

# Review of operations



Hidden Valley, PNG

Phakisa, South Africa

## Introduction

Harmony's gold mining operations are located in South Africa and Papua New Guinea (PNG). In South Africa these operations are found on the world- renowned Witwatersrand Basin and the Kraaipan Greenstone Belt. In PNG, Harmony's assets are in located in Morobe Province, a highly prospective gold mining region.

Harmony produced 1 428 544 ounces of gold (44 433 kilograms)\* in FY10 at an overall grade of 2.39g/t, generating revenue of R11.28 billion and an operating profit of R2.93 billion. Operating cash costs for the group as a whole were R195 162/kg (US\$801/oz) to give an operating margin of 26%.

The largest contributors to group production were the South African operations Tshepong (15%), Kusasaletu (12%), Virginia (12%) and Masimong (11%), which together accounted for half of total production.

Harmony has in recent years embarked on a process to transform itself into a sustainable, lower-cost, high-margin gold producer with a significant production pipeline. In line with this, a review of the asset portfolio was conducted during FY10, following which certain of the Virginia and Evander shafts ceased production sooner than initially planned. In addition, given the focus on profitability, the group's strategic production target was revised to 2 million ounces by FY13. More importantly, the plan is for Harmony's South African assets to generate sufficient cash to fund the company's growth ambitions.

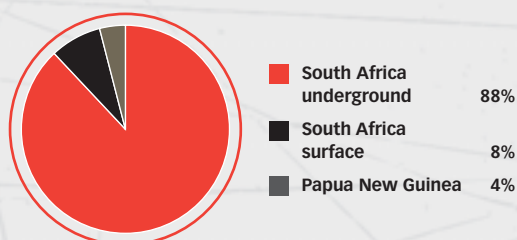
More detailed information on the economic performance and consequences of Harmony's operations is provided in the online *Sustainable Development Report* which is available on the corporate website, [www.harmony.co.za](http://www.harmony.co.za). A summary of this report is to be found in this annual report on pages 26 to 46.

\* Of this total production, 51 046 ounces (1 588 kilograms) were capitalised

Note: In the key statistics tables throughout this section, the term operating profit is comparable to the term production profit in the segment report, and not the operating profit line item in the income statement

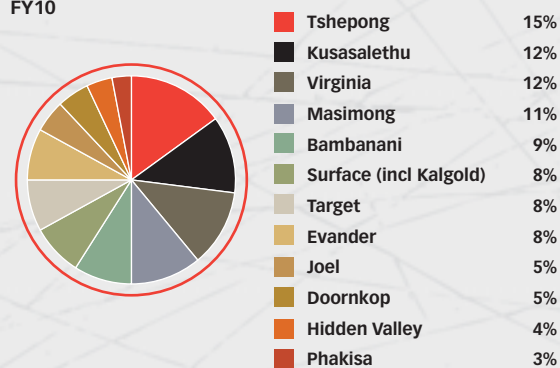
### Contribution to production

FY10



### Contribution to group production

FY10



## Review of operations cont.

### South Africa

The South African operations include 10 underground mines and several surface operations that include Kalgold and the Phoenix project as well as assorted other surface operating entities. Its South African operations also house nine gold plants. Together these operations produced 1 367 372 ounces (42 530 kilograms)\* of gold, at an average grade of 2.40g/t (FY09: 2.54g/t) – the average grade for the year for the underground operations was 4.54g/t (FY09: 4.64g/t) and for the surface operations, 0.41g/t (FY09: 0.40g/t). Given its importance in creating mining flexibility and improved operational productivity, ore reserve development continued to be a key area of focus.

During FY10, the group acquired the President Steyn 1 and 2 shafts, Lorraine 3 and the Free State 7 and 9 shafts, together with the President Steyn gold plant, collectively known as the Pamodzi Free State assets. Steyn 1 and 2 have been incorporated under the management of Bambanani, Lorraine 3 has been renamed Target 3 and incorporated under the management of the Target operation and Free State 7 and 9.

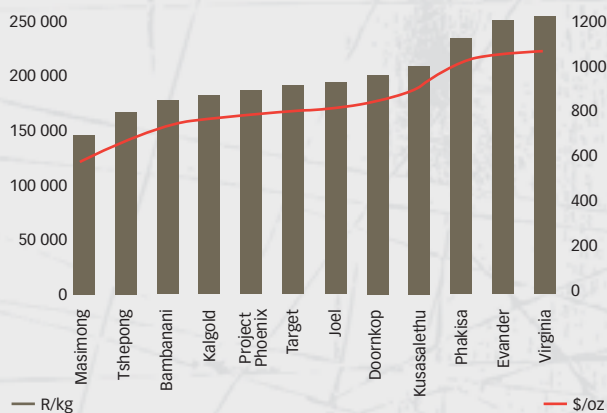
The average cash operating cost for these South African operations was R194 621/kg (US\$799/oz) (FY09: R168 661/kg; US\$583/oz) – increases of 15% and 37% respectively. Cost increases in dollar terms were aggravated by the strength of the rand. In terms of tonnes mined, costs were R467/tonne (US\$56/ton) as compared to R428/tonne (US\$43/ton) in FY09. These increases were driven largely by the escalating cost of electricity and labour as well as by the introduction of royalty payments from March 2010 in terms of the Mineral and Petroleum Resources Royalty Act.

Capital expenditure at the South Africa operations totalled R2.8 billion (US\$371 million) as compared to R2.6 billion (US\$289 million) the previous year. The increase in capital expenditure was due in large part to the equipping of the Steyn 2 shaft and shaft pillar arch at Bambanani east.

\* Of this total South African production, 4 823 ounces (150 kilograms) were capitalised

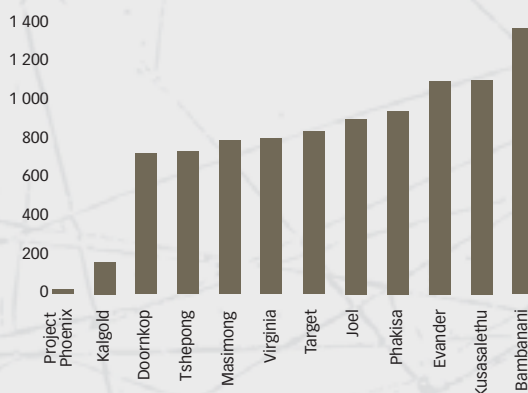
Note: In the key statistics tables throughout this section, the term operating profit is comparable to the term production profit in the segment report, and not the operating profit line in the income statement.

**South Africa – Cash operating costs by operation**



Total cash operating cost: R194 621/kg (US\$799/oz)  
(Exchange rate of US\$1: R7.58)

**South Africa – Cash operating costs (R/tonne) by operation**

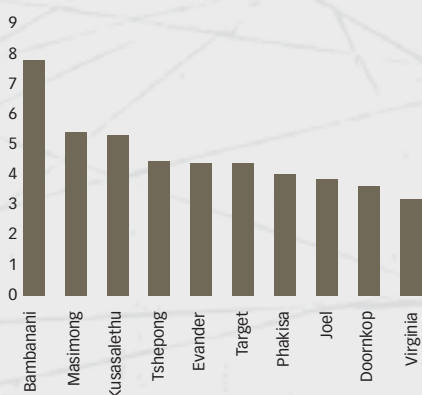


Total cash operating cost per tonne: R467/per tonne (US\$56/ton)

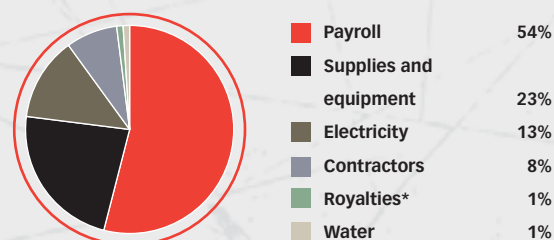
## Project update

Project	Phase	Milestones achieved in FY10	Full production	Capital expenditure to date	Outstanding expenditure
Doornkop South Reef Project	Ramping up – production of 46 422 ounces in FY10	<ul style="list-style-type: none"> <li>Equipping of the man winder compartments</li> <li>Equipping of the rock winder compartments</li> <li>Completion of the main pump station 207 level</li> </ul>	<ul style="list-style-type: none"> <li>FY15/16</li> <li>Annual full production of 250 000 ounces at a LOM grade of 4.96g/t</li> </ul>	R1.47 billion	R294 million
Kusasaletu New Mine Project	Ramping up – production of 95 836 ounces in FY10	<ul style="list-style-type: none"> <li>More than half of production now sourced from the new mine</li> <li>No 3 backfill shaft sunk to 109 level</li> <li>115 level pump station commissioned</li> </ul>	<ul style="list-style-type: none"> <li>FY13/14</li> <li>Annual full production of 286 000 ounces at a LOM grade of 6.37g/t</li> </ul>	R1 034 million	R77 million
Phakisa Project	Ramping up – production of 44 079 ounces in FY10	<ul style="list-style-type: none"> <li>Rail-veyor infrastructure completed with commissioning of third rail-veyor train</li> <li>Phase 1 (ice plants, surface buildings and change houses) implemented</li> <li>Installation of permanent water handling system</li> </ul>	<ul style="list-style-type: none"> <li>FY13/14</li> <li>Annual full production of 245 000 ounces at a LOM grade of 7.70g/t</li> </ul>	R1.5 billion	R228 million
Tshepong Sub-71 decline Project	Development still in progress – first gold production scheduled for July 2012	<ul style="list-style-type: none"> <li>New raise lines developed from the decline shaft</li> </ul>	<ul style="list-style-type: none"> <li>July 2019</li> <li>Annual full production of 73 000 ounces at a LOM grade of 5.73g/t</li> </ul>	R133 million	R114 million

South Africa – Grade (g/t) by underground operation



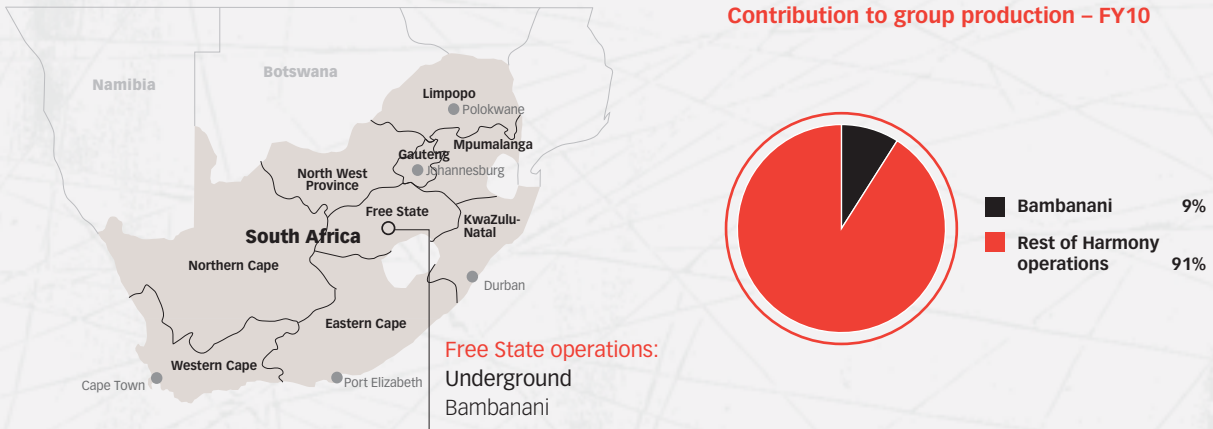
South Africa – breakdown of cash operating costs FY10



\*Royalty payments in line with the Mineral and Petroleum Resources Royalty Act came into effect in March 2010. It is estimated that these royalty payments will constitute 2% of total costs at the South African operations.

## Review of operations – South Africa

# Bambanani



## Description

Harmony's Bambanani mine is located in the Free State, near Welkom. One of the group's older mines, it consists of a surface shaft and a sub-shaft. Ore mined is conveyed to Harmony 1 plant, seven kilometres away, for processing. This deep-level operation conducts mostly scattered mining on the Basal Reef with around a quarter of its mining activities involving remnant pillar extraction. Development is under way in preparation for the extraction of the shaft pillar, due to begin in 2012. Following the acquisition of the Pamodzi Gold's Free State assets, the President Steyn (1 and 2 shafts) operation was incorporated into Bambanani.

Bambanani employed 3 887 people in all in FY10 – 3 611 were employees and 276 contractors.

Detailed information on Bambanani's resources and reserves are available in the *Mineral resources and mineral reserves* section of this annual report on pages 132 to 142.

## Safety

The improved safety performance in FY08 and FY09 stalled somewhat in FY10. Bambanani regrettably had one fatality in FY10 (FY09: one) and reported a LTIFR of 9.29 per million hours worked (FY09: 7.48).

More detailed information on safety performance and Harmony's sustainable development concerns in South Africa can be found in the online *Sustainable Development Report* on the corporate website, [www.harmony.co.za](http://www.harmony.co.za). A summary of this can be found on pages 26 to 46 of this annual report.

