

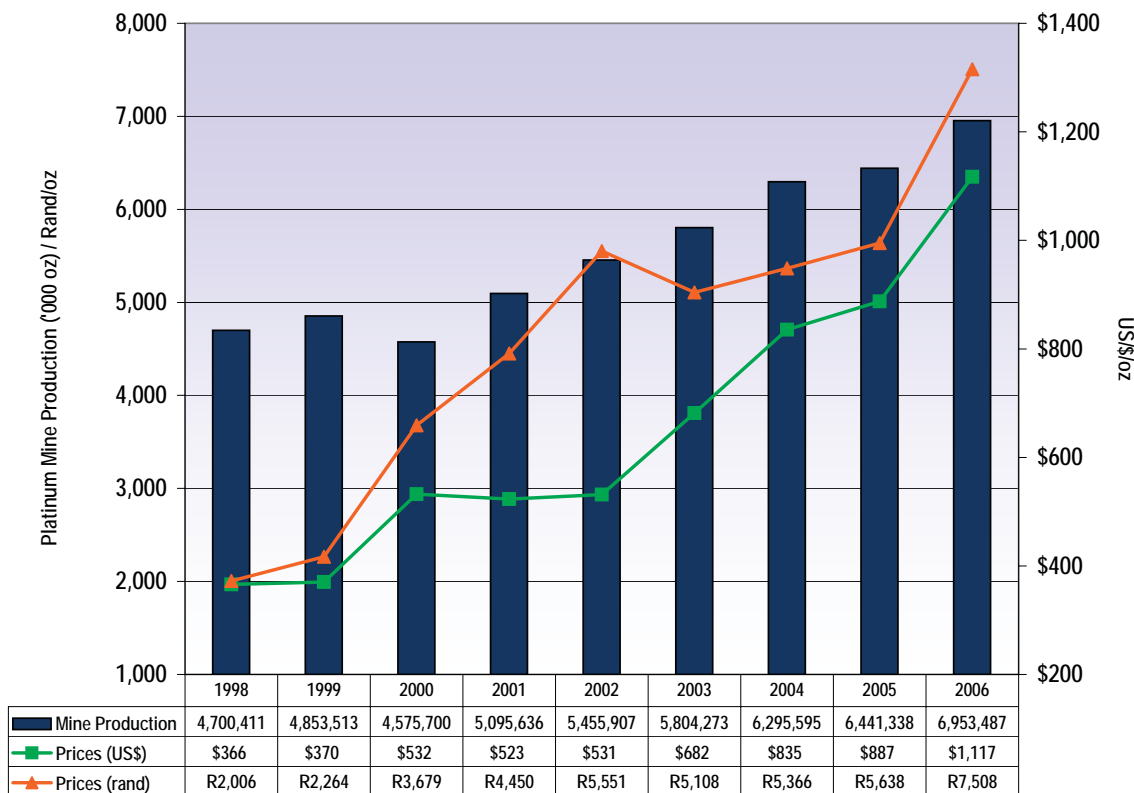
WORLD PLATINUM MINE SUPPLY

Mine supply increased for the sixth straight year in 2006

In 2006, world mined platinum production increased by 8% to almost 7 million oz, according to Metals Economics Group's *MineSearch* database. Of the 29 mines included in this review, platinum production increased at 17 mines and decreased at six, one mine is new since 2005, and production at the rest was largely unchanged. The overall increase is mostly attributable to production increases and ramp-ups at several Anglo Platinum mines and a full year of production from Aquarius's new 54%-owned Everest mine in South Africa (Savannah 26%, Impala 20%).

The South African rand weakened by 5.5% during 2006, helping to boost rand platinum prices by 33% for South African companies, compared to a 26% increase of in the U.S. dollar platinum price. As illustrated in Figure 1 below, the 2002-05 trend of weak rand price growth compared with U.S. dollar platinum prices reversed in 2006.

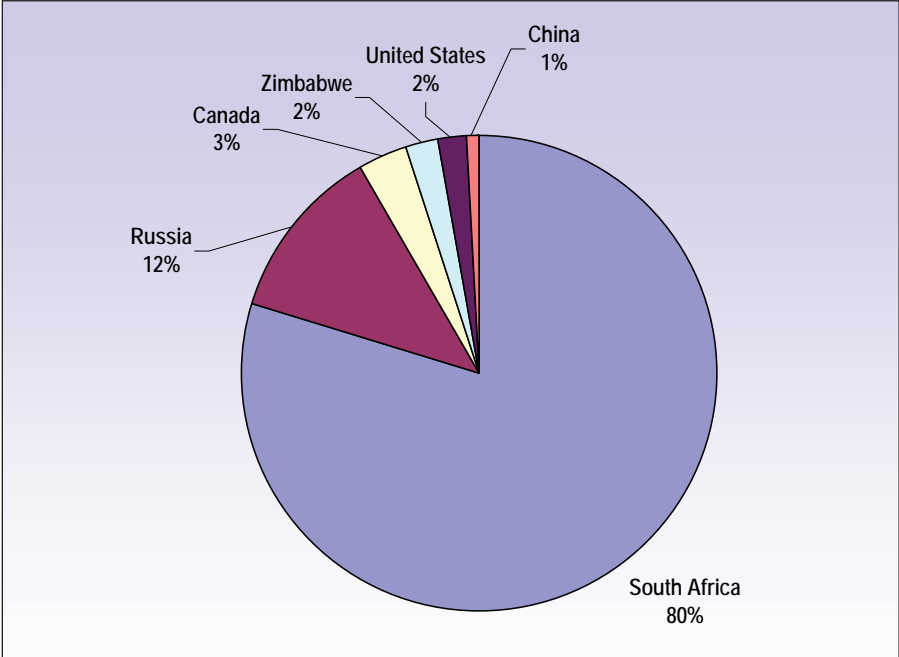
Figure 1: Platinum Mine Supply and Prices, 1998-2006



Data sources: MEG's *MineSearch* database, *Metals Week*.

