

A photograph of a person wearing a white protective suit and a white hood, climbing a spiral staircase. The staircase is made of metal with a diamond-patterned mesh for the steps and railings. The person is positioned on one of the steps, looking down. The background is a large, curved, light-colored surface, possibly a tank or a large building, with some shadows cast on it. The overall lighting is warm and orange, suggesting a sunset or sunrise. The text "A review of operations" is overlaid in a large, bold, green font at the bottom of the image.

A review of operations



Alwyn Pretorius, Chief Operating Officer

Harmony's mining operations are situated in South Africa and Australia. Over the next five years, five major growth projects under way in South Africa and in Papua New Guinea (PNG) will start the transformation of our assets into a portfolio of lower-cost, longer-life operations.

For management and reporting purposes the South African operations are treated as three separate categories, namely the quality, leveraged and growth assets. The quality assets, which typically have a larger reserve base and hence a longer life, form the core of the group's operations. The leveraged assets comprise the more marginal operations, have a large resource base and provide significant upside in the event of a rise in the gold price. The growth assets are the expansion projects and new mines still under development. In addition, Harmony has a number of surface operations around existing mines, as well as the Kalgold open-pit mine and the Phoenix project.

Harmony's Australasian assets are Mt Magnet and South Kal (sold in July 2007) in Western Australia, and the Hidden

Gold production

	FY07		FY06		Variance (%)
	kg	oz	kg	oz	
South Africa	65 610	2 109 401	67 043	2 155 408	(2.1)
Quality assets	33 248	1 068 943	35 495	1 141 155	(6.3)
Growth assets	7 840	252 061	6 671	214 444	17.5
Leveraged assets	21 383	687 476	21 258	683 425	0.6
Surface operations	3 139	100 921	3 619	116 384	(13.3)
Australia	6 992	224 797	7 199	231 517	(2.9)
Total group	72 602	2 334 198	74 242	2 386 925	(2.2)

Capital expenditure by operation (R million)

Operation/project	FY07 Rm	FY06 Rm	Variance (%)
Operational capex	1 569	1 127	39.2
South Africa	1 375	946	45.3
Australasia	194	181	7.2
Project capex	1 174	561	109.3
Doornkop South Reef	238	147	61.9
Elandsrand New Mine	114	119	(4.2)
Tshepong North decline	62	53	17.0
Phakisa Shaft	234	147	59.2
Hidden Valley, PNG	526	95	453.7
Total group capex	2 743	1 688	62.5

Valley project in PNG. The four growth projects in South Africa and the growth project in PNG are dealt with in detail on pages 21 to 33.

In FY07, total gold production declined marginally to 72 602 kg (2.334 million ounces) from 74 242 kg (2.387 million ounces) the previous year. The average gold price received was 36% higher, however, at R147 580/kg or US\$638/oz.

Cash operating costs increased by 26.8% to R112 407/kg or US\$486/oz, a function of lower production and rising input costs. The operating margin for the year increased to 24% (18% in FY06), while cash operating profit rose by 75% to R2.6 billion (US\$354 million).

Attributable capital expenditure in FY07 rose to R1.2 billion (US\$163 million), an increase of 109.3% on the previous year. Operational capex (essentially the capitalisation of mine development) amounted to R1.6 billion (US\$218 million) compared with R1.1 billion for FY06.

South Africa

Looking at the year under review there are a number of highlights to report, as well as a number of challenges.

Foremost among the highlights is the improvement in safety. While we cannot boast about our safety performance until we reach a level of zero fatalities, we are pleased that both our Fatal Injury Frequency Rate (FIFR) and Lost-Time Injury Frequency Rate (LTIFR) have improved during the year, by 19% and 7% respectively on an annualized basis. This has been the result of a concerted effort by management in whom we have instilled a disciplined approach to safety. Most of our shafts have rolled out Sindlile Mosha (meaning 'safety' and 'mongoose' in seSotho, Xhosa and Zulu) – our behaviour-based safety system – which places a great deal of emphasis on and empowers the individual, and has as its basis the fundamental view that we can produce to target within a safe environment.

Another highlight was the increased level of development achieved during the year. This follows the strategic decision taken in the previous year to increase development to improve stope face length flexibility. Year-on-year development rose by 35%, 164 053m in FY07. While we started to see some of the benefits flow through from this initiative in FY07, the degree of flexibility we are seeking will be more fully felt in FY08.

