

# OPERATIONAL PERFORMANCE

*Maintaining and growing our margins as efficiently as we can is essential to sustaining our business and meeting our strategic objectives.*



## Achievements FY17

- Safety performance improved in terms of fatality frequency rate
- Produced 1.088Moz of gold, exceeding guidance of 1.05Moz
- Focus on improving efficiencies, asset management and maintenance result in a reduction in the average number of unplanned stoppages
- Tshepong and Doornkop achieved 3 million and 2 million fatality free shift respectively
- Projects deliver increased grade at Phakisa, Joel and Tshepong and mining Kusasalethu's higher grade areas contribute to the increase in underground recovered grade for the fifth consecutive year, to 5.07g/t
- Increased margins and profitability at Kusasalethu following the decision to shorten the life-of-mine plan and focus on higher grade areas
- Phoenix tailings retreatment operation performed well and delivered a 14% increase in production and improved operating free cash flow margin from 24% in FY16 to 28% in FY17
- Hidden Valley stage 5 and stage 6 investment on budget and on schedule



## Challenges FY17

- Lost-time injury frequency rate regressed year on year – the *Live Longer* safety campaign will focus on this
- At Target 1, unstable ground conditions in planned areas and lack of flexibility resulted in having to focus on lower-grade massives
- Unisel's ageing infrastructure and challenging operating conditions impacted on the profitability of the operation in FY17
- Increased unit costs – the operational excellence initiatives will address this challenge

### WHY OUR OPERATIONAL PERFORMANCE IS MATERIAL

Maintaining and growing our margins as safely and efficiently as we can is essential to sustaining our business and meeting our strategic objectives. This includes delivering safely on our operational plans, reducing unit costs, improving productivity and maximising revenue.

Our approach takes into consideration the long-term sustainability of the company as a whole. We aim to mine those areas which will return a positive cash flow.

We are price takers and have no influence on the gold price or exchange rates, and as a result need to continuously focus on factors within our control such as costs and production. Our hedging strategy has provided a degree of cash certainty over the short term.

### OPERATING PERFORMANCE FY17

Operational excellence in FY17 was key in attaining the decrease in the fatality frequency rate year on year and achieving a fatality free quarter during the June 2017 quarter, achieving our annual production guidance for a second consecutive year and increasing underground grade for a fifth consecutive year. In FY17, Harmony produced 1.088Moz of gold (FY16: 1.082Moz) and achieved an underground grade of 5.07g/t (FY16: 5.02g/t).

Refer to the *Financial director's report* for a discussion on Harmony's financial performance during FY17.

Harmony acquired full ownership of Hidden Valley in October 2016 and made the decision to invest in the stage 5 and 6 cut-back with a net investment of US\$180 million (of which US\$68 million was incurred in FY17). Good progress was made on the stages 5 and 6 cutback project which was on budget and on schedule in FY17. Management is fully committed to the success of this investment which is expected to deliver 180 000oz of gold and 3Moz of silver annually at an average all-in sustaining cost of less than US\$950/oz by FY19.

Following the successful conclusion of the study to investigate their integration, Tshepong and Phakisa have been consolidated as a single entity, Tshepong operations. The integration and consolidation of these two mines will enable Harmony to optimise existing synergies – given the proximity of their orebodies – to reduce unit costs and to make better use of Tshepong's underutilised infrastructure. This integration will also alleviate bottlenecks and operating constraints at Phakisa. Ore from Phakisa will be trammed and hoisted at Tshepong.

The Central Plant conversion to tailings retreatment began and was successfully completed in FY17. Expenditure was within budget. The tailings operation, which is expected to produce 15 000oz annually from FY18, is an additional low-risk, low operating cost asset in our surface operation portfolio.

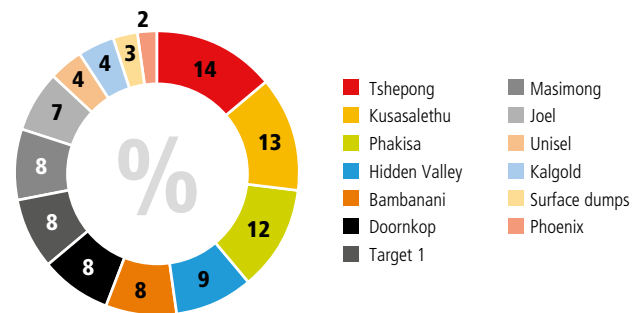
Notable operating performances in FY17 included:

- **Kusasaletu:** FY17 was a fatal-free and profitable year. Following the decision to shorten the life of mine and to focus mining on higher grade areas, gold produced increased by 14% to 4 394kg (141 270oz) as a result of a 25% increase in recovered grade to 7.24g/t.
- **Masimong:** Mining of the high-grade B Reef contributed to a 4% increase in production. Good cost control supported increased profitability.
- **Phoenix:** Production improved by 14% owing to a 10% rise in the recovered grade and a 4% increase in volumes processed as a result of good operating momentum and plant efficiencies.

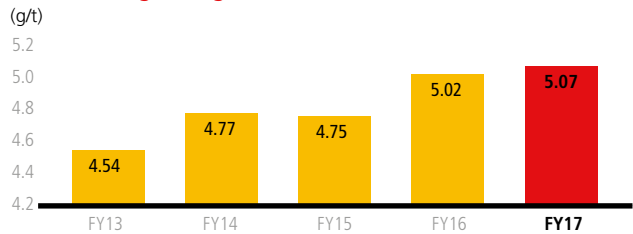
The following operations reported lower gold production during the year:

- **Target 1:** Unfavourable ground conditions in the higher grade areas and a lack of flexibility significantly impacted operating performance in FY17. Production declined by 21% to 2 669kg (85 809oz) as grade fell by 22% to 3.58g/t. Production improved in the second half of FY17 and grades are expected to pick up in FY18. Geological drilling will be conducted in FY18 to inform the extent of future project capital expenditure.
- **Unisel:** Production declined by 6% to 1 595kg on the back of a 7% decrease in volumes milled (394 000t), a result of ageing infrastructure and engineering-related stoppages. A decision was made to begin mining the higher-grade areas in the shaft pillar in the next few years

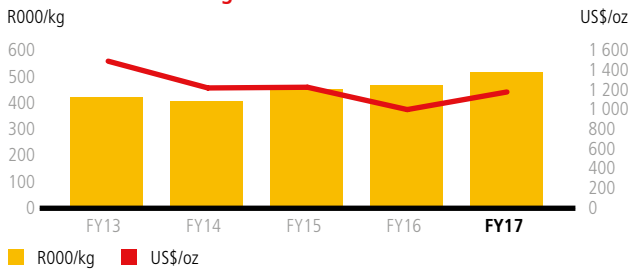
### Contribution to group production by operation



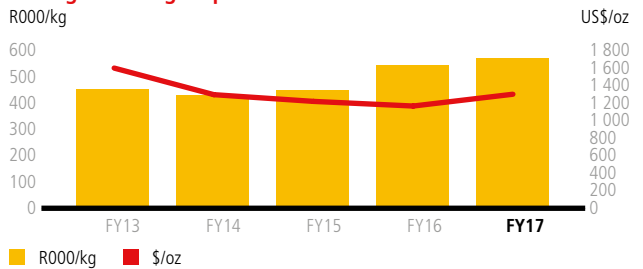
### Annual underground grade recovered



### Annual all-in-sustaining costs



### Average annual gold price received








# OPERATIONAL PERFORMANCE CONTINUED

## OPERATIONAL EXCELLENCE

The fundamentals of mining underpin operational excellence at Harmony. Disciplined mining is integral to ensuring the safety of our employees, improving productivity and efficiencies and achieving our targets.

Operational excellence is key to creating an enabling environment. Safety is considered at all times, teams are motivated, and the workplace environment is conducive to productivity.

 <b>SAFETY AND HEALTH</b>	 <b>INFRASTRUCTURE MANAGEMENT</b>	 <b>GRADE MANAGEMENT</b>	 <b>CAPITAL ALLOCATION AND COST REDUCTIONS</b>	 <b>REALISTIC PRODUCTION PLANS</b>
<p><b>Pro-active, risk-based approach</b></p> <ul style="list-style-type: none"> <li>Encourage safe behaviour at all times</li> <li>On-site healthcare enable us to better monitor employee health and treatment programmes</li> </ul>	<p><b>Optimising asset utilisation</b></p> <ul style="list-style-type: none"> <li>Reducing unplanned stoppages and improving equipment use and efficiencies through dedicated asset management teams and planning</li> </ul>	<p><b>Grade discipline is key</b></p> <ul style="list-style-type: none"> <li>No mining below cut-off</li> <li>Mining to average reserve grade</li> </ul>	<p><b>Focused capital allocation and prioritisation</b></p> <ul style="list-style-type: none"> <li>Cost management is key</li> <li>Capital allocation is driven by and prioritised to projects that will generate free cash flows</li> </ul>	<p><b>Consistent predictable production</b></p> <ul style="list-style-type: none"> <li>Planning is realistic and focused on generating and maximising positive returns and cash flows</li> <li>The cost structure of the mine is built to fit the production plan and flexibility is catered for – leading to targets that are achievable</li> </ul>

**Managing operational risks:** Operational risk management is integral to our business, and to optimise the gold mining value chain, it is essential to have in place a risk management plan to ensure that all supporting systems are functioning efficiently. Managing risks effectively while working safely and being proactive are core to our success. Safety hazards and operational business risks are identified and dealt with continuously at each of our operations.