As illustrated in Figure 2 below, 80% of 2006 platinum mine production came from South Africa, 12% from Russia, 3% from Canada, 2% each from Zimbabwe and the United States, and less than 1% from China.

Figure 2: Platinum Mine Supply by Location, 2006
(7 million oz)



Data source: MEG's MineSearch database.

The largest platinum-producing mine for the past several years has been Impala Platinum's wholly-owned **Impala Platinum** complex in South Africa's North West Province, where production increased slightly in the year ended June 2006 to 1.13 million oz of platinum, representing 61% of Implats's total production. A total of 16.4 million mt grading 4.63 g/mt 5PGM+Au (platinum group metals plus gold) was milled during the year at cash costs of \$127/oz Pt, net of other metal credits. The increase in throughput was partly due to increased mechanization of mining operations: mechanized stopes produced 13% of total ore milled, compared with 8.6% in 2005. However, the move to mechanization increased dilution, which contributed to reduced head grades. For the six months ended December 2006, the Impala mine reported a decrease of 8% in platinum production from the same period in 2005.

Four other mines produced 600,000 oz or more in 2006. Anglo Platinum reported production increases at its two largest mines, both in South Africa. **Rustenburg** platinum production in Limpopo, including Rustenburg Section UG2, increased almost 15% to 942,000 oz. The mine also produced 465,600 oz of palladium, 108,500 oz of rhodium, 37,100 oz of gold, 6,300 mt of nickel, and 3,200 mt of copper from

12.4 million mt grading 4.26 g/mt 3PGM+Au. Cash costs were \$850/oz Pt and \$471/oz PGM. The proportion of ore sourced from the UG2 reef increased from 57% to 63%, resulting in a 2% decrease in overall head grade for the year. Anglo Platinum also initiated the \$342.2 million (R2.3 billion) Paardekraal 2 shaft mining replacement project at Rustenburg, which will access deeper Merensky reserves and replace 120,000 oz/y of platinum by 2015.

Table 1: Major Platinum Producing Mines

Mine	Owner(s)	Location	Primary Metal	Platinum or PGM Grade (g/mt)	Platinum or PGM in Reserves (oz)	2003 Platinum Production (oz)	2004 Platinum Production (oz)	2005 Platinum Production (oz)	2006 Platinum Production (oz)
Impala Complex	Impala Platinum	South Africa	Pt	4.88	41,420,000	1,040,100	1,090,000	1,114,600	1,125,300
Rustenburg*	Anglo Platinum	South Africa	Pt	3.414	29,604,000	802,200	864,100	822,100	942,000
Lonrho Platinum	Lonmin 82% Incwala 18%	South Africa	Pt	4.14	66,296,000	932,867	913,263	904,896	897,391
Norilsk	Norilsk Nickel	Russia	Ni	1.633	5,200,000	450,000	500,000	751,000	752,000
Amandelbult Section	Anglo Platinum	South Africa	Pt	5.288	69,031,000	634,600	605,600	548,900	647,800
Union Section	Anglo Platinum	South Africa	Pt	4.811	13,248,000	313,200	319,600	310,100	327,200
Modikwa	Anglo Platinum 50% Armgold 50%	South Africa	Pt	4.82	5,455,000	172,400	228,000	256,400	291,200
Kroondal PSA	Anglo Platinum 50% Aquarius Platinum 50%	South Africa	Pt	2.99	6,471,000	128,810	143,408	180,000	262,263
Bafokeng-Rasimone	Anglo Platinum 50% Royal Bafokeng 50%	South Africa	Pt	4.52	5,638,000	177,600	183,500	195,000	240,600
Northam	Northam Platinum	South Africa	Pt	4.923	9,941,000	205,732	236,792	202,459	219,449
PPRust	Anglo Platinum	South Africa	Pt	3.344	48,046,000	188,900	196,000	200,500	185,500
Ontario Division*	CVRD Inco	Canada	Ni	1.60	8,384,000	83,000	183,000	172,000	147,000
Leplats	Anglo Platinum	South Africa	Pt	4.945	10,414,000	105,100	113,600	110,000	109,200
Stillwater	Stillwater Mining	United States	Pd	4.69	9,020,000	100,000	94,000	88,000	95,000
Makwiro	Zimbabwe Platinum 70% Impala Platinum 30%	Zimbabwe	Pt	3.35	27,389,000	82,400	84,298	86,755	90,318
Koryakgeoldobycha	Koryakgeoldobycha	Russia	Pt	N/A	N/A	125,000	125,000	100,000	80,400
Mimosa	Aquarius Platinum 50% Impala 50%	Zimbabwe	Pt	3.62	3,899,000	36,000	61,400	66,742	72,232
Everest	Aquarius Platinum 54% Savannah 26% Impala Platinum 20%	South Africa	Pt	3.12	2,464,000	N/A	N/A	7,111	56,118
Integrated Nickel Operations*	Xstrata Nickel	Canada	Ni	N/A	N/A	52,175	52,732	48,750	55,000
Marikana PSA	Aquarius Platinum 50% Anglo Platinum 50%	South Africa	Pt	3.22	4,051,000	20,042	57,774	63,868	52,757
Lonmin Limpopo	Lonmin 82% Incwala 18%	South Africa	Pt	3.56	3,587,000	24,905	45,000	11,524	50,404
Jinchuan*	Jinchuan Non-Ferrous	China	Ni	0.35	4,951,000	42,000	45,000	50,000	50,000
Western Limb Tailings	Anglo Platinum	South Africa	Pt	N/A	N/A	N/A	57,100	55,000	49,000

