HARMONY GOLD MINING CO LTD Form 20-F October 25, 2013 Table of Contents

As filed with the Securities and Exchange Commission on October 25, 2013

## **UNITED STATES**

#### SECURITIES AND EXCHANGE COMMISSION

**WASHINGTON, D.C. 20549** 

## **FORM 20-F**

(Mark One)

" REGISTRATION STATEMENT PURSUANT TO SECTION 12(b) OR (g) OF THE SECURITIES EXCHANGE ACT OF 1934

OR

x ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended June 30, 2013

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

OR

# SHELL COMPANY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

Date of event requiring this shell company	report
For the transition period from	_ to
Commission file number: 001	31545

#### HARMONY GOLD MINING COMPANY LIMITED

(Exact name of registrant as specified in its charter)

## REPUBLIC OF SOUTH AFRICA

(Jurisdiction of incorporation or organization)

## RANDFONTEIN OFFICE PARK, CNR WARD AVENUE AND MAIN REEF ROAD,

**RANDFONTEIN, SOUTH AFRICA, 1760** 

(Address of principal executive offices)

Riana Bisschoff, Group Company Secretary

tel: +27 11 411 6020, riana.bisschoff@harmony.co.za, fax: +27 (0) 11 696 9734,

Randfontein Office Park, CNR Ward Avenue and Main Reef Road, Randfontein, South Africa, 1760

(Name, Telephone, E-mail and/or Facsimile number and Address of Company Contact Person)

Securities registered or to be registered pursuant to Section 12(b) of the Act:

Ordinary shares, with nominal value Rand 50 cents per share\*

(Title of Class)

American Depositary Shares (as evidenced by American Depositary Receipts),

each representing one ordinary share

(Title of Class)

Securities registered or to be registered pursuant to Section 12(g) of the Act:

Securities for which there is a reporting obligation pursuant to Section 15(d) of the Act: None

The number of outstanding shares of each of the issuer s classes of capital or common stