mining to fixed investment (GFCF)	R'millions nominal terms	15 871	19 802
Direct contribution of mining to fixed investment (GFCF)	R'millions constant 2005 prices	19 684	22 354
Direct contribution of mining to fixed investment (GFCF)	R'millions 2010 money terms	27 065	30 673
Total private sector fixed investment (private GFCF)	R'millions nominal terms	113 039	126 122
Total SA fixed investment (GFCF)	R'millions nominal terms	151 008	172 151
Mining fixed investment growth rate	% YoY	8	14
Direct contribution to fixed investment (GFCF)	US\$ equivalent	1 845	1 883
Mining's contribution to private sector fixed investment (GFCF)	%	14.0	15.7
Minings contribution as % of total investment	%	10.5	11.5
<b>SALES AND EXPORTS</b>			
Total primary mineral sales	R'millions nominal terms	115 853	139 452
Total primary mineral sales	US\$ equivalent	13 466	13 260
Total primary mineral sales	R'millions 2010 money terms	197 567	216 010
Mining industry primary exports	R'millions nominal terms	90 833	109 363
Mining industry primary exports	US\$ equivalent	10 558	10 399
Mining industry primary exports	R'millions 2010 money terms	154 899	169 402
Total SA merchandise exports	R'millions nominal terms	265 832	333 251
Total SA exports (goods and services)	R'millions nominal terms	328 428	408 271
Primary mineral exports as % of total SA merchandise exports	%	34.2	32.8
Primary mineral exports as % of total SA exports	%	27.7	26.8
Mining export earnings per unit of GDP created	ratio	1.2	1.2
<b>EMPLOYMENT</b>			
Mining industry direct employment	numbers	406 994	415 988
Total private non-agricultural employment	numbers	3 075 838	4 026 325
Total SA formal non-agricultural employment	numbers	4 658 411	5 576 838
Mining as % of total private non-agricultural employment	%	13.2	10.3
Mining as % of total non-agricultural formal employment	%	8.7	7.5
Remuneration paid to employees in mining	R'millions current	24 369	26 228
Remuneration paid to employees in mining	R'millions 2010 money terms	41 556	40 627
Average annual remuneration per mineworker	Rand	59874	63051
<b>EXCHANGE RATES</b>			
Rand per US\$ exchange rate	R/US\$	8.60	10.52
Rand per Euro	R/Euro	7.71	9.90
Rand real effective exchange rate	Rand index	91.39	82.55
<b>COMMODITY PRICES</b>			
Gold price	Rand per kg	75 174	104 242
Gold price	US\$/oz	271	310
Platinum price	Rand per kg	146 325	182 476
Platinum price	US\$/oz	529	540
Palladium price	Rand per kg	166 857	114 022
Palladium price	US\$/oz	603	337
Rhodium price	Rand per kg	443 630	283 356
Rhodium price	US\$/oz	1 604	838
PGM production weighted average basket price	Rand per 3E kg produced	173 093	168 613
PGM production weighted average basket price	Rand/3E kg 2010 real money terms	295 178	261 179
PGM production weighted average basket price	US\$ per 3E oz produced	625.80	498.69
Coal price - average for local sales (received price)	R/ton (FOB)	63	75
Coal price - average for export sales (received price)	R/ton (FOB)	246	269

Sources: Chamber of Mines, SARB, StatsSA, DMR, SACR, Johnson Matthey Platinum Reports.

Prep: Chamber of Mines Economics Advisory Unit

2003	2004	2005	2006	2007	2008	2009	2010	10 yr total/ average
85 770	91 198	105 992	132 301	156 970	201 381	198 180	230 402	1 372 138
103 355	104 915	105 992	105 364	105 336	99 398	95 185	100 659	1 019 183
125 488	131 830	148 346	176 994	195 930	225 312	206 453	230 402	1 716 067
3.4	1.5	1.0	-0.6	-0.0	-5.3	-10.2	-4.5	-1.4
11 338	14 139	16 661	19 550	22 251	24 405	23 489	31 466	181 093
1 272 537	1 415 273	1 571 082	1 767 422	2 016 166	2 274 139	2 395 969	2 664 269	17 567 950
1 427 322	1 492 330	1 571 082	1 659 121	1 751 499	1 814 134	1 783 617	1 834 435	16 057 357
6.7	6.4	6.7	7.5	7.8	8.9	8.3	8.6	7.8
7.2	7.0	6.7	6.4	6.0	5.5	5.3	5.5	6.3
21 706	17 917	16 743	27 715	40 206	58 645	64 940	63 298	346 843
23 461	18 950	16 743	24 904	32 705	41 690	44 677	42 569	287 737
31 758	25 900	23 433	37 078	50 185	65 614	67 651	63 298	422 654
142 386	165 866	196 267	236 118	281 869	343 399	326 567	317 136	2 248 769
196 999	226 180	263 754	324 083	406 257	524 678	531 957	521 613	3 318 680
5	-19	-12	49	31	27	7	-5	11
2 869	2 778	2 632	4 095	5 699	7 107	7 697	8 545	45 250
15.2	10.8	8.5	11.7	14.3	17.1	19.9	20.0	15.4
11.0	7.9	6.3	8.6	9.9	11.2	12.2	12.1	10.5
117 759	125 307	143 448	194 358	224 325	302 633	241 345	380 124	1 984 605
15 567	19 428	22 548	28 721	31 799	36 675	28 605	51 914	261 984
172 291	181 135	200 769	260 015	280 003	338 596	251 420	380 124	2 477 930
86 910	89 673	102 487	138 879	162 203	221 926	176 390	302 175	1 480 838
11 489	13 903	16 110	20 522	22 993	26 895	20 906	41 268	195 044
127 157	129 626	143 440	185 794	202 462	248 298	183 753	302 175	1 847 005
291 434	310 525	358 361	447 690	537 516	704 293	556 432	625 359	4 430 693
376 158	394 923	459 719	571 540	683 074	857 898	691 267	761 820	5 533 098
29.8	28.9	28.6	31.0	30.2	31.5	31.7	48.3	33.4
23.1	22.7	22.3	24.3	23.7	25.9	25.5	39.7	26.8
1.0	1.0	1.0	1.0	1.0	1.1	0.9	1.3	1.1
435 628	448 909	444 132	456 337	495 150	518 729	491 794	498 141	4 611 802
4 852 159	5 095 234	5 506 592	6 235 818	6 575 501	6 644 060	6 335 542	6 235 318	54 582 888
6 395 847	6 660 960	7 110 705	7 910 778	8 322 650	8 469 409	8 218 498	8 156 354	71 481 052
9.0	8.8	8.1	7.3	7.5	7.8	7.8	8.0	8.4
6.8	6.7	6.2	5.8	5.9	6.1	6.0	6.1	6.5
30 827	33 656	36 683	39 448	50 073	60 886	66 092	74 226	442 488
45 103	48 651	51 341	52 774	62 501	68 122	68 851	74 226	553 752
70765	74973	82595	86445	101127	117376	134389	149006	939600
7.56	6.45	6.36	6.77	7.05	8.25	8.44	7.32	7.73
8.53	8.01	7.91	8.52	9.66	12.05	11.70	9.71	9.37
103.23	110.13	112.50	108.87	105.05	94.09	101.43	113.89	102.31
88 092	84 785	90 822	131 323	157 241	229 417	260 644	286 402	1 508 142
364	409	445	604	697	872	971	1 225	617
168 268	175 382	183 488	248 431	295 684	418 164	326 977	379 170	252 437
692	846	897	1 142	1 304	1 576	1 205	1 611	1 034
48 791	47 701	41 211	69 703	80 481	93 359	71 531	123 926	85 758
201	230	201	320	355	352	264	526	339
128 967	203 580	420 597	990 292	1 404 040	1 741 395	431 741	578 594	662 619
530	982	2 056	4 552	6 191	6 564	1 592	2 458	2 737
128 427	138 228	156 896	248 214	316 359	414 208	257 083	311 770	231 289
187 899	199 813	219 591	332 065	394 881	463 430	267 815	311 770	2 933 620
528.05	666.58	767.02	1140.85	1394.86	1561.29	947.74	1324.36	945.52
78	76	86	92	108	153	187	194	111
189	213	296	314	361	737	512	553	369

# SA's role in world mineral resources, production and exports, 2009 (latest available data)

Mineral Commodity	Resource base			Production			Exports			Locality of major reserves		
	Mass	%	Rank	Mass	%	Rank	Mass	%	Rank			
Aluminium	n/a	n/a	n/a	1 025kt	n/a	n/a	538kt	3.1	7	n/a	n/a	n/a
Alumino - Silicates (Ore)	51Mt	n/a	n/a	265kt	60.2	1	109kt	n/a	n/a	n/a	n/a	n/a
Antimony (Metal)	350kt	16.7	3	3 000t	1.6	3	n/a	n/a	n/a	China	Thailand	Russia
Chrome Ore	5 500Mt	72.4	1	6 762kt	n/a	n/a	1 035kt	n/a	n/a	South Africa	Zimbabwe	Kazakhstan
Coal	30 408Mt	7.4	6	250.6Mt	3.6	7	60.5Mt	6.4	5	USA	China	India
Copper	13Mt	2.4	14	89kt	n/a	n/a	27kt	n/a	n/a	Chile	Peru	USA
Ferro-Chromium	n/a	n/a	n/a	2 346kt	39.2	1	2 621kt	56.5	1	n/a	n/a	n/a
Ferro-Mn/Fe-Si-Mn	n/a	n/a	n/a	392kt	n/a	n/a	411kt	n/a	n/a	n/a	n/a	n/a
Ferro-silicon	n/a	n/a	n/a	148.9kt	2.9	6	82kt	2.1	1	n/a	n/a	n/a
Fluorspar (Contained CaF )	80Mt	17.0	2	180kt	3.5	5	n/a	n/a	n/a	n/a	n/a	n/a
Gold (Metal)	6 000t	12.7	1	197t	7.8	5	180t	n/a	n/a	South Africa	Australia	Russia
Iron Ore	1 500Mt	0.8	13	55.4Mt	3.5	6	44.6Mt	4.7	5	CIS	Australia	China
Lead (Metal)	3 000kt	2.1	6	49kt	1.2	10	47kt	1.9	14	Australia	China	USA
Manganese (Metal)	4 000Mt	80.0	1	4 576kt	17.1	2	3 978kt	26.6	2	CIS	South Africa	Australia
Nickel	3 700kt	5.2	8	34.6kt	2.4	12	27.3kt	n/a	n/a	Australia	New Caledonia	Russia
Platinum Group Metals	70 000t	87.7	1	271t	58.7	1	251t	n/a	n/a	South Africa	Russia	USA
Phosphate Rock (Contained Concentrates)	2 500Mt	5.3	4	2 237kt	1.4	11	0kt	n/a	n/a	n/a	n/a	n/a
Silicon (Metal)	n/a	n/a	n/a	38.6kt	2.8	6	38.4kt	3.5	6	n/a	n/a	n/a
Silver (Metal)	n/a	n/a	n/a	77.8t	0.4	20	70t	n/a	n/a	Poland	China	USA
Titanium minerals (Metals)	71Mt	9.8	2	1 100kt	19.2	2	n/a	n/a	n/a	China	Australia	India
Uranium (Metal, up to \$US 80/kg U )	435ct	8.0	4	623t	1.3	10	n/a	n/a	n/a	Australia	Kazakhstan	Russian Federation
Vanadium (Metal)	12Mt	32.0	2	11.6kt	25.4	1	11.9kt	n/a	n/a	China	Russia	South Africa
Vermiculite	80Mt	40.0	2	194.3kt	35.0	1	164.6kt	n/a	n/a	n/a	n/a	n/a
Zinc (Metal)	15Mt	3.3	8	29kt	0.2	25	5kt	0.1	24	China	Peru	Australia
Zirconium Minerals (Metals)	14Mt	25.0	2	395kt	32.0	2	n/a	n/a	n/a	Australia	South Africa	Ukraine

Source: DMR

Figures under resource base refer to metal production capacity, an equivalent of SAMREC's reserves

n/a = not available

# Provincial overview (latest available data)

	EC	FS	GP	KZN	LP	MP	NW	NC	WC
Capital	Bisho	Bloem	Jhb	Ulundi & Polokwane PMB		Nelspruit	Mafikeng	Kimberley	Cape Town
Total area (000km2)	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-2010 ('000)	6 744	2 825	11 192	10 645	5 440	3 618	3 201	1 104	5 224
% Urban	1	9	33	17	2	5	5	3	16
% Rural	21	3	2	27	24	11	9	2	2
% of Total SA population - mid 2010	13.5	5.7	22.4	21.3	10.9	7.2	6.4	2.2	10.4
Mining GDP 2009 (R'millions-nominal terms)	683	17 193	26 712	6 895	45 278	389 111	47 427	14 306	775
% contribution to Provincial GDP 2009	0.4	13.1	3.3	1.8	26.9	22.9	30.3	26.1	0.2
Access to electricity - 2009	0.04	0.04	0.28	0.20	0.05	0.15	0.11	0.02	0.11
Official unemployment 2011 - Q2	28.9	28.2	28.2	20.3	21.1	30.4	27.3	28.8	21.8
poverty index % below poverty line (StatsSA) 2009	20.8	7.1	10.5	22.6	15.5	7.9	9.3	1.8	4.5
Poverty levels % of household income below R800 pm	68.3	58.7	33.9	55.4	71.8	60.2	56.1	50.3	26.7
% prevalence of HIV 2008 (%)	11	14	15	16	7	13	13	7	6

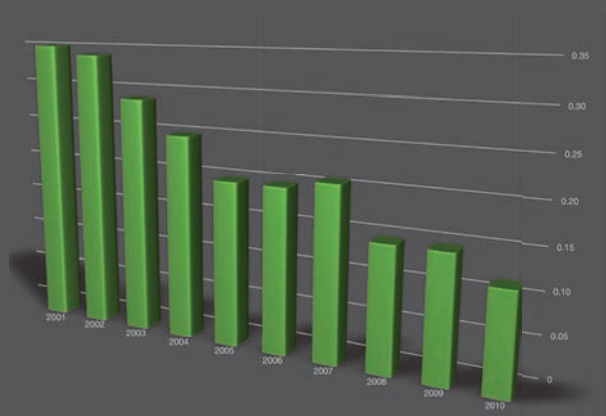
Source: StatsSA/ Dept Trade & Industry

Data refers to 2010 unless otherwise specified

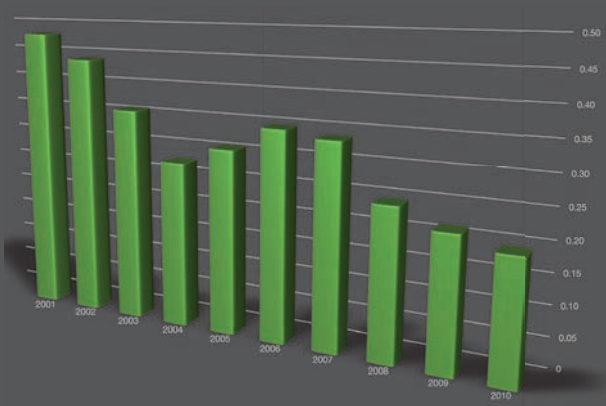
\*DMR SAMI for 2009/2010

# Safety: fatalities & fatality frequency rates (FFR) on SA mines

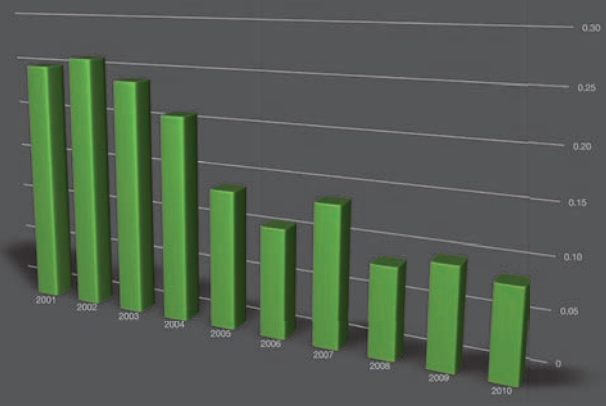
FFR – all sectors



FFR – gold mines



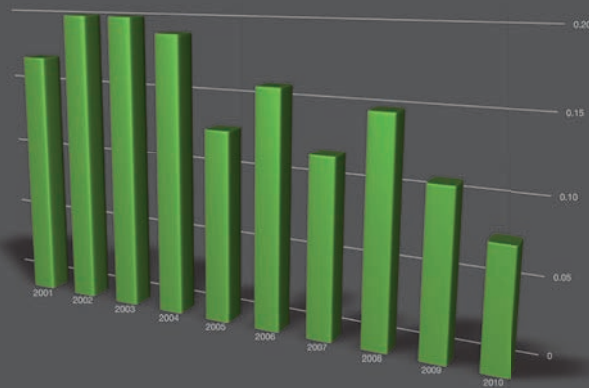
FFR – platinum mines



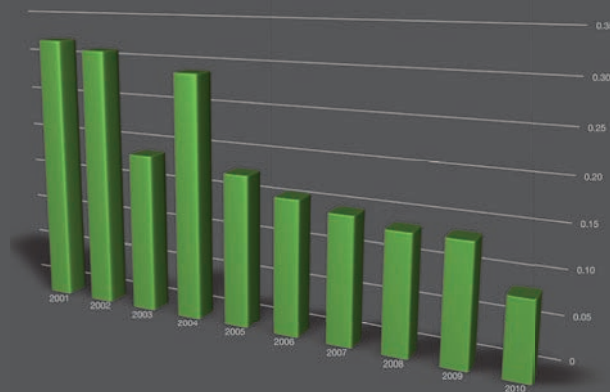
**Fatalities 2001 to 2010 for different commodities**

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Gold	182	172	149	108	105	114	115	85	81	63
Platinum	49	53	58	65	47	40	53	36	41	32
Coal	19	20	23	20	16	20	15	20	18	13
Chrome	2	4	2	16	6	2	4	NIIO	NIIO	NIIO
Diamonds	11	26	15	15	7	3	12	NIIO	NIIO	NIIO
Copper	2	1	2	2	0	2	1	NIIO	NIIO	NIIO
Iron ore	2	2	1	1	2	2	4	NIIO	NIIO	NIIO
Other	21	12	19	19	18	17	16	30	28	20
<b>Total</b>	<b>268</b>	<b>290</b>	<b>269</b>	<b>246</b>	<b>201</b>	<b>200</b>	<b>220</b>	<b>171</b>	<b>168</b>	<b>126</b>

**FFR – coal mines**



**FFR – other mines**



# Employment and remuneration on Chamber member gold & coal mines 2010

	Gold mines	Coal mines	Total
Average number of employees in service during 2010			
Company employees	116 994	32 634	149 628
Contractors	16 904	26 368	43 272
<b>Total</b>	<b>133 898</b>	<b>59 002</b>	<b>192 900</b>

Salaries, wages and allowances (companies only):			
<b>Total (R'million):</b>	<b>15 561.2</b>	<b>8 805.6</b>	<b>24 366.8</b>

## Employment and remuneration on all mines in SA, 2010

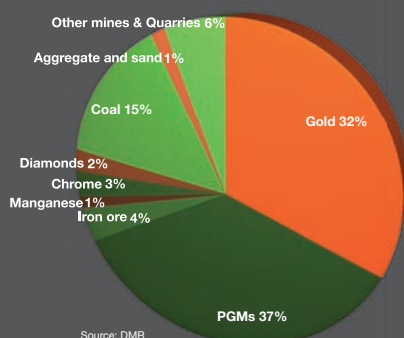
Number of employees	
Gold	157 019
PGM	181 969
Iron ore	18 216
Manganese	5 879
Chrome	13 971
Diamonds	11 143
Coal	73 817
Aggregate and sand	7 001
Other mines & Quarries	29 126
<b>Total</b>	<b>498 141</b>

Source: DMR

	Total employed	Total employee earnings (R'million)	Ave. earnings per employee per year (R)
2001	406 994	24 369	59 874
2002	415 988	26 228	63 051
2003	435 628	30 827	70 765
2004	448 909	33 656	74 973
2005	444 132	36 683	82 595
2006	456 337	39 448	86 445
2007	495 150	50 073	101 127
2008	518 729	60 886	117 376
2009	491 794	66 092	134 389
2010	498 141	74 226	149 006

Source: DMR

## Percentage earnings on all SA mines including contractors



Source: DMR

# Income and expenditure of all SA mines, 2010

## INCOME & EXPENDITURE

In 2010, the RSA mining industry's total income was R424 billion while expenditure was R441 billion. R228.4 billion was spent on purchases and operating costs (timber, steel, explosives, electricity, transport, uniforms, etc.), R78.4 billion went on salaries and wages for mine employees, R49 billion on capex (the lifeblood of mining), R17.1 billion in tax, R16.2 billion in dividends, R38 billion on depreciation and impairments and R13 billion on interest to the banks. Estimates by the Chamber of Mines suggest that only about R34 billion or 8% of the total expenditures go offshore (i.e. some of the dividend stream, some procurement of input materials, etc.). That effectively means that 92% of the value of the RSA mining expenditures are effectively captured in South Africa - i.e. The benefits of RSA mining expenditures are captured locally, resulting in the creation of hundreds of thousands of jobs and significant multiplier effects into the rest of the economy.