## Bambanani key statistics

<b>Production</b>		<b>FY10</b>	<b>FY09</b>	<b>FY08</b>
Volumes milled	000t (metric)	<b>528</b>	517	827
	000t (imperial)	<b>582</b>	570	912
Gold produced <sup>††</sup>	kg	<b>4 137</b>	3 780	4 817
	oz	<b>133 007</b>	121 530	154 879
Average grade	g/t	<b>7.77</b>	7.32	5.82
	oz/t	<b>0.227</b>	0.213	0.170
<b>Financial</b>				
Revenue	R million	<b>1 114</b>	924	932
	US\$ million	<b>147</b>	103	128
Operating cost*	R/kg	<b>176 253</b>	176 834	148 671
	US\$/oz	<b>723</b>	611	639
Operating profit	R million	<b>369</b>	273	191
	US\$ million	<b>49</b>	31	26
Capital expenditure	R million	<b>207</b>	52	107
	US\$ million	<b>28</b>	6	15
<b>Sustainability</b>				
Number of employees				
	Employees	<b>3 611</b>		
	Contractors	<b>276</b>		
	Total	<b>3 887</b>		
HDSAs in management <sup>**</sup>	%	<b>44</b>		
Women in mining <sup>**</sup>	%	<b>9</b>		
Expenditure on training and development	R million	<b>13</b>		
Safety				
	No. of fatalities	<b>1</b>		
	LTIFR	<b>9.29</b>	per million hours worked	
Environment				
	Energy used	<b>467</b>	000MWh	
	Water used for primary activities	<b>3 505</b>	000m <sup>3</sup>	
	GHG emissions	<b>559</b>	000t CO <sub>2</sub> e	
Expenditure on local economic development	R million	<b>4</b>		
Status of mining right	New order mining right granted in December 2007			

\* Includes royalty payment in FY10

\*\* Indicator reported in terms of the MPRDA and the South African Mining Charter

†† 33 kilograms (1 061 ounces) were capitalised

## Review of operations – South Africa

### Bambanani cont.

#### Operations review

In all, 528 000 tonnes were milled in FY10, an increase of 2% from 2009. The head grade improved by 9% to 8.07g/t, contributing to a 9% increase in gold produced to 133 007 ounces, of which 4 104 ounces were capitalised.

The conversion of Bambanani into a high-grade, low-volume operation continued during FY10. There was increased emphasis on disciplined mining throughout the year and in particular on the achievement of daily tramming and hoisting targets as well as efficient vamping and clean mining.

Following a fatal fall of ground incident in the second quarter, extensive changes were made to the mining method in the steeply dipping, high-stope-width panels in the lower levels of the sub-shaft. Although these changes, from breast to down-dip mining, temporarily led to reduced volumes mined while alterations to mining plans and methods were implemented, these revisions proved to be successful regarding both safety and production performance. The application of down-dip stoping is now well entrenched.

Greater attention is also being given to the improvement of the blast cycle by increasing the number of blasts per panel in the sub-shaft (historically difficult, high channel steep stopes) and the delivery of higher volumes to maintain plant throughput at targeted levels.

Regarding development, two raise lines were completed in the sub-shaft area and on-reef development in this area has come to an end. Development grade was boosted at year-end with the development of the high-grade shaft pillar raise, although this is considered as stoping.

Mining in the sub-shaft area will come to an end in the next three years, following which mining will take place around the high-grade shaft pillar. Mining of the shaft pillar will take eight years. Backfill will be used to minimise ground control-related risks when mining begins in the shaft pillar in June 2012.

This project will involve the mining of 2.2Mt at an average grade of 11.08g/t, yielding just over 26 000 kilogram (835 900 ounces) of gold.

Equipping of the Steyn 2 shaft is under way. Face length flexibility, infrastructural shortcomings and heat are the main obstacles to production here. Progress was made with the decline shaft infrastructure and the haulage from 73 level to Bambanani is being rehabilitated to assist Steyn 2 in maintaining its shaft bottom and keeping it clean of spillage. Areas affected by heat problems at Steyn 2 are now being supplied with chilled water from Bambanani and temperatures have substantially improved.

Steyn 2 is expected to yield around 46 000oz of gold annually over six years at an average grade of 6.92g/t.

#### Financial review

Revenue and cash operating profit increased significantly in both rand and dollar terms, a result of the higher average gold price received for the year. Revenue was R1 114 million (US\$147 million) and cash operating profit, R369 million (US\$49 million), up by 21% and 35% respectively. Production cost of R745 million (US\$98 million) for the year was 14% higher (36% up in dollar terms). The major contributors to increased costs were rises in electricity and labour costs.

Capital expenditure more than quadrupled in FY10 to R207 million due to the inclusion of an amount of R94 million capital costs of the Steyn operations. The majority of the remaining capital at Bambanani East was for the shaft pillar work amounting to R66 million.

## Outlook\*

Production is planned to increase to around 766 000 tonnes in FY11, at an average grade of 6.98 g/t. Grade is expected to improve further once the shaft pillar is exploited, rising from FY12 onwards. Gold production will peak in FY13 at 6 000 kilograms (193 000 ounces). Cash costs\*\* are expected to be stable at around R190 000/kg (\$775/oz), with a substantial decline expected with the mining of the shaft pillar from FY13.

**Excluding Steyn:** Capital expenditure\*\* of R197 million (US\$26 million) is planned for FY11 – R14 million (US\$2 million) on ongoing development, R19 million (\$3 million) on major equipment maintenance and R164 million (US\$21 million) on project capital.

**Including Steyn:** Capital expenditure\*\* of R250 million (US\$33 million) is planned for FY11 – R16 million (US\$2 million) on ongoing development, R24 million (US\$3 million) on major equipment maintenance, R30 million (US\$4 million) on other shaft capital and R180 million (US\$24 million) on project capital.

Current productivity levels of 140.0g/TEC are forecast to improve to an average of 205g/TEC during peak production.

\* Please refer to the forward-looking statements

\*\* June 2010 money terms. The exchange rate of R7.63/US\$ as at 30 June 2010 has been used for all forward-looking conversions.



Bambanani, South Africa

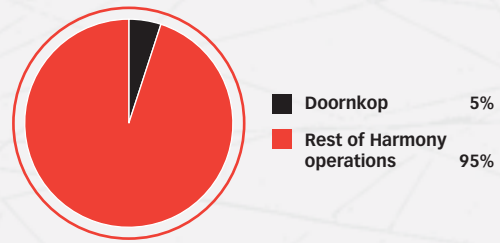


## Review of operations – South Africa

# Doornkop



Contribution to group production – FY10



## Description

Located 30 kilometres west of Johannesburg in Gauteng, Doornkop is a single-shaft operation mining to a depth of just less than 2 000m. Doornkop mines the Kimberley and South reefs by means of both narrow-reef conventional mining and mechanised bord-and-pillar mining. Ore mined is processed at Doornkop’s carbon-in-pulp plant. Production at Doornkop’s South Reef Project which accesses the higher grade South Reef continues to ramp up. Full production at this project is scheduled for FY15.

Doornkop employed 2 649 people in FY10, of whom 1 645 were employees and 1 004 contractors.

Detailed information on Doornkop’s resources and reserves are available in the *Mineral resources and mineral reserves* section of this annual report on pages 143 to 146.

## Safety

Although there was an improvement in certain safety indicators at Doornkop in FY10, there were most regrettably two fatalities (FY09: no fatalities). The LTIFR improved to 5.50 per 1 million hours worked (FY09: 6.25). A greater focus on safety-related matters led to streamlined procedures and improved training, maintenance and behaviour.

More detailed information on safety performance and Harmony’s sustainable development concerns in South Africa can be found in the online *Sustainable Development Report* on the corporate website, [www.harmony.co.za](http://www.harmony.co.za). A summary of this can be found on pages 26 to 46 of this annual report.

## Doornkop key statistics

<b>Production</b>		<b>FY10</b>	<b>FY09</b>	<b>FY08</b>
Volumes milled	000t (metric)	<b>540</b>	549	448
	000t (imperial)	<b>595</b>	605	494
Gold produced	kg	<b>1 950</b>	1 311	1 370
	oz	<b>62 694</b>	42 150	44 038
Average grade	g/t	<b>3.61</b>	2.38	3.06
	oz/t	<b>0.105</b>	0.070	0.089
<b>Financial</b>				
Revenue	R million	<b>517</b>	343	258
	US\$ million	<b>68</b>	38	35
Operating cost*	R/kg	<b>200 324</b>	232 699	175 178
	US\$/oz	<b>822</b>	804	749
Operating profit	R million	<b>107</b>	62	33
	US\$ million	<b>14</b>	7	4
Capital expenditure	R million	<b>342</b>	395	349
	US\$ million	<b>45</b>	44	48
<b>Sustainability</b>				
Number of employees				
	Employees	<b>1 645</b>		
	Contractors	<b>1 004</b>		
	Total	<b>2 649</b>		
HDSAs in management**	%	<b>38</b>		
Women in mining**	%	<b>8</b>		
Expenditure on training and development	R million	<b>10</b>		
Safety				
	No. of fatalities	<b>2</b>		
	LTIFR	<b>5.50</b>	per million hours worked	
Environment				
	Energy used	<b>155</b>	000MWh	
	Water used for primary activities	<b>2 725</b>	000m <sup>3</sup>	
	GHG emissions	<b>184</b>	000t CO <sub>2</sub> e	
Expenditure on local economic development	R million	<b>4</b>		
Status of mining right	New order mining right granted in December 2007			

\* Includes royalty payment in FY10

\*\* Indicator reported in terms of the MPRDA and the South African Mining Charter

## Review of operations – South Africa

### Doornkop cont.

#### Operations review

Despite a 2% decline in volumes milled to 540 000 tonnes, an increase of 52% in grade contributed to gold produced being 49% up at 62 694 ounces year-on-year. The much improved grade was a result of the growth in high-grade volumes mined from the South Reef and under achievement on the low-grade Kimberley Reef as well as a high mine call factor for the shaft as a whole.

The greater volume of South Reef ore mined was in line with the build up of production at the South Reef project. Tonnes mined from South Reef mining areas accounted for 50% of total tonnes mined in FY10 – up from 30% the year before – while the contribution from the Kimberley Reef declined from 70% to 50%. The average grade of South Reef tonnes mined rose to 5.4g/t while that of the Kimberley Reef remained flat.

The low-grade Kimberley Reef operation is mechanised and production during the year was compromised by the lack of availability of trackless machinery. The new trackless fleet that has been purchased will improve production in the coming year.

There was a steady improvement in development metres achieved which will help to ensure that the build-up in the South Reef project is achieved and that targets are met. Problems were however encountered with the equipping of the shaft in terms of the South Reef project given the temporary shaft time constraints experienced. The winder compartments were subsequently equipped and the conveyor belt on 212 level (shaft bottom) was completed.

Much effort has been put into increasing our understanding of the geology of the South Reef orebody. This work has led to an increase in South Reef reserve ounces with the move in resources from inferred to indicated and measured categories, and has also increased confidence in the life-of-mine production plan. Further work to improve the geological model of the South reef continues.

There is currently a four-year plan in place for the mining of the Kimberley Reef in terms of which production areas on the Kimberley Reef will account for up to 75% of Doornkop's total gold production annually. This proportion will decline as higher-grade volumes from the South Reef project build up. A new geological model has been developed of the Kimberley Reef to identify target areas for exploration, the results of which may extend the four-year plan currently in place.

The mine as a whole is building up to mine and process 1.6Mt annually.

#### Financial review

The higher gold price received together with the significant increase in ounces produced resulted in revenue for the year being 51% higher in rand terms and 79% up in dollar terms. Production costs of R410 million (\$54 million) were 46% and 74% up in rand and dollar terms respectively. These increases were largely driven by higher labour costs, owing to the build up in the staff complement in anticipation of the operation's future production profile, by once-off transport costs incurred around the surface conveyor belt fire, and by additional store costs related to the equipping of the South Reef workplaces.

Despite the cost increases, cash operating profit increased by 73% to R107 million. Capital expenditure of R342 million (\$45 million) exceeded the planned amount of R305 million owing to repairs done to a fire-damaged surface conveyor belt (R28 million), the purchase of trackless equipment for the Kimberley Reef section and an approved change in the scope of the South Reef project following on the delays resulting from the lack of shaft time. In all, the bulk of this expenditure (66%) was on the South Reef project.

## Outlook\*

The build-up of production from the South Reef continues with full production from this project scheduled for the last quarter of FY15. Tonnes mined are forecast at around 993 000 tonnes in FY11, at a recovered grade of 3.59g/t. South Reef ore is expected to account for 53% of the total milled and 74% of the gold produced in FY11. Cash costs\*\* are anticipated to improve to approximately R181 200/kg (US\$739/oz) in FY11.

Planned capital expenditure\*\* for FY11 is R320 million (\$42 million) – R 136 million (\$18 million) on on-going development, R49 million (\$6 million) on other shaft capital and major equipment maintenance and R 135 million (\$18 million) on the South Reef project.

Currently productivity levels of 122g/TEC are forecast to improve to 131g/TEC in FY11.

\* Please refer to the forward-looking statements

\*\* June 2010 money terms. The exchange rate of R7.63/US\$ as at 30 June 2010 has been used for all forward-looking conversions.