We also made substantial progress with our continuous improvement programme which

is known as the Harmony Improvement Platform (HIP). This has involved a process of formalising the concept of continuous improvement in the company. We have appointed improvement leaders at an operational level to encourage ideas from employees at the rock face and to make continuous improvement a part of day-to-day operations. The ideas that are generated – we call them value propositions – are ranked and cover the areas of production, cost containment, human resources and health and safety. An example of an issue that has been regularly identified is that of eliminating bottlenecks in logistics; by so doing we are able to increase throughput which contributes directly to the bottom line. Another idea has resulted in the evaluation of different kinds of rock drills. This particular project has led to the partial roll-out of Hilti electric rock drills at Masimong mine. These rock drills have several advantages over conventional pneumatic rock drills in that they have greater penetration rates; ergonomically, they are better designed; and they emit lower levels of noise and thus are compliant with our hearing conservation programmes. To ensure that these innovations are shared and implemented throughout the company, we have developed the Harmony Improvement Zone, a virtual notice board of ideas, and have allocated people and other resources to this project.

The challenges that we faced during the year included the underperformance of our recovered grade, the declining productivity of our workforce which led to underperformance regarding production, and the fact that continuous operations (Conops) has not really lived up to our expectations.

The issue of grade and ore reserve management is vital to a group such as ours as it tends to be highly geared to the gold price. We have given a great deal of attention to this issue, particularly in the latter part of FY07. We have established a team specifically to focus on the task of reviewing the basis of our ore reserve management systems. Our way of doing things is unique in that we use cut-offs rather than pay limits. We have returned to the fundamental principle that the orebody must dictate what we mine and how we mine. We have done a great deal of work in terms of geological mapping and borehole drilling, and this has improved our

understanding of the nature of the areas that we mine. We like to get the ‘bigger picture’ regarding grade trends and facies models, to be able to understand the specific characteristics in different areas.

Increased development will improve our mining flexibility and therefore our ability to manage the average mining grade.

Our job as managers is to ensure that our workplaces are more production-worthy than ever before. We need to pay greater attention to ensuring that everything that a stope team needs to have in place is actually in place, and this includes logistics, systems and people. It also includes environmental conditions and attending to employees’ well-being. This is why we place such a great deal of emphasis on voluntary counselling and testing (VCT) for employees, the wellness programme and the provision of highly active anti-retrovirals (HAART). It extends to the use of technology, including the use of lighter machinery which is easier to use and install, and providing better transport for employees, right up to the place where they work. We have also initiated a people transformation project, in co-operation with the National Union of Mineworkers (NUM), to improve productivity. This was launched in August 2007 and we expect to see some results from this during the year ahead.

Regarding Conops, a task team has been established to investigate the detailed implementation of this concept on a shaft-by-shaft basis. Conops is the practice of non-stop mining or operating a mine for every day of the year (including Saturdays

and Sundays, but excluding the 12 official public holidays). Typically, the practice increases the use of assets to around 95% of the year, from about 75%, and allows more people to be employed. We had high hopes for Conops, and we still have, but to date the system has not fulfilled its potential to improve production in the way that it should have. It adds a layer of costs to the operations in terms of additional people, infrastructure and allowances. This means that if you do not achieve the right level of production, then you completely erode the benefits. This is a significant issue for us as close to 60% of our operations, and all of our quality operations, are running on Conops. Evander 8 and Tshepong are two flagship operations for Conops. Our task team has started at Tshepong, identifying best practice and assessing and analysing the systems in place there, and will then be moving from shaft to shaft to ensure that we implement improvements at our other operations.

Interestingly, many of the challenges we face in respect of Conops have to do with people and often involve resistance to change. When we understand the challenges better, we will be better placed to overcome them.

Quality assets

The quality operations, which include Target, Tshepong, Masimong, Evander and Randfontein’s Cooke shafts, together produced 33 248 kg (1 068 943 oz) of gold in FY07, a decrease of 6.3% on the previous year. Overall, grade decreased by 7.5% to 5.3g/t.