## OUTLOOK FOR FY18

**Relevant Global Reporting Initiative indicators: G4-EC7 and G4-EC8**

Our approach towards our FY18 operational planning:

Annual production guidance for FY18 is in line with our strategy to produce safe, profitable ounces and increase margins through operational excellence. Our target for FY18 is to produce 1.1Moz at an all-in sustaining cost of R520 000/kg (US\$1 180/oz). Planned capital expenditure of R4.4 billion (US\$319 million) for FY18 is prioritised at Hidden Valley, for the stage 5 and 6 investment, and at the Tshepong operation, for ongoing development capital, the sub-75 decline project and ventilation improvements at the Tshepong section.

### Highlights of what we expect for FY18:

- Improved safety focus and performance at all operations
- All operations to be profitable and generate operational free cash flow

- An increase in total production to 1.1Moz and increase in the underground recovered grade to 5.18g/t
- Greater focus on cost management and unit cost reductions
- Hidden Valley to reach commercial levels of production in the June quarter of FY18 and deliver the stage 5 and 6 investment on schedule and on budget
- Tshepong operations production to increase on higher volumes and a higher recovered grade following the integration of Tshepong and Phakisa
- Masimong to build on the momentum achieved in FY17 and generate free cash
- Target 1 to turnaround its FY17 performance as higher grade massives are accessed
- Kusasaletu to remain profitable, focusing on higher grade areas and benefiting from maintenance and engineering improvements conducted in FY17
- Central Plant tailings project to achieve or exceed guidance in the first year of tailings retreatment
- Unisel to return to profitability following the decision to mine the shaft pillars

Harmony's production guidance is based on a gold price of R520 000/kg (or US\$1 180/oz) and an exchange rate of R13.74/US\$ for FY18. Our guidance per operation for FY18 is provided below:

## FY18 forecast and guidance

Operation	Production	Capital expenditure <sup>1,2</sup>		Life of mine
	(oz)	(Rm)	(US\$m)	(years)
Tshepong operations	303 000	1 150	84	17
Bambanani	83 000	73	5	5
Target 1	92 000	386	28	7
Doornkop	94 500	285	21	18
Joel	66 500	231	17	9
Kusasaletu	143 000	321	23	5
Masimong	72 000	116	8	4
Unisel	55 000	112	8	5
Underground operations – total <sup>3</sup>	909 000	2 674	194	
South Africa surface operations (including Kalgold)	96 500	39	3	14+
Hidden Valley <sup>2</sup>	94 500	1 676	122	6
<b>Total</b>	<b>~1.1Moz</b>	<b>4 389</b>	<b>319</b>	

<sup>1</sup> Excludes Golpu

<sup>2</sup> At an exchange rate of R13.74/US\$

<sup>3</sup> At a grade of ~5.18g/t





# OPERATIONAL PERFORMANCE

## SOUTH AFRICA

### Tshepong

		FY17	FY16	FY15
<b>Number of employees</b>				
– Permanent		4 304	4 232	4 218
– Contractors		283	250	210
Total		4 587	4 482	4 428
<b>Operational</b>				
Volumes milled	(000t) (metric)	1 027	1 088	992
	(000t) (imperial)	1 132	1 200	1 095
Gold produced	(kg)	4 819	5 031	4 278
	(oz)	154 934	161 751	137 540
Gold sold	(kg)	4 817	5 029	4 337
	(oz)	154 869	161 685	139 437
Grade	(g/t)	4.69	4.62	4.31
	(oz/t)	0.137	0.135	0.126
Productivity	(g/TEC)	95.55	100.52	86.05
<b>Development results</b>				
Total metres		11 460	12 077	13 053
Reef metres		1 735	1 745	1 822
Capital metres		383	0	0
<b>Financial</b>				
Revenue	(Rm)	2 760	2 756	1 948
	(US\$m)	203	190	170
Average gold price received	(R/kg)	572 921	547 967	449 211
	(US\$/oz)	1 311	1 176	1 221
Cash operating cost	(Rm)	2 032	1 845	1 588
	(US\$m)	149	127	139
Production profit/(loss)	(Rm)	731	912	337
	(US\$m)	54	63	29
Capital expenditure	(Rm)	387	307	313
	(US\$m)	28	21	27
Cash operating cost	(R/kg)	421 573	366 767	371 149
	(US\$/oz)	964	787	1 008
All-in sustaining cost	(R/kg)	506 969	438 401	454 512
	(US\$/oz)	1 160	940	1 235
<b>Safety</b>				
Number of fatalities		0	0	1
Lost-time injury frequency rate per million hours worked		7.34	6.40	5.72
<b>Environment</b>				
Electricity consumption	(GWh)	287	301	307
Water consumption – primary activities	(ML)	1 229	1 230	1 110
Greenhouse gas emissions	(000t CO <sub>2</sub> e)	286	306	316
Intensity data per tonne treated				
– energy		0.28	0.27	0.31
– water		1.19	1.13	1.12
– greenhouse gas emissions		0.28	0.27	0.32
Number of reportable environmental incidents		0	0	0
<b>Community</b>				
Local economic development*	(Rm)	6	7	33
Training and development	(Rm)	37	37	33

\* Included in the total for FY15 is an amount of R24 million that was capitalised as part of the hostel upgrades (FY16: R0 million, FY17: R0 million)

## Tshepong *continued*

### Other salient features

Status of operation	Steady state operation: development continues
Life of mine	17 years
Nameplate hoisting capacity (per month)	192 000 tonnes (212 000 tons)
Compliance and certification	New order mining right – December 2007 ISO 14001 ISO 9001

### Mineral reserves as at 30 June 2017\*

Reserves (metric)	Proved reserves			Probable reserves			Total mineral reserves		
	Tonnes (Mt)	Grade (g/t)	Gold (000kg)	Tonnes (Mt)	Grade (g/t)	Gold (000kg)	Tonnes (Mt)	Grade (g/t)	Gold (000kg)
	21.0	5.91	124	4.6	5.36	24	25.6	5.82	149
Reserves (imperial)	Tons (Mt)	Grade (oz/t)	Gold (000oz)	Tons (Mt)	Grade (oz/t)	Gold (000oz)	Tons (Mt)	Grade (oz/t)	Gold (000oz)
	23.2	0.173	4 002	5.0	0.156	785	28.2	0.170	4 787

\* As at 30 June 2017, the mineral reserves reported are for Tshepong and Phakisa combined. From FY18, Tshepong and Phakisa will be integrated and reported on as a single entity, Tshepong operations

Tshepong is located in the Free State Province, near Welkom, about 248km from Johannesburg. Mining is conducted to a depth of 2 349m. The mine uses conventional undercut mining in the Basal Reef while the B Reef is exploited as a high-grade secondary reef. Ore mined is processed at the Harmony One plant.

During FY17, no fatalities occurred and Tshepong achieved a first ever three million fatality-free shifts on 31 March 2017, a total of 949 fatality-free days.

In FY17, Tshepong was Harmony's second highest contributor to cash flow from the South African operations. Both volume and kilograms were negatively impacted by under performance in the higher-grade decline section of the mine, mainly due to moving crews to other sections. The continued build-up in production from the sub-66 decline is driving the improvement in grade.

Gold production decreased by 4% to 4 819kg (154 934oz) in FY17, primarily due to the decline in volumes mined. Ore milled decreased by 6% to 1 027 000 tonnes (1 132 000 tons) while recovered gold grade increased by 2% to 4.69g/t (0.137oz/t). The decrease in gold production was offset by a 5% increase in the average rand gold price received to R572 921 kg. Revenue remained flat year on year at R2 760 million (7% increase to US\$203 million).

With the sub-71 decline capital project, reef/waste split development progressed well and is on schedule. The sub-75 decline capital project continued.

Cash operating costs increased by 10% to R2 032 million (increased by 17% to US\$149 million), mainly due to labour cost increases and higher electricity tariffs.

Capital expenditure increased by 26% to R387 million (increased by 33% to US\$28 million). Capital was mainly spent on the sub-71 and sub-75 decline project.

Management's main focus is on reducing unit costs in all disciplines, adhering to maintenance schedules, cleaning dams, quality mining and performance of development section in order to sustain current stoping profile.