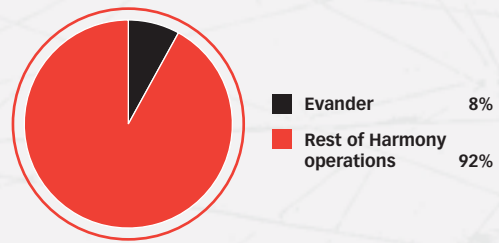
Doornkop, South Africa

## Review of operations – South Africa

### Evander



Contribution to group production – FY10



### Description

The Evander operation (Evander 8), located in Mpumalanga, mines the Kimberley Reef in the Evander Basin. Ore mined is milled and processed at the Kinross plant, which has a hybrid CIP/CIL process. Evander 8 shaft has an expected life-of-mine of around 11 years. A project to deepen this shaft, by means of an additional twin decline system down to 25 level and extensions to the infrastructure, is currently under way. Following a review by Harmony of uneconomical operations, the Evander 7 shaft ceased production given that its orebody had been depleted while the Evander 2 and 5 shafts were closed.

The Evander operation employed 3 331 people – 3 052 employees and 279 contractors – in FY10.

Detailed information on Evander’s resources and reserves are available in the *Mineral resources and mineral reserves* section of this annual report on pages 150 to 152.

### Safety

There were most regrettably two fatalities (FY09: two fatalities) at Evander in FY10. Despite this, the LTIFR improved to 7.41 per 1 million hours worked (FY09: 10.39).

More detailed information on safety performance and Harmony’s sustainable development concerns in South Africa can be found in the online *Sustainable Development Report* on the corporate website, [www.harmony.co.za](http://www.harmony.co.za). A summary of this can be found on pages 26 to 46 of this annual report.

## Evander key statistics

<b>Production</b>		<b>FY10</b>	<b>FY09</b>	<b>FY08</b>
Volumes milled	000t (metric)	<b>788</b>	1 125	1 312
	000t (imperial)	<b>869</b>	1 241	1 447
Gold produced	kg	<b>3 475</b>	5 912	7 210
	oz	<b>111 724</b>	190 075	231 799
Average grade	g/t	<b>4.41</b>	5.25	5.50
	oz/t	<b>0.129</b>	0.153	0.160
<b>Financial</b>				
Revenue	R million	<b>910</b>	1 514	1 402
	US\$ million	<b>120</b>	168	193
Operating cost*	R/kg	<b>248 190</b>	165 377	121 641
	US\$/oz	<b>1 018</b>	572	526
Operating profit	R million	<b>51</b>	516	486
	US\$ million	<b>7</b>	57	66
Capital expenditure	R million	<b>175</b>	210	242
	US\$ million	<b>23</b>	24	33
<b>Sustainability</b>				
Number of employees				
	Employees	<b>2 865</b>		
	Contractors	<b>466</b>		
	Total	<b>3 331</b>		
HDSAs in management**	%	<b>31</b>		
Women in mining**	%	<b>8</b>		
Expenditure on training and development	R million	<b>22</b>		
Safety				
	No. of fatalities	<b>2</b>		
	LTIFR	<b>7.41</b>	per million hours worked	
Environment				
	Energy used	<b>397</b>	000MWh	
	Water used for primary activities	<b>5 267</b>	000m <sup>3</sup>	
	GHG emissions	<b>491</b>	000t CO <sub>2</sub> e	
Expenditure on local economic development	R million	<b>5</b>		
Status of mining right	New order mining right granted in December 2007			

\* Includes royalty payment in FY10

\*\* Indicator reported in terms of the MPRDA and the South African Mining Charter

## Review of operations – South Africa

### Evander cont.

#### Operations review

Ore milled for the year totalled 788 000 tonnes, a decline of 30% on FY09. This together with a decline in grade resulted in a 41% decrease in gold produced to 111 724 ounces. This drop in operational performance was caused by a combination of factors, the most significant being the restructuring during the year of the Evander operations. A due diligence of these operations – Evander 2, 5, 7 and 8 – led to the conclusion that the only economically viable shaft was Evander 8. Mining operations at Evander 2, 5 and 7 shafts thus ceased during the year and Evander 8 was restructured. The shaft infrastructure at Evander 7 will be utilised by Evander 8 for the pumping of water and the hoisting of rock as well as being available for use as a second escape. High temperatures underground, caused by ventilation return capacity restrictions at Evander 8 remained problematic and hampered production.

Once the restructuring of Evander had been completed, a feasibility study was undertaken which proved the viability of Evander 8. Greater attention was thus given to this shaft and a re-engineering project was implemented which involves not just the deepening of the decline but its repositioning within the payshoot. This will give immediate access to the high-grade areas between 24 and 25 level, and will contribute to improved productivity with consequent financial benefits. The project's parameters include the optimisation of logistics, cooling and ventilation as well as an upgrade of the refrigeration plant. It is estimated that, on a monthly basis, this project will yield 245 kilograms (7 876 ounces) from 29 000tpm at an average grade of 8.56g/t. The monthly capacity of the conveyor belt is to be upgraded to 46 000tpm.

Following the closure of the Evander 2 and 5 shafts as well as the Winkelhaak plant, a one-year clean up programme was begun at and in the vicinity of the plant. The aim of this programme, which will continue into FY11, is to clean up any metal contained in the plant footprints, to process rock from the dumps on the vicinity, to rehabilitate the Winkelhaak plant, and to clean the surface rail network. In FY10, around 292 642 tonnes were treated via this programme at a recovered grade of 1.81g/t, yielding 528 kilograms (16 975 ounces) of gold.

Current productivity rates of 93g/TEC are planned to increase to an average of 145g/TEC over the remaining life of this operation.

#### Financial review

Revenue declined by 40% in rand terms to R910 million while production costs fell by 14% in rand terms to R859 million and were almost constant in dollars at \$113 million. Unit costs however rose by 50% to R248 190/kg and by 78% to \$1 018/oz, a result of reduced production. Operating profit plunged to R51 million (\$7 million).

Capital expenditure of R175 million, which declined by 17%, was spent mostly on ongoing development (R84 million), major equipment maintenance (R18 million) and on shaft capital (R45 million) with the balance being spent on major project capital for Evander 8 (R28 million).

#### Outlook\*

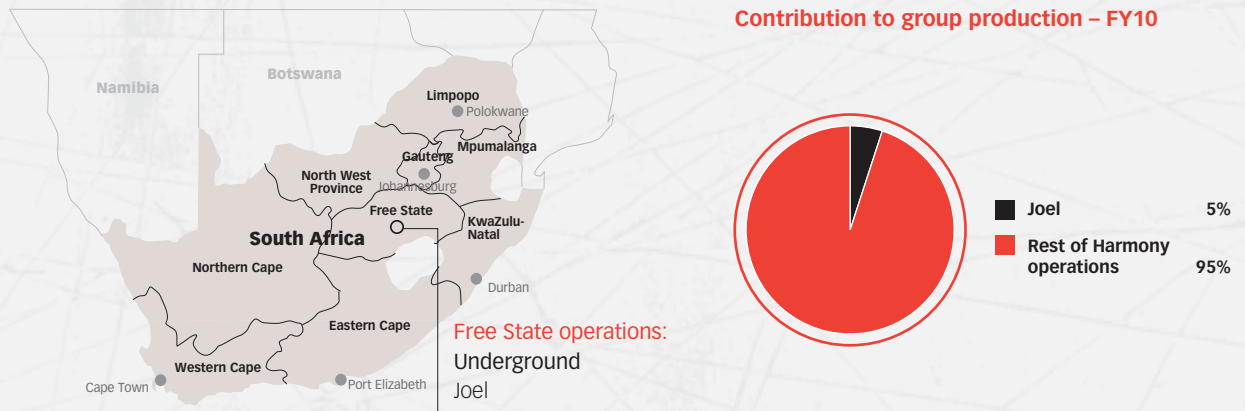
Mining will continue to take place on the edges of the higher grade payshoot during FY11 while development takes place to make the high-grade areas available.

In FY11, 514 000 tonnes are expected to be milled at an average recovered grade of 4.52g/t. Capital expenditure\*\* of R196 million (\$26 million) is planned for FY11 – R56 million (\$7 million) on on-going development, R21 million (\$3 million) on major equipment maintenance and R119 million (\$16 million) on major project and other shaft capital.

\* Please refer to the forward-looking statements

\*\* June 2010 money terms. The exchange rate of R7.63/US\$ as at 30 June 2010 has been used for all forward-looking conversions.

# Joel



## Description

Joel mine, which is located in the Free State, on the south-western edge of the Witwatersrand Basin, comprises two shafts, North and South shafts. Previously ore mined at Joel was transported to Central Plant, 38km away for processing but, since the recommissioning of the Joel Plant in November 2009, is now processed on site. Scattered mining takes place on the Beatrix Reef, down to a depth of some 1 400m. Upgrading of the infrastructure at North Shaft is currently in progress.

Joel employed 1 470 in FY10, of which 1 436 were employees and 34 contractors.

Detailed information on Joel's resources and reserves are available in the *Mineral resources and mineral reserves* section of this annual report on pages 132 to 142.

## Safety

Safety performance at Joel deteriorated in FY10. Having had no fatalities for two years, there was tragically one fatality in FY10, the result of a rockfall, while the LTIFR for the year was 4.26 per million hours worked (FY09: 2.59).

More detailed information on safety performance and Harmony's sustainable development concerns in South Africa can be found in the online *Sustainable Development Report* on the corporate website, [www.harmony.co.za](http://www.harmony.co.za). A summary of this can be found on pages 26 to 46 of this annual report.



## Review of operations – South Africa

### Joel cont.

#### Joel key statistics

<b>Production</b>		<b>FY10</b>	<b>FY09</b>	<b>FY08</b>
Volumes milled	000t (metric)	<b>439</b>	513	407
	000t (imperial)	<b>484</b>	566	449
Gold produced	kg	<b>2 006</b>	2 043	1 852
	oz	<b>64 495</b>	65 684	59 557
Average grade	g/t	<b>4.57</b>	3.98	4.55
	oz/t	<b>0.133</b>	0.116	0.133
<b>Financial</b>				
Revenue	R million	<b>524</b>	503	375
	US\$ million	<b>69</b>	56	52
Cash costs*	R/kg	<b>193 019</b>	183 925	148 035
	US\$/oz	<b>792</b>	636	638
Operating profit	R million	<b>145</b>	137	91
	US\$ million	<b>19</b>	15	13
Capital expenditure	R million	<b>88</b>	56	39
	US\$ million	<b>10</b>	6	5
<b>Sustainability</b>				
Number of employees				
	Employees	<b>1 436</b>		
	Contractors	<b>34</b>		
	Total	<b>1 470</b>		
HDSAs in management**	%	<b>50</b>		
Women in mining**	%	<b>10</b>		
Expenditure on training and development	R million	<b>6</b>		
Safety				
	No. of fatalities	<b>1</b>		
	LTIFR	<b>4.26</b>		
Environment				
	Energy used	<b>79</b>		
	Water used for primary activities	<b>682</b>		
	GHG emissions†	<b>94</b>		
Expenditure on local economic development	R million	<b>3</b>		
Status of mining right	New order mining right granted in December 2007			

\* Includes royalty payment in FY10

\*\* Indicator reported in terms of the MPRDA and the South African Mining Charter

† Includes Joel plant

## Operations review

Despite a 15% improvement in grade mined, volumes milled declined by 14% to 439 000 tonnes in FY10, resulting in an overall decline of 2% in gold produced to 2 006 kilograms (64 495 ounces). The improved grade was a result of increased face grade in the west, greater vamping in the upper mine and reduced stoping widths.

Volumes mined were negatively affected by a mud slide at the bottom of North shaft, a guided rope shaft. A temporary mud press was subsequently installed and mud is removed daily from the bottom of the shaft. Despite this, raise boring of the North shaft expansion to 129 level was completed although hoisting constraints resulted in the equipping of the shaft deepening project to 129 level being delayed.

An extensive programme to rectify the problems experienced with North shaft had begun by the end of June 2010. While production at Joel has progressively moved to the deeper portions of the mine, some 1 400 metres below surface, the North Shaft, which accesses these areas, was never fully equipped for this and adjustments to the shaft spillage arrangements are now being made retrospectively. The modifications being made include: changing the winder from sinking to production mode; installing larger skips; ensuring that emergency egress is available; raise boring the lift shaft from 121 to 129 level; and improving cleaning arrangements at the shaft bottom.

Operations were halted while these changes were under way. The shaft resumed operations in August 2010, once repairs to the shaft bottom had been completed. In the interim, the Joel plant has been processing waste to maximise gold production. The opportunity will be taken to install the permanent spillage arrangement during December 2010.

Once mining from 129 level has begun, production is expected to peak at around 78 000oz annually at an average grade of 5.82g/t and an average cost in real terms of R180 103/kg. To ensure that these production targets are met, plans have been put in place to ensure the operability of the North shaft and conduct a planned maintenance programme to minimise breakdowns, to maintain blast advances and to assess the feasibility of mining below 129 level to 137 level. A successful drilling programme has been completed and a pre-feasibility study is in progress.

## Financial review

Revenue increased by 4% to R524 million and by 23% to \$69 million, boosted by the higher gold price. Cash operating costs in rand terms were contained, rising by 5% to R193 019/kg. Consequently, operating profit was up by 6% to R145 million (up 27% to US\$19 million). Capital expenditure of R88 million was 57% higher than in FY09 mainly due to capital spent on the programme to upgrade the North shaft.