Quality assets – key statistics

	Units	FY07	FY06	Variance (%)
Operational statistics				
Tonnes milled	000t	6 258	6 179	1.3
Grade recovered	g/t	5.31	5.74	(7.5)
Gold produced	kg	33 248	35 495	(6.3)
	oz	1 068 943	1 141 155	(6.3)
Cash operating costs	R/kg	102 327	78 382	(30.5)
	US\$/oz	443	383	(15.7)
Financial statistics				
Revenue	R million	4 910	3 860	27.2
Cash operating cost	R million	3 403	2 782	(22.3)
Working profits (loss)	R million	1 507	1 078	39.8
Capex	R million	761	570	33.5

Cash operating costs rose by 31% to R102 327/kg, largely as a result of the lower volumes but also because of rising input costs. In dollar terms, cash operating costs increased by 15.7% to US\$443/oz.

Tshepong

Grade problems experienced at Tshepong during the year were due to increases in stoping width and overexposure in the Leeuwbosch area which has a highly variable grade, which together resulted in the underperformance of this key operation. This was exacerbated by an underground fire in the third quarter and two seismic events in the fourth quarter. By year-end, mining crews had been moved to areas anticipated to yield higher grades and this operation is expected to recover somewhat during the year ahead. Mining in the sub 66 decline area is also scheduled to increase.

Costs rose by 20% to 81 315 (US\$351/oz) as overall gold production was down by 4.9% to 9 919 kg (318 887oz). Grade was down by 6.8% from 6.44g/t to 6.00g/t.

Target

Performance at Target improved during the second half of the year as a result of the increased availability of the mining vehicle fleet, and fewer problems encountered with large rocks in massive stoping areas (which had resulted in decreased loading rates and the need for secondary blasting in the first half of the year). Harmony's fleet replacement strategy at Target, with R140 million to be spent over a period of four years, will further improve availability of trackless equipment and result in a more sustainable production profile in future. However, the grade decreased by 14.7% to 5.41 g/t as a result of the ongoing depletion of massive higher grade stopes and ongoing stope sequencing. While volumes were higher at 820 000t, total gold produced was 5.2% lower at 4 430kg (142 433oz) as a result of the lower grades. At the same time, costs rose by 21.2% to 85 678 (US\$370/oz).

Masimong

The Masimong mine continued to struggle with grade during FY07 and reported a low mine-call factor. Initiatives to improve water handling in cross cuts and optimise fragmentation and electronic ore tracking

were put in place to improve the mine call factor. Higher volumes were achieved in the final quarter and areas with improved grades have been identified in the B-reef areas.

Gold production increased by 8.7% to 4 602kg (147 958oz) for the year, on the back of higher volumes – 5.3% up on 974 000t. The average grade, at 4.72g/t, was 3.1% higher than the previous year, while cash costs rose by 29.5% to R129 565/kg (US\$552/oz).

Evander

On the whole the Evander operation had a good year, although the mine experienced some problems with ventilation at No 8 shaft and No 7 shaft continued to be affected by the footwall sill break through. The current focus at No 7 shaft is on pillars in the upper parts of the shaft and the re-establishment of mining in the pay shoot extension after unexpectedly low grade areas were encountered due to the break through in the footwall sill.

Annual gold production of R7 322kg (235 379oz) in FY07 was 14.2% down. The grade declined by 12.5% to 4.85g/t, while cash costs rose by 35.2% to R111 433/kg (US\$482/oz).

Cooke 1, 2 and 3 shafts

Randfontein's Cooke 1 and 3 shafts continue to be affected by higher costs and lower productivity, largely owing to measures put in place to minimise the exposure of employees to radiation. A dedicated return airway is currently being established at Cooke 3 to improve

ventilation flow through the mine and this will ameliorate the problem in the future.

In addition, operations were also affected by the loss of face length and reduced mining flexibility.

Overall, production declined by 8.5% to 6 975kg (224 245oz). Grade was 4.4% lower at 5.37g/t. Cash costs rose, however, to R115 269/kg (US\$499/oz).

Growth assets

The growth assets represent the future of Harmony's operations. Of the three projects under development, two of these (Elandsrand and Doornkop) are extensions of existing operations, while the third one (Phakisa) involves the development of a new mine. Details of these projects appear on pages 21 to 33.

Gold production from these shafts rose by 17.5% to 7 840kg (252 061oz) of gold during the year, as volumes increased by 14.1%. Cash operating costs rose by 8.2% to R117 289/kg (or US\$507/oz).

Elandsrand

Operations at Elandsrand improved significantly in the first half of the year, although the mine was badly affected by infrastructural failure in the second half. This included the unavailability of compressors and refrigeration plants and disruptions to the electricity supply. Significant resources have been allocated to the mine to deal with these issues, including the assigning of two full-time engineers to the shaft.