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. Again let's explore the facts. Nearly 100% of South Africa's cement and building aggregates are made locally from locally mined products. 80% of RSA's steel is made locally from locally mined iron ore, chrome, manganese, coking coal and via 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 made locally from locally mined coal. 95% of RSA's electricity is made via power plants that use locally mined coal. Most of our domestic chemicals, fertilisers, waxes, polymers, plastics, etc., are fabricated using locally mined minerals and coal. 20% of the world's platinum catalytic converters are made in RSA, and so on. The Chamber of Mines estimates that another R200 billion in sales value and 150 000 jobs were attributable back to the downstream beneficiation sectors in South Africa. All of RSA's gold and pgms are refined locally and more than 50% of RSA's diamonds by value are sold locally into the downstream diamond cutting and polishing industry. Again the point to be made is that a significant portion of RSA mineral output is beneficiated locally where the commercial opportunities exist.

Income Items	2009	2010	% difference
	R'millions	R'millions	
Turnover (from mining)	314 519	383 583	21.96
Interest received	7 246	5 705	-21.27
Dividends received	3 165	1 717	-45.75
Other income	7 205	22 626	214.03
Profit on assets sold or revalued	20 510	10 065	-50.93
<b>Total income accruing to the mining sector</b>	<b>352 645</b>	<b>423 696</b>	<b>20.15</b>
Expenditure items	2009	2010	% difference
	R'millions	R'millions	
Purchases & operating costs (steel, timber, electricity, rail, etc.)	192 878	228 395	25.38
Labour costs	71 184	78 416	11.89
Railage and transport	-	-	23.29
Interest Paid	12 243	13 023	25.23
Repairs and maintenance	-	-	7.70
Electricity, water and rentals	-	-	8.63
Depreciation and impairments	35 333	38 432	3.63
Taxation	10 051	17 078	50.24
Dividends	25 521	16 248	-35.57
Capital expenditure	51 498	49 245	23.46
Expenditure before tax, divs and capex	311 638	358 266	15.16
<b>Total expenditure of mining</b>	<b>398 708</b>	<b>440 837</b>	<b>18.72</b>

Source: StatsSA (PO021)

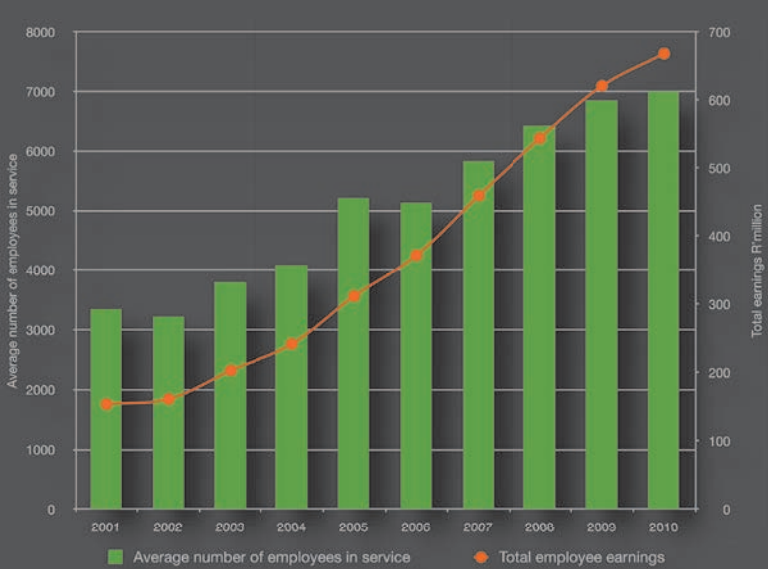
Prep: Chamber of Mines Economics Department

# Aggregate & sand sales, employment & total earnings, 2001 - 2010

	Mass 1 000t	Value R1 000
2001	27 448.9	833 316.6
2002	27 150.2	917 636.8
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	53 356.2	3 877 078.9

Source: DMR

## Employment & total employee earnings on SA aggregate and sand quarries



Source: DMR

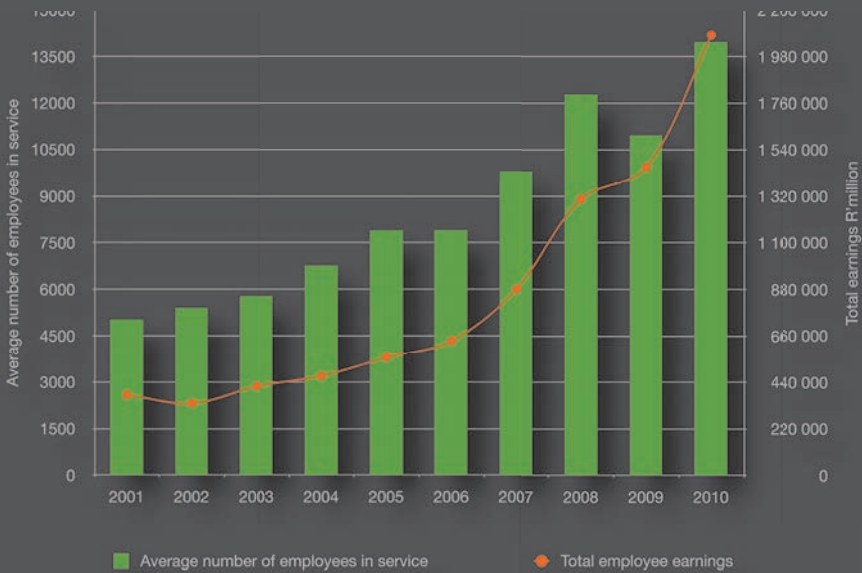
# Base minerals production and sales

## 2001 - 2010: chromite

SA chromite mines			
	Production 1 000t	Total sales	
		Mass 1 000t	Value R1 000
2001	5 502.0	5 529.0	1 002 309.1
2002	6 435.7	5 951.5	1 101 358.8
2003	7 405.4	6 835.6	1 154 497.4
2004	7 676.8	7 256.2	1 687 739.5
2005	7 552.2	6 785.3	1 910 565.8
2006	7 425.9	7 127.5	2 309 763.9
2007	9 664.7	8 281.6	3 006 448.4
2008	9 682.6	7 878.3	5 398 951.0
2009	7 560.9	6 589.1	3 652 368.4
2010	10 871.1	9 196.1	6 618 781.2

Source: DMR

### Employment & total employee earnings on SA chromite mines



Source: DMR

# Base minerals production & sales, 2001 - 2010: iron ore & copper

## IRON ORE

The interconnectedness of the iron ore-steel value chain was again evident during 2010 as the recovery in the global economy fed through into growth in steel and iron ore production. The global economy recovered from a 0.5% decline in output in 2009 to record a 5.1% growth rate in 2010. Global steel production grew by 16.2% to 1.4 billion tons, while the trade in global iron ore increased by 9.3% to just over one billion tons in 2010. Global iron ore reserves are estimated to be 180 billion tons of crude ore with an iron ore content of about 87 billion tons (source USGS).

In 2010, benchmark iron ore prices moved away from the traditional annual price setting system to a new quarterly basis of determination. The annual average contract price increased in 2010 by 82.4% year-on-year to \$145.9 per dry metric ton while quarterly prices varied.

In 2010, South Africa produced 58.7 million tons (MT) of iron ore, which was a 6.1% increase on the previous year's total. Domestic sales grew by 26.2% to 10.6 MT while export sales grew by 6.6% to 47.5 MT. Local sales were valued at R3.2-billion while export sales realised R40.1-billion. Total iron ore sales grew by 60% overall to R43.4-billion, making iron ore the fourth largest component of the South African mining industry by sales value. Iron ore exports accounted for 6.4% of total merchandise exports. In 2010, the sector employed 18 216 people and paid R3-billion in wages.

### SA copper mines

	Total sales		
	Production 1 000t	Mass 1 000t	Value R1 000
2001	141.9	143.1	1 927 164.9
2002	129.5	131.4	2 143 348.4
2003	120.9	122.5	1 641 236.2
2004	102.6	113.2	2 026 122.3
2005	103.9	112.0	2 583 099.8
2006	109.6	108.2	4 956 077.7
2007	117.1	113.9	5 853 850.9
2008	97.2	101.4	5 627 920.0
2009	92.9	94.9	3 859 751.0
2010	83.6	112.4	4 369 326.1

Source: DMR

### SA iron ore mines

	Total sales		
	Production 1 000t	Mass 1 000t	Value R1 000
2001	34 757.2	34 892.4	4 128 902.8
2002	36 484.0	35 361.1	5 313 718.3
2003	38 085.9	36 155.3	4 191 071.2
2004	39 322.1	37 176.0	4 585 485.1
2005	39 542.1	38 637.3	7 519 572.2
2006	41 371.9	39 406.6	9 931 281.2
2007	42 083.1	43 174.3	13 755 560.3
2008	48 982.5	44 023.8	22 241 835.7
2009	55 313.1	52 919.3	27 131 734.5
2010	58 709.3	58 053.5	43 418 605.5

Source: DMR

## Employment & total employee earnings on SA iron ore mines



Source: DMR

# Annual SA coal production, sales & exports, 2001 - 2010

## COAL

In 2010, the world seaborne steam coal market grew by about 6.3% to 771 million tons (MT) on the back of strong growth in imports of coal into China and India combined with a stabilisation in import demand by countries such as Japan. South African coal exports rose by 9.7% to 66.3 MT in 2010, but this was off a very low base in 2009.