Table 1: Major Platinum Producing Mines (cont'd)

Mine	Owner(s)	Location	Primary Metal	Platinum or PGM Grade (g/mt)	Platinum or PGM in Reserves (oz)	2003 Platinum Production (oz)	2004 Platinum Production (oz)	2005 Platinum Production (oz)	2006 Platinum Production (oz)
East Boulder	Stillwater Mining	United States	Pd	4.02	2,829,000	34,000	36,000	38,000	43,000
Marula Platinum	Impala Platinum 78% Mmakau Mining 8% Local interest 14%	South Africa	Pt	5.2	6,855,000	N/A	13,300	29,800	40,000
Crocodile River	Barplats Investments	South Africa	Pt	3.47	2,666,000	29,500	22,000	5,000	37,648
Lac des Iles	North American Palladium	Canada	Pd	0.26	141,000	23,742	25,128	18,833	22,308
Mototolo JV	Xstrata 37% Anglo Platinum 50% Kagiso Trust 13%	South Africa	Pt	3.8	3,592,000	N/A	N/A	N/A	8,500
Kroondal Chromite Tailings	Aquarius Platinum 50% Sylvania 25% Private interest 25%	South Africa	Pt	N/A	N/A	N/A	N/A	4,000	3,799
Totals					390,592,000	5,804,273	6,295,595	6,441,338	6,953,487

*Estimated.

Data sources: MEG's MineSearch database.

Anglo Platinum's **Amandelbult Section** in Limpopo produced 647,800 oz of platinum—18% more than in 2005. Lower grades resulted from the combination of an increased UG2 percentage (from 45% to 51%) of total tonnes milled and the effect of traversing the Merensky transition zone at the No 1 shaft. Cash costs were \$638/oz Pt, \$602/oz Pt equivalent, and \$363/oz PGM. Amandelbult expects production increases to continue as the East-Upper project announced in 2006 is implemented and adds about 106,000 oz/y of platinum equivalent production beginning in 2012.

The third-largest platinum producer in 2006 was Lonmin's 82%-owned **Lonrho Platinum** mine (Incwala 18%) in North West Province, South Africa, which produced 897,391 oz of platinum—a slight decline from 2005 output of 904,896 oz—plus 400,905 oz of palladium and 125,529 oz of rhodium. Cash costs were \$368/oz (R2,441/oz) PGM, net of base metals credits. Lonmin continued to mechanize and automate mining operations, and expects that 50% will be mechanized by 2010.

In June 2007, Norilsk Nickel announced 2006 production from its mines in northwestern Russia. The division, comprising its operations in the Taimyr and Kola peninsulas, produced 3.22 million oz of palladium—the same as in 2005—plus 752,000 oz of platinum, 153,000 oz of gold, 257,000 mt of nickel, and 424,000 mt of copper. Platinum production costs in the Taimyr Peninsula decreased by 4% to \$350/oz Pt, and increased by 17% to \$439/oz Pt in the Kola Peninsula. Platinum production by the division in 2007 is projected at 700,000-710,000 oz, and palladium production at about 3 million oz. The lower forecast output for 2007 is the result of large-scale reconstruction work, including changing skip hoists at the Komsomolsky mine and reconstruction of the Norilsk beneficiation plant to increase processing of disseminated ores and stockpiled concentrate.

Aquarius Platinum's **Everest** mine (Savannah 26%, Impala 20%) in Mpumalanga, South Africa, recorded a significant production increase in 2006, although it reached only 50% of projected capacity. Everest produced 56,118 oz of platinum, compared with 7,111 oz in 2005, plus 32,108 oz of palladium, 7,821 oz of rhodium, and 984 oz of gold in concentrate from 1.5 million mt grading 3.04 g/mt PGM+Au. Overall recoveries were 68%. In the March 2007 quarter, Everest produced 40,107 oz of PGM, as underground ramp-up continued, providing 87% of total throughput. Cash costs decreased by 2% to \$484/oz (R3,504/oz) PGM, due to improved plant head grades (up 5%) and concentrator recoveries (up 11%).

Another significant production increase was recorded at Aquarius Platinum's 50%-owned **Kroondal (PSA)** pooling and sharing agreement with Anglo Platinum (50%) in Gauteng, South Africa. Platinum production increased 46% to 262,263 oz, and Kroondal produced a total of 439,445 oz of 3PGM plus gold from 6.04 million mt grading 2.89 g/mt 3PGM+Au. Cash costs were \$403/oz 3PGM+Au in concentrate. For the year, Kroondal achieved a post-expansion processing rate of 500,000 mt/month; however, higher-than-normal levels of potholing at the No 3 and East shafts lowered the average head grade. In fiscal 2007, overall grades are expected to improve, and metal production is forecast to reach 505,000 oz/y of 3PGM plus gold.

In the year ended June 30, 2006, Impala's 78%-owned **Marula** mine (Mmakau Mining 8%, local interest 14%) in Limpopo continued to struggle, but increased production to 40,000 oz of platinum—a 34% increase from 2005—plus 40,200 oz of palladium, all in concentrate. Cash costs were \$1,478/oz Pt and \$570/oz PGM. In the six months ended December 31, 2006, tonnes milled improved by 59.6%, with platinum production up 75.7% to 33,200 oz. Unit costs decreased by 10.1%. Plans were on schedule to achieve full production of 136,000 oz/y of platinum by the end of fiscal 2009.