## Outlook\*

Production at Joel is expected to decrease marginally to 426 000 tonnes in FY11, while the average grade mined will rise to around 4.74g/t. Gold production will consequently be slightly higher at around 2 029 kilograms (65 234 ounces). Cash costs are expected to be approximately R217 085/kg (US\$885/oz).

Total capital expenditure\*\* planned for FY11 is R66 million (US\$9 million) – R32million (US\$4 million) on on-going development and R34 million (US\$5 million) on major equipment maintenance and other shaft capital.

Current productivity levels of 125g/TEC are forecast to improve to an annual average of 152g/TEC during peak production.

\* Please refer to the forward-looking statements

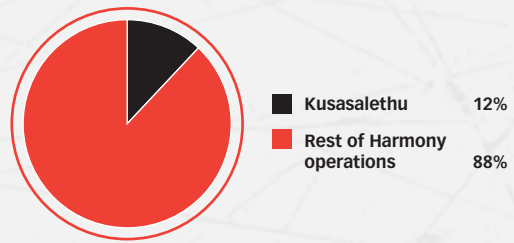
\*\* June 2010 money terms. The exchange rate of R7.63/US\$ as at 30 June 2010 has been used for all forward-looking conversions.

## Review of operations – South Africa

# Kusasaletu



Contribution to group production – FY10



## Description

The Kusasaletu mine (formerly Elandsrand), which is located on the Gauteng-North West Province border, comprises twin vertical and twin sub-vertical shaft systems. Mining at Kusasaletu is undertaken using conventional mining methods in a sequential grid layout. The deepening project, which is almost complete, involves the extension of the sub-vertical shafts to access the deeper parts of the Ventersdorp Contact Reef up to a depth of 3 600 metres. Work on the project is currently focussed on accessing and opening up areas of the new mine and the development and construction of the necessary support infrastructure. Ore mined at Kusasaletu is treated at the Kusasaletu plant.

The rebranding and name change of this operation in February 2010 was based on entrenching a culture, endorsed by both management and the unions, to ensure safe, productive mining. The five core values of this new culture are safety as the first priority; accountability; respect; honesty; and rewarding excellence.

Kusasaletu employed 5 685 people – 5 049 employees and 636 contractors – in FY10.

Detailed information on Kusasaletu's resources and reserves are available in the *Mineral resources and mineral reserves* section of this annual report on pages 143 to 149.

## Safety

Historically, this mine has had a less than impressive safety record which affected the ability to meet targets and achieve plans. Hand-in-hand with the new vision for the mine has gone a concerted effort to focus on creating a safe working environment at Kusasaletu. This has borne fruit and overall safety performance improved in FY10, but there were most regrettably two fatalities (FY09: five fatalities). The LTIFR improved to 6.68 per million hours worked (FY09: 12.67). Seismicity continued to be a risk and steps were taken to improve the quality of the pre-conditioning at the stope face so as to reduce the possibility of face ejection during small, volatile seismic events.

More detailed information on safety performance and Harmony's sustainable development concerns in South Africa can be found in the online *Sustainable Development Report* on the corporate website, [www.harmony.co.za](http://www.harmony.co.za). A summary of this can be found on pages 26 to 46 of this annual report.

## Kusasaletu key statistics

<b>Production</b>		<b>FY10</b>	<b>FY09</b>	<b>FY08</b>
Volumes milled	000t (metric)	<b>1 035</b>	962	890
	000t (imperial)	<b>1 141</b>	1 061	981
Gold produced	kg	<b>5 444</b>	5 422	5 108
	oz	<b>175 029</b>	174 321	164 215
Average grade	g/t	<b>5.26</b>	5.64	5.74
	oz/t	<b>0.153</b>	0.164	0.167
<b>Financial</b>				
Revenue	R million	<b>1 392</b>	1 422	964
	US\$ million	<b>184</b>	158	133
Operating cost*	R/kg	<b>208 864</b>	191 097	152 611
	US\$/oz	<b>857</b>	660	652
Operating profit	R million	<b>301</b>	366	213
	US\$ million	<b>40</b>	41	30
Capital expenditure	R million	<b>430</b>	422	318
	US\$ million	<b>57</b>	47	44
<b>Sustainability</b>				
Number of employees				
	Employees	<b>5 049</b>		
	Contractors	<b>636</b>		
	Total	<b>5 685</b>		
HDSAs in management**	%	<b>33</b>		
Women in mining**	%	<b>10</b>		
Expenditure on training and development	R million	<b>39</b>		
Safety				
	No. of fatalities	<b>2</b>		
	LTIFR	<b>6.68</b>	per million hours worked	
Environment				
	Energy used	<b>629</b>	000MWh	
	Water used for primary activities	<b>2 138</b>	000m <sup>3</sup>	
	GHG emissions	<b>765</b>	000t CO <sub>2</sub> e	
Expenditure on local economic development	R million	<b>10</b>		
Status of mining right	New order mining right granted in December 2007			

\* Includes royalty payment in FY10

\*\* Indicator reported in terms of the MPRDA and the South African Mining Charter

## Review of operations – South Africa

### Kusasaletu cont.

#### Operations review

Although volumes milled rose by 8% to just over 1Mt, a 7% decline in grade resulted in gold produced being fractionally higher on the 2009 financial year at 175 029 ounces. Currently, 60% of production at Kusasaletu is from production areas below 100 level (the new mine expansion project) and 40% from production areas in the 'old' mine, above 100 level.

Underperformance on square metres broken was the mine's biggest challenge in FY10. Scaling in the main reef and waste ore pass systems resulted in blockages in both systems, which contributed to waste dilution and resulted in the lower recovered grade during the year.

By year-end it was decided to separate reef and waste and to continue with the removal of the blockage in the waste pass system between the old mine (above 100 level) and the new mine (below 100 level). Once the blockage has been removed, waste rock and reef ore will again be tipped into one ore pass system to accommodate the rehabilitation of both ore pass systems. While this will dilute the recovered grade, it will not affect gold production.

Productivity, which is currently at 84g/TEC, is a concern. Plans are in place to increase this to 158g/TEC in 2013, once peak production has been achieved, by increasing volumes from the new mine where the mining operation is more efficient. The mine deepening project infrastructure is 95% complete. The shaft infrastructure is in place and work over the next two years will focus mainly on the provision of sufficient cooling and ventilation into the new mine areas.

#### Financial review

The stronger rand over the year has resulted in revenue in rand terms declining by 2% to R1 392 million, negating the effect of the higher dollar gold price received. Cash operating cost rose by 9% to R208 864/kg and by 30% to \$857/oz, also a function of the strength of the rand. This also had an impact on cash operating profit which declined by 18% in rand terms to R301 million and by 2% in dollars terms to \$40 million.

Capital expenditure for the year totalled R430 million (\$57 million), spent mostly on on-going development (R266 million), the maintenance of equipment (R34 million) and development of the new mine project (R90 million).

#### Outlook\*

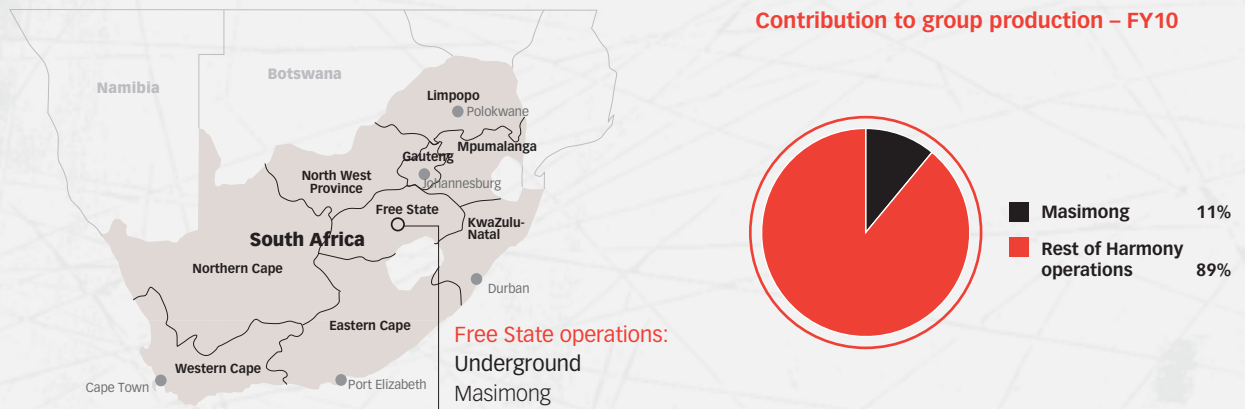
The planned build-up in production at Kusasaletu will continue in line with the life-of-mine plan for the new mine project. Milling volumes of 1.3 million tonnes are planned for FY11, at an average grade of 5.16g/t, yielding 200 000oz. Once levels 109 and 113 have come into production by July 2013, gold output is scheduled to rise to more than 300 000oz. The grade mined will increase progressively, averaging 6.45g/t, as the mine reaches full production by 2013 and as more mining takes place in the high-grade facies where the Elsburg Reef sub-outcrops against the Ventersdorp Contact Reef, causing localised enrichment on the western side of the mining lease area.

Total capital expenditure\*\* planned for FY11 is R414 million (US\$54 million) – R284 million (US\$37 million) on on-going development, R39 million (US\$5 million) on major equipment maintenance and R39 million (US\$5 million) on other shaft capital. The balance of R52 million (US\$7 million) is planned for the Kusasaletu new mine project.

\* Please refer to the forward-looking statements

\*\* June 2010 money terms. The exchange rate of R7.63/US\$ as at 30 June 2010 has been used for all forward-looking conversions.

# Masimong



## Description

Masimong, which is in the central Free State, consists of an operating shaft – 5 shaft – and 4 shaft which, although closed, is used for ventilation, pumping and as a second outlet. Ore mined at Masimong is processed at the Harmony 1 Plant around 23 kilometres away. Conventional drilling, blasting and scraping operations are focussed on the Basal and B reefs. The shafts are intermediate in depth, extending to around 2 300 metres.

Masimong employed 3 205 in FY10, of which 3 067 were employees and 138 contractors.

Detailed information on Masimong's resources and reserves are available in the *Mineral resources and mineral reserves* section of this annual report on pages 132 to 142.

## Safety

Overall safety performance at Masimong improved in FY10, but there was most regrettably one fatality (FY09: two fatalities). The LTIFR improved to 7.37 per 1 million hours worked (FY09: 8.67).

More detailed information on safety performance and Harmony's sustainable development concerns in South Africa can be found in the online *Sustainable Development Report* on the corporate website, [www.harmony.co.za](http://www.harmony.co.za). A summary of this can be found on pages 26 to 46 of this annual report.

## Review of operations – South Africa

### Masimong cont.

#### Masimong key statistics

<b>Production</b>		<b>FY10</b>	<b>FY09</b>	<b>FY08</b>
Volumes milled	000t (metric)	<b>899</b>	890	809
	000t (imperial)	<b>991</b>	981	892
Gold produced	kg	<b>4 840</b>	4 791	3 621
	oz	<b>155 609</b>	154 034	116 424
Average grade	g/t	<b>5.38</b>	5.38	4.48
	oz/t	<b>0.157</b>	0.157	0.131
<b>Financial</b>				
Revenue	R million	<b>1 277</b>	1 215	698
	US\$ million	<b>168</b>	135	96
Operating costs*	R/kg	<b>146 674</b>	137 598	175 593
	US\$/oz	<b>602</b>	476	756
Operating profit	R million	<b>575</b>	554	61
	US\$ million	<b>76</b>	62	8
Capital expenditure	R million	<b>177</b>	130	114
	US\$ million	<b>23</b>	14	16
<b>Sustainability</b>				
Number of employees				
	Employees	<b>3 067</b>		
	Contractors	<b>138</b>		
	Total	<b>3 205</b>		
HDSAs in management**	%	<b>19</b>		
Women in mining**	%	<b>12</b>		
Expenditure on training and development	R million	<b>14</b>		
Safety				
	No. of fatalities	<b>1</b>		
	LTIFR	<b>7.37</b>		
Environment				
	Energy used	<b>229</b>		
	Water used for primary activities	<b>1 722</b>		
	GHG emissions	<b>274</b>		
Expenditure on local economic development	R million	<b>13</b>		
Status of mining right	New order mining right granted in December 2007			

\* Includes royalty payment in FY10

\*\* Indicator reported in terms of the MPRDA and the South African Mining Charter

## Operations review

Volumes milled increased marginally year-on-year by 1% to 899 000 tonnes and grades were maintained. Consequently, gold produced was also 1% up at 155 609 ounces.

Maintaining grades on the B Reef proved challenging as mining moved out of the high-grade channels while those mined on the Basal Reef generally remained constant. Nevertheless grades were maintained overall for the year at 5.38g/t. Productivity levels improved to average 28.81t/TEC for the year.

The infrastructural upgrade, which began in FY09 and included improved resource management and the installation of new tracks, locomotives and compressors, was completed in FY10. Masimong will reap the benefits of this upgrade by way of improved productivity, efficiencies and output in coming years.

Ventilation is a challenge at Masimong as the booster fans currently installed themselves generate heat and consume electricity. Steps are being taken to counter this. Pressure doors have been installed as an interim measure and a new ventilation system is being installed.