### SALES

	Local sales		Exports		Total sales	
	Mass 1 000t	Value R1 000 (FOR)	Mass 1 000t	Value R1 000 (FOB)	Mass 1 000t	Value R1 000
2001	152 162.4	9 564 520.7	69 303.9	17 031 522.0	221 466.4	26 596 042.7
2002	157 613.6	11 771 017.4	69 437.9	18 696 806.9	227 051.6	30 467 824.3
2003	168 942.5	13 243 714.2	71 556.5	13 490 623.1	240 498.9	26 734 337.2
2004	178 674.9	13 644 186.2	67 946.5	14 494 479.4	246 621.4	28 138 665.6
2005	173 437.3	14 878 140.0	71 442.1	21 155 176.0	244 879.4	36 033 316.0
2006	177 049.0	16 245 873.7	68 747.3	21 620 934.2	245 796.3	37 866 807.9
2007	182 769.6	19 718 642.1	67 675.4	24 447 656.2	250 445.1	44 136 298.4
2008	197 033.0	30 104 160.8	60 630.7	44 706 203.8	257 663.7	74 810 364.6
2009	184 676.7	34 442 650.1	60 539.5	31 006 559.2	245 216.1	65 449 209.3
2010	188 110.5	36 455 545.2	66 395.8	36 746 983.4	254 506.3	73 202 528.6

Source: DMR

\*As at June 2011

### Saleable production

	Thousand metric tons
2001	223 494.7
2002	220 269.6
2003	237 872.1
2004	243 371.5
2005	244 988.2
2006	244 832.4
2007	247 666.4
2008	252 699.1
2009	250 538.1
2010	254 521.9

Source: DMR

Volume of local & export components of SA coal sales, 2010



Value of local & export components of SA coal sales, 2010



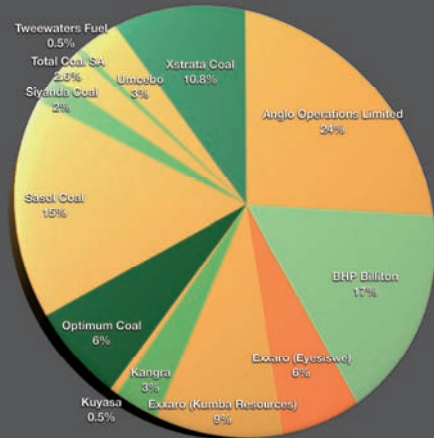
Source: DMR

# Analysis of coal sold by Chamber member coal producers in 2010

Name of company	Sales tons	Name of company	Sales tons
ANGLO OPERATIONS LIMITED		KANGRA	
Goedehoop	5 715 456	Savmore	3 125 797
Isibonelo	4 530 330	KUYASA	
Kriel	9 574 302	Delmas	1 681 791
New Denmark	4 878 659	Optimum	10 018 580
New Vaal	17 235 337	SASOL COAL	
S A Coal Estates	11 903 382	Sasol Mining	39 778 000
Zibulo Colliery	1 480 484	SIYANDA COAL	
BHP BILLITON		Koornfontein	2 960 687
BHP Billiton - Douglas + Khutala	11 799 970	TOTAL COAL SA	
EXXARO (Eyesiswe)		Dorstfontein	493 957
Arnot	4 173 202	Forzando North	938 517
NBC - North Block Complex	2 753 542	Forzando South	1 049 699
Matla	13 114 847	TWEEWATERS FEUL	
New Clydesdale	800 251	Springlake	438 868
EXXARO (Kumba Resources)		UMCEBO	
Grootegeeluk	18 488 356	Umcebo	5 883 636
Leeuwpan	2 979 482	XSTRATA COAL	
Tshikondeni	285 335	Xstrata Coal	16 178 202
		TOTAL	214 260 669

Source: Chamber of Mines Statistical Services

Percentage of coal sales value by Chamber members



Monthly analysis of coal sold by Chamber members					
	Coal sold Metric tons	Sales value R		Coal sold Metric tons	Sales value R
January	16 800 713	4 506 122 704	August	19 110 125	4 902 190 813
February	16 735 307	4 024 147 508	September	18 546 247	4 940 758 818
March	18 940 348	4 933 073 185	October	19 219 305	5 170 600 979
April	15 638 941	4 164 196 483	November	18 620 453	5 000 986 243
May	16 586 912	4 302 825 298	December	16 219 053	4 846 288 835
June	17 935 908	4 587 332 882	Total	214 260 669	57 030 730 329
July	19 907 357	5 652 206 581			

Source: COM

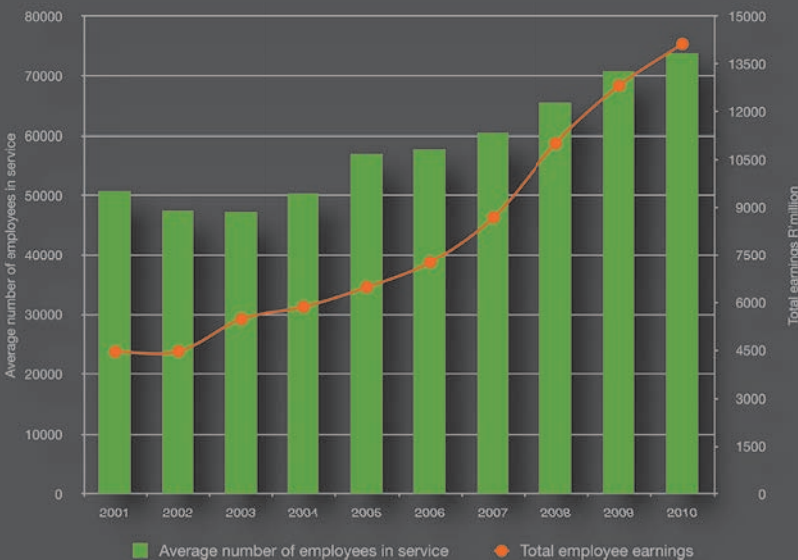
# Employment on SA coal mines, 2010

Despite higher saleable coal production of 254 MT in 2010, (up 1.6% on 2009) and higher local and export prices, the total value of coal sales rose by 11.8% to R73.2-billion. This sales value entrenches the coal mining sector as the second largest component of the South African mining industry after platinum group metals. In 2010, South African saleable coal production increased by 1.6% to 254.5 MT. Domestic coal sales increased by 1.9% to 188.1 MT and exports grew by 9.7% to 66.3 MT.

Exports from the Richards Bay Coal Terminal (RBCT) amounted to 63.4 MT in 2010, an increase of 3.7% from 61.1MT in 2009, but still short of 27.6 MT of RBCT's full potential. Coal exports to the Far East and Asia increased by 54% with India and China now importing the majority (54.5%) of South Africa's export coal, while exports to Europe slowed significantly (42%) on the basis of the aftermath of the global economic crisis.

The number of people employed in the local coal mining industry increased by 4.3% to 73 817 people in 2010. Employees earned R14.1-billion in salaries and wages in that year. The industry accounted for about 1.2% of GDP directly (and 3% if the indirect multiplier and induced effects are added). The coal sector accounted for 5.9% of merchandise exports in 2010.

## Employment & total employee earnings on SA coal mines



# Diamond production and sales, 2001 - 2010

## DIAMONDS

**2**010 can be defined as a year of recovery as the diamond mining sector recovered from the worst recession to hit the industry in more than half a century. With almost 75% of cut diamonds normally destined for the developed markets of North America, Japan and Europe, the emergence of these economies from the 2009 global financial crisis, when combined with higher levels of demand in emerging markets like China and India, helped the diamond value chain stage a remarkable recovery during 2010.

Global diamond production is estimated by the Kimberley Process Certification Scheme (KPCS) to have increased by 11% to 133 million carats in 2010, with the value of the rough diamonds produced rising strongly by 45% to approximately US\$12-billion.

In 2010, global diamond retail sales rose by 2.5% to US\$60-billion, global jewellery sales rose by 7% to US\$150-billion and polished diamond prices improved by about 6%. The strong price recovery was driven

### Production carats

2001	11 238 410
2002	10 905 889
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

Source: DMR

2001-2002 excludes alluvial diamonds from "diggers"

## Employment & total employee earnings on SA diamond mines



Source: DMR

# Diamond production (estimate), 2010

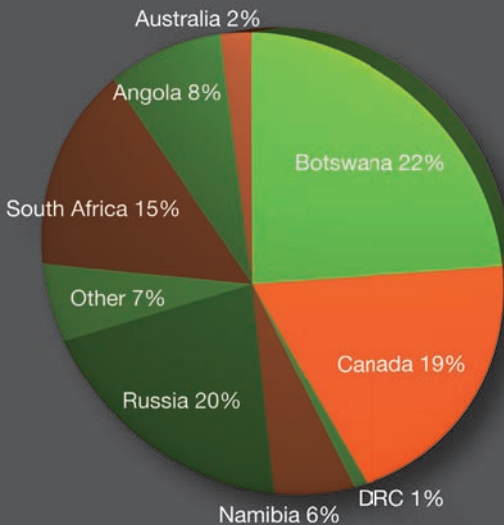
by re-stocking and a rebound in the global diamond market, particularly with the rise in polished demand from China and India.

Research by IDEX concludes that the economic indicator with the most significant correlation to diamond sales is not consumer confidence but economic growth. The bounce back into positive growth territory in global growth, and in particular the traditional developed markets of the USA, Europe and Japan spurred the recovery across all components of the value chain. Sales of rough diamonds to the cutting centres, increased in line with production, growing by 78% to US\$12.5-billion from US\$7-billion in 2009. The value of polished diamonds escalated by 39% to US\$17.5-billion, while the retail sales of diamond jewellery rose 2.5% to US\$60.2-billion.

The International Diamond Exchange (IDEX) estimates total jewellery sales increased by 7% to US\$150-billion in 2010. The United States in particular experienced a remarkable recovery in demand with jewellery sales rising 7.7% to US\$63.4-billion, which was far ahead of most analysts' predictions.

Global economic growth and strong retail confidence is expected to underpin positive consumer demand growth for diamond jewellery in 2011. This will be driven by the recovery of the United States' diamond jewellery market and the continued strong growth in China and India. Risks to global demand include global political and economic shocks, consumer price inflation, financial system fragility, and exchange rate volatility. Long-term supply/demand dynamics however, remain attractive.

## Value of world diamond production (US\$-bn), 2010 (\$12-bn total)



Source: KPCS Annual Global Summary, 2010

# Gold production: estimated total world & proportion produced by SA

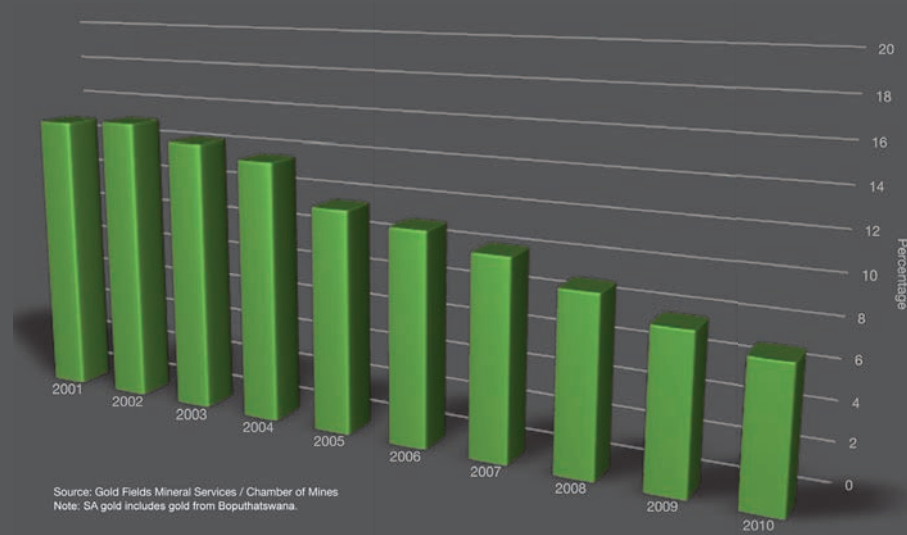
## GOLD

In 2010, the gold price rose to a record US\$1 225 an ounce on the back of increased global uncertainty, growing physical demand for fabrication and physical investment purposes and the first net central bank buying of gold since 1990. 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 should continue to support rising gold prices.