During fiscal 2006, Barplats's wholly-owned **Crocodile River** mine in South Africa's North West Province continued to ramp up, producing 37,648 oz of platinum, for a total of 74,943 oz of 3PGM plus gold in concentrate from 1.2 million mt grading 3.2 g/mt 3PGM+Au. Cash operating costs were \$572.90/oz 3PGM+Au, and overall recoveries were 63%. Underground ore accounted for 60% of total mill throughput during the year, compared with 39% in 2005. As of May 2007, Crocodile River was producing more than 100,000 oz/y of PGM and projecting a ramp-up to 280,000 oz/y by 2010. The Kareespruit and Maroelabult North projects are slated to start delivering a further 150,000 oz/y after 2010.

One new platinum mine started production in 2006. In the fourth quarter, production ramp-up began at Xstrata's 37%-owned **Mototolo JV** (Anglo Platinum 50%, Kagiso Trust Investments 13%) in Mpumalanga, South Africa. During the quarter, 8,500 oz of platinum and 5,100 oz of palladium were produced from 318,000 mt of ore. Full production of 132,000 oz/y of platinum and 82,000 oz/y of palladium is expected during the fourth quarter of 2007. As of December 31, 2006, Mototolo's proven and probable UG2 reserves were 29.4 million mt grading 3.8 g/mt 3PGM+Au, plus 17.8 million mt of resources with similar grades.

Potential new platinum capacity totals almost 1.7 million oz over three years

Table 2 below lists the most advanced primary platinum pipeline projects. In the unlikely event that all projects reach capacity as scheduled, they will add more than 377,500 oz/y in 2007, 458,800 oz/y in 2008, and 825,500 oz/y in 2009 to world platinum production capacity. However, even if they began production on schedule, the timing of the actual production will be six to 18 months later, as these mines ramp up to capacity.

Production ramp-up began at Xstrata's 37%-owned Mototolo JV (Anglo Platinum 50%, Kagiso Trust 13%) in Mpumalanga in the fourth quarter of 2006. During the quarter, 8,500 oz of platinum and 5,100 oz of palladium were produced from 318,000 mt of ore. Full production is expected during the fourth quarter of 2007. Construction of Mototolo began in the second half of 2005, with capital costs estimated at \$210 million (R1.35 billion). The project is expected to produce about 132,000 oz/y of platinum and 82,000 oz/y of palladium in concentrate.

Table 2: Potential New Primary Platinum Capacity by Startup Year, 2007-09

Project	Owner(s)	Location	Status	Capital Costs (US\$ mil)	Platinum or PGM Grade (g/mt)	Contained Platinum or PGM (oz)	Potential New Platinum Production (oz/y)
2007 Startups							
Mototolo JV	Xstrata 37% Anglo Platinum 50% Kagiso Trust 13%	South Africa	PRD	\$210.0	3.725	5,841,000	132,000
Two Rivers	African Rainbow 55% Impala Platinum 45%	South Africa	PRD	\$154.0	3.383	7,068,000	120,000
Elandsfontein	Eland Platinum 62% Ngazana 25% Local interest 13%	South Africa	PRE	\$204.0	2.661	14,286,000	100,000
Mimosa	Aquarius Platinum 50% Impala Platinum 50%	Zimbabwe	XPN	\$23.2	3.869	16,488,000	25,500
2007 Totals				\$591.2		43,683,000	377,500
2008 Startups							
Leeuwkop	Impala Platinum 74% Bakwena 26%	South Africa	PRE	\$379.0	2.237	30,983,000	200,000
Amandelbult Section	Anglo Platinum	South Africa	XPN	\$224.0	5.521	133,625,000	100,000
Blue Ridge	Ridge Mining 50% Imbani 50%	South Africa	FEA	\$143.0	3.120	5,296,000	75,000
Panton	Platinum Australia 50% Sally Malay 50%	Australia	FEA	\$40.8	2.128	1,011,000	48,000
Smokey Hills	Platinum Australia 80% Corridor 15% Local interest 5%	South Africa	FEA	\$40.5	2.392	437,000	35,800
2008 Totals				\$827.3		171,352,000	458,800

Table 2: Potential New Primary Platinum Capacity by Startup Year, 2007-09 (cont'd)

Project	Owner(s)	Location	Status	Capital Costs (US\$ mil)	Platinum or PGM Grade (g/mt)	Contained Platinum or PGM (oz)	Potential New Platinum Production (oz/y)
2009 Startups							
PPRust North	Anglo Platinum	South Africa	XPN	\$552.9	1.956	218,655,000	230,000
Styldrift	Anglo Platinum 50% Royal Bafokeng 50%	South Africa	FEA	\$248.3	N/A	N/A	235,000
Pilanesberg	Platmin 72% Black Empowerment 28%	South Africa	FEA	\$250.0	1.847	7,008,000	152,500
Twickenham	Anglo Platinum	South Africa	LTP	\$450.0	5.389	66,717,000	150,000
Unki	Anglo Platinum 51% Anglo American 29% Local interest 15% Employees 5%	Zimbabwe	FEA	\$200.0	4.001	22,151,000	58,000
2009 Totals				\$1,701.2		314,531,000	825,500
Grand Totals				\$3,119.7		529,566,000	1,661,800

Data sources: MEG's MineSearch database.