# OPERATIONAL PERFORMANCE CONTINUED

## Phakisa

		FY17	FY16	FY15
<b>Number of employees</b>				
– Permanent		3 806	3 547	3 344
– Contractors		305	350	392
Total		4 111	3 897	3 736
<b>Operational</b>				
Volumes milled	(000t) (metric)	668	686	611
	(000t) (imperial)	737	756	674
Gold produced	(kg)	4 009	3 988	3 118
	(oz)	128 893	128 217	100 246
Gold sold	(kg)	3 999	3 991	3 156
	(oz)	128 570	128 314	101 468
Grade	(g/t)	6.00	5.81	5.10
	(oz/t)	0.175	0.170	0.149
Productivity	(g/TEC)	88.64	93.54	76.99
<b>Development results</b>				
Total metres		8 002	11 022	12 138
Reef metres		1 293	1 785	1 749
Capital metres		216	0	162
<b>Financial</b>				
Revenue	(Rm)	2 302	2 186	1 420
	(US\$m)	169	151	124
Average gold price received	(R/kg)	575 663	547 829	449 969
	(US\$/oz)	1 317	1 175	1 223
Cash operating cost	(Rm)	1 645	1 378	1 166
	(US\$m)	121	95	102
Production profit/(loss)	(Rm)	660	811	239
	(US\$m)	49	56	21
Capital expenditure	(Rm)	330	323	403
	(US\$m)	24	22	35
Cash operating cost	(R/kg)	410 387	345 457	373 876
	(US\$/oz)	939	741	1 016
All-in sustaining cost	(R/kg)	507 849	436 477	495 644
	(US\$/oz)	1 162	936	1 347
<b>Safety</b>				
Number of fatalities		1	2	0
Lost-time injury frequency rate per million hours worked		6.80	6.64	8.76
<b>Environment</b>				
Electricity consumption	(GWh)	179	152	143
Water consumption – primary activities	(ML)	1 490	1 254	1 155
Greenhouse gas emissions	(000t CO <sub>2</sub> e)	177	154	147
Intensity data per tonne treated				
– energy		0.27	0.22	0.23
– water		2.23	1.83	1.89
– greenhouse gas emissions		0.27	0.22	0.24
Number of reportable environmental incidents		0	0	0
<b>Community</b>				
Local economic development*	(Rm)	6	6	12
Training and development	(Rm)	37	35	32

\* Included in the total for FY15 is an amount of R3 million that was capitalised as part of the hostel upgrades (FY16: R0 million; FY17: R0 million)

## Phakisa *continued*

### Other salient features

Status of operation	Production ramp up continues
Life of mine	9 years
Nameplate hoisting capacity (per month)	91 000 tonnes (101 000 imperial tons)
Compliance and certification	New order mining right – December 2007 ISO 14001 ISO 9001 OHSAS 18001

### Mineral reserves as at 30 June 2017

See Tshepong. As at 30 June 2017, Phakisa's mineral reserves are included with those of Tshepong. From FY18, Phakisa and Tshepong will be integrated and reported on as a single entity, Tshepong operations.

Phakisa is located in the Free State Province, some 252km from Johannesburg. The mine has two shafts, the main Phakisa shaft and the Nyala shaft. The latter is used to hoist rock and serves as a second escape route. Phakisa exploits the Basal Reef. Mining is conducted to a depth of 2 426m. Ore mined is processed at the Harmony One plant. Phakisa continues to build up to full production, which is expected within the next two years.

Regrettably there was one fatality in FY17.

In line with the planned build-up at Phakisa, the recovered grade increased by 3% to 6.00g/t, offsetting the 3% decrease in ore milled (to 668 000 tonnes or 737 000 tons) resulting in a slight increase in gold produced by 0.5% to 4 009kg (128 893oz).

The integration between Tshepong and Phakisa mines involves the cross-tramming of ore from Phakisa to Tshepong which will de-bottleneck constraints on the over-utilised Phakisa infrastructure. Accelerated development was conducted in FY17 to facilitate the holing between the mines on 73 level.

Cash operating costs increased by 19% to R1 645 million (increased by 27% to US\$121 million) due to increased production crews to accelerate the production build up, increased expenditure on consumable as production ramps up and annual wage and electricity tariff increases.

Capital expenditure increased by 2% to R330 million (by 9% to US\$24 million), primarily spent on ongoing capital development.

Key deliverables include safe production, achieving volume and development targets, and increased ledging to improve flexibility. Ventilation change-overs were completed on 69 and 71 levels so that ventilation at Tshepong could be utilised at Phakisa.



# OPERATIONAL PERFORMANCE CONTINUED

## Bambanani

		FY17	FY16	FY15
<b>Number of employees</b>				
– Permanent		1 464	1 491	1 517
– Contractors		205	321	330
Total		1 669	1 812	1 847
<b>Operational</b>				
Volumes milled	(000t) (metric)	231	232	229
	(000t) (imperial)	254	256	253
Gold produced	(kg)	2 750	3 013	2 908
	(oz)	88 415	96 870	93 495
Gold sold	(kg)	2 745	3 015	2 947
	(oz)	88 253	96 934	94 748
Grade	(g/t)	11.90	12.99	12.70
	(oz/t)	0.348	0.378	0.370
Productivity	(g/TEC)	148.42	156.54	153.08
<b>Development results</b>				
Total metres		1 591	1 743	1 150
Reef metres		130	105	15
Capital metres		0	0	0
<b>Financial</b>				
Revenue	(Rm)	1 576	1 617	1 330
	(US\$m)	116	112	116
Average gold price received	(R/kg)	574 227	536 410	451 200
	(US\$/oz)	1 314	1 151	1 226
Cash operating cost	(Rm)	874	808	697
	(US\$m)	64	56	61
Production profit/(loss)	(Rm)	705	806	625
	(US\$m)	52	56	55
Capital expenditure	(Rm)	77	106	110
	(US\$m)	6	7	10
Cash operating cost	(R/kg)	317 833	268 305	239 552
	(US\$/oz)	727	576	651
All-in sustaining cost	(R/kg)	357 025	304 634	270 623
	(US\$/oz)	817	654	735
<b>Safety</b>				
Number of fatalities		1	0	1
Lost-time injury frequency rate per million hours worked		5.23	3.59	4.63
<b>Environment</b>				
Electricity consumption	(GWh)	143	140	133
Water consumption – primary activities	(ML)	1 200	1 434	1 731
Greenhouse gas emissions	(000t CO <sub>2</sub> e)	141	142	137
Intensity data per tonne treated				
– energy		0.64	0.60	0.59
– water		5.19	6.18	7.57
– greenhouse gas emissions		0.64	0.60	0.61
Number of reportable environmental incidents		0	0	0
<b>Community</b>				
Local economic development	(Rm)	14	9	3
Training and development	(Rm)	20	25	17

## Bambanani *continued*

### Other salient features

Status of operation	Mature operation with focus on mining of the shaft pillar for the next few years after which it will be at the end of its operating life
Life of mine	5 years
Nameplate hoisting capacity (per month)	32 000 tonnes (35 000 tons)
Compliance and certification	New order mining right – December 2007 ISO 14001 – not certified but operates according to standards requirements ISO 9001 OHSAS 18001

### Mineral reserves as at 30 June 2017

Reserves (metric)	Proved reserves			Probable reserves			Total mineral reserves		
	Tonnes (Mt)	Grade (g/t)	Gold (000kg)	Tonnes (Mt)	Grade (g/t)	Gold (000kg)	Tonnes (Mt)	Grade (g/t)	Gold (000kg)
	1.1	11.54	12	–	–	–	1.1	11.54	12
Reserves (imperial)	Tons (Mt)	Grade (oz/t)	Gold (000oz)	Tons (Mt)	Grade (oz/t)	Gold (000oz)	Tons (Mt)	Grade (oz/t)	Gold (000oz)
	1.2	0.337	401	–	–	–	1.2	0.337	401

Bambanani, located in the Free State Province, near Welkom and about 262km from Johannesburg, has two surface shafts (the East and West shafts). Mining is conducted to a depth of 2 365m. Activities at the mine focus on the Basal Reef and are limited to shaft pillar extraction. The ore mined is sent to Harmony One Plant for processing. Given the high risk of seismicity at Bambanani, efforts are focused on managing support systems and the rehabilitation of areas with challenging ground conditions.

Regrettably, one fatality occurred at Bambanani in FY17. Focus on safety and fatal risk management has further intensified as we strive for zero harm.

Bambanani is Harmony's most profitable mine despite gold production decreasing by 9% to 2 750kg (88 415oz) in FY17. This was primarily due to decline in the recovered grade by 8% to 11.90g/t after an exceptional grade performance in FY16 remained flat year on year at 231 000 tonnes (254 000 tons) in FY17.

Revenue was down by 3% to R1 576 million (4% increase to US\$116 million) mainly due to lower production in FY17.

Cash operating costs increased by 8% to R874 million (or 14% to US\$64 million), mainly due to the increase in annual wages and electricity tariffs.

Capital expenditure decreased by 27% to R77 million (a decrease of 14% to US\$6 million). The decrease was due reduced capital spending as the Bambanani shaft pillar major capital project was completed at the end of FY17.

# OPERATIONAL PERFORMANCE CONTINUED

## Target 1

		FY17	FY16	FY15
<b>Number of employees</b>				
– Permanent		1 689	1 653	1 683
– Contractors		222	272	266
Total		1 911	1 925	1 949
<b>Operational</b>				
Volumes milled	(000t) (metric)	745	739	749
	(000t) (imperial)	822	814	826
Gold produced	(kg)	2 669	3 387	3 824
	(oz)	85 809	108 895	122 944
Gold sold	(kg)	2 642	3 419	3 868
	(oz)	84 942	109 923	124 358
Grade	(g/t)	3.58	4.58	5.11
	(oz/t)	0.104	0.134	0.149
Productivity	(g/TEC)	126.66	155.77	172.25
<b>Development results</b>				
Total metres		3 656	3 459	4 174
Reef metres		104	182	290
<b>Financial</b>				
Revenue	(Rm)	1 506	1 833	1 738
	(US\$m)	111	126	152
Average gold price received	(R/kg)	570 091	536 196	449 319
	(US\$/oz)	1 304	1 150	1 221
Cash operating cost	(Rm)	1 356	1 242	1 178
	(US\$m)	100	86	103
Production profit/(loss)	(Rm)	161	583	547
	(US\$m)	12	40	48
Capital expenditure	(Rm)	324	322	296
	(US\$m)	24	22	26
Cash operating cost	(R/kg)	508 082	366 814	308 156
	(US\$/oz)	1 162	787	837
All-in sustaining cost	(R/kg)	651 833	471 876	395 669
	(US\$/oz)	1 491	1 012	1 075
<b>Safety</b>				
Number of fatalities		0	2	0
Lost-time injury frequency rate per million hours worked		11.80	4.91	4.51
<b>Environment</b>				
Electricity consumption	(GWh)	186	247	242
Water consumption – primary activities	(ML)	678	808	808
Greenhouse gas emissions	(000t CO <sub>2</sub> e)	184	251	249
Intensity data per tonne treated				
– energy		0.25	0.33	0.32
– water		0.91	1.09	1.22
– greenhouse gas emissions		0.25	0.33	0.33
Number of reportable environmental incidents		0	0	0
<b>Community</b>				
Local economic development	(Rm)	5	4	4
Training and development	(Rm)	36	34	30