	SA gold production metric tons	Total world gold production metric tons	SA as % of total world production
2001	393.5	2 645.7	14.87
2002	395.2	2 619.0	15.09
2003	375.8	2 623.8	14.32
2004	342.0	2 496.0	13.70
2005	297.3	2 550.0	11.66
2006	275.1	2 482.1	11.08
2007	254.7	2 475.8	10.29
2008	217.6	2 408.0	9.04
2009	204.9	2 589.5	7.91
2010	191.4	2 688.9	7.12

Source: Gold Fields Mineral Services / Chamber of Mines  
Note: S.A. gold includes gold from Boputhatswana.

## South African gold production as a percentage of total world production



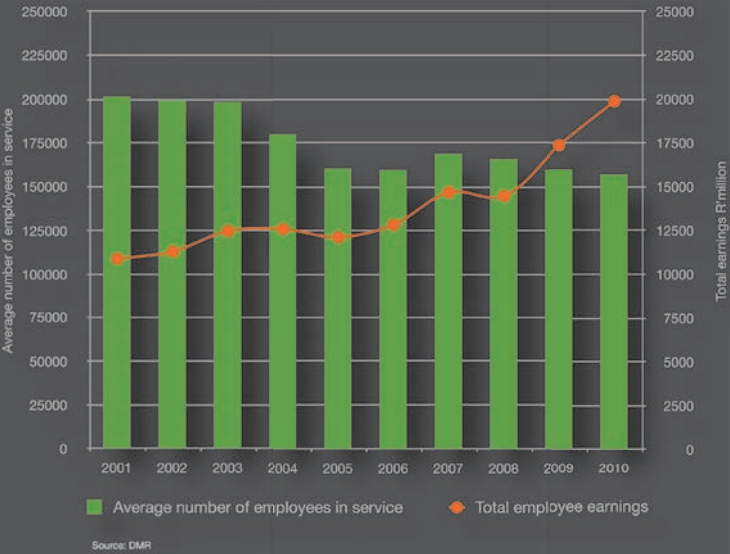
Source: Gold Fields Mineral Services / Chamber of Mines  
Note: SA gold includes gold from Boputhatswana.

# SA gold output & sales, 2001 - 2010

SA gold output			
	Metric tons treated 1000	Fine gold kilograms	Realised value R1 000
2001	74 457.9	393 523.2	28 678 670.5
2002	73 160.1	395 173.4	41 100 381.6
2003	77 169.6	375 787.0	32 908 845.9
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	38 394 267.0
2008	53 639.7	217 648.5	47 660 255.0
2009	48 870.0	204 922.8	51 246 219.0
2010	50 305.8	191 402.2	54 744 894.0

\* Provisional  
 @ Revised data  
 Source: Chamber/DMR

## Employment & total employee earnings on SA gold mines



# Annual gold production & average grade of Chamber member gold producers, 2001 - 2010

The high prices and the benefits of strong exploration expenditures in gold in the preceding five years fed through into higher production in most producing countries. China reaffirmed its status as the world's largest producer with an increase in the production of 8.3% to 350.9 tons, while Australia grew production by 17.1% to 260.9 tons and the United States increased production by 6.7% to 233.9 tons. South Africa was not able to take advantage of higher prices, and production estimates by GFMS suggest that production declined by 7.5% to 203.3 tons in 2010, which means that South Africa has slipped to fifth position on the global gold production annual rankings. The GFMS number for South Africa at 203.3 tons is slightly more than the 191.4 tons recorded by the Chamber as the GFMS number includes an estimate for the production of illicit gold from the country.

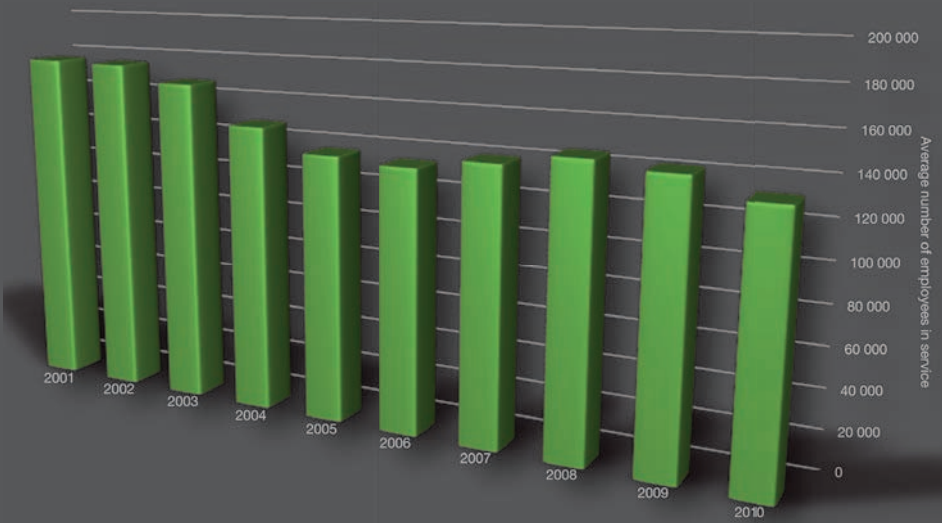
In 2010, the rand gold price increased by only 9.9% to R286 403 per kilogram, as the strengthening rand exchange rate eroded much of the gains in dollar prices. The rand appreciated by 13.2% to R7.32/US\$.in the first half of 2011, and grew by 9.9% on a year-on-year basis to R6.79/US\$ in the second quarter of 2011. Despite the 26% rise in the dollar gold price to US\$1 506 per ounce in the second quarter, the 9.9% appreciation in the rand exchange rate meant that the rand price of gold rose more modestly by 13.9% to R329 192 per kilogram.

The gold mining sector remained a key contributor to the South African economy in 2010 and accounted for R53.1-billion in foreign currency earnings or 8.5% of total merchandise exports (the single largest mineral export after platinum group metals) and about 2% of GDP (if the multipliers and induced effect are included). for the sector employed 157 019 people in 2010 and they earned R19.9-billion in wages. The gold sector employs 32% of the labour employed in the mining sector and remains a key generator of employment and export earnings. The industry invested R11.1-billion in capital expenditure in the country, paid an estimated R271million in direct taxation and R562-million in dividends.

	Ore milled metric tons 1 000	Production kilograms	Grade g/m ton
2001	82 962	342 551.9	4.13
2002	81 422	347 542.6	4.27
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

# Average number of employees in service, incl. contractors, on Chamber member gold mines, 2001 - 2010

Average number of employees in service, including contractors, on Chamber member gold mines



Average number of employees in service

2001#	176 611
2002	176 090
2003+	168 108
2004	148 829
2005	137 569
2006	135 208
2007	140 783
2008	146 487
2009	143 268
2010	133 898

# 2000-2001 excludes ARMgold  
 + From 2003Q2 to 2008Q2, DRD Mines was not a member of the Chamber, and their data is omitted  
 Source: Chamber of Mines

# 2010 Quarterly summary of operating results of Chamber gold producers

## Production of major gold producers

Quarter	Ore milled metric tons 1 000	Kilograms fine gold total	Grade g/ton milled	Total fine gold kg
January - March	17 640	36 002.3	2.86	39 061.4
April - June	18 654	41 219.7	3.10	44 055.7
July - September	18 975	42 146.8	3.11	45 193.5
October - December	18 534	41 277.6	3.07	43 131.9
Totals/average	73 803	160 646.4	3.04	171 442.5

## Revenue

Quarter	Operating revenue R1 000	Revenue/metric ton milled (R)	Net sundry revenue & expenditure
January - March	9 132 656	517.72	Dr 348 256
April - June	11 806 057	632.90	Dr 1 613
July - September	12 573 861	662.66	Dr 94 642
October - December	12 423 678	670.32	Dr 1 125 188
Totals/average	45 936 252	622.42	Dr 1 569 699

## Profits

Quarter	Operating profit/metric ton milled (R)	Total operating profit R1 000	Total profit R! 000
January - March	137.57	2 426 730	152 271
April - June	251.24	4 686 621	2 794 268
July - September	256.74	4 871 607	2 371 470
October - December	283.11	5 247 200	1 727 242
Totals/average	233.49	17 232 158	7 045 251

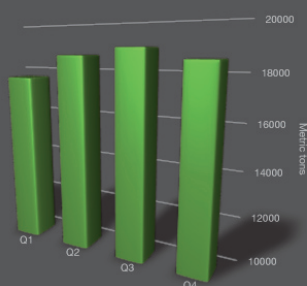
### NOTES:

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.

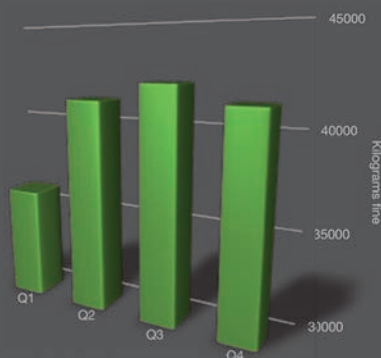
For detailed company working results, go to : [www.chamberofmines.org.za](http://www.chamberofmines.org.za)

### Ore milled on Chamber member gold mines: 2010



Source: Chamber of Mines

### Gold production on Chamber member gold mines: 2010



# 2010 Quarterly summary of operating results of Chamber gold producers

Cash operating costs				
Quarter	Total R1 000	Costs/metric ton milled	Costs/kilogram gold R	Total other costs
January - March	6 705 926	380.15	186 264	1 926 203
April - June	7 119 436	381.66	172 719	1 890 740
July - September	7 702 254	405.92	182 748	2 405 495
October - December	7 176 478	387.21	173 859	2 394 770
Totals/average	28 704 094	388.93	178 679	8 617 208

Taxation/Capex/Dividends			
Quarter	Tax & state's share of profits (estimated) R1 000	Capex (less recoupments) R1 000	Dividends R
January - March	151 268	2 411 206	
April - June	483 537	2 800 686	256 010 109
July - September	CR 595 991	2 798 806	
October - December	232 663	3 094 494	306 086 642
Totals/average	271 477	11 105 192	562 096 751

## NOTES:

In addition, gold production by non-chamber members has been ascertained to be 19 959,7 kgs. (Revised June 2011)

The gold producers above treated 2 436 862 metric tons of material to produce 691 359 kilograms of uranium oxide of grade = 0,284 kg/ton.

The financial results are published in accordance with international financial accounting standards.

Anglogold Ashanti: Profit from sales of the by-products uranium and acid/or pyrite, is offset against cash costs, in accordance with the Gold Institute definition.

Retrenchment costs are included net of other costs.