A new refrigeration plant is to be installed by September 2011 at a cost of R61 million. Following the upgrade programme, full production is scheduled for 2012 at a forecast average rate of annual production of around 158 000 ounces at an average grade of 5.11g/t. To help achieve this, face advances are planned to increase from 2m<sup>2</sup>/TEC to 7m<sup>2</sup>/TEC and every effort has been made to ensure that panels are well equipped and crews motivated, and steps have been taken to overcome the erratic grade of the B reef.

## Financial review

Revenue was 5% up in rands to R1 277 million while in dollars, it increased by 24% to US\$168 million. Cost increases were well controlled during the year with unit costs rising by 7% to R146 674/kg and, in dollars, by 26% to US\$602/oz, making Masimong the lowest cost producer among Harmony's operations. The higher gold price achieved in dollars was countered by the strong rand, resulting in operating profit increasing by 4% to R575 million and by 21% to \$76 million. Capital expenditure of R177 million (\$23 million) was spent largely on booster fans, emergency generators and the infrastructure upgrade.

## Outlook\*

Volumes milled are expected to rise to 1 million tonnes in FY11 at a grade of around 4.9g/t. Gold production is forecast to be approximately 4 900 kilograms (158 000 ounces) at a cash cost\*\* in the region of R167 132/kg (US\$681/oz).

Capital expenditure\*\* of R208 million (US\$27 million) is planned for FY11 – R119 million (US\$16 million) on on-going development and R89 million (US\$12 million) on major equipment maintenance and other shaft capital. Of this, the major items are R28 million (US\$4 million) to be spent on the refrigerator plant at Masimong 5 shaft and R19 million (US\$2 million) on the upgrading of rail bound equipment.

Current productivity levels of 138g/TEC are forecast to improve to an annual average of 172g/TEC during peak production.

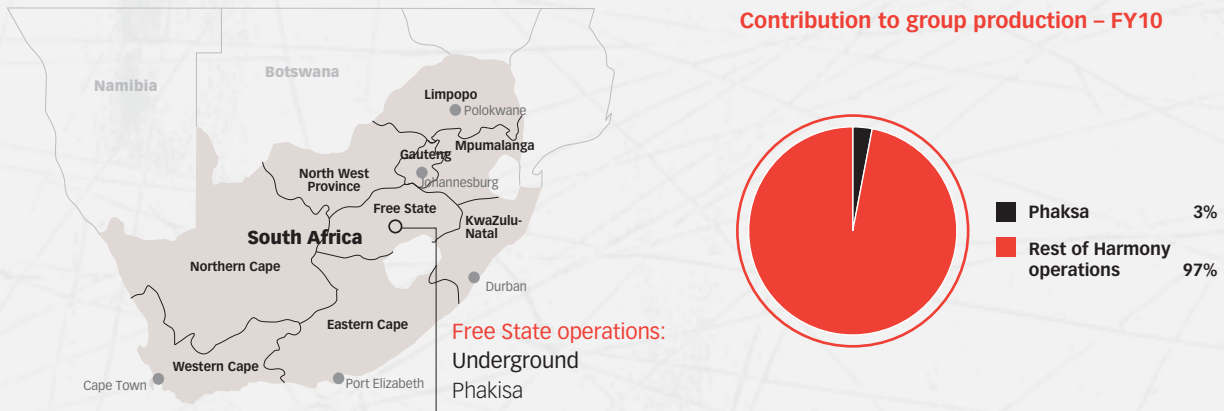
\* Please refer to the forward-looking statements

\*\* June 2010 money terms. The exchange rate of R7.63/US\$ as at 30 June 2010 has been used for all forward-looking conversions.



## Review of operations – South Africa

# Phakisa



## Description

Phakisa mine, located in the Free State, mines the Basal Reef. Once the mine expansion project has been completed this mine will operate to a depth of some 2 400 metres and have a monthly capacity of 83 000 tonnes. Phakisa came into production in FY08. This operation includes the Nyala shaft, 5.5 kilometres away, which is used to hoist rock and is available as a second escape route. Ore mined at Phakisa is processed at Harmony 1 Plant, some 20 kilometres away.

Phakisa employed 3 034 in FY10, of which 2 858 were employees and 176 contractors. This is scheduled to increase to 3 181 people in FY11.

Detailed information on Phakisa's resources and reserves are available in the *Mineral resources and mineral reserves* section of this annual report on pages 132 to 142.

## Safety

During FY10, Phakisa had three fatal accidents (FY09: no fatalities). Two fatalities were a result of a fall of ground in the development section and one was caused by a training accident. Post year-end, an explosion underground tragically resulted in five fatalities. The LTIFR for FY10 improved to 8.40 per million hours worked (FY09: 9.19).

More detailed information on safety performance and Harmony's sustainable development concerns in South Africa can be found in the online *Sustainable Development Report* on the corporate website, [www.harmony.co.za](http://www.harmony.co.za). A summary of this can be found on pages 26 to 46 of this annual report.

## Phakisa key statistics

<b>Production</b>		<b>FY10</b>	<b>FY09</b>	<b>FY08</b>
Volumes milled	000t (metric)	<b>339</b>	185	31
	000t (imperial)	<b>374</b>	204	34
Gold produced	kg	<b>1 371</b>	691	125
	oz	<b>44 079</b>	22 216	4 024
Average grade	g/t	<b>4.04</b>	3.74	4.04
	oz/t	<b>0.118</b>	0.109	0.118
<b>Financial</b>				
Revenue	R million	<b>375</b>	171	28
	US\$ million	<b>50</b>	19	4
Operating costs*	R/kg	<b>232 190</b>	160 712	129 853
	US\$/oz	<b>953</b>	555	497
Operating profit	R million	<b>49</b>	64	11
	US\$ million	<b>7</b>	7	2
Capital expenditure	R million	<b>486</b>	461	293
	US\$ million	<b>64</b>	51	40
<b>Sustainability</b>				
Number of employees				
	Employees	<b>2 858</b>		
	Contractors	<b>176</b>		
	Total	<b>3 034</b>		
HDSAs in management**	%	<b>32</b>		
Women in mining**	%	<b>11</b>		
Expenditure on training and development	R million	<b>10</b>		
Safety				
	No. of fatalities	<b>3</b>		
	LTIFR	<b>8.40</b>	per million hours worked	
Environment				
	Energy used	<b>67</b>	000MWh	
	Water used for primary activities	<b>408</b>	000m <sup>3</sup>	
	GHG emissions	<b>81</b>	000t CO <sub>2</sub> e	
Expenditure on local economic development	R million	<b>2</b>		
Status of mining right	New order mining right granted in December 2007			

\* Includes royalty payment in FY10

\*\* Indicator reported in terms of the MPRDA and the South African Mining Charter

## Review of operations – South Africa

### Phakisa cont.

#### Operations review

Milled volumes increased by 83% year-on-year. This together with an 8% improvement in the grade mined contributed to a 98% increase in gold produced to 44 079 ounces.

The increase in volumes was in line with the build-up in production currently under way. Plans are still on track to attain monthly production capacity of 83 000 tonnes by FY13. The build-up was affected by geological issues, illegal mining activities and down-time on the new infrastructure. The rail-veyor infrastructure necessary for full production was completed and the third rail-veyor was commissioned in December 2009. Implementation of phase 1 was concluded with the replacement of the original skips and cages by an eight-tonne skip and a detachable cage. Fine-tuning of this infrastructure and of the ice plants and rock handling systems in particular, continued. The five ice plants were found to be underperforming and the original equipment manufacturers have been engaged to assist with remedial action and to advise on ways of improving performance.

Mining was also undertaken at the Nyala shaft where payable pillars are available for mining. For FY10, 32% of total combined Phakisa/Nyala production came from Nyala.

Since it is a new mine, development at Phakisa is currently centred close to the shaft in the lower grade southern areas. The major drive is on development of the area to the north to access higher grade areas and to move closer to the average reserve grade. Grades will improve as development progresses towards the north and more reef is exposed within the major north-west to south-east trending Basal Reef payshoot. A steep build-up in production is planned, building up to annual production of more than 1Mt a year at an average grade of 7.94g/t and yielding around 270 000oz.

#### Financial review

Revenue for the year rose by 119% to R375 million, boosted by the increase in production and the higher gold price received. In dollar terms, revenue was up 163% to US\$49 million. Costs increased as a result of production build up costs as well as the cost of employees transferred from shafts that had been closed to Phakisa. With the transition from project phase into production, a portion of Phakisa's commissioning costs were capitalised. Cash operating costs in rands increased by 44% to R232 190/kg and were 72% up in dollar terms to \$953/oz.

Capital expenditure for the year was R486 million (\$64 million), the bulk of which was spent on the expansion project as well as on on-going development and the maintenance of major equipment.

#### Outlook\*

As the mine continues with its build-up to full production and given greater flexibility and availability of face length, the grade at Phakisa is expected to improve further in FY11. The mine is on track to attain full production during FY13. The average grade mined should increase from FY12 onwards when mining is scheduled to move into the higher-grade north areas.

Volumes milled will continue to increase in FY11, rising to 563 470 tonnes, while the grade is expected to average approximately 4.2 g/t. Gold production of 2 350 kilograms (75 555 ounces) is planned for FY11 at a cash cost\*\* of R242 080/kg (US\$987/oz). Cash costs should decline once this operation has reached full production.

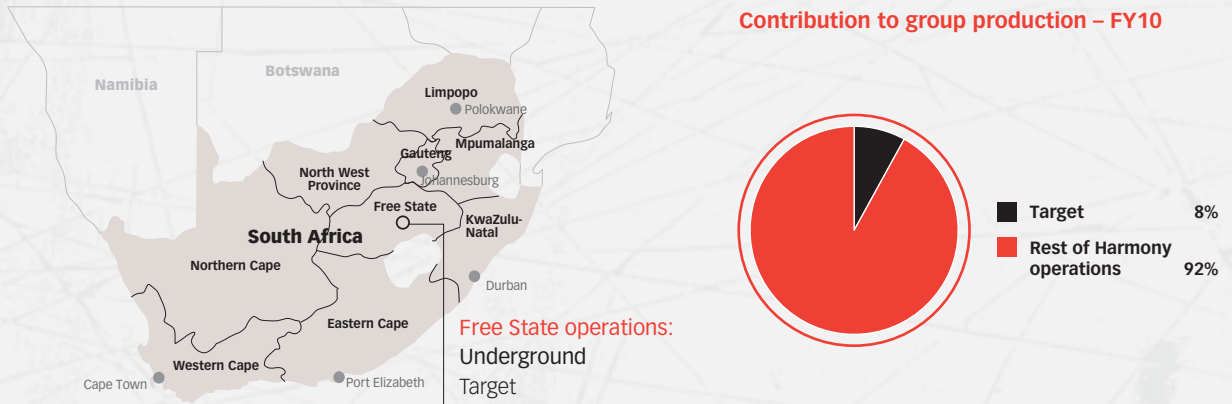
Planned capital expenditure\*\* for FY11 is R391 million (US\$51 million). Of this, R182 million (US\$24 million) will be spent on on-going development and R44 million (US\$6 million) on major equipment maintenance and other shaft capital. Capital planned for the major project is R165 million (US\$22 million).

Current productivity levels of 46g/TEC are forecast to improve to an annual average of 224g/TEC during peak production.

\* Please refer to the forward-looking statements

\*\* June 2010 money terms. The exchange rate of R7.63/US\$ as at 30 June 2010 has been used for all forward-looking conversions.

# Target



## Description

Located in the Free State, Target mine consists of a single surface shaft system with a sub-shaft and a decline. Ore is processed at the Target plant situated adjacent to the shaft. Both mechanised (86%) and conventional (14%) mining are undertaken on the geologically complex Elsburg and Dreyerskraal reefs. Mining operations extend to a depth of some 2 350 metres. With the acquisition of Pamodzi's Free State assets, one of these, the Target 3 shaft (formerly Loraine 3) was incorporated into Harmony's Target operation in the second half of the year.

Target employed 3 078 in FY10, of which 2 676 were employees and 402 contractors.

Detailed information on Target's resources and reserves are available in the *Mineral resources and mineral reserves* section of this annual report on pages 132 to 142.

## Safety

A concerted effort has been made in recent years to improve safety at Target. Although safety performance improved in terms of LTIFR in FY10, there were regrettably two fatalities during the year (FY09: two), the result of falls of ground. These are now a major focus of the safety programme at Target. The LTIFR improved to 3.39 per million hours worked (FY09: 9.66).

More detailed information on safety performance and Harmony's sustainable development concerns in South Africa can be found in the online *Sustainable Development Report* on the corporate website, [www.harmony.co.za](http://www.harmony.co.za). A summary of this can be found on pages 26 to 46 of this annual report.