Two new mines began production, and one more new mine and one expansion project are scheduled to start up later in 2007. African Rainbow's 55%-owned **Two Rivers** mine (Impala 45%) in Mpumalanga began production in September 2006, the first quarter of fiscal 2007, and had reached full production by January 2007. Total capital costs were under budget at \$154 million (R1.103 billion). For production in the half-year ended in December 2006, operating costs were \$627.96/oz Pt and \$359.39/oz Pt after byproduct credits. Two Rivers is expected to mine 2.2 million mt/y of ore and produce 120,000 oz/y of platinum, 80,000 oz/y of palladium, and about 30,000 oz/y of rhodium over a 20-year mine life.

At Eland Platinum's 62%-owned **Elandsfontein** project (Ngazana 25%, local interest 13%) in North West Province, open pit mining began in January 2007, and Eland expects that 600,000 mt of ore will have been stockpiled in time for commissioning of the concentrator in October 2007. Open pit mining will take place over the first five years at a run-of-mine (ROM) production rate of 200,000 mt/month. Initial production will be 100,000 oz/y of platinum (160,000 oz/y of 3PGM plus gold) from open pit ores with an estimated ROM grade of 3 g/mt 3PGM+Au and a metallurgical recovery of 55%. The open pit operating cost is estimated at R219/mt. Underground development will begin in December 2007, and by 2012 all production will be from underground. Also by 2012, metal production will have ramped up to a steady-state rate of 270,000 oz/y of 3PGM plus gold. The underground operating cost is estimated at R279/mt. The total estimated capital required for the development of the mine to August 2008, including contingency and escalation, is \$204 million (R1.46 billion).

The expansion startup scheduled for 2007 is at Aquarius Platinum's 50%-owned **Mimosa** mine (Impala Platinum 50%) in Zimbabwe. In January 2007, Aquarius and Implats announced a \$23.2 million expansion, named Wedza Phase V, to lift Mimosa's production by 25,500 oz/y to 97,500 oz/y of platinum (195,000 oz/y 3PGM plus gold), by raising concentrator capacity from 150,000 to 175,000 mt/month. The additional ore will come from the South Hill mine and will not affect day-to-day operations. The expansion project will be funded from sales cash flows. Preliminary design work began in November 2006, with completion expected in June 2007 and full production by July. During fiscal 2006, Mimosa's PGM-plus-gold production included 72,232 oz of platinum, 54,722 oz of palladium, 5,577 oz of rhodium, and 9,876 oz of gold, an increase of 8% from fiscal 2005. Cash costs were \$336/oz 3PGM+Au in concentrate.

Five projects are slated for 2008 startups, and at full capacity could add 458,800 oz/y of platinum production to world totals. The potentially largest new producer of this group is African Platinum's 74%-owned **Leeuwkop** joint venture (Bakwena 26%) on the western limb of South Africa's Bushveld complex in North West Province. In May 2007, Impala Platinum Holdings completed its acquisition of African Platinum, which was delisted. An earlier feasibility study on Leeuwkop envisioned an underground operation milling 3 million mt/y of ore to produce 200,000 oz/y of platinum (300,000 oz/y of PGM) at capital costs of \$379 million. Mining will use mechanized low-profile room-and-pillar techniques. Analysts believe that Impala's ownership will improve the chances of the project progressing smoothly.

In December 2006, Anglo Platinum approved a \$224 million expansion at its wholly-owned **Amandelbult** project in Limpopo. The East Upper UG2 project will mine the UG2 reef, using existing mining infrastructure at the vertical number 2 shaft and at three decline shafts at 44 East, 50 East, and 62 East. The recently completed 68,000-mt/month UG2 concentrator will be expanded to 190,500 mt/month. By 2012, the expansion project is expected to add 100,000 oz/y of platinum to Amandelbult's production. The \$224 million capital cost includes \$99 million for the concentrator expansion, and \$125 million for UG2 reserves development and upgrading of mining infrastructure. The expansion will begin in January 2007, with first production in 2008.

Each of the other three potential 2008 startups has estimated platinum production capacity of 75,000 oz/y or less. In the September 2008 quarter, at its 50%-owned **Blue Ridge** project (Imbani 50%) in Mpumalanga, Ridge Mining plans to start production of 75,000 oz/y of platinum, 35,000 oz/y of palladium, 13,000 oz/y of rhodium, and 1,600 oz/y of gold. In January 2007, Ridge Mining secured \$22 million (R160 million) in debt towards development of the project. A revised feasibility study estimated capital costs of \$143 million and an 18-year mine life.

By December 2006 at Platinum Australia's 50%-owned **Panton** project (Sally Malay 50%) in Western Australia, Sally Malay had refurbished and reopened the exploration decline, and a bulk sample assaying about 7 g/mt 3PGM was delivered for laboratory-scale and pilot-plant test work. Depending on the issuing of necessary permits, Platinum Australia plans to begin construction in the second half of 2007,

with plant commissioning by April 2008. Production is expected to be 48,000 oz/y of platinum, and capital costs are \$40.8 million.

In May 2007, Platinum Australia obtained approval for the \$37 million debt component of the funding required to develop its 80%-owned **Smokey Hills** project (Corridor 15%, local interest 5%) in Limpopo. It already had the necessary cash to cover the equity component of the \$40.5 million capital costs, and had placed orders for two ball mills and a transformer. Smokey Hills is expected to begin concentrate production in mid-2008, processing 720,000 mt/y to produce 35,800 oz/y of platinum (96,000 oz/y of PGM) over a seven-year mine life.