## Target 1 *continued*

### Other salient features

Status of operation	Single, cost efficient shaft operation. Geological drilling to be conducted in the next 12 months to further evaluate capitalisation of the operation.
Life of mine	7 years
Nameplate hoisting capacity (per month)	97 000 tonnes (107 000 tons)
Compliance and certification	New order mining right – December 2007 ISO 14001 ISO 9001 OHSAS 18001

### Mineral reserves as at 30 June 2017

Reserves (metric)	Proved reserves			Probable reserves			Total mineral reserves		
	Tonnes (Mt)	Grade (g/t)	Gold (000kg)	Tonnes (Mt)	Grade (g/t)	Gold (000kg)	Tonnes (Mt)	Grade (g/t)	Gold (000kg)
	3.2	4.18	13	2.0	4.29	9	5.2	4.22	22
Reserves (imperial)	Tons (Mt)	Grade (oz/t)	Gold (000oz)	Tons (Mt)	Grade (oz/t)	Gold (000oz)	Tons (Mt)	Grade (oz/t)	Gold (000oz)
	3.5	0.122	430	2.2	0.125	274	5.7	0.123	705

Target 1 is located in the Free State Province, some 270km southwest of Johannesburg. Mining operations at Target 1 comprise one primary underground mine, to a depth of approximately 2 945m. While most of the ore extracted comes from mechanised mining (massive mining techniques), conventional stoping is still employed primarily to destress areas ahead of mechanised mining. Ore mined is processed at the Target plant. The gold mineralisation currently exploited at Target 1 is contained within a succession of Elsburg and Dreyerskuil quartz pebble conglomerate reefs.

Target 1 manages its risks by focusing on trackless development to ensure timeous availability of massive stopes and to prevent excessive dilution from waste and backfill in the pillar areas, which could impact negatively on the delivered grade. Future success will depend on the availability of trackless mining equipment and performance regarding volumes and grade.

No fatalities occurred during the year (FY16: two).

Gold production decreased by 21% to 2 669kg (85 809oz) in FY17 as a result of 22% decrease in the recovered grade to 3.58g/t (FY16: 4.58g/t). Production was severely affected by unstable ground conditions which hampered further mining in the higher grade areas. Due to limited flexibility, a narrow reef mining method was implemented to access the ore. Grade and production improved in the second half of FY17 and a better performance is expected from Target 1 in FY18.

Revenue decreased by 18% to R1 506 million (12% decrease to US\$111 million) as a result of the decrease in the production for FY17.

Cash operating costs rose by 9% to R1 356 million (16% increase to US\$100 million). Reduced expenditure on consumables partially offset an increase in annual labour costs and electricity tariffs.

Capital expenditure in FY17 remained flat at R324 million (FY16: R322 million) (increase of 1% to US\$24 million), as a zero-based costing exercise was implemented to manage costs and cash flow following the lower than expected production performance.

# OPERATIONAL PERFORMANCE CONTINUED

## Doornkop

		FY17	FY16	FY15
<b>Number of employees</b>				
– Permanent		2 847	2 471	2 977
– Contractors		645	443	493
Total		3 492	2 914	3 470
<b>Operational</b>				
Volumes milled	(000t) (metric)	641	630	603
	(000t) (imperial)	706	695	665
Gold produced	(kg)	2 673	2 730	2 663
	(oz)	85 939	87 772	85 618
Gold sold	(kg)	2 712	2 712	2 711
	(oz)	87 193	87 193	87 160
Grade	(g/t)	4.17	4.33	4.42
	(oz/t)	0.122	0.126	0.129
Productivity	(g/TEC)	77.08	83.49	68.47
<b>Development results</b>				
Total metres (excl. capital metres)		9 961	7 766	8 919
Reef metres		1 337	1 688	1 701
Capital metres		1 316	0	0
<b>Financial</b>				
Revenue	(Rm)	1 553	1 480	1 220
	(US\$m)	114	102	107
Average gold price received	(R/kg)	572 494	545 770	449 857
	(US\$/oz)	1 310	1 171	1 222
Cash operating cost	(Rm)	1 224	1 058	1 071
	(US\$m)	90	73	94
Production profit/(loss)	(Rm)	312	433	128
	(US\$m)	23	30	12
Capital expenditure	(Rm)	243	208	245
	(US\$m)	18	14	21
Cash operating cost	(R/kg)	457 752	387 585	402 065
	(US\$/oz)	1 047	831	1 092
All-in sustaining cost	(R/kg)	562 907	473 562	501 151
	(US\$/oz)	1 288	1 016	1 362
<b>Safety</b>				
Number of fatalities		0	0	1
Lost-time injury frequency rate per million hours worked		7.50	12.27	7.14
<b>Environment</b>				
Electricity consumption	(GWh)	188	203	205
Water consumption – primary activities	(ML)	947	1 135	733
Greenhouse gas emissions	(000t CO <sub>2</sub> e)	186	206	211
Intensity data per tonne treated				
– energy		0.30	0.32	0.34
– water		1.48	1.80	1.26
– greenhouse gas emissions		0.30	0.32	0.35
Number of reportable environmental incidents		0	0	0
<b>Community</b>				
Local economic development*	(Rm)	8	4	37
Training and development	(Rm)	42	30	35

\* Included in the total for FY16 is an amount of R1 million that was capitalised as part of the hostel upgrades (FY15: R28 million, FY17: R0 million)



## Doornkop *continued*

### Other salient features

Status of operation	Mining takes place on the South Reef at this single-shaft operation.
Life of mine	18 years
Nameplate hoisting capacity (per month)	103 000 tonnes ( 113 000 tons)
Compliance and certification	New order mining right – October 2008 ISO 14001 ISO 9001 OHSAS 18001

### Mineral reserves as at 30 June 2017

Reserves (metric)	Proved reserves			Probable reserves			Total mineral reserves		
	Tonnes (Mt)	Grade (g/t)	Gold (000kg)	Tonnes (Mt)	Grade (g/t)	Gold (000kg)	Tonnes (Mt)	Grade (g/t)	Gold (000kg)
	2.1	4.97	11	2.5	4.96	12	4.6	4.96	23
Reserves (imperial)	Tons (Mt)	Grade (oz/t)	Gold (000oz)	Tons (Mt)	Grade (oz/t)	Gold (000oz)	Tons (Mt)	Grade (oz/t)	Gold (000oz)
	2.4	0.145	343	2.7	0.145	392	5.1	0.145	735

Doornkop, a single-shaft operation, is located in the Gauteng province of South Africa, approximately 30km west of Johannesburg, on the northern rim of the Witwatersrand Basin. Mining is conducted to a depth of 1 978m. The operation focuses on narrow-reef conventional mining of the South Reef. Ore from the operation is processed at the Doornkop plant.

Safety improvements were realised and Doornkop achieved its first ever two million fatality-free shift on 17 December 2016 after working 872 days fatality-free. There were no fatalities in FY17. The lost-time injury frequency rate improved by 39% to 7.50 per million hours worked in FY17 from 12.27 in FY16.

Gold production decreased by 2% to 2 673kg (85 939oz) in FY17. A 2% increase in ore milled to 641 000 tonnes (706 000 tons) was offset by a 4% decrease in the recovered gold grade to 4.17g/t (0.122oz/t). The decrease in the grade is due to the lower plant call factor owing to lower than expected plant efficiencies. Management at the shaft are focused on improving these efficiencies in FY18.

Despite the decrease in gold production, the 5% increase in the average rand gold price received (which included the gains realised on the gold forward hedging contracts) resulted in a 5% increase in revenue to R1 553 million (12% increase to US\$114 million). The increase in dollar terms was also due to the 6% strengthening of the rand/US dollar exchange rate to R13.60 in FY17 (FY16: R14.50/US\$).

Cash operating costs increased by 16% to R1 224 million (increased by 23% to US\$90 million) as a results of annual wage and electricity tariff increases as well as additional crews brought in to accelerate production. Capital expenditure increased by 17% to R243 million (increased by 29% to US\$18 million) owing to an increase in shaft capital development on the 207 and 212 levels.

The planned seismic survey was completed during FY17 and led to an increase in the mine's reserves and a better understanding of the mines geological structures. All changes related to the survey and geological drilling will be updated in the FY19 geological interpretation and life-of-mine design.