## Review of operations – South Africa

### Target cont.

#### Target key statistics

<b>Production</b>		<b>FY10</b>	<b>FY09</b>	<b>FY08</b>
Volumes milled	000t (metric)	<b>777</b>	644	622
	000t (imperial)	<b>857</b>	710	686
Gold produced <sup>††</sup>	kg	<b>3 539</b>	2 713	2 476
	oz	<b>113 782</b>	87 225	79 602
Average grade	g/t	<b>4.40</b>	4.21	3.98
	oz/t	<b>0.128</b>	0.123	0.116
<b>Financial</b>				
Revenue	R million	<b>878</b>	688	503
	US\$ million	<b>116</b>	76	69
Operating costs*	R/kg	<b>190 720</b>	186 749	167 990
	US\$/oz	<b>783</b>	645	716
Operating profit	R million	<b>214</b>	152	129
	US\$ million	<b>28</b>	16	18
Capital expenditure	R million	<b>382</b>	342	256
	US\$ million	<b>51</b>	38	35
<b>Sustainability</b>				
Number of employees				
	Employees	<b>2 676</b>		
	Contractors	<b>402</b>		
	Total	<b>3 078</b>		
HDSAs in management <sup>**</sup>	%	<b>34</b>		
Women in mining <sup>**</sup>	%	<b>11</b>		
Expenditure on training and development	R million	<b>13</b>		
Safety				
	No. of fatalities	<b>2</b>		
	LTIFR	<b>3.73</b>		
Environment				
	Energy used	<b>228</b>		
	Water used for primary activities	<b>2 755</b>		
	GHG emissions <sup>†</sup>	<b>279</b>		
Expenditure on local economic development	R million	<b>3</b>		
Status of mining right	New order mining right granted in December 2007			

\* Includes royalty payment in FY10

\*\* Indicator reported in terms of the MPRDA and the South African Mining Charter

† Includes Target plant

†† 117 kilograms (3 762 ounces) capitalised

## Operations review

Work done in FY09 to open up and increase the availability of the massive stopes at Target resulted in increased output. Volumes milled rose by 21% to 777 000 tonnes and this together with a 5% increase in grade resulted in ounces produced being 31% up on the year at 113 782 ounces.

FY10 at Target was notable for the consistent quarterly performance achieved, in line with plans. The programme to remodel and re-estimate the Target orebody was completed early in the year and led to much improved planning and design, which resulted in greater availability of the massive stopes, and the resolution of ventilation and cooling problems which enabled the return to production of all 10 narrow-reef, conventional mining panels. This programme will also permit Target to better manage its ore reserves which is crucial to the mine's future success.

The pre-feasibility study for the Block 3 project was completed, giving management a more thorough understanding of the orebody, which facilitated grade predictions and the mine planning function.

Good values were sampled in two raises currently being developed for narrow stoping at Target 1. Development at Target 3 is being done on the Elsburg Reef while, owing to logistical constraints, development of the better grade Basal reef has been delayed.

At Target 3, there were several challenges to be resolved including face length flexibility, infrastructural shortcomings and the build-up of mud and water at the bottom of the shaft. Progress is being made with the cleaning of the sub-shaft infrastructure so as to access the higher-grade Basal Reef mining area. A fridge plant has been installed and should be operational by the first quarter of FY11. This will enable access to more panels in the sub-shaft, contributing in turn to higher grades.

## Financial review

Higher production and a higher gold price achieved for the year contributed to revenue rising in terms of both rand and dollars by 28% and 53% to R878 million and US\$116 million. Cost increases were well controlled. Cash operating costs were 2% up in rand terms at R190 720/kg and in terms of dollars, up 21% to US\$783/oz.

Capital expenditure of R382 million (US\$51 million) included R178 million (US\$23 million) on on-going development, R44 million (US\$6 million) on major equipment maintenance and R77 million (US\$10 million) on other shaft capital and major projects. In addition, R70 million (US\$9 million) was spent on preparing the Target 3 shaft for full production following the Pamodzi acquisition.

Over-expenditure related mostly to ongoing development which was necessary to achieve the additional development metres required to provide the desired level of mining flexibility. This was achieved and had a positive impact on both tonnes milled and the grade recovered.

## Review of operations – South Africa

### Target cont.

#### Outlook\*

**Target 1:** The revised and improved geological modelling will continue to bear fruit in FY11 and volumes produced are expected to increase to 814 000 tonnes, and the grade to increase to 4.51g/t. Grades should continue to rise to a peak of around 5g/t in FY16. Gold production in FY11 is planned to be around 3 979 kilograms (127 928 ounces) at a cash cost\*\* of approximately R183 060/kg (US\$ 746/oz).

**Target 3:** Volumes for FY11 are expected to be around 283 000 tonnes in FY11, and the grade, 5.16g/t. Gold production in FY11 is planned at around 1 462 kilograms (47 000 ounces) at a cash cost\*\* of approximately R202 736/kg (US\$826/oz).

Combined capital expenditure\*\* for both the Target 1 and Target 3 shafts of R457 million (US\$60 million) is planned for FY11 – R202 million (US\$27 million) on on-going development, R47 million (US\$6 million) on major equipment maintenance and R207 million (US\$27 million) on other shaft capital and major capital (R101 million; US\$13 million) on Block 3.

Current productivity levels of 156g/TEC (Target 1) are forecast to improve to an annual average of 216g/TEC at Target 1 and 153g/TEC at Target 3 during peak production.

\* Please refer to the forward-looking statements

\*\* June 2010 money terms. The exchange rate of R7.63/US\$ as at 30 June 2010 has been used for all forward-looking conversions.

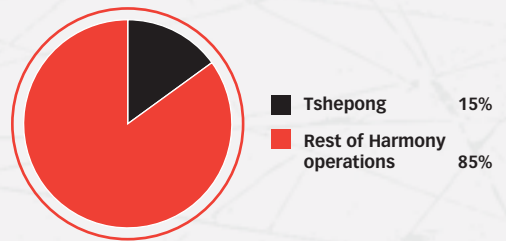


Target, South Africa

# Tshepong



Contribution to group production – FY10



## Description

Located in the Free State, Tshepong is Harmony's largest operation. The Tshepong mine comprises a single vertical shaft extending to a depth of 2 161 metres below collar. Ore is transported to the Harmony 1 plant, 23 kilometres away. The Tshepong sub-71 decline project is in progress and will extend mining to a depth of 2 366m below surface while the sub-66 project is currently building up production. The mine undertakes conventional undercut mining on the Basal Reef. The B reef is exploited as a high-grade secondary reef.

Tshepong employed 5 064 people in FY10, of whom 4 901 were employees and 163 contractors.

Detailed information on Tshepong's resources and reserves is available in the *Mineral resources and mineral reserves* section of this annual report on pages 132 to 142.

## Safety

Overall safety performance improved in FY10. There were regrettably two fatalities during the year, compared with seven the previous year and the LTIFR declined to 12.22 per million hours worked (FY09: 15.82). In addition, Tshepong achieved 1 million fatality-free shifts on 18 February 2010 and came seventh in the category for the most improved LTIFR at the second Hard Rock Safety Summit.

More detailed information on safety performance and Harmony's sustainable development concerns in South Africa can be found in the online *Sustainable Development Report* on the corporate website, [www.harmony.co.za](http://www.harmony.co.za). A summary of this can be found on pages 26 to 46 of this annual report.



## Review of operations – South Africa

### Tshepong cont.

#### Tshepong key statistics

<b>Production</b>		<b>FY10</b>	<b>FY09</b>	<b>FY08</b>
Volumes milled	000t (metric)	<b>1 518</b>	1 375	1 495
	000t (imperial)	<b>1 674</b>	1 516	1 649
Gold produced	kg	<b>6 749</b>	7 178	8 271
	oz	<b>216 986</b>	230 778	265 914
Average grade	g/t	<b>4.45</b>	5.22	5.53
	oz/t	<b>0.130</b>	0.152	0.161
<b>Financial</b>				
Revenue	R million	<b>1 823</b>	1 780	1 621
	US\$ million	<b>241</b>	198	223
Operating costs*	R/kg	<b>164 938</b>	139 901	105 800
	US\$/oz	<b>677</b>	483	455
Operating profit	R million	<b>676</b>	802	715
	US\$ million	<b>90</b>	89	98
Capital expenditure	R million	<b>261</b>	249	195
	US\$ million	<b>35</b>	28	27
<b>Sustainability</b>				
Number of employees				
	Employees	<b>4 901</b>		
	Contractors	<b>163</b>		
	Total	<b>5 064</b>		
HDSAs in management**	%	<b>30</b>		
Women in mining**	%	<b>11</b>		
Expenditure on training and development	R million	<b>23</b>		
Safety				
	No. of fatalities	<b>2</b>		
	LTIFR	<b>12.22</b>	per million hours worked	
Environment				
	Energy used	<b>288</b>	000MWh	
	Water used for primary activities	<b>1 144</b>	000m <sup>3</sup>	
	GHG emissions	<b>347</b>	000t CO <sub>2</sub> e	
Expenditure on local economic development	R million	<b>6</b>		
Status of mining right	New order mining right granted in December 2007			

\* Includes royalty payment in FY10

\*\* Indicator reported in terms of the MPRDA and the South African Mining Charter

## Operations review

Tonnes milled rose by 10% to 1.5Mt in FY10. However, a 15% decline in grade resulted in a 6% reduction in gold produced to 216 986 ounces. The increase in ore milled, which exceeded expectations, was a result of the increase in square metres mined (from 378 039m<sup>2</sup> in FY09 to 385 978m<sup>2</sup> in FY10) and the additional volumes of development waste from the decline which had been trammed to reef. The latter however added to the challenge posed by the lower face grade as mining is currently taking place at the edge of the payshoot where values are more erratic.

Currently under development, the sub-71 project, which will connect Tshepong with Phakisa, remains on track for completion in May 2012. This project extends the existing double decline from 71 to 76 level to enable mining on both the 73 and 75 levels. The project's ultimate goal is to sink the decline to 76 level by May 2012.

Tshepong's full production of around 236 000 ounces annually is scheduled for 2015 with 1.41Mt being mined at an average recovered grade of 5.19 g/t. The average productivity target at full production is 139g/TEC.

Much of the development at the start of the year took place at the edges of the Basal Reef payshoot which resulted in lower development grades. These improved in the second half of the year when new raise lines became available within the deeper extension payshoots in the sub-66 and sub-71 decline areas. Development on the higher-grade channels of the B Reef stalled with the intersection of areas of non-deposition.

## Financial review

Revenue rose by 2% to R1 823 million and by 22% to \$241 million. Cash operating cost rose by 18% to R164 938/oz and by 40% to US\$677/oz with cost pressure coming from increases in wages, electricity tariffs and the cost of supplies and equipment.

Capital expenditure was 5% higher at R261 million (US\$35 million), spent primarily on on-going development, major equipment maintenance and other shaft capital, and the sub-71 decline project. Total expenditure to date on this project is R133 million (US\$18 million).

## Outlook\*

Tshepong should achieve its reserve grade of 1 132cmg/t once the mine is fully able to access the orebody through the declines. Volumes are expected to decrease 9% to 1.38Mt in FY11 at a recovered grade of 4.75g/t. Gold production of 6 532 kilograms (210 000 ounces) is planned at an anticipated cash cost\*\* of R187 913 /kg (US\$766 /oz).

Total capital expenditure\*\* of R273 million (US\$36 million) is planned for FY11 – R177 million (US\$23 million) on on-going development, R17 million (US\$2 million) on major equipment maintenance and R22 million (US\$3 million) on other shaft capital. The balance of R57 million (US\$8 million) is planned for the sub-71 decline project.

Current productivity levels of 122g/TEC are forecast to remain constant despite the forecast decrease in gold production.

\* Please refer to the forward-looking statements

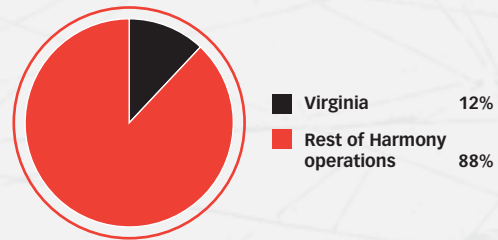
\*\* June 2010 money terms. The exchange rate of R7.63/US\$ as at 30 June 2010 has been used for all forward-looking conversions.

## Review of operations – South Africa

# Virginia



Contribution to group production – FY10



## Description

The Virginia operations, situated in the Free State province, are among the oldest in the group and at year-end comprised Unisel and Merriespruit 1. Ore from Unisel is processed at Harmony 1 plant, while that from Merriespruit 1 is treated at Central Plant. These operations, which are of intermediate depth, ranging from 1 000 to 2 000 metres, employ scattered mining and pillar reclamation to access the Basal, Leader, Middle and A reefs.

Virginia employed 4 036 in FY10, of which 3 979 were employees and 57 contractors. This will decrease to approximately 2 500 people in FY11.

Detailed information on Virginia’s resources and reserves are available in the *Mineral resources and mineral reserves* section of this annual report on pages 132 to 142.

## Safety

There were most regrettably five fatalities at the Virginia operations in FY10 as compared with one the previous year. Following a significant improvement in FY09, there was a slight deterioration in the LTIFR to 12.86 per million hours worked in FY10 (FY09: 12.38).

More detailed information on safety performance and Harmony’s sustainable development concerns in South Africa can be found in the online *Sustainable Development Report* on the corporate website, [www.harmony.co.za](http://www.harmony.co.za). A summary of this can be found on pages 26 to 46 of this annual report.