Growth assets – key statistics

	Units	FY07	FY06	Variance (%)
Operational statistics				
Tonnes milled	000t	1 554	1 362	14.1
Grade recovered	g/t	5.05	4.90	3.1
Gold produced	kg	7 840	6 671	17.5
	oz	252 061	214 444	
Cash operating costs	R/kg	117 289	108 437	(8.2)
	US\$/oz	507	530	4.3
Financial statistics				
Revenue	R million	1 158	721	60.6
Cash operating cost	R million	919	724	(26.9)
Working profits (loss)	R million	239	(3)	8 066.7
Capex	R million	735	507	45.0

With 49% of production now from the new mine, grades improved marginally from 5.94g/t to 5.98g/t. Cash operating costs increased from R106 981/kg in FY06 to R121 872/kg in FY07 due to an increase in labour, equipping and infrastructure maintenance in preparation for the build up in production planned for the next three years.

Doornkop

Doornkop commenced its first scheduled stope blasting on the South Reef in June 2007. Further information on this project can be obtained on page xx of this report.

The grade at Doornkop increased by 13.8% to 3.30g/t, resulting in a 10.9% reduction in cash operating costs to R101 708/kg. The reduction in cost also had a positive effect on the revenue reported from Doornkop, increasing from R148 million to R263 million.

Leveraged assets

Typically, the leveraged assets have large resource bases but less by way of reserves. They are older operations with lower grades than the quality assets. Importantly though, they provide a great deal of gearing for the company when the gold price rises.

The leveraged assets are Bambanani, Joel, West, St Helena, Harmony 2, Merriespruit 1 and 3, Unisel and Brand 3 in the Free State, and Orkney 1, 2 and 7 shafts in North West Province. On 4 September 2007, Harmony signed an agreement regarding the sale of the Orkney shafts to Pamodzi Gold.

Leveraged assets

	Units	FY07	FY06	Variance (%)
Operational statistics				
Tonnes milled	000t	4 996	4 644	7.6
Grade recovered	g/t	4.28	4.58	(6.6)
Gold produced	kg	21 383	21 258	0.6
	oz	687 476	683 425	0.6
Cash operating costs	R/kg	126 957	100 779	26.0
	US\$/oz	549	493	(11.4)
Financial statistics				
Revenue	R million	3 156	2 299	37.3
Cash operating cost	R million	2 716	2 142	(26.8)
Working profits (loss)	R million	440	157	180.3
Capex	R million	409	245	66.9

Surface operations

	Units	FY07	FY06	Variance (%)
Operational statistics				
Tonnes milled	000t	4 943	3 612	36.8
Grade recovered	g/t	0.64	1.00	(36)
Gold produced	kg	3 139	3 619	(13.3)
	oz	100 921	116 384	(13.3)
Cash operating costs	R/kg	93 982	87 090	(7.9)
	US\$/oz	407	426	4.5
Financial statistics				
Revenue	R million	470	379	24.0
Cash operating cost	R million	294	315	6.7
Working profits (loss)	R million	176	64	175.0
Capex	R million	118	84	40.5

In FY07, the average grade from the leveraged shafts decreased to 4.28g/t. Tonnes milled rose by 7.6% on the previous year to 5Mt resulting in an increase in gold production from 21 258kg in FY06 to 21 383kg in FY07. Cash operating costs rose by 26.0% to R126 957/kg or US\$49/oz. It was a disappointing and unfortunate year for the leveraged shafts.

Operations were halted from March 2007 at the Joel North shaft for the start of an engineering project to develop and equip a proper shaft bottom. The original construction and equipping of the shaft did not allow for the effective removal of spillage and operations would be permanently halted if this were not corrected. The project, which is costing about R10 million, will be completed in September 2007. West shaft was closed down during the year.

At Bambanani mine, operations were also stopped for three months as the scaling of the mine's second ore pass deteriorated to such an extent that it became unusable. The first ore pass had previously been taken out of service because of scaling, and work had begun developing on a new ore pass between levels 70 and 75 to replace the existing part of the old scaled ore pass in 2005. The new ore pass came into operation in July 2007 and has been appropriately lined to ensure a longer life. Bambanani is currently looking at rehabilitating one of the old ore passes and developing a new one as an alternative.

The Brand and Unisel mines all delivered good performances for the year, albeit off relatively low bases.

Surface operations

The Kalgold operation in North West Province is the primary asset within this portfolio. Tonnages from surface operations increased by 36.8% for the year to 4.9Mt, but grade decreased by 36% to 0.64g/t and this resulted in gold production declining by 13.3% to 3 139kg (100 921oz).

Cash operating costs rose by 7.9% to R93 982/kg (US\$407/oz) largely as a result of the decline in production.

The region in which the Kalgold operation is situated suffered from a severe drought during the year and consequently only 50% of the ore mined was milled during the last two quarters of the year. Because this operation is located in such a dry area, the

Australian operations

	Units	FY07	FY06	Variance (%)
Operational statistics				
Tonnes milled	000t	2 961	3 082	(3.9)
Grade recovered	g/t	2.36	2.33	1.3
Gold produced	kg	6 992	7 199	(2.9)
	oz	224 797	231 517	(2.9)
Cash operating costs	R/kg	118 635	85 694	(38.4)
	US\$/oz	513	419	(22.4)
Financial statistics				
Revenue	R million	1 021	780	30.9
Cash operating cost	R million	829	617	(34.4)
Working profits (loss)	R million	192	163	17.8
Capex	R million	720	276	160.9

plant was designed to conserve water but even this was not enough to withstand the abnormal drought conditions that prevailed and there was insufficient borehole water available.

By year-end the mining was in the last part of the D zone pit, after the completion of the final cut-back. Mining will progress into the Windmill and Watertank zones in FY08.

The Phoenix project

Harmony owns plant tailings deposits on surface in Evander, Randfontein and in the Free State. These present an opportunity for generating revenue by retreating and extracting the gold and other mineral content from the tailings by means of an Ergo-type operation. The availability of water for the re-mining and treating of the material, space for new tailings facilities and the necessary licensing approvals are pivotal to the success of Project Phoenix.

Confidence exists in our ability to be able to treat 545Mt and generate a profit of approximately R41 million per month at a gold price of R105 000 per kilogram.

Monthly tonnages treated at the plant during FY07 increased steadily to average about 280 000 tonnes. Additional surface sources treated at a higher grade and higher recovery rates have also been treated at Phoenix.

To date, R41.18 million has been spent on Project Phoenix. An amount of

R37.57 million remains to be approved over the next two years.

Australian operations

The Australian operations faced another tough year with difficult seismic conditions at the Hill 50 mine at Mt Magnet and the planned closure of the Mt Marion mine at South Kal negatively impacting on production. Production at these operations was 3.9% down on last year with 2.96Mt milled compared to 3.08Mt in 2006 and production of 224 797 ounces against 231 517 ounces in 2006. The grade was slightly higher at 2.36g/t for the year against 2.33 for the previous year.

Following two seismic events at the Hill 50 underground mine at Mt Magnet, a decision was made to systematically install dynamic ground support in the lower levels of the mine, which in turn limited stoping activities and increased operating costs. However, this new ground support regime will allow the successful and safe extraction of the remaining stopes during the winding down phase of the mine.

Although Mt Magnet has significant exploration potential the current remaining reserves provide less than one year's production and therefore the decision has been made to mine the remaining ore, place the mine into care and maintenance and put it up for sale as

an exploration play. Interest has been shown by numerous companies and it is hoped to finalise a sales agreement on this asset before the end of the 2007 calendar year.

The South Kal operation performed well against budget during the year, but our strategic intent to dispose of these assets was achieved with the signing of a sales agreement with an Australian Junior, Dioro Exploration NL at year end and divestment of other prospective exploration leases to two nickel miners, in two separate transactions. Total consideration for the package, including the nickel disposals, is A\$48 million cash and A\$20 million in Dioro script. A number of conditions precedent are still outstanding before these sales can be executed and accounted for. It is expected that these conditions will be met in the December 2007 quarter.

In the last quarter of the year, the remaining 230 000oz of gold of the hedge book initially acquired on the purchase of the Australian assets were closed out at an average price of A\$809/oz, at a total cost of A\$75.8 million. This amount was settled from available cash resources in the group. Consequently, Harmony's production is now entirely unhedged, in line with company objectives. An impairment charge of A\$67 million (R447 million), mostly relating to the Mt Magnet operation was recognised on these assets at year-end.