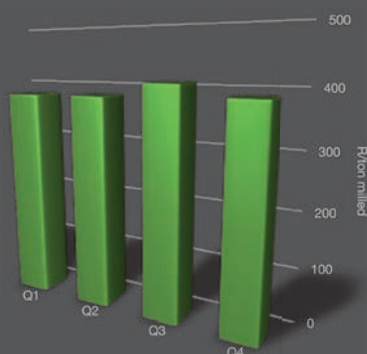
DRDGOLD: Grade calculation excludes surface tons (= 22 665,317 tons) and kilograms gold produced (= 5 211,3 kg) from 2nd & 3rd time milling and treatment ops.

Harmony (Elandsrand) has been renamed Harmony (Kusasaletu)

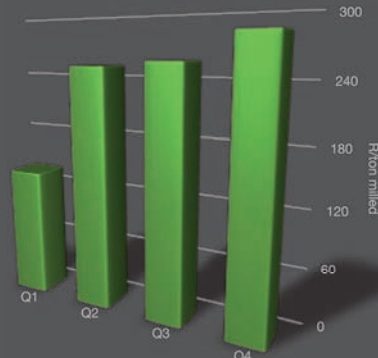
The data in this report refers to South African operations only.

Totals may not add due to rounding.

**Cash operating costs per ton milled  
on Chamber gold mines, 2010**



**Operating profit per ton milled on  
Chamber gold mines, 2010**

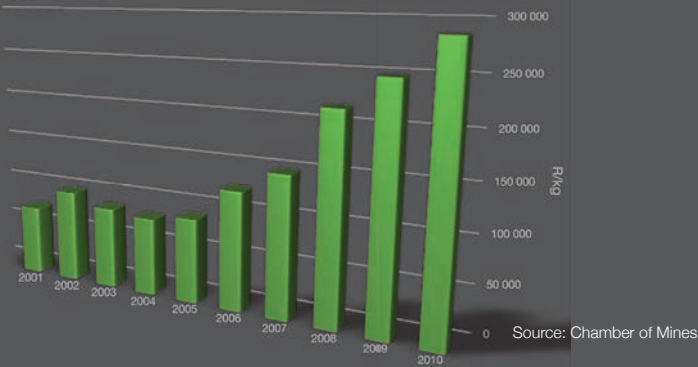


Source: Chamber of Mines

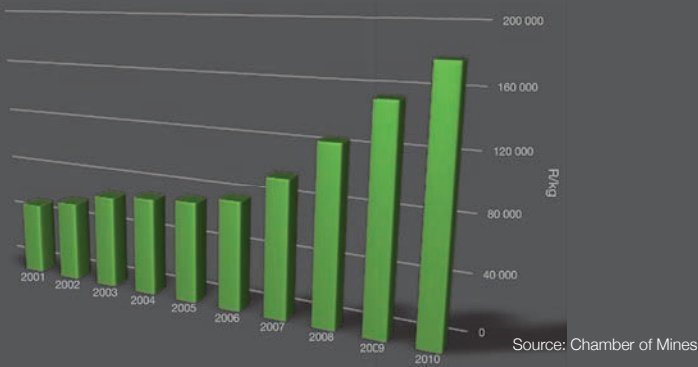
# Annual average unit cash operating costs & profits of Chamber member gold producers, 2001 - 2010

Quarter	Cash operating revenue/ metric ton	Cash operating costs/ metric ton	Cash operating costs/ kilogram	Cash operating profits/ metric ton
2001	309.88	219.00	53 040	90.88
2002	435.20	256.42	58 624	178.78
2003	405.17	313.67	67 755	91.50
2004	393.53	335.16	70 949	58.37
2005	464.29	376.02	73 070	88.27
2006	588.79	366.21	78 447	222.58
2007	616.23	406.09	98 653	210.14
2008	776.36	449.27	125 557	327.09
2009	644.15	400.03	153 967	244.12
2010	622.42	388.93	178 679	233.49

Operating revenue/kg (R)



Cash operating costs/kg (R)



# SA manganese & chrome production and sales

## SA manganese mines

	Production 1 000t	Total sales value R1 000
2001	3 274.1	1 305 345.1
2002	3 358.4	1 632 626.5
2003*	3 546.6	1 477 629.4
2004*	4 282.0	1 738 719.4
2005	4 611.7	2 200 826.3
2006	5 213.3	2 245 835.0
2007	5 996.1	3 571 426.8
2008	6 807.1	17 343 408.0
2009	4 578.8	5 586 612.7
2010	7 171.7	10 660 590.2

Source: DMR

## MANGANESE

South African primary manganese ore production increased by 57% in 2010 to 7.1 million tons, coinciding with the global economic recovery. Of the total production, 5.9 million tons was exported while 17% was consumed locally. Total sales amounted to R10.6-billion. Export sales accounted for majority of the total sales amounting to R9.3-billion (2009: R5-billion), while local sales were R1.3-billion (2009: R5.8-million) Export sales and local sales increased by 90.8% and 126% from 2009 respectively. The average unit value of manganese exported amounts to R1 560 per ton up by 24% from R1 258 per ton in 2009.

The South African manganese mines employed 5 879 people and paid R946-million in wages and salaries in 2010. The manganese industry also contributed 1.5% to the country's total merchandise exports.

In 2010, manganese ore production revived in line with the recovery in global steel production. Total

global manganese ore production increased by 20% to 13 million tons in 2010 from 10.8 million tons in 2009. South Africa accounted for 17% of world production while China was the largest and accounted for 22% of the global total.

## Employment & total employee earnings on SA manganese mines



Source: DMR

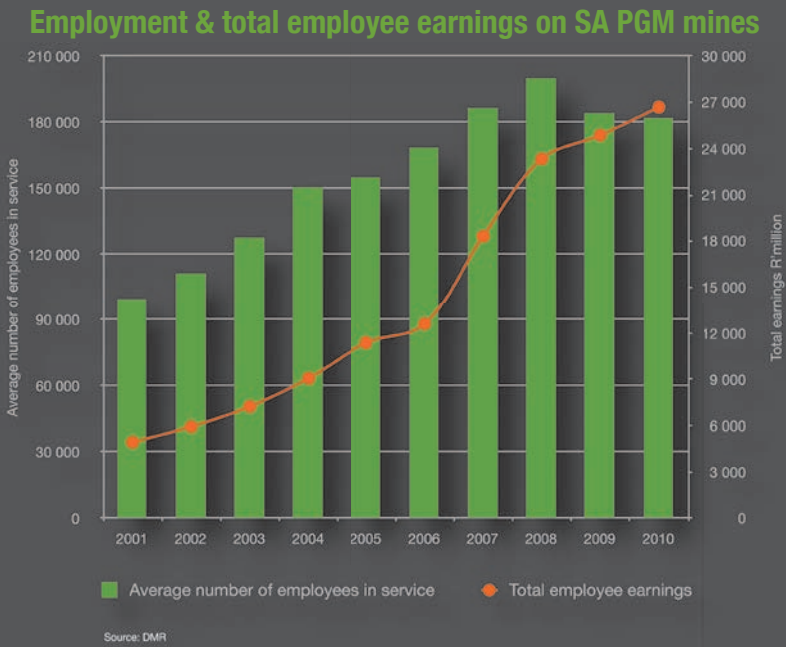
# Platinum and PGM production in SA

## OVERVIEW

**P**gms have a wide range of industrial and high technology applications. Demand for platinum is primarily driven by its use in autocatalysts and jewellery, though palladium is also becoming a favoured metal in these areas. Platinum, however, also has a large range of other applications, predominantly in the chemical, electrical, medical, glass and petroleum industries.

The pgm markets had a strong year in 2010, with a significant recovery in demand from the autocatalyst and industrial markets, growing demand from the jewellery sector and increasing investor interest in the platinum and palladium markets, primarily through exchange traded funds (ETFs). Global pgm demand grew by 20% from 493.8 tons in 2009, to 590 tons in 2010. The bulk of this growth was due to developments in the autocatalyst market. The rise in vehicle production across all regions in 2010 drove demand for platinum. This was due to an improved global economic outlook in 2010, resulting in vehicle manufacture increasing worldwide and reaching 78 million units in 2010, an increase of almost 16 million compared with 2009. Global pgm supplies, including scrap, totaled 547.7 tons in 2010. This was 4% higher than the 2009 level. South Africa was the largest contributor to the global total and accounted for approximately 244 tons, followed by Russia at 143.5 tons.

Whilst the growth in the major advanced economies remained restrained, the recovery in large emerging economies such as China and India contributed to higher commodity prices. However, the South African economy failed to benefit from this robust global demand for commodities and higher prices as domestic constraints held back large increases in production. South Africa's pgm production increased marginally by 0.1% from 238.3 tons to 244.2 tons in 2010.



# Platinum supply & demand, 2001 - 2010

	Total platinum production metric tons	Total pgm production metric tons
2001	129.7	229.5
2002	133.8	236.6
2003*	148.3	265.4
2004*	160.0	276.4
2005	163.7	303.0
2006	169.9	309.3
2007	160.9	304.0
2008	146.1	275.8
2009	140.8	271.4
2010	147.8	287.3

Source: DMR

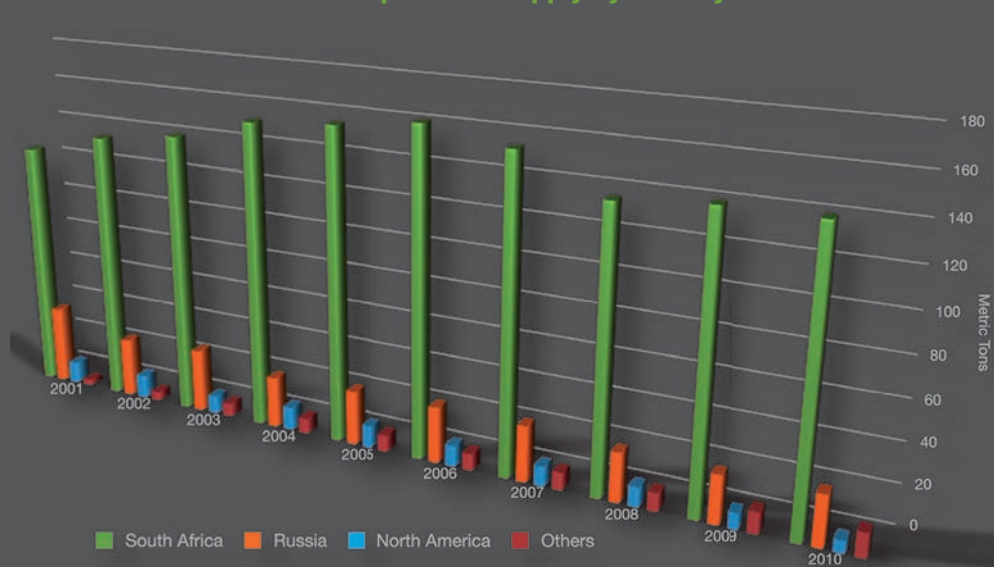
## PLATINUM

The global platinum market was almost in perfect balance, with a surplus of just 0.6 tons in 2010. Supplies from mining operations remained relatively flat at 188.5 tons, while gross demand increased by 16% to 245.1 tons. The practice of platinum recycling increased by almost a third to approximately 57.2 tons in 2010. Gross demand for platinum in autocatalysts increased by 43% to 97.4 tons in 2010, as the global automotive sector bounced back from poor levels in 2009. Increased vehicle production in Europe in particular benefited platinum demand. Gross industrial demand for platinum increased by 48% to 52.6 tons in 2010, led by growth in the glass and chemical sectors. Resurgent demand for platinum from the electrical, chemical and glass sectors came as a result of economic recovery in traditional markets such as Europe and North America, and substantial new demand as manufacturing capacity was constructed in China and other parts of Asia. Gross demand for platinum from the jewellery sector fell by 14%

to 75.3 tons in 2010, mainly due to lower Chinese demand. Demand from the Chinese jewellery industry remained relatively strong at 51.3 tons. This, however, represented a fall of 21% compared with 2009, when lower platinum prices encouraged exceptional levels of stock building and sales.