# OPERATIONAL PERFORMANCE CONTINUED

## Joel

		FY17	FY16	FY15
<b>Number of employees</b>				
– Permanent		1 962	1 796	1 818
– Contractors		171	97	81
Total		2 133	1 893	1 899
<b>Operational</b>				
Volumes milled	(000t) (metric)	514	542	551
	(000t) (imperial)	567	597	607
Gold produced	(kg)	2 246	2 278	2 258
	(oz)	72 211	73 239	72 596
Gold sold	(kg)	2 280	2 245	2 330
	(oz)	73 303	72 179	74 911
Grade	(g/t)	4.37	4.20	4.10
	(oz/t)	0.127	0.123	0.119
Productivity	(g/TEC)	113.57	117.33	115.65
<b>Development results</b>				
Total metres		3 477	3 541	3 200
Reef metres		1 596	2 315	1 037
Capital metres		532	485	338
<b>Financial</b>				
Revenue	(Rm)	1 309	1 220	1 046
	(US\$m)	96	84	91
Average gold price received	(R/kg)	573 986	543 442	449 026
	(US\$/oz)	1 313	1 166	1 220
Cash operating cost	(Rm)	928	845	755
	(US\$m)	68	58	66
Production profit/(loss)	(Rm)	373	389	276
	(US\$m)	27	27	24
Capital expenditure	(Rm)	243	215	182
	(US\$m)	18	15	16
Cash operating cost	(R/kg)	413 088	371 080	334 168
	(US\$/oz)	945	796	908
All-in sustaining cost	(R/kg)	477 484	424 617	384 022
	(US\$/oz)	1 092	911	1 043
<b>Safety</b>				
Number of fatalities		1	1	0
Lost-time injury frequency rate per million hours worked		2.54	3.49	3.72
<b>Environment</b>				
Electricity consumption	(GWh)	85	108	101
Water consumption – primary activities	(ML)	922	816	671
Greenhouse gas emissions	(000t CO <sub>2</sub> e)	84	109	104
Intensity data per tonne treated				
– energy		1.17	0.19	0.18
– water		1.79	1.50	1.22
– greenhouse gas emissions		0.16	0.19	0.19
Number of reportable environmental incidents		0	0	0
<b>Community</b>				
Local economic development	(Rm)	7	3	3
Training and development	(Rm)	20	15	15

## Joel *continued*

### Other salient features

Status of operation	Twin-shaft operation – technically challenging
Life of mine	9 years
Nameplate hoisting capacity (per month)	75 000 tonnes (83 000 tons)
Compliance and certification	New order mining right – December 2007 ISO 14001 – not certified but operates according to the standard's requirements ISO 9001 OHSAS 18001

### Mineral reserves as at 30 June 2017

Reserves (metric)	Proved reserves			Probable reserves			Total mineral reserves		
	Tonnes (Mt)	Grade (g/t)	Gold (000kg)	Tonnes (Mt)	Grade (g/t)	Gold (000kg)	Tonnes (Mt)	Grade (g/t)	Gold (000kg)
	2.1	5.00	10	2.4	5.35	13	4.5	5.19	23
Reserves (imperial)	Tons (Mt)	Grade (oz/t)	Gold (000oz)	Tons (Mt)	Grade (oz/t)	Gold (000oz)	Tons (Mt)	Grade (oz/t)	Gold (000oz)
	2.3	0.146	335	2.7	0.156	420	5.0	0.151	755

Joel is located in the Free State Province, about 292km from Johannesburg, on the southern edge of the Witwatersrand Basin. The mine comprises two shafts: North and South. The primary economic reef horizon at Joel is a narrow tabular Beatrix Reef deposit, which is accessed via conventional grid development. Mining is conducted to a depth of 1 452m. Ore mined is processed at the Joel plant.

The lost-time injury frequency rate improved by 27% to 2.54 per million hours worked. Regrettably, there was one fatality in FY17 (FY16: one).

Progress was made in the 137 decline capital project and is scheduled to be completed in 2018. Production from specific areas on 137 level is expected to start in March 2018. Project was initiated to extend the life of Joel Mine by approximately eight years and is included in Joel's current life-of-mine plan.

Gold production decreased by 1% to 2 246kg (72 211oz) in FY17. Recovered gold grades improved by 4% to 4.37g/t (0.127oz/t), which mostly offset the 5% decrease in ore milled to 514 000 tonnes (567 000 tons) mainly due to hoisting backlogs. The 7% increase in revenue to R1 309 million (14% increase to US\$96 million) was largely due to the higher average rand gold price received (by 6% to R573 986/kg).

Cash operating costs increased by 10% to R928 million (increased by 17% to US\$68 million) largely as a result of annual wage increases and higher electricity tariffs.

Capital expenditure increased by 13% to R243 million (increased by 20% to US\$18 million), mainly as work progressed on the 137 decline project in FY17.

# OPERATIONAL PERFORMANCE CONTINUED

## Kusasaletu

		FY17	FY16	FY15
<b>Number of employees</b>				
– Permanent		4 050	3 944	3 898
– Contractors		538	539	1 020
Total		4 588	4 483	4 918
<b>Operational</b>				
Volumes milled	(000t) (metric)	607	668	908
	(000t) (imperial)	670	736	1 001
Gold produced	(kg)	4 394	3 863	3 953
	(oz)	141 270	124 198	127 092
Gold sold	(kg)	4 498	3 822	4 297
	(oz)	144 614	122 880	138 151
Grade	(g/t)	7.24	5.78	4.35
	(oz/t)	0.211	0.169	0.127
Productivity	(g/TEC)	89.05	77.80	65.59
<b>Development results</b>				
Total metres		5 101	7 183	13 777
Reef metres		1 185	1 517	2 436
Capital metres		0	0	59
<b>Financial</b>				
Revenue	(Rm)	2 575	2 078	1 939
	(US\$m)	189	143	169
Average gold price received	(R/kg)	572 376	543 633	451 211
	(US\$/oz)	1 309	1 166	1 226
Cash operating cost	(Rm)	2 019	1 848	1 866
	(US\$m)	148	127	163
Production profit/(loss)	(Rm)	494	262	(57)
	(US\$m)	36	18	(5)
Capital expenditure	(Rm)	289	360	463
	(US\$m)	21	25	40
Cash operating cost	(R/kg)	459 422	478 277	472 112
	(US\$/oz)	1 051	1 026	1 283
All-in sustaining cost	(R/kg)	541 247	584 498	587 406
	(US\$/oz)	1 238	1 254	1 596
<b>Safety</b>				
Number of fatalities		0	2	1
Lost-time injury frequency rate per million hours worked		10.29	7.06	25.80
<b>Environment</b>				
Electricity consumption	(GWh)	616	611	682
Water consumption – primary activities	(ML)	613	1 671	1 342
Greenhouse gas emissions	(000t CO <sub>2</sub> e)	610	620	702
Intensity data per tonne treated				
– energy		1.01	0.91	0.75
– water		1.00	2.50	1.48
– greenhouse gas emissions		0.10	0.91	0.77
Number of reportable environmental incidents		3	1	1
<b>Community</b>				
Local economic development*	(Rm)	5	5	30
Training and development	(Rm)	45	26	50

\* Included in the total for FY15 is an amount of R18 million that was capitalised as part of the hostel upgrades (FY16: R0 million, FY17: R0 million)

## Kusasaletu *continued*

### Other salient features

Status of operation	Positioned for profitability
Life of mine	5 years
Nameplate hoisting capacity (per month)	172 000 tonnes (190 000 tons)
Compliance and certification	New order mining right – December 2007 ISO 14001 ISO 9001 Cyanide Code

### Mineral reserves as at 30 June 2017

Reserves (metric)	Proved reserves			Probable reserves			Total mineral reserves		
	Tonnes (Mt)	Grade (g/t)	Gold (000kg)	Tonnes (Mt)	Grade (g/t)	Gold (000kg)	Tonnes (Mt)	Grade (g/t)	Gold (000kg)
	4.3	6.95	30	0.6	6.18	4	4.9	6.85	34
Reserves (imperial)	Tons (Mt)	Grade (oz/t)	Gold (000oz)	Tons (Mt)	Grade (oz/t)	Gold (000oz)	Tons (Mt)	Grade (oz/t)	Gold (000oz)
	4.7	0.203	959	0.7	0.180	129	5.4	0.200	1 088

Kusasaletu is located about 90km from Johannesburg, near the provincial border of Gauteng and North West Province, in the West Witwatersrand Basin where it mines the Ventersdorp Contact Reef as its main ore body. The mine comprises twin vertical and twin sub-vertical shaft systems, and uses conventional mining methods in a sequential grid layout. Mining is conducted to a depth of 3 388m, making it Harmony's deepest mine. Ore mined is treated at the Kusasaletu plant.

Kusasaletu achieved one million fatality-free shifts on 31 January 2017. Regrettably, post year-end, a seismic event triggered a fall-of-ground accident which led to five fatalities.

At the end of FY16 it was resolved that Kusasaletu's life of mine would be reduced from 25 years to five years to optimise cash flow and access the higher grade areas of the mine. Kusasaletu generated a profit and free cash flow in FY17. The recovered gold grade increased by 25% to 7.24g/t (0.211oz/t), which offset a 9% reduction in the volume of ore milled to 607 000 tonnes (670 000 tons), resulting in a 14% increase in gold production to 4 394kg (141 270oz).

The operation was impacted by illegal industrial action during January 2017 and March 2017. Management instituted disciplinary measures against the instigators and the AMCU branch leadership. Employee and union relations after the illegal industrial action were largely stable.

Critical infrastructure and related maintenance repair work was conducted at Kusasaletu over the extended Easter break. A notable reduction in unplanned infrastructure stoppages was evident following the maintenance work conducted.

Revenue increased by 24% to R2 575 million in FY17 (increased by 32% to US\$189 million) as a result of the higher average rand gold price received and increased production.

Cash operating costs increased by 9% to R2 019 million (17% to US\$148 million) due to wage increases, higher electricity tariffs and costs associated with the maintenance work conducted.

Capital expenditure decreased by 20% to R289 million (16% decrease to US\$21 million). The variance was mainly due to the slow-down in ongoing capital development as a result of Kusasaletu's reduced life of mine.



# OPERATIONAL PERFORMANCE CONTINUED

## Masimong

		FY17	FY16	FY15
<b>Number of employees</b>				
– Permanent		2 437	2 478	2 470
– Contractors		107	112	99
Total		2 544	2 590	2 569
<b>Operational</b>				
Volumes milled	(000t) (metric)	640	650	670
	(000t) (imperial)	706	716	739
Gold produced	(kg)	2 538	2 432	2 463
	(oz)	81 599	78 190	79 187
Gold sold	(kg)	2 539	2 432	2 491
	(oz)	81 631	78 191	80 087
Grade	(g/t)	3.97	3.74	3.68
	(oz/t)	0.116	0.109	0.107
Productivity	(g/TEC)	89.73	83.85	75.27
<b>Development results</b>				
Total metres		4 754	4 755	9 855
Reef metres		1 054	1 549	2 376
<b>Financial</b>				
Revenue	(Rm)	1 452	1 318	1 118
	(US\$m)	107	91	98
Average gold price received	(R/kg)	571 870	541 806	448 867
	(US\$/oz)	1 308	1 162	1 220
Cash operating cost	(Rm)	1 115	1 038	979
	(US\$m)	82	72	86
Production profit/(loss)	(Rm)	339	280	127
	(US\$m)	25	19	11
Capital expenditure	(Rm)	119	110	166
	(US\$m)	9	8	15
Cash operating cost	(R/kg)	439 457	426 904	397 380
	(US\$/oz)	1 005	916	1 080
All-in sustaining cost	(R/kg)	500 938	493 527	479 096
	(US\$/oz)	1 146	1 059	1 302
<b>Safety</b>				
Number of fatalities		1	2	1
Lost-time injury frequency rate per million hours worked		10.54	10.05	12.09
<b>Environment</b>				
Electricity consumption	(GWh)	170	172	184
Water consumption – primary activities	(ML)	825	715	859
Greenhouse gas emissions	(000t CO <sub>2</sub> e)	169	175	190
Intensity data per tonne treated				
– energy		0.27	0.26	0.28
– water		1.29	1.10	1.28
– greenhouse gas emissions		0.27	0.26	0.29
Number of reportable environmental incidents		0	0	0
<b>Community</b>				
Local economic development	(Rm)	7	6	6
Training and development	(Rm)	23	22	25

## Masimong *continued*

### Other salient features

Status of operation	Mature, single shaft operation nearing the end of its life of mine
Life of mine	4 years
Nameplate hoisting capacity (per month)	112 000 tonnes (124 000 tons)
Compliance and certification	New order mining right – December 2007 ISO 14001 ISO 9001 OHSAS 18001

### Mineral reserves as at 30 June 2017

Reserves (metric)	Proved reserves			Probable reserves			Total mineral reserves		
	Tonnes (Mt)	Grade (g/t)	Gold (000kg)	Tonnes (Mt)	Grade (g/t)	Gold (000kg)	Tonnes (Mt)	Grade (g/t)	Gold (000kg)
	2.1	4.19	9	0.3	3.23	1	2.4	4.07	10
Reserves (imperial)	Tons (Mt)	Grade (oz/t)	Gold (000oz)	Tons (Mt)	Grade (oz/t)	Gold (000oz)	Tons (Mt)	Grade (oz/t)	Gold (000oz)
	2.3	0.122	281	0.3	0.094	31	2.6	0.119	312

Masimong is located in the Free State Province, near Welkom, about 260km from Johannesburg. The Masimong complex comprises an operating shaft (5 shaft) and 4 shaft, which, although closed for mining, is used for ventilation, pumping and as a second escape outlet. Masimong exploits the Basal Reef and the secondary B Reef. Mining is conducted to a depth of 2 050m. Ore mined is processed at the Harmony One plant.

Sadly, there was one fatality at Masimong in FY17. Management is committed to improving the safety at this operation.

Masimong delivered an improved performance in FY17 as a result of accessing higher grade B-reef areas and improved mining discipline. The recovered gold grade increased by 6% to 3.97g/t (0.116oz/t). Ore milled decreased by 2% to 640 000 tonnes (706 000 tons). Gold produced increased by 4% to 2 538kg (81 599oz).

The increase in gold production and 6% increase in the average rand gold price received in FY17 (to R571 870/kg) contributed to a 10% increase in revenue to R1 452 million (18% increase to US\$107 million, due to increased production and the strengthening of the average rand/US dollar exchange rate by 6% from R14.50 in FY16 to R13.60 in FY17).

Cash operating costs increased by 7% to R1 115 million (14% increase to US\$82 million) mainly due to wage and electricity tariff increases.

Capital expenditure increased by 8% to R119 million (increased by 13% to US\$9 million). Capital was spent mainly on ongoing development.

# OPERATIONAL PERFORMANCE CONTINUED

## Unisel

		FY17	FY16	FY15
<b>Number of employees</b>				
– Permanent		1 839	1 817	1 809
– Contractors		152	128	114
Total		1 991	1 945	1 923
<b>Operational</b>				
Volumes milled	(000t) (metric)	394	424	417
	(000t) (imperial)	436	467	460
Gold produced	(kg)	1 595	1 704	1 695
	(oz)	51 280	54 785	54 495
Gold sold	(kg)	1 590	1 705	1 715
	(oz)	51 120	54 817	55 138
Grade	(g/t)	4.05	4.02	4.06
	(oz/t)	0.118	0.117	0.118
Productivity	(g/TEC)	73.56	77.43	77.82
<b>Development results</b>				
Total metres		3 647	3 145	5 177
Reef metres		1 575	1 917	2 816
<b>Financial</b>				
Revenue	(Rm)	915	925	770
	(US\$m)	67	64	67
Average gold price received	(R/kg)	575 650	542 487	449 082
	(US\$/oz)	1 317	1 164	1 220
Cash operating cost	(Rm)	839	754	674
	(US\$m)	62	52	59
Production profit/(loss)	(Rm)	77	171	88
	(US\$m)	6	12	7
Capital expenditure	(Rm)	78	62	99
	(US\$m)	6	4	9
Cash operating cost	(R/kg)	525 732	442 359	397 615
	(US\$/oz)	1 203	949	1 080
All-in sustaining cost	(R/kg)	591 913	496 099	469 246
	(US\$/oz)	1 354	1 064	1 275
<b>Safety</b>				
Number of fatalities		0	0	1
Lost-time injury frequency rate per million hours worked		13.57	9.61	8.74
<b>Environment</b>				
Electricity consumption	(GWh)	112	112	109
Water consumption – primary activities	(ML)	441	563	519
Greenhouse gas emissions	(000t CO <sub>2</sub> e)	112	113	112
Intensity data per tonne treated				
– energy		0.28	0.26	0.26
– water		1.12	1.33	1.25
– greenhouse gas emissions		0.28	0.26	0.27
Number of reportable environmental incidents		0	0	0
<b>Community</b>				
Local economic development*	(Rm)	5	4	19
Training and development	(Rm)	24	23	21

\* Included in the total for FY15 is an amount of R15 million that was capitalised as part of the hostel upgrades (FY16: R0 million, FY17: R0 million)

## Unisel *continued*

### Other salient features

Status of operation	Mature operation reaching the end of its life of mine. Mining of safety pillars to begin in FY18
Life of mine	5 years
Nameplate hoisting capacity (per month)	63 000 tonnes (69 000 tons)
Compliance and certification	New order mining right – December 2007 ISO 9001

### Mineral reserves as at 30 June 2017

Reserves (metric)	Proved reserves			Probable reserves			Total mineral reserves		
	Tonnes (Mt)	Grade (g/t)	Gold (000kg)	Tonnes (Mt)	Grade (g/t)	Gold (000kg)	Tonnes (Mt)	Grade (g/t)	Gold (000kg)
	1.2	4.56	5	0.9	4.60	4	2.0	4.58	9
Reserves (imperial)	Tons (Mt)	Grade (oz/t)	Gold (000oz)	Tons (Mt)	Grade (oz/t)	Gold (000oz)	Tons (Mt)	Grade (oz/t)	Gold (000oz)
	1.3	0.133	170	1.0	0.134	131	2.3	0.134	302

Unisel is located in the Free State Province, near Virginia, about 270km from Johannesburg. Mining is conducted to a depth of 2 153m below surface. Conventional scattered mining and pillar reclamation take place to access the Basal, Leader and, to a lesser extent, the Middle reefs. Ore mined is processed at Harmony One plant.

Unisel is nearing the end of its operating life and is Harmony's oldest operating mine. Unisel's ageing infrastructure presents significant challenges to the mine's operational flexibility and to the maintenance of production. From FY18 mining will focus on targeted areas of the shaft pillar and continue for an estimated three years.

In May 2017, Unisel achieved one million fatality-free shifts, with FY17 being the second consecutive year without a fatality.

Gold production declined by 6% to 1 595kg (51 280oz) in FY17 mainly as ore milled decreased by 7% to 394 000 tonnes (436 000 tons). While the recovered gold grade increased by 1% to 4.05g/t (0.118oz/t). The decrease in gold production offset the 6% increase in the average rand gold price received (to R575 650/kg), which resulted in a 1% decrease in revenue to R915 million (5% increase to US\$67 million). Unplanned infrastructure disruptions in the main shaft and decline sections affected production.

Cash operating costs increased by 11% to R839 million (increased by 19% to US\$62 million), mainly due to increased labour costs related to wage increases and once-off special bonuses, increased repair and maintenance expenditure and associated overtime.

Capital expenditure increased by 26% to R78 million (increased by 50% to US\$6 million) mainly due to the purchase and installation of a replacement of the man winder motor and capital repairs to the replaced unit which is available as a spare unit.

# OPERATIONAL PERFORMANCE CONTINUED

## SOUTH AFRICA – SURFACE OPERATIONS

### Kalgold

		FY17	FY16	FY15
<b>Number of employees</b>				
– Permanent		241	235	240
– Contractors		395	377	465
Total		636	612	705
<b>Operational</b>				
Volumes milled	(000t) (metric)	1 506	1 479	1 472
	(000t) (imperial)	1 660	1 630	1 623
Gold produced	(kg)	1 205	1 103	1 198
	(oz)	38 742	35 463	38 517
Gold sold	(kg)	1 213	1 086	1 230
	(oz)	38 999	34 916	39 545
Grade	(g/t)	0.80	0.75	0.81
	(oz/t)	0.023	0.022	0.024
Productivity	(g/TEC)	123.82	116.79	183.86
<b>Financial</b>				
Revenue	(Rm)	695	595	551
	(US\$m)	51	41	48
Average gold price received	(R/kg)	573 010	548 072	448 230
	(US\$/oz)	1 311	1 176	1 218
Cash operating cost	(Rm)	557	548	452
	(US\$m)	41	38	40
Production profit/(loss)	(Rm)	131	55	88
	(US\$m)	10	4	8
Capital expenditure*	(Rm)	96	39	48
	(US\$m)	7	3	4
Cash operating cost	(R/kg)	462 037	496 991	377 547
	(US\$/oz)	1 057	1 066	1 026
All-in sustaining cost*	(R/kg)	558 731	549 590	427 902
	(US\$/oz)	1 278	1 179	1 163
<b>Safety</b>				
Number of fatalities		0	0	0
Lost-time injury frequency rate per million hours worked		2.19	0	2.25
<b>Environment</b>				
Electricity consumption	(GWh)	54	49	40
Water consumption – primary activities	(ML)	392	375	1 795
Greenhouse gas emissions	(000t CO <sub>2</sub> e)	53	50	41
Intensity data per tonne treated				
– energy		0.04	0.03	0.03
– water		0.26	0.25	1.22
– greenhouse gas emissions		0.36	0.03	0.03
Number of reportable environmental incidents		0	0	1
<b>Community</b>				
Local economic development	(Rm)	2	2	2
Training and development	(Rm)	7	5	4

\* Figures for FY15 and FY16 restated to include capitalised stripping activities



## Kalgold *continued*

### Other salient features

Status of operation	Open-pit mining operation
Life of mine	21 years
Compliance and certification	New order mining right – August 2008 ISO 14001 ISO 9001

### Mineral reserves as at 30 June 2017

Reserves (metric)	Proved reserves			Probable reserves			Total mineral reserves		
	Tonnes (Mt)	Grade (g/t)	Gold (000kg)	Tonnes (Mt)	Grade (g/t)	Gold (000kg)	Tonnes (Mt)	Grade (g/t)	Gold (000kg)
	4.5	0.96	4	22.1	1.12	25	26.6	1.09	29
Reserves (imperial)	Tons (Mt)	Grade (oz/t)	Gold (000oz)	Tons (Mt)	Grade (oz/t)	Gold (000oz)	Tons (Mt)	Grade (oz/t)	Gold (000oz)
	4.9	0.028	138	24.4	0.033	796	29.3	0.032	934

Kalgold is an open-pit mine situated 55km southwest of Mahikeng in North West Province and located within the Kraaipan Greenstone Belt. Mining takes place from the A-Zone pit. Ore mined is processed at a carbon-in-leach plant located at Kalgold.

There were no fatalities during the year under review.

The A-Zone and Watertank pits are to be merged into one pit which is expected to expose higher grade ore. Plant refurbishment and crusher upgrades were completed during FY17. These improvements delivered improved plant efficiencies and recoveries while the crushers delivered finer and increased volumes of ore throughput to the plant mills.

Gold production improved by 9% to 1 205kg (38 742oz), which was due to an increase in the recovered grade by 7% to 0.80g/t (0.023oz/t), and increase in ore milled by 2% to 1 506 000 tonnes (1 660 000 tons). Revenue increased by 17% to R695 million (a 24% increase to US\$51 million) as a result of increased production and the higher average gold price received.

Cash operating costs increased by 2% to R557 million (8% increase to US\$41 million). Refer to capital expenditure discussion below.

Capital expenditure increased by 146% to R96 million (increased by 133% to US\$7 million), mainly due to the increase from capitalised stripping activities of R77 million (US\$5.7 million) from the A-zone pit and Watertank pit merger as the ore to waste ratio takes into account a larger merged pit and increased expenditure related to the plant refurbishment and crusher upgrades.

# OPERATIONAL PERFORMANCE CONTINUED

## Phoenix (Tailings retreatment)

		FY17	FY16	FY15
<b>Number of employees</b>				
– Permanent		82	82	83
– Contractors		261	296	312
Total		343	378	395
<b>Operational</b>				
Volumes milled	(000t) (metric)	6 729	6 465	6 245
	(000t) (imperial)	7 420	7 129	6 887
Gold produced	(kg)	918	804	867
	(oz)	29 515	25 849	27 875
Gold sold	(kg)	932	788	881
	(oz)	29 964	25 335	28 324
Grade	(g/t)	0.136	0.124	0.139
	(oz/t)	0.004	0.004	0.004
Productivity	(g/TEC)	187.96	177.72	185.73
<b>Financial</b>				
Revenue	(Rm)	512	429	396
	(US\$m)	38	30	35
Average gold price received	(R/kg)	549 777	544 390	449 941
	(US\$/oz)	1 258	1 168	1 223
Cash operating cost	(Rm)	364	320	295
	(US\$m)	27	22	26
Production profit/(loss)	(Rm)	140	117	97
	(US\$m)	10	8	8
Capital expenditure	(Rm)	5	5	4
	(US\$m)	–	–	–
Cash operating cost	(R/kg)	396 486	398 122	339 896
	(US\$/oz)	907	854	924
All-in sustaining cost	(R/kg)	404 685	403 907	344 319
	(US\$/oz)	926	866	936
<b>Safety</b>				
Number of fatalities		0	0	0
Lost-time injury frequency rate per million hours worked		0	2.06	0.00
<b>Environment</b>				
Electricity consumption	(GWh)	42	40	41
Water consumption – primary activities	(ML)	249	267	277
Greenhouse gas emissions	(000t CO <sub>2</sub> e)	42	41	42
Intensity data per tonne treated				
– energy		0.006	0.006	0.007
– water		0.04	0.04	0.04
– greenhouse gas emissions		0.006	0.006	0.007
Number of reportable environmental incidents		0	0	0

## Phoenix (Tailings retreatment) *continued*

### Other salient features

Status of operation	Retreatment of tailings
Life of mine	12 years
Compliance and certification	New order mining right – December 2007 ISO 14001 certification is under consideration – interim focus is on compliance ISO 9001

### Mineral reserves as at 30 June 2017

Reserves (metric)	Proved reserves			Probable reserves			Total mineral reserves		
	Tonnes (Mt)	Grade (g/t)	Gold (000kg)	Tonnes (Mt)	Grade (g/t)	Gold (000kg)	Tonnes (Mt)	Grade (g/t)	Gold (000kg)
	73.0	0.28	20	–	–	–	73.0	0.28	20
Reserves (imperial)	Tons (Mt)	Grade (oz/t)	Gold (000oz)	Tons (Mt)	Grade (oz/t)	Gold (000oz)	Tons (Mt)	Grade (oz/t)	Gold (000oz)
	80.5	0.008	646	–	–	–	80.5	0.008	646

Phoenix, a tailings retreatment operation situated in Virginia in the Free State Province, makes use of the Saaiplaas plant to retreat tailings. During FY13, Harmony finalised an empowerment agreement and transferred 30% of its shareholding in the Phoenix operations to black economic empowerment owners.

The Phoenix operation delivered an excellent performance in FY17. The increase in volumes processed was due to a well-managed tailings dam to plant operational circuit. Improved plant efficiencies enhanced the recovery of higher grade tailings throughput to the plant.

Year-on-year, gold production improved by 14% to 918kg (29 515oz), mainly as a result of a 10% improvement in the recovered grade to 0.136g/t (0.004oz/t), and a 4% increase in volumes processed to 6 729 000 tonnes (7 420 000 tons).

The increase in the average rand gold price received and increase in gold production, resulted in a 19% increase in revenue to R512 million (increase of 27% to US\$38 million). Cash operating costs increased by 14% to R364 million (increased by 23% to US\$27 million) due to the higher volumes processed in FY17, and increase in labour costs resulting from wage increases and bonuses paid and higher electricity tariffs.

Operational success depends on maintaining plant efficiency and reducing pump and pipe failures (adequate spillage control). Grade variability and the theft of pipelines and electrical cables are the main risks being managed at Phoenix. Security has been increased in an effort to halt the endemic theft of piping and cables that can affect the integrity of operations.