In 2009, five significant projects are scheduled to add 825,500 oz/y to world platinum production capacity. Four are in South Africa. In late July 2006, Anglo Platinum began a \$552.9 million (R3.8 billion) expansion project at its wholly-owned **PPRust North** operation in Limpopo, to increase mill throughput by 544,300 mt/month and platinum production by 230,000 oz/y beginning in 2009. In 2006, PPRust produced 185,500 oz of platinum, which was slightly below capacity.

Anglo Platinum also owns the **Styldrift** project near Rustenburg in North West Province, which will become part of the 50/50 BRPM joint venture with Royal Bafokeng. The Styldrift feasibility study began in 2006 as scheduled, and completion of the approvals process is expected during the September 2007 quarter. Project construction is scheduled to begin in early 2008, leading to production in 2009. Existing infrastructure at BRPM will be used to access Styldrift. Additional infrastructure, including a new decline shaft and a 230,000-mt/month concentrator, will allow total BRPM/Styldrift JV production to increase by 235,000 oz/y to 485,000 oz/y of platinum and 236,000 oz/y of palladium from 2.76 million mt/y of ore over a 50-year mine life. Styldrift resources are not reported separately from the BRPM joint venture, which contains more than 5.3 million oz of PGM in the Merensky Reef.

In June 2007, Platmin reported that, subject to the granting of new-order mining rights and the outcome of a feasibility study at its 72%-owned **Pilanesberg** project (BEE 28%) in North West Province, first-phase production of 152,500 oz/y of platinum (250,000 oz/y of PGM) in concentrate is anticipated in the January 2009 quarter, with ramp-up to full production by the September quarter. The nearby M'Phatlele project is expected to be the second phase. Initial equity financing is planned for the September 2008 quarter, followed by possible debt funding to a total of about \$250 million.

At Anglo Platinum's wholly-owned **Twickenham** mine in Limpopo, limited mining at the Hackney shaft during 2006 produced 6,400 oz of platinum equivalent. Funds were made available to increase production. A feasibility study is under way to expand the operation to 125,000 mt/month from the Hackney shaft and 130,000 mt/month from the Twickenham shaft. The \$450 million expansion is projected to be completed in the June 2009 quarter and to result in production of 150,000 oz/y of platinum.

During 2006, Anglo Platinum carried out a 14-hole drill program on the Paarl area, located just north of its 51%-owned **Unki** deposit (Anglo American 29%, local interest 15%, Employees 5%) in the Shurugwi region of Zimbabwe, where startup is planned for 2009 pending receipt of final approvals. For 2007, Anglo is planning additional step-out drilling and sterilization drilling for the site of the proposed tailings dam. As of September 2006, Unki's estimated capital cost had more than doubled from \$90 million to \$200 million; however, planned mill throughput capacity had been increased from 85,000 mt/month to 120,000 mt/month. About \$21 million had been spent, mainly on the construction of decline shafts.

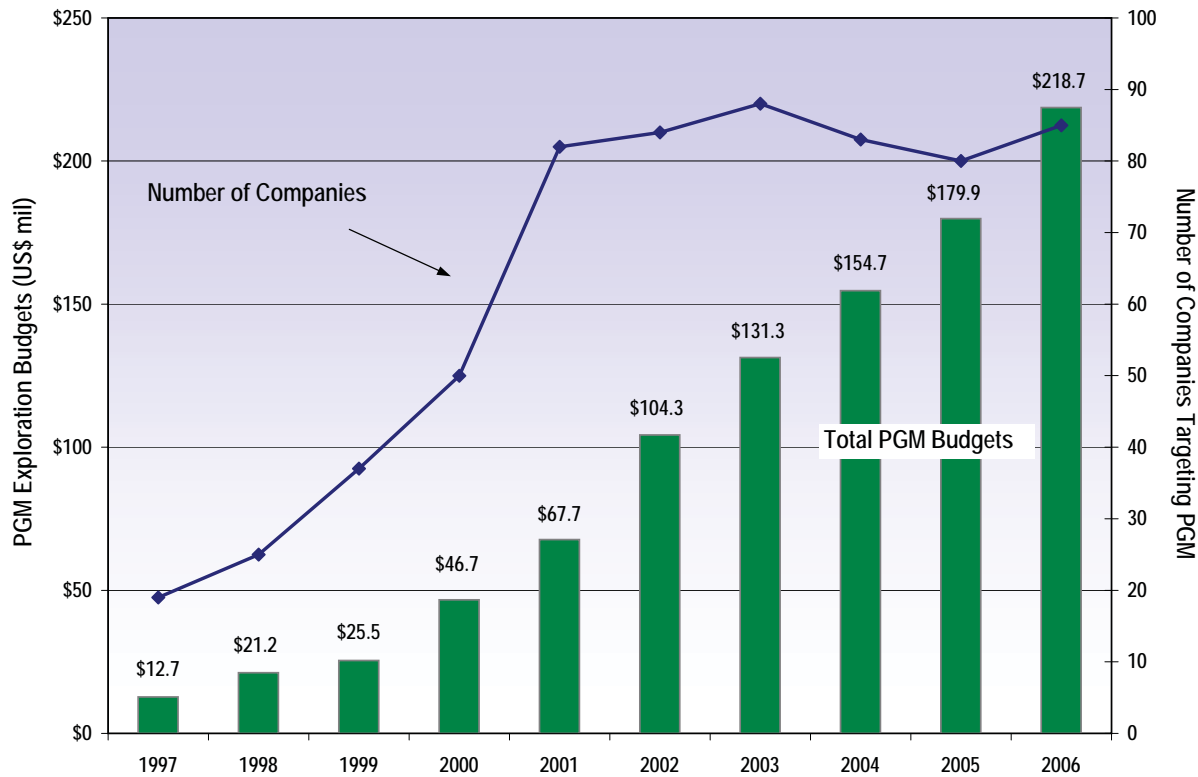
Platinum group metals exploration spending increased for the ninth straight year

In 2006, 85 companies budgeted \$218.7 million in the search for platinum group metals, compared with 80 spending \$179.9 million in 2005, according to MEG's *Corporate Exploration Strategies* (CES) study. The CES includes all companies spending US\$100,000 or more. Only 18 of the 85 companies spent more than \$2 million each, accounting for 82% of the total expenditure, and seven of the companies each spent \$10 million or more, accounting for 63% of the total.