A key feature of 2010, as in recent years, was the size of the investment market for platinum. Over the past three years, growth in investment has had an increasing influence on the metal's price, while the price has in turn influenced investment levels. The total cumulative volume of platinum allocated in various physically-backed ETFs around the world exceeded 37.3 tons in December 2010. Platinum's average price for 2010 was \$1,611 per ounce.

## Annual platinum supply by country



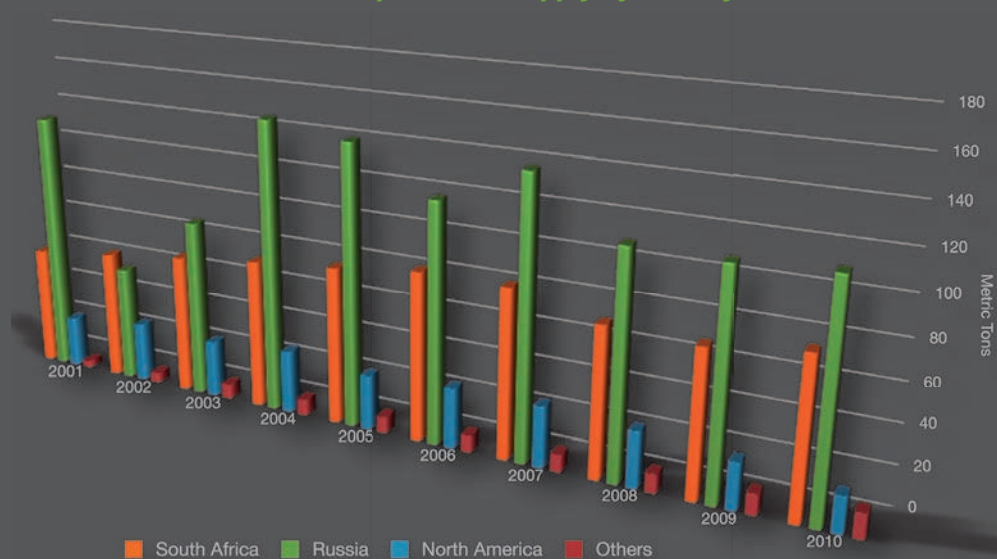
Source: Johnson Matthey Platinum 2011

### Annual platinum demand by application in metric tons

		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Autocatalyst:	gross	78.4	80.6	101.7	108.6	118.0	121.5	128.9	113.7	68.0	97.2
	recycling	-16.5	-17.6	-20.1	-21.5	-23.9	-26.7	-29.1	-35.1	-25.8	-33.7
Chemical		9.0	10.1	10.0	10.1	10.1	12.3	13.1	12.4	9.0	13.8
Electrical	gross	12.0	9.8	8.1	9.3	11.2	11.2	7.9	7.2	5.9	6.8
	recycling	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.2	-0.3	-0.3
Glass		9.0	7.3	6.5	9.0	11.2	12.6	14.6	9.8	0.3	10.7
Investment:		2.8	2.5	0.5	1.4	0.5	-1.2	5.3	17.3	20.5	20.2
Jewellery	gross	80.6	87.7	78.1	67.2	76.7	68.3	65.6	64.1	87.4	75.1
	recycling	0.0	0.0	0.0	0.0	-15.6	-17.3	-20.4	-21.6	-17.6	-23.2
Medical & biomedical		0.0	0.0	0.0	0.0	7.8	7.8	7.2	7.6	7.8	7.9
Petroleum		4.0	4.0	3.7	4.7	5.3	5.6	6.4	7.5	6.5	5.3
Other		14.5	16.8	14.6	14.6	7.0	7.5	8.2	9.0	5.9	7.9
<b>Total Demand</b>		<b>193.8</b>	<b>201.2</b>	<b>203.1</b>	<b>203.4</b>	<b>208.2</b>	<b>201.4</b>	<b>207.8</b>	<b>191.6</b>	<b>167.6</b>	<b>187.9</b>
<b>Movements in stocks</b>		<b>-11.5</b>	<b>-15.6</b>	<b>-10.3</b>	<b>-1.6</b>	<b>-1.7</b>	<b>11.0</b>	<b>-2.5</b>	<b>-6.8</b>	<b>19.8</b>	<b>0.6</b>

Totals may not add due to rounding  
Source: Johnson Matthey Platinum 2011

### Annual palladium supply by country



Source: Johnson Matthey Platinum 2011

# Palladium supply & demand, 2001 - 2010

## PALLADIUM

The palladium market experienced a deficit of 15.2 tons in 2010. Supplies of palladium increased by 3% y-o-y to 226.7 tons, whilst gross demand increased by 23% y-o-y to 299.5 tons, its highest level ever. Open loop recycling of palladium increased by 29% to 57.5 tons. A strong automotive sector in all regions pushed up gross demand for palladium in autocatalysts by 35% to 169.5 tons in 2010. The demand for palladium ETFs increased by 74% and gross industrial demand for palladium increased by 2.2 tons to 76.8 tons in 2010. Palladium jewellery demand softened by 20% to 19.3 tons in 2010. Consumer purchases of palladium jewellery continued to grow in Europe and North America, however, demand declined in China, reducing by around a third to 11.8 tons, as high prices and high manufacturer stock levels affected new purchases of palladium.

Investment demand for palladium grew by 74% compared with 2009, the highest rate of growth in any of the demand sectors. Investors dug deep into ETFs as the palladium price climbed rapidly at the end of 2010. Between the end of November and the end of December, palladium's price increased by around \$100 per ounce and total ETF holdings increased by 6.2 tons. A feature of investor sentiment for palladium in 2010 was the anticipation of potential future supply shortfalls. This, together with strong demand throughout the year, accounted for much investor interest and also partly explained the price performance. The recycling of palladium from the open loop sources of automotive, electrical and jewellery sectors totaled 57.5 tons in 2010, approximately one third higher than in 2009.

Annual palladium demand by application in metric tons

		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Autocatalyst:	gross	158.3	94.9	107.3	117.9	120.2	124.9	141.4	138.9	126.0	169.5
	recycling	-8.7	-11.5	-12.8	-16.5	-19.4	-25.0	-31.6	-35.5	-30.0	-41.2
Chemical		7.8	7.9	8.2	9.6	12.9	13.7	11.7	10.9	10.1	12.3
Dental		22.6	24.4	25.7	26.4	25.3	19.3	19.6	19.4	19.1	18.0
Electrical	gross	20.8	23.6	28.0	28.6	39.7	46.5	48.2	42.6	39.5	43.9
	recycling	0.0	0.0	0.0	0.0	-9.5	-9.0	-9.8	-10.7	-12.3	-13.7
Investment:		0.0	0.0	0.9	6.2	6.8	1.6	8.1	13.1	19.4	33.7
Jewellery	gross	7.5	8.4	8.1	28.9	46.3	35.5	29.5	30.6	25.3	19.3
	recycling	0.0	0.0	0.0	0.0	-1.9	-4.2	-7.3	-4.0	-2.2	-2.5
Other		2.0	2.8	3.4	2.8	8.2	2.6	2.6	2.3	2.2	2.6
Total Demand		210.3	150.5	168.9	204.0	228.8	205.7	212.4	207.6	197.2	242.0
Movements in stocks		17.4	12.8	31.7	62.8	32.7	41.5	54.4	19.8	23.6	-15.2

Totals may not add due to rounding

Source: Johnson Matthey Platinum 2011

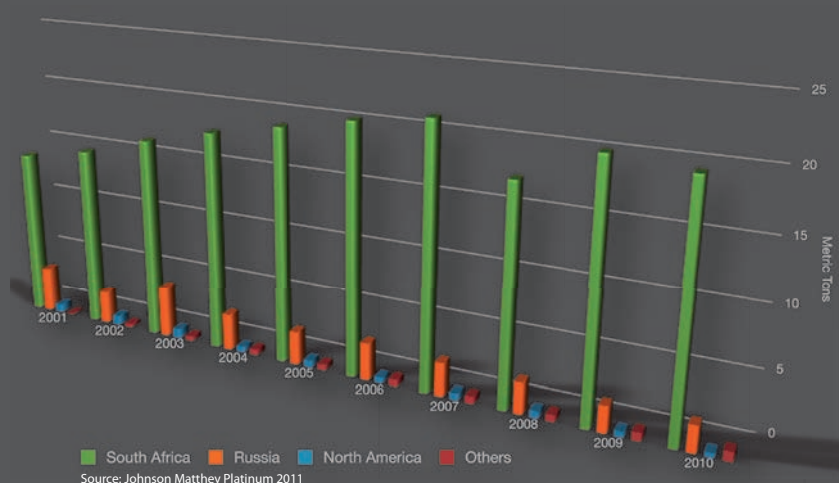
# Rhodium supply & demand, 2001 - 2010

## RHODIUM

The rhodium market tightened in 2010 and ended on a surplus of 3.5 tons. Higher levels of purchasing by the global automotive sector underpinned a rise in gross demand for rhodium. The largest share of demand came from use of rhodium in gasoline three way catalyst (TWC) formulations. All markets, apart from Europe, saw an increase in demand for rhodium in autocatalysts. Increased capacity utilisation and construction of new plants in the chemical and glass sectors further stimulated rhodium purchases. Gross purchasing strengthened by 17% to reach 22.5 tons in 2010. Industrial demand for rhodium increased with better economic conditions worldwide in 2010. The glass industry increased purchases by 200% compared with 2009, as new demand for TFT-LCD glass in electronic goods and glass fibre prompted the building of new and replacement manufacturing capacity.

Demand for rhodium from the chemical sector increased by 25% to 2.1 tons, as plants were run at higher capacity and new oxo-alcohol plants were constructed. Recycling of rhodium in the autocatalyst sector increased by 26% to 7.3 tons, driven by higher metal prices which encouraged greater recovery from scrap. Levels of recycling were also boosted by end-of-life vehicles from car scrappage schemes, which worked their way through the recycling chain during 2010. With strong recovery in the automotive sector, the rhodium price traded on average 54% higher than in 2009, at \$2,458, supported by good physical purchasing in early 2010.

### Annual rhodium supply by country



### Annual palladium demand by application in metric tons

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
<b>Autocatalyst:</b>										
gross	158.3	94.9	107.3	117.9	120.2	124.9	141.4	138.9	126.0	169.5
recycling	-8.7	-11.5	-12.8	-16.5	-19.4	-25.0	-31.6	-35.5	-30.0	-41.2
<b>Chemical</b>	7.8	7.9	8.2	9.6	12.9	13.7	11.7	10.9	10.1	12.3
<b>Dental</b>	22.6	24.4	25.7	26.4	25.3	19.3	19.6	19.4	19.1	18.0
<b>Electrical:</b>										
gross	20.8	23.6	28.0	28.6	39.7	46.5	48.2	42.6	39.5	43.9
recycling	0.0	0.0	0.0	0.0	-9.5	-9.0	-9.8	-10.7	-12.3	-13.7
<b>Investment:</b>	0.0	0.0	0.9	6.2	6.8	1.6	8.1	13.1	19.4	33.7
<b>Jewellery:</b>										
gross	7.5	8.4	8.1	28.9	46.3	35.5	29.5	30.6	25.3	19.3
recycling	0.0	0.0	0.0	0.0	-1.9	-4.2	-7.3	-4.0	-2.2	-2.5
<b>Other</b>	2.0	2.8	3.4	2.8	8.2	2.6	2.6	2.3	2.2	2.6
<b>Total Demand</b>	<b>210.3</b>	<b>150.5</b>	<b>168.9</b>	<b>204.0</b>	<b>228.8</b>	<b>205.7</b>	<b>212.4</b>	<b>207.6</b>	<b>197.2</b>	<b>242.0</b>
<b>Movements in stocks</b>	<b>17.4</b>	<b>12.8</b>	<b>31.7</b>	<b>62.8</b>	<b>32.7</b>	<b>41.5</b>	<b>54.4</b>	<b>19.8</b>	<b>23.6</b>	<b>-15.2</b>

Totals may not add due to rounding  
Source: Johnson Matthey Platinum 2011

# Silver: annual SA output & sales, 1910 - 2010

	Production kilograms fine	Sales value R	Production kilograms fine	Sales value R	Production/sales kilograms fine	Sales value R	Sales kilograms fine	Sales value R
1910	25 287.0	181 580.0	1936	33 456.0	194 102.0	1962	79 289.0	1 952 200.0
1911	27 888	197 014	1937	34 233	198 926	1963	85 126	2 511 941
1912	31 695	248 748	1938	35 314	199 348	1964	90 718	2 720 349
1913	29 629	231 644	1939	36 780	217 000	1965	97 403	2 902 564
1914	27 706	204 942	1940	40 195	259 108	1966	97 480	2 936 887
1915	30 051	212 490	1941	45 123	313 128	1967	95 286	3 536 449
1916	30 137	212 622	1942	45 957	312 810	1968	103 794	3 546 137
1917	29 180	345 994	1943	41 493	282 432	1969	103 718	4 114 099
1918	27 294	375 216	1944	37 730	256 818	1970	109 701	4 392 365
1919	27 723	457 608	1945	38 675	315 144	1971	105 071	4 566 873
1920	27 763	491 742	1946	37 554	489 072	1972	102 443	5 239 165
1921	25 826	274 882	1947	35 697	436 124	1973	113 591	7 331 163
1922	34 701	342 854	1948	36 421	439 526	1974	83 940	8 207 660
1923	42 734	395 776	1949	36 061	475 536	1975	95 923	10 012 472
1924	43 450	424 940	1950	34 809	604 230	1976	87 736	10 617 725
1925	36 126	333 796	1951	36 161	754 214	1977	97 364	12 607 089
1926	30 523	253 160	1952	36 591	728 796	1978	96 559	14 695 091
1927	31 469	237 062	1953	37 111	735 226	1979	100 664	29 872 517
1928	32 079	248 128	1954	38 426	756 526	1980	222 188	82 520 689
1929	32 092	227 006	1955	45 876	958 074	1981	228 834	55 822 121
1930	32 660	166 828	1956	49 712	1 054 066	1982	242 748	53 171 269
1931	33 065	139 520	1957	54 975	1 135 762	1983	201 752	71 139 799
1932	34 857	131 678	1958	55 843	1 163 186	1984	217 068	66 186 353
1933	33 126	173 708	1959	62 853	1 325 562	1985	208 384	75 010 169
1934	31 172	191 374	1960	69 243	1 471 882	1986	222 241	73 975 331
1935	32 416	271 806	1961	71 173	1 576 355	1987	208 150	74 187 998

+ From 1981 the figures represent sales of silver

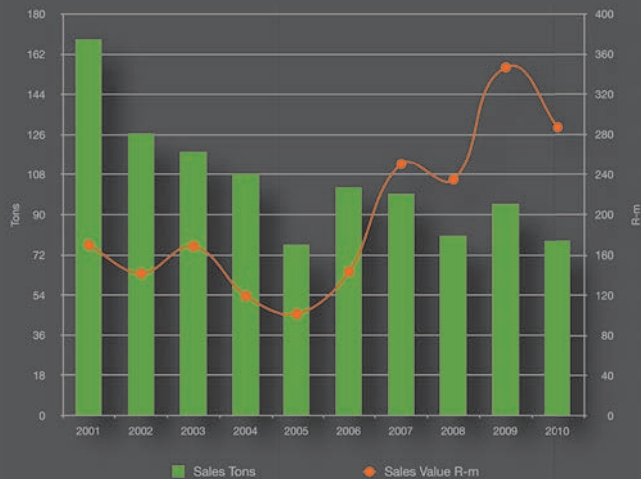
\* Provisional

Source: DMR

## NOTES:

+ From 1981 the figures represent sales of silver.

\* Provisional



Source: DMR

# Uranium output of Chamber members & total annual SA production, 1952 - 2010

Members of the Chamber				
	Metric tons treated (1 000)	Total uranium oxide produced (kg)	Grade (kg per ton treated)	Total SA uranium production (metric tons)
1952	116	40 178	0.346	40
1953	2 566	514 932	0.201	515
1954	7 208	1 360 857	0.189	1 466
1955	13 684	2 998 077	0.219	2 998
1956	16 300	3 832 583	0.235	3 963
1957	19 617	5 026 589	0.256	5 174
1958	21 339	5 492 254	0.257	5 669
1959	21 725	5 681 806	0.262	5 846
1960	21 901	5 634 546	0.257	5 814
1961	15 506	4 941 236	0.319	4 961
1962	12 806	4 557 954	0.356	4 558
1963	11 414	4 111 750	0.360	4 112
1964	10 484	4 032 709	0.384	4 042
1965	7 403	2 669 277	0.360	2 673
1966	8 620	2 981 191	0.346	2 983
1967	9 525	2 915 417	0.306	3 048
1968	12 389	3 522 550	0.284	3 522
1969	12 937	3 609 642	0.279	3 610
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

+ 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

## NOTES:

+ 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 2010 - Chamber members

Company		Commenced production	metric tons treated (1000)	Uranium oxide produced (kg)	Grade (kg/ton treated)
Anglogold Ashanti	(i)	May 1956	209 202	48 984 618	0
Blyvooruitzicht		April 1953	37 947	6 551 267	0
Buffelsfontein (Buffels Section)		July 1957	83 820	18 237 778	0
Daggafontein		April 1953	11 183	2 160 591	0
Dominion Reefs		June 1955	3 578	1 822 873	1
Doornfontein		Oct. 1956	1 835	266 238	0
Driefontein Cons. (West Driefontein)		Oct. 1956	20 529	3 915 762	0
East Champ d'Or		Feb. 1964	1 371	552 993	0
Ellaton		Oct. 1954	2 153	329 585	0
Freddies Cons.	(g)	Feb. 1955	4 555	580 667	0
Free State Saaiplaas	(h)	Feb. 1955	350	45 545	0
Harmony	(a)	July 1955	103 261	12 490 823	0
Hartebeestfontein		Nov. 1956	103 426	16 456 207	0
Loraine		Nov. 1956	2 807	330 969	0
Luipaardsvlei		Jan. 1955	4 518	3 518 258	1
Merriespruit	(b), (c)	Mar. 1956	518	14 249	0
President Brand	(h)	Feb. 1955	4 521	566 693	0
President Steyn	(h)	Feb. 1955	5 566	736 015	0
Randfontein		Feb. 1954	45 248	12 060 225	0
St. Helena (Beisa section)		Jan. 1982	2 298	1 061 698	0
Stilfontein		Oct. 1953	7 328	987 707	0
Virginia	(c)	Sept. 1955	22 067	5 279 693	0
Vogelstruisbult		April 1955	3 480	844 797	0
Welkom	(h)	May 1957	3 453	491 898	0
West Rand Cons.	(d)	Sept. 1952	22 332	13 035 712	1
Western Areas		Jan. 1982	9 408	4 037 235	0
Western Deep Levels		Feb. 1970	17 136	2 553 326	0
Western Reefs	(e)	Oct. 1953	34 933	8 475 181	0
Zandpan	(f)	Mar. 1966	4 205	1 419 095	0
Free State Cons. Joint Metallurgical Scheme		1 977 -		8 583 087 -	
Miscellaneous Producers - Chamber members		1 978 -		598 240 -	

Source: Chamber of Mines

## NOTES:

(a) Consolidated operations of the company and its wholly owned subsidiaries.

(b) Ceased production in October 1956, due to flooding and subsequently became a wholly owned subsidiary of Harmony.

(c) Became a wholly owned subsidiary of Harmony.

(d) Ceased uranium production at the end of 1974 - resumed production 1976 and ceased uranium production in 1981.

(e) Includes Joint Production Scheme with Vaal Reefs. As from 20 September 1971, merged with Vaal Reefs.

(f) As from 1 July 1972, merged with Hartebeestfontein.

(g) As from 1977, merged with Free State Geduld - see note (h).

(h) These Mines together with Free State Geduld; Free State Saaiplaas; and Western Holdings - as from 1977, are participants in the Anglo American O.F.S. Joint Metallurgical Production Scheme, which has merged with Free State Cons. (South Region).

(i) As from 1999, Vaal Reefs renamed Vaal River Operations and reports under the name Anglogold.

[illegible]

[illegible]

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