## Virginia key statistics

<b>Production</b>		<b>FY10</b>	<b>FY09</b>	<b>FY08</b>
Volumes milled	000t (metric)	<b>1 656</b>	2 261	2 130
	000t (imperial)	<b>1 826</b>	2 493	2 349
Gold produced	kg	<b>5 288</b>	8 030	7 708
	oz	<b>170 013</b>	258 170	247 820
Average grade	g/t	<b>3.19</b>	3.55	3.62
	oz/t	<b>0.093</b>	0.104	0.106
<b>Financial</b>				
Revenue	R million	<b>1 415</b>	2 033	1 488
	US\$ million	<b>187</b>	226	204
Operating costs*	R/kg	<b>252 537</b>	184 538	169 544
	US\$/oz	<b>1 036</b>	638	726
Operating profit	R million	<b>75</b>	545	180
	US\$ million	<b>10</b>	61	24
Capital expenditure	R million	<b>180</b>	199	152
	US\$ million	<b>24</b>	22	20
<b>Sustainability</b>				
Number of employees				
	Employees	<b>3 979</b>		
	Contractors	<b>57</b>		
	Total	<b>4 036</b>		
HDSAs in management**	%	<b>36</b>		
Women in mining**	%	<b>13</b>		
Expenditure on training and development	R million	<b>27</b>		
Safety				
	No. of fatalities	<b>5</b>		
	LTIFR	<b>12.86</b>	per million hours worked	
Environment				
	Energy used	<b>406</b>	000MWh	
	Water used for primary activities	<b>10 380</b>	000m <sup>3</sup>	
	GHG emissions	<b>491</b>	000t CO <sub>2</sub> e	
Expenditure on local economic development	R million	<b>4</b>		
Status of mining right	New order mining right granted in December 2007			

\* Includes royalty payment in FY10

\*\* Indicator reported in terms of the MPRDA and the South African Mining Charter

## Review of operations – South Africa

### Virginia cont.

#### Operations review

Following a review of Harmony's asset portfolio and the economic viability of the Virginia operations, and given the depletion of their orebodies, mature infrastructure and low grades, production ceased at Brand 3, which has been placed on care and maintenance, and at Harmony 2 and Merriespruit 3. To enable certain sections of Merriespruit 1 to continue operating, a job preservation and profitability agreement was signed with organised labour. As a result of the restructuring of the Virginia operations, production for the year was down 27% to 1.7Mt milled. Together with a 10% decline in grade, this resulted in gold production of 170 013 ounces, a decrease of 34%.

The development at Merriespruit 1 focused on those areas with the best short-term grade potential and better grades are expected as a result. At Unisel, Basal Reef development produced good results while Leader Reef development was negatively affected by poor environmental conditions which will be addressed by the cooling project. Middle Reef development focused on the decline area in pillars and was negatively affected by reef pinch outs and reef variability. B Reef development was undertaken in a fault block which made access easy but results were poor and development was halted. Overall, the shaft produced reserves on the Basal and Leader reefs. Future development will focus more on the better grade E block.

#### Financial review

Revenue of R1 415 million was down by 30%, which combined with an increase in cash operating cost of 37% to R252 537/kg (US\$1 036/oz), resulted in operating profit declining by 86% to R75 million (US\$10 million). Capital expenditure of R180 million (US\$24 million) was spent largely on on-going development (72%) and on maintenance and other shaft capital (28%).

#### Outlook\*

In FY11, volumes mined are expected to be around 1.1Mt at a grade of 3.75 g/t. Gold production is expected to be 4 212 kilograms (135 419 ounces), while cash costs\*\* are forecast to be approximately R224 000/kg (US\$ 913/oz). This forecast is highly dependent on the success of mining and costs at Merriespruit 1.

A great deal of development is still required to access the Basal Reef at Unisel, and the high-grade shaft pillar will be exploited at the end of its life-of-mine.

Capital expenditure\*\* of R78 million (US\$10 million) is planned for FY11 – R57 million (US\$7 million) on on-going development and R21 million (US\$3 million) on major equipment maintenance and other shaft capital.

Current productivity levels of 84g/TEC are forecast to improve to an annual average of 140g/TEC during peak production.

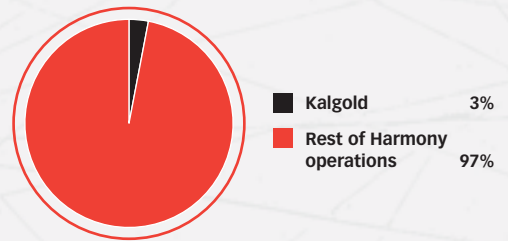
\* Please refer to the forward-looking statements

\*\* June 2010 money terms. The exchange rate of R7.63/US\$ as at 30 June 2010 has been used for all forward-looking conversions.

# Kalgold



Contribution to group production – FY10



## Description

Kalgold is an open-pit mining operation close to Mafikeng in North West Province. The mine accesses gold-bearing ore in a banded ironstone formation in a shear zone within the Kraaipan Greenstone Belt. Tonnage mined at Kalgold is treated at a carbon-in-leach plant on site.

Kalgold employed 480 people – 230 employees and 250 contractors – in FY10.

Detailed information on the Kalgold’s resources and reserves are available in the *Mineral resources and mineral reserves* section of this annual report on pages 153 to 154.

## Safety

There were no fatalities at Kalgold in FY10 while the LTIFR for the year was 1.49 per million hours worked compared to 2.94 in FY09.

More detailed information on safety performance and Harmony’s sustainable development concerns in South Africa can be found in the online *Sustainable Development Report* on the corporate website, [www.harmony.co.za](http://www.harmony.co.za). A summary of this can be found on pages 26 to 46 of this annual report.

## Review of operations – South Africa

### Kalgold cont.

#### Kalgold key statistics

<b>Production</b>		<b>FY10</b>	<b>FY09</b>	<b>FY08</b>
Volumes milled	000t (metric)	<b>1 700</b>	1 542	1 530
	000t (imperial)	<b>1 873</b>	1 700	1 687
Gold produced	kg	<b>1 526</b>	2 015	2 869
	oz	<b>49 063</b>	64 784	92 229
Average grade	g/t	<b>0.90</b>	1.31	1.87
	oz/t	<b>0.026</b>	0.038	0.055
<b>Financial</b>				
Revenue	R million	<b>390</b>	512	557
	US\$ million	<b>51</b>	57	77
Operating costs*	R/kg	<b>182 215</b>	146 314	94 312
	US\$/oz	<b>748</b>	506	401
Operating profit	R million	<b>116</b>	220	279
	US\$ million	<b>15</b>	25	39
Capital expenditure	R million	<b>11</b>	10	10
	US\$ million	<b>1</b>	1	1
<b>Sustainability</b>				
Number of employees				
	Employees	<b>230</b>		
	Contractors	<b>250</b>		
	Total	<b>480</b>		
HDSAs in management**	%	<b>63</b>		
Women in mining**	%	<b>13</b>		
Expenditure on training and development	R million	<b>1</b>		
Safety				
	No. of fatalities	<b>0</b>		
	LTIFR	<b>1.49</b>		
Environment				
	Energy used	<b>77</b>		
	Water used for primary activities	<b>2 337</b>		
	GHG emissions	<b>65</b>		
Expenditure on local economic development	R million	<b>1</b>		
Status of mining right	New order mining right granted in December 2007			

\* Includes royalty payment in FY10

\*\* Indicator reported in terms of the MPRDA and the South African Mining Charter

## Operations review

Kalgold performed in line with expectations in FY10. Volumes processed rose by 10% to 1.7Mt as planned.

Gold production declined by 24% to 1 526kg (49 063oz), a result of the planned decline in grade to 0.90g/t as operations at the high-grade D Zone pit came to an end in March 2009. The sulphide material, which does not present the same problems as the oxidised material, is now being mined at the lower-grade Watertank pit. Mining at the A zone pit, where grades will be similar to those at the Watertank pit, is scheduled to start in 18 months' time.

Harmony continued with the brownfields exploration in areas surrounding the Kalgold operation.

## Financial review

Despite the lower level of production and cash costs of R182 215/kg (US\$748/oz), Kalgold reported an operating profit of R116 million (US\$15 million). Capital expenditure for the year was R11 million (US\$1 million), spent mostly on the maintenance of major equipment. Productivity levels at Kalgold in FY10 were 331g/TEC, the highest in the group.

## Outlook\*

Mining will continue in the Watertank pit during the next year and volumes and grade are expected to be in line with those reported in FY10

Tonnes milled annually will remain stable at around 1.7Mt. An average recovered grade of 0.74g/t over the life of mine will not vary significantly. Annual gold production should therefore be around 1 226kg (39 400 ounces). Cash costs\*\* are expected to be in the region of R216 500/kg in FY11 (US\$883/oz), partly due to increased contractor costs resulting from the deeper pit design.

Total capital expenditure\*\* planned for FY11 is R67 million (US\$9 million). This will mainly be spent on the upgrade of old plant equipment so as to improve availability.

\* Please refer to the forward-looking statements

\*\* June 2010 money terms. The exchange rate of R7.63/US\$ as at 30 June 2010 has been used for all forward-looking conversions.

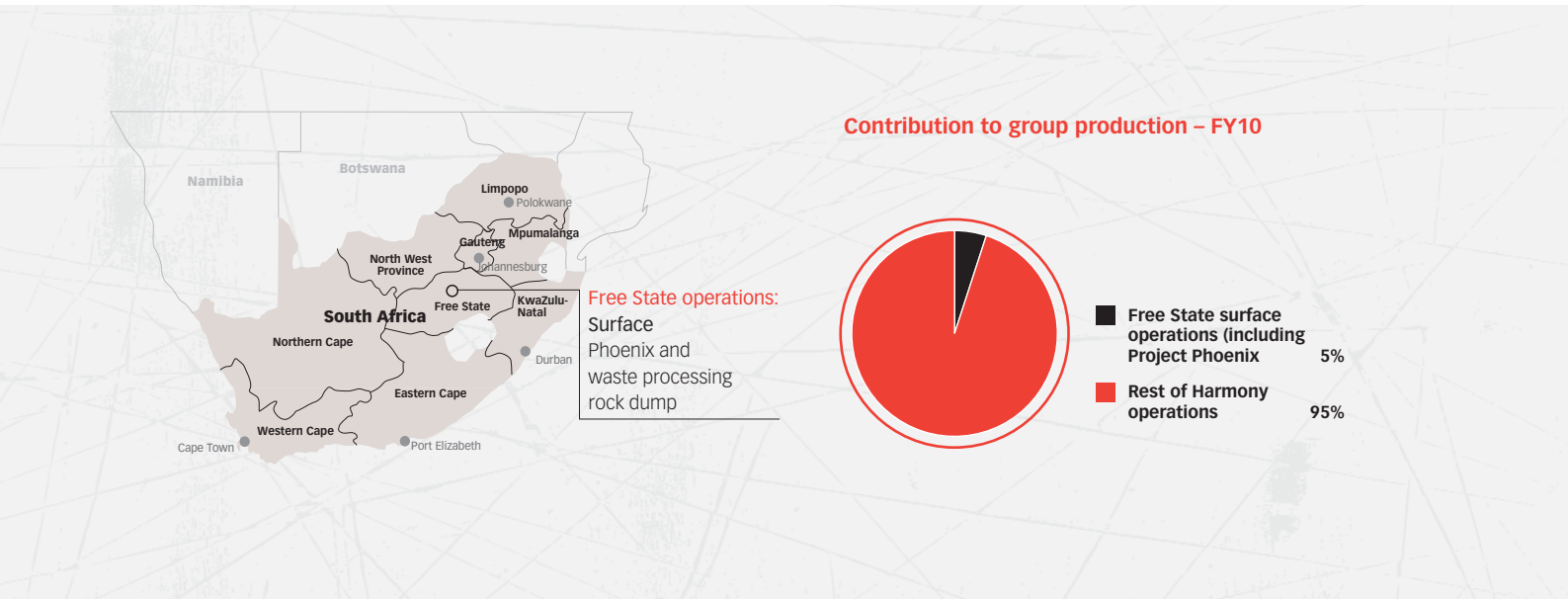


Kalgold, South Africa



## Review of operations – South Africa – Surface Operations

### Free State Surface Operations (including Project Phoenix)



### Description

Harmony's Free State surface operations comprise in the main the Phoenix project and the waste rock dumps processing programme.

- The Phoenix operation, located adjacent to Harmony's current and historical operations in the Free State, involves the retreatment of tailings from tailings storage facilities in the region to extract any residual gold. The Phoenix operation makes use of the Saaiplaas plant, located next to the historic Saaiplaas 2 shaft area and in close proximity to the Masimong 4 shaft.
- Around 11 million tonnes of reserves are available in the form of rock dumps in the vicinity of the Free State operations. A programme, run by metallurgical services, to mill and process these dumps as and when there is spare capacity available, has begun.

Combined, these surface operations employed 321 in FY10, of whom 104 were employees and 217 contractors.

Detailed information on the surface operation's resources and reserves are available in the *Mineral resources and mineral reserves* section of this annual report on pages 133 to 135.

### Safety

There were no fatalities at the surface operations in FY10. The Phoenix and surface operations achieved an LTIFR of 1.46 and 1.40 per million hours worked respectively for the year.

More detailed information on safety performance and Harmony's sustainable development concerns in South Africa can be found in the online *Sustainable Development Report* on the corporate website, [www.harmony.co.za](http://www.harmony.co.za). A summary of this can be found on pages 26 to 46 of this annual report.