# OPERATIONAL PERFORMANCE CONTINUED

## Surface dumps

		FY17	FY16	FY15
<b>Number of employees</b>				
– Permanent		10	10	10
– Contractors		107	190	174
Total		117	200	184
<b>Operational</b>				
Volumes milled	(000t) (metric)	2 810	3 041	2 701
	(000t) (imperial)	3 099	3 353	2 978
Gold produced	(kg)	1 055	1 065	862
	(oz)	33 918	34 241	27 713
Grade	(g/t)	0.375	0.350	0.319
	(oz/t)	0.011	0.010	0.009
<b>Financial</b>				
Revenue	(Rm)	609	577	389
	(US\$m)	45	40	34
Average gold price received	(R/kg)	572 172	544 996	450 420
	(US\$/oz)	1 309	1 169	1 224
Cash operating cost	(Rm)	459	427	330
	(US\$m)	34	29	29
Production profit/(loss)	(Rm)	142	158	58
	(US\$m)	10	11	5
Capital expenditure	(Rm)	163	18	6
	(US\$m)	12	1	1
Cash operating cost	(R/kg)	434 715	401 033	382 959
	(US\$/oz)	995	860	1 041
All-in sustaining cost	(R/kg)	445 451	422 205	403 906
	(US\$/oz)	1 019	906	1 097
<b>Safety</b>				
Number of fatalities		0	0	0
Lost-time injury frequency rate per million hours worked		0	0	2.48
<b>Environment</b>				
Electricity consumption	(GWh)	52	66	64
Water consumption – primary activities	(ML)	234	394	480
Greenhouse gas emissions	(000t CO <sub>2</sub> e)	51	67	66
Intensity data per tonne treated				
– energy		0.02	0.02	0.02
– water		0.08	0.12	0.18
– greenhouse gas emissions		0.02	0.02	0.02
Number of reportable environmental incidents		0	0	0
<b>Community</b>				
Local economic development	(Rm)	0	0	0

## Surface dumps *continued*

### Other salient features

Status of operation	Following the conversion of the Central Plant to process tailings, the processing of waste rock dumps will be substantially reduced over the next few years.
Life of mine	± 1 year (depending on availability of spare plant capacity)
Compliance and certification	Certification depends on the future of these operations ISO 9001

### Mineral reserves as at 30 June 2017

Reserves (metric)	Proved reserves			Probable reserves			Total mineral reserves		
	Tonnes (Mt)	Grade (g/t)	Gold (000kg)	Tonnes (Mt)	Grade (g/t)	Gold (000kg)	Tonnes (Mt)	Grade (g/t)	Gold (000kg)
	–	–	–	3.9	0.51	2	3.9	0.51	2
Reserves (imperial)	Tons (Mt)	Grade (oz/t)	Gold (000oz)	Tons (Mt)	Grade (oz/t)	Gold (000oz)	Tons (Mt)	Grade (oz/t)	Gold (000oz)
	–	–	–	4.3	0.015	64	4.3	0.015	64

Production from the processing of surface rock dumps situated in the Free State province of South Africa depends entirely on the availability of spare mill capacity at the Harmony One and Target plants, which in turn depends on the availability of underground ore delivered for milling. Waste and waste rock dump deliveries to Kusasaletu Plant (situated near the border of Gauteng and North West Province) supplement mining volumes in order to secure sufficient backfill to use as support in stoping areas.

The tailings retreatment conversion of the Central Plant in FY17 reduced capacity to process waste rock volumes and resulted in an 8% decrease in volumes milled to 2 810 000 tonnes (3 099 000 tons). Waste rock dumps will no longer be processed at the Central Plant in FY18 following the completion of the conversion of this plant to treat tailings.

Gold production from the processing of material from the surface dumps reduced by 1% as the decrease in volumes processed was largely offset by the increase in the recovered grade of 7% to 0.375g/t (0.011oz/t) as higher grade waste rock material was processed in FY17.

Included in the capital expenditure for FY17 is R156 million (US\$11.5 million) related to the Central Plant tailings conversion project which was completed on time and below budget.

# OPERATIONAL PERFORMANCE CONTINUED

## PAPUA NEW GUINEA

### Hidden Valley

		FY17*	FY16*	FY15*
<b>Number of employees</b>				
– Permanent		1 192		
– Contractors		881		
Total		2 073	1 168	1 257
<b>Operational</b>				
Volumes milled	(000t) (metric)	2 889	1 729	1 825
	(000t) (imperial)	3 186	1 906	2 012
Gold produced <sup>2</sup>	(kg)	2 965	2 257	2 943
	(oz)	95 327	72 565	94 619
Gold sold <sup>2</sup>	(kg)	3 119	2 340	3 003
	(oz)	100 278	75 233	96 548
Grade	(g/t)	1.07	1.31	1.61
	(oz/t)	0.035	0.038	0.047
<b>Financial</b>				
Revenue	(Rm)	1 500	1 320	1 346
	(US\$m)	110	91	118
Average gold price received	(R/kg)	544 442	564 272	448 322
	(US\$/oz)	1 246	1 210	1 218
Cash operating cost	(Rm)	1 214	1 082	1 153
	(US\$m)	89	75	101
Production profit/(loss)	(Rm)	186	108	203
	(US\$m)	14	7	18
Capital expenditure <sup>3</sup>	(Rm)	1 335	121	357
	(US\$m)	98	8	31
Cash operating cost	(R/kg)	466 847	479 196	391 774
	(US\$/oz)	1 068	1 028	1 065
All-in sustaining cost	(R/kg)	543 186	597 398	514 690
	(US\$/oz)	1 241	1 282	1 395
<b>Safety</b>				
Number of fatalities		0	1	1
Lost-time injury frequency rate per million hours worked		0.52	1.39	0.28
<b>Environment</b>				
Electricity consumption	(GWh)	53	54	48
Water consumption – primary activities	(ML)	1 309	715	722
Greenhouse gas emissions	(000t CO <sub>2</sub> e)	53	55	0
Intensity data per tonne treated				
– energy		0.02	0.03	0.03
– water		0.45	0.41	0.39
– greenhouse gas emissions		0.07	0.03	0
Number of reportable environmental incidents		0	0	1

\* The FY16 and FY15 key statistics in the table above represent Harmony's 50% interest in the Hidden Valley mine and are not comparable to the FY17 results. Following Harmony's acquisition of the remaining 50% of Hidden Valley in October 2016, Hidden Valley has been accounted for at 100% from the end of October 2016

<sup>1</sup> Employees of the Hidden Valley joint venture

<sup>2</sup> FY17 gold produced and gold sold includes 364kg (11 713oz) capitalised as part of pre-stripping of stages 5 and 6 (FY16:nil), (FY15:nil). Revenue of R195 million (US\$14 million) and the associated costs were capitalised

<sup>3</sup> Figures for FY15 restated to include capitalised stripping activities

## Hidden Valley *continued*

### Other salient features

Status of operation	Open-pit mining operation producing gold and silver. Post the acquisition in full, the stage 5 and 6 cutback investment is underway; commercial levels of production scheduled for the last quarter of FY18
Life of mine	6 years
Compliance and certification	Mining lease approved by Papua New Guinea authorities

### Mineral reserves as at 30 June 2017 (including Hamata)

Gold Reserves (metric)	Proved reserves			Probable reserves			Total mineral reserves		
	Tonnes (Mt)	Grade (g/t)	Gold (000kg)	Tonnes (Mt)	Grade (g/t)	Gold (000kg)	Tonnes (Mt)	Grade (g/t)	Gold (000kg)
	0.5	1.04	0.4	25.7	1.65	43	26.2	1.63	43
Reserves (imperial)	Tons (Mt)	Grade (oz/t)	Gold (000oz)	Tons (Mt)	Grade (oz/t)	Gold (000oz)	Tons (Mt)	Grade (oz/t)	Gold (000oz)
	0.6	0.030	17	28.4	0.048	1 370	29.0	0.048	1 387

The Hidden Valley mine is an open pit gold and silver mine, situated in the highly prospective area of the Morobe Province in Papua New Guinea, some 210km northwest of Port Moresby. Harmony increased its interest in Hidden Valley to 100% by acquiring the remaining 50% in October 2016.

The major gold and silver deposits of the Morobe goldfield and Hidden Valley are hosted in the Wau Graben. The operational pits are Hidden Valley-Kaveroi and Hamata, located approximately 6km apart. Ore mined is treated at the Hidden Valley processing plant.

The acquisition of full ownership of Hidden Valley followed the decision to invest primarily in the development of the Hidden Valley-Kaveroi stage 5 and 6 cutbacks. The investment in Hidden Valley has the potential to contribute approximately 180 000oz gold per annum to Harmony's production profile, at an all-in sustaining cost of less than US\$950/oz. The total investment capital will be net US\$180 million, of which US\$68 million was spent in FY17 with expenditure of an estimated US\$110 million planned for FY18. Commercial levels of production are expected to be achieved in the June quarter of FY18.

A planned major four-month shutdown commenced in August 2017. Depleted ore stockpiles and a lack of mined ore to feed the plant have necessitated the shutdown, during which extensive upgrades and maintenance will be undertaken.

During FY17, the mine processed ore from the Hamata pit and stockpiles until June 2017 which resulted in the 18% decrease in grade year on year to 1.07g/t (0.035oz/t).

The lost-time injury frequency rate improved significantly in FY17 to 0.52 per million hours worked from 1.39 in FY16. There were no fatalities in FY17 (FY16: one). A culture of safe behaviour and the use of critical control equipment are driving improved safety performance.

Ore milled in the process plant increased by 67% to 2.9 million tonnes (3.2 million tons), gold production rose by 31% year-on-year to 2 965kg (95 327oz), resulting in an increase in revenue of 14% to R1 500 million (an increase of 21% to US\$110 million). Cash operating costs increased by 12% to R1 214 million (19% increase to US\$89 million). These increases are mainly attributable to Harmony's increased stake in Hidden Valley.

Capital expenditure increased by 1 003% in FY17 to R1 335 million (increased by 1 125% to US\$98 million). In order to support waste strip mining and improve production, a significant investment was made in additional and replacement mining equipment.