The largest PGM exploration spender was **Anglo Platinum**, which spent \$68.2 million (31% of the total), an increase of 40% from its 2005 budget of \$48.8 million and more than five times the next-highest PGM-related budget. In 2006, Anglo Platinum allocated about 82% (\$55.6 million) of its total exploration budget to South Africa, with the lion's share (\$39.9 million) devoted to resource definition and evaluation at or near its eight wholly-owned mines in the Bushveld complex, \$6.2 million directed to feasibility-stage projects, and \$9.5 million earmarked for grassroots exploration. Elsewhere in Africa, Anglo Platinum allocated \$1 million to grassroots work in Zimbabwe. Outside Africa, Anglo Platinum allocated \$5.6 million to early-stage PGM exploration in China's Sichuan province, where it has committed to invest up to \$20 million in a joint venture with Sichuan Geology and Minerals, and \$3 million for grassroots exploration in Russia, where it has two joint ventures with London-based Eurasia Mining. Anglo Platinum budgeted \$1.2 million for exploration in Canada, as it entered its eighth year of work at the River Valley PGM-copper-nickel project northeast of Sudbury, in Ontario. The remaining \$1.8 million of Anglo Platinum's 2006 exploration budget was directed to early-stage field work in Latin America, the United States, Europe, and India.

North American Palladium replaced Gold Fields as the second-largest PGM spender in 2006 at \$13.2 million. In June 2006, the Toronto-based junior agreed to earn up to a 60% interest as operator at Gold Fields's Arctic Platinum PGM project by completing a \$7.5 million re-scoping study and a \$5 million feasibility study, making a decision to develop a mine, and issuing up to \$45 million in shares to Gold Fields by July 2008. North American also budgeted \$5.3 million for grassroots PGM exploration in Canada in 2006.

Figure 3: PGM Exploration Spending by Year, 1997-2006



Data source: MEG's Corporate Exploration Strategies.

Lonmin's \$12.5 million PGM allocation in 2006 was directed primarily to grassroots exploration. More than half (\$7.1 million) of its budget was directed to Africa, including \$4.2 million for early-stage PGM exploration in Tanzania, where the company has earn-ins at two promising ventures with Australia-based Goldstream Mining. Lonmin also budgeted \$1.5 million for late-stage work in South Africa. Elsewhere in Africa, Lonmin allocated \$900,000 for grassroots PGM exploration in Gabon, where surface exploration at its 9,400-sq-km Monts de Cristal project indicated a series of intrusions nearly 100 km in length, with marked similarities to the geochemistry of the Bushveld. Lonmin's fiscal 2006 budget also included \$5.9 million for prospecting in Canada.

Sharing the fourth spot for PGM exploration in 2006 were **AfriOre** and **Platmin**, each budgeting \$12.1 million for exploration in South Africa. AfriOre's allocation was focused on its Akanane platinum project on the northern limb of the Bushveld complex, where an updated inferred resource of 249.1 million mt grading 4.2 g/mt 3PGM+Au, 0.24% Ni, and 0.14% Cu was announced in September 2006. Platmin's 2006 exploration program included late-stage and feasibility work at four projects on the Bushveld—Pilanesberg, Grootboom, M'Phatlele, and Loskop.

Other significant spenders on PGM in 2006 included *Norilsk Nickel* and U.K.-based *Ridge Mining*, each budgeting \$10 million for exploration in Russia and South Africa, respectively. Ridge's 2006 allocation was focused on a bankable feasibility study at its 61.5%-held Sheba's Ridge joint venture (Industrial Development Corp 26%, Anglo Platinum 12.5%), located on the eastern limb of the Bushveld.

Twenty-four large deposits are in reserves development or early feasibility

Table 3 below lists 24 PGM deposits in reserves development or early feasibility that have reported at least 3 million oz of PGM in total reserves and resources. Six of the deposits, all in South Africa, each contain more than 35 million oz of PGM, for a total of 407.4 million oz of PGM, or 65% of the total reserves and resources in the 24 deposits.

The largest deposit in this group is Anglo Platinum's 50%-owned *Booyesendal* project (Khumama 50%) in Limpopo, with more than 125 million oz of 3PGM plus gold in total Merensky and UG2 measured, indicated, and inferred resources. During 2006, agreement negotiations continued with black empowerment joint venture partner, Khumama. A prefeasibility study completed during the year was being reviewed in the March 2007 quarter. Drilling is focused on upgrading and confirming the resource classification.

At Anglo Platinum's wholly-owned *Der Brochen* project, also in Limpopo, a prefeasibility study was conducted during 2006, and the results were being reviewed during the first quarter of 2007. Infill exploration drilling is ongoing. As of December 31, 2006, Der Brochen resources totaled 506.5 million mt grading 4.725 g/mt 3PGM+Au.

Table 3: Twenty-four Largest PGM Deposits in Reserves Development or Feasibility

Project	Owner(s)	Location	Reserves & Resources Tonnage (mil mt)	PGM Grade (g/mt)	Contained PGM (oz)
Booyesendal	Anglo Platinum 50% Khumama 50%	South Africa	802.8	4.85	125,062,000
Der Brochen	Anglo Platinum	South Africa	506.5	4.73	76,944,000
Tjate	Jubilee Platinum 63% Local interest 37%	South Africa	282.0	7.26	65,805,000
Kennedy's Vale	Barplats Investments	South Africa	384.9	4.82	59,648,000
Ga-Phasha	Anglo Platinum 50% Anooraq Resources 50%	South Africa	314.1	4.09	41,289,000
Imbasa-Inkosi	Impala Platinum 53% Pfula Investments 47%	South Africa	357.0	3.37	38,652,000
East Pansky	Consolidated Puma 90% Local interest 10%	Russia	60.6	17.13	33,372,000
Mooiplats	Platinum Mining Ventures 74% South African Mining 26%	South Africa	154.4	5.41	26,856,000

Table 3: Twenty-four Largest PGM Deposits in Reserves Development or Feasibility (cont'd)

Project	Owner(s)	Location	Reserves & Resources Tonnage (mil mt)	PGM Grade (g/mt)	Contained PGM (oz)
Pandora	Lonmin 43% Anglo Platinum 43% Mvelaphanda Resources 7.5% Local interest 7.5%	South Africa	158.6	4.09	20,860,000
Sheba's Ridge	Ridge Mining 62% Anglo Platinum 13% Gov't 25%	South Africa	775.0	0.76	18,991,000
Elandsfontein	Platinum Group Metals 37% Anglo Platinum 37% Africa Wide Resources 26%	South Africa	113.8	4.75	17,399,000
Akanani	Lonmin 74% Akanani 26%	South Africa	364.6	1.44	16,891,000
Arctic Platinum	North American Palladium 60% Gold Fields 40%	Finland	168.3	2.33	12,610,000
Tornio	Vulcan Resources	Finland	156.0	2.42	12,138,000
Boikgantsho	Anooraq Resources 50% Anglo Platinum 50%	South Africa	280.6	1.31	11,778,000
Pilanesberg	Wesizwe Platinum	South Africa	90.2	3.33	9,653,000
M'phatlele's	Platmin 57% Tameng 43%	South Africa	88.0	2.32	6,568,000
Spitzkop	Eastern Platinum 50% Spitzkop 50%	South Africa	84.8	2.27	6,184,000
Aurora	Pan Palladium	South Africa	133.4	1.34	5,768,000
Kliprivier	Nkwe Platinum 95% Marang 5%	South Africa	76.7	2.30	5,672,000
Rooderand/Ruighoek	Nkwe Platinum 45% Anglo Platinum 55%	South Africa	36.7	3.82	4,504,000
De Wildt	Nkwe Platinum 70% Local interest 30%	South Africa	40.4	3.40	4,416,000
Millennium	Southern Platinum (Lonmin) 85% Minex 15%	South Africa	30.6	3.76	3,699,000
Kalplats	Platinum Australia 49% African Rainbow 51%	South Africa	75.2	1.42	3,435,000
Totals/Average			5,535.3	3.53	628,194,000

Also in Limpopo, Jubilee recently completed a scoping study based on 15% of its 63%-optioned *Tjate* property (local interest 37%). With an initial capital cost of \$400 million, 262,000 oz/y of PGM plus gold could be produced at cash costs of \$45/mt over an 18-year mine life. Key scoping-study assumptions included an ROM grade of 5.2 g/mt 4PGM, 0.22% Ni, and 0.13% Cu in a resource of 34 million mt. As of June 2005, Tjate had inferred resources of 282 million mt containing 65.8 million oz of 4PGM plus gold.

In May 2007, Eastern Platinum completed its acquisition of a 74% interest in Barplats Investments (Gubevu Consortium 26%). Barplats's wholly-owned **Kennedy's Vale** project in Mpumalanga contains previously estimated compliant UG2 resources and non-compliant Merensky resources containing a total of about 60 million oz of 4PGM plus gold, including 10.5 million oz of platinum in Merensky resources and 18 million oz of platinum in UG2 resources.

In May 2007, Anoroaq Resources released an updated resource estimate for the UG2 reef at its 50%-owned **Ga-Phasha** project (Anglo Platinum 50%) in Limpopo. Measured and indicated resources remained at 82.3 million mt; inferred resources were lower at 68.49 million mt grading 2.72 g/mt Pt, 3.09 g/mt Pd, 0.54 g/mt Rh, and 0.11 g/mt Au. Total Ga-Phasha Merensky and UG2 resources contain more than 41 million oz of platinum, plus 18 million oz of palladium, rhodium, and gold.

At African Platinum's (now Impala Platinum) 53%-owned **Imbasa** and **Inkosi** areas in North West Province, a UG2 inferred resource of 181 million mt grading 4.6 g/mt 3PGM+Au, containing 26.9 million oz of 3PGM plus gold, was calculated in July 2006, with a further 176 million mt grading 2.1 g/mt 3PGM+Au, containing 11.9 million oz of 3PGM plus gold, in the Merensky Reef. These resources are along strike of the Leeuwkop resource, at comparable respective depths below surface. A scoping study of the Imbasa-Inkosi properties is being completed by Turgis Consulting using inputs comparable to those used in the Leeuwkop feasibility study. Impala Platinum's acquisition of African Platinum became effective in May 2007. ♦