## Free State Surface Operations key statistics

Production		FY10	FY09	FY08
Volumes milled	000t (metric)	<b>7 062</b>	5 965	6 378
	000t (imperial)	<b>7 787</b>	6 578	7 033
Gold produced	kg	<b>1 639</b>	695	1 002
	oz	<b>52 693</b>	22 345	32 215
Average grade	g/t	<b>0.23</b>	0.12	0.19
	oz/t	<b>0.007</b>	0.003	0.005
Financial				
Revenue	R million	<b>442</b>	175	191
	US\$ million	<b>58</b>	19	26
Operating costs*	R/kg	<b>170 041</b>	154 426	75 784
	US\$/oz	<b>698</b>	534	381
Operating profit	R million	<b>147</b>	68	102
	US\$ million	<b>19</b>	8	14
Capital expenditure	R million	<b>5</b>	3	4
	US\$ million	<b>1</b>	–	–

\* Includes royalty payment in FY10



Project TPM, South Africa

## Review of operations – South Africa – Surface Operations

### Free State Surface Operations (including Project Phoenix) cont.

#### Operations review

Combined the Free State surface operations processed 7Mt which yielded 1 639 kilograms (52 693 ounces) of gold. Of this, the Phoenix project accounted for 647 kilograms (20 801 ounces), the waste rock dump programme and other surface operations in the Free State accounted for the balance. Recovered grades of 0.12g/t and 0.64g/t were achieved respectively by Project Phoenix and the waste rock programme and surface operations.

Project Phoenix, which began three years ago, involves the retreatment of 6 million tonnes annually (500 000tpm) at plant capacity. Plans are being considered to increase tonnages processed to up to 900 000tpm, at which rate the life of the project is around 12 years. This is a function of the current deposition capacity. Should the permitted deposition capacity increase within this period, additional resources will be available for retreatment.

Extensive sampling has been done at the water-based tailings dams which are available for retreatment in the Free State, located mostly between the Bambanani and Unisel operations, as well as in the area of the Merriespruit shafts. There are currently a total of seven dams that have been identified and those will be processed through the Steyn, Central and Target gold plants over the next few years.

#### Financial review

Project Phoenix's cash operating cost for the year was R185 762/kg, up by 20%. Ore recovered from the waste rock programme and surface operations yielded 992 kilograms (31 924 ounces) of gold at a cost of R159 787/kg for the year. Combined, these surface operations generated revenue of R442 million.

#### Outlook\*

Combined, it is estimated that volumes processed at the Free State surface operations will increase to 9Mt in FY11, excluding the expansion to the Phoenix Project and the St Helena tailings retreatment project which are not included in the plan. The Phoenix recovery grade is expected to increase from 0.12g/t to 0.13g/t when dam 21 is commissioned towards the end of 2010/beginning 2011, to replace dam 22 which is nearing depletion. The grade of other surface sources is expected to increase from 0.71g/t to 1.01g/t due to the higher grades expected from the retreatment of the water-based tailings dams.

Cash costs\*\* of R169 633/kg (US\$691/oz) and R138 428/kg (US\$564/oz) are estimated for the year for Project Phoenix and the waste rock programme and surface source operations respectively.

Planned capital expenditure for the Free State surface operations as a whole is R78 million, to be spent on the commissioning of Dam 21, the rehabilitation of equipment, feed dewatering of cluster cyclones, residue flotation testing and to expand the CIL section to a sixth stage for the Phoenix operation. Capital will also be spent on surface sources for slimes dam repairs, site establishment and the commissioning of the dredging projects.

\* Please refer to the forward-looking statements

\*\* June 2010 money terms. The exchange rate of R7.63/US\$ as at 30 June 2010 has been used for all forward-looking conversions.

## Review of operations – Papua New Guinea



Hidden Valley, PNG

## Papua New Guinea

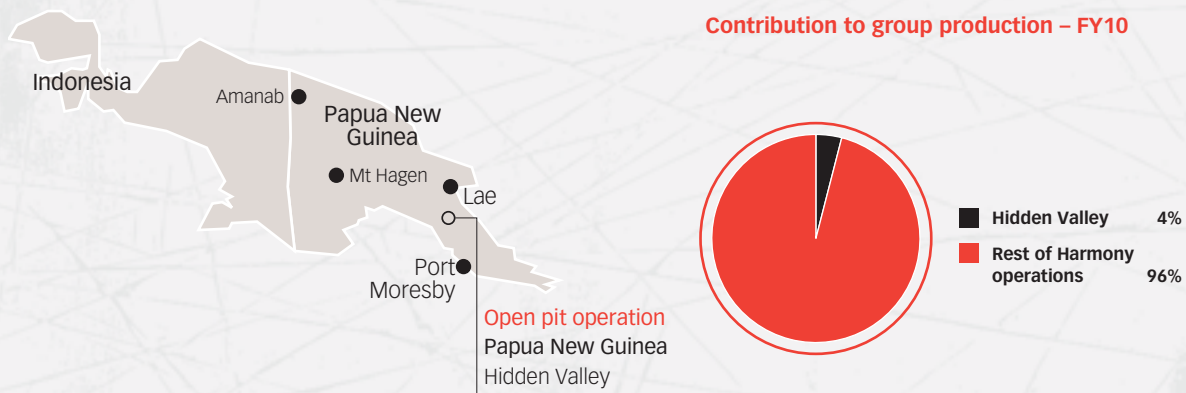
Harmony's activities, including those undertaken in association with its joint venture partner, Newcrest Mining Limited (Newcrest) in Papua New Guinea (PNG) are managed out of Brisbane, Australia. These activities in Morobe Province, PNG, include:

- Hidden Valley, an open-cast gold and silver mine which has just begun commercial production, and
- the Wafi Golpu project, for which feasibility and concept studies have begun and which are reported on in detail in the *Exploration overview* in this report on page 96.

Outside of the joint venture with Newcrest, Harmony has acquired 8 000km<sup>2</sup> of exploration tenements which have promising upside potential.

## Review of operations – Papua New Guinea

### Hidden Valley



### Description

The Hidden Valley mine is located in Morobe Province, Papua New Guinea, around 300km north-west of Port Moresby, and is part of the 50:50 joint venture between Harmony and Newcrest Mining Limited. The mine, which has a significant gold and silver reserve, was commissioned during the year and had its first gold pour in June 2009. Ore mined was stockpiled ahead of the full commissioning of the carbon-in-leach gold and silver processing plant in FY10.

Hidden Valley has in production two pits, approximately 5km apart: the Hamata pit, which exploits the Hamata gold orebody, and the larger Hidden Valley pit, which exploits the Hidden Valley and Kaveroi gold and silver orebodies. The operation is located in a highly prospective area and current estimates are that at annual full production over 14 years, Hidden Valley will process an average of 4.7Mt from both pits to produce around 250 000oz of gold and 3.4Moz of silver annually. The joint venture is actively exploring and if potential new resources are identified on the mining lease, the life of the process facility could be extended. A resource development drilling programme is currently under way to support potential resource expansion, while potential plant expansion studies are being reviewed.

Hidden Valley employed 1 698 people in FY10, of whom 806 were employees and 892 contractors. Detailed information on Hidden Valley's resources and reserves are available in the *Mineral resources and mineral reserves* section of this annual report on pages 155 to 159.

### Safety

With the start of full-scale operations and the ramping up of production at Hidden Valley, the joint venture has continued with the implementation of its risk management strategy, a key aspect of which is a safety analysis aimed at ensuring that each work function is completed safely and efficiently. Identifying and managing hazards is essential to improving and maintaining safety performance.

There was regrettably one fatality during the year, a result of a vehicle accident. The LTIFR of 0.7 per million hours worked was worse than the 0.1 reported in FY09 as fewer people were on site, once construction personnel had been demobilised.

More detailed information on safety performance and Harmony's sustainable development programme in PNG can be found in the online sustainable development section of the corporate website, [www.harmony.co.za](http://www.harmony.co.za). A summary of this can be found on pages 26 to 46 of this annual report.

## Hidden Valley key statistics

Production		FY10 production*†	capitalised*	Planned LOM annual average**
Volumes milled	000t (metric)	<b>304</b>	–	4 700
	000t (imperial)	<b>335</b>	–	5 180
Gold produced	kg	<b>465</b>	1 438	7 915
	oz	<b>14 939</b>	46 234	254 000
Silver produced	kg	<b>2 423</b>	4 504	123 300
	oz	<b>77 896</b>	144 821	3 400 000
Gold – average recovered grade	g/t	<b>1.53</b>	–	1.84
	oz/t	<b>0.045</b>	–	0.054
Silver – average recovered grade	g/t	<b>7.97</b>	–	32.1
	oz/t	<b>0.233</b>	–	0.94
<b>Financial</b>				
Revenue	R million	<b>79</b>	–	
	US\$ million	<b>10</b>	–	
Operating costs	R/kg	<b>244 721</b>	–	130 00
	US\$/oz	<b>1 003</b>	–	
Operating profit	R million	<b>16</b>	–	
	US\$ million	<b>2</b>	–	
Capital expenditure	R million	<b>44</b>	497	
	US\$ million	<b>6</b>	65	
<b>Sustainability</b>				
Number of employees				
	Employees	<b>806</b>		
	Contractors	<b>892</b>		
	Total	<b>1 698</b>		
Expenditure on training and development		R million	<b>2.9</b>	
Safety				
	No. of fatalities		<b>1</b>	
	LTIFR	per million hours worked	<b>0.7</b>	
Environment				
	Energy used	MWh	<b>105</b>	
	Water used for primary activities	000m <sup>3</sup>	<b>1 843</b>	
	GHG emissions	Tonnes CO <sub>2</sub> e	<b>128</b>	

\* Commercial production began in May 2010.

\*\* The LOM annual averages represent 100%.

† Represents Harmony's 50%.

A business, production and safety improvement programme, based on the Six Sigma Lean Programme, was developed at Hidden Valley in FY10. This programme is designed to actively involve management in the process of continually improving and meeting targets in all aspects of the business, especially safety.

## Review of operations – Papua New Guinea

### Hidden Valley cont.

#### Operations review

Commercial levels of production were achieved in May 2010 and by year-end monthly plant throughput had risen to 300 000t, equivalent to 87% of nameplate capacity. This reflected a more stable operating performance and consistent plant use. During FY10, 2.7 million tonnes were processed to yield 122 346 ounces of gold and 445 435 ounces of silver on a 100% basis, 50% of which is attributable to Harmony.

Despite construction delays resulting from unseasonably heavy rains which hampered progress and restricted site access by causing damage to the access road, both the overland conveyor and the Hidden Valley crushing facilities were completed by December 2009, following which ore from both pits was supplied to the plant.

A programme to systematically identify and address bottlenecks in the production pipeline, eliminate system constraints and improve critical performance efficiencies and plant availability is under way. The process plant is being modified to enable it to better deal with the oxidised material and greater incidence of fines and clay in the weathered feed that is currently being mined in the initial stages of the open pit and supplied to the plant. These modifications are expected to improve overall recoveries. As the mining in the pit progresses into more transitional and fresh material during the next financial year, plant metallurgical recoveries are expected to improve. A project to increase plant capacity to 112% of initial nameplate capacity of 4.2 million tonnes per annum, at a nominal additional cost, will be completed by the end of FY11.

An ongoing programme of employee recruitment and training to build up and enhance operational competence and capability has been instituted to address the problem of operator staff turnover which has had an effect on mining productivities.

The limited availability of competent fresh rock, which is linked to the deep weathering profile of the area at Hidden Valley, has restricted progress made in the construction of stable waste dump facilities. Supplies of suitable rock have been identified and established offsite, which together with innovative waste dump designs that require less rock, have overcome some of these problems. Construction of these stable waste dumps will be ongoing in the next few years.

Hidden Valley management continued its policy of community engagement and local employment as well as the training of local employees. Work continues to mitigate the miner's impact on the Watut River, with significant operational improvements made to date. Stakeholder engagement on this and other matters is continuing.

Progress is also being made with power supply to the mine and the intention is to connect Hidden Valley to the national electricity grid in FY11. Once fully connected to, this will enable the mine to reduce its reliance on diesel power generators.

#### Financial review

Revenue generated for the financial year amounted to R79 million (\$10 million) with total cash operating costs after silver credits of R244 721 (US\$1 003/oz). Attributable capital expenditure by Harmony during the year totalled R541 million (US\$71million), which included work on approved mine development (sustaining capital) projects, process plant de-bottlenecking, mine expansion feasibility studies and final close-out costs for the Hidden Valley construction project.

## Outlook\*

The post-commissioning and performance improvement programme under way will enable Hidden Valley to achieve consistent full-scale mining and production levels in FY11 and to ultimately achieve increased annual plant capacity of 4.7 million tonnes. Capital requirements over the next three years will consist of the project services fleet replacement, which will be used for the construction of the tailings dam and waste dumps, which will be ongoing for the next few years and the de-bottlenecking of the mill.

Estimated attributable gold production from Hidden Valley in FY11 is between 100 000 and 120 000\*\*ounces. Attributable capital expenditure for project completion, development and sustaining capital is expected to be A\$50 million (US\$42.5 million)\*\* in FY11.

\* Please refer to the forward-looking statements

\*\* June 2010 money terms.



Hidden Valley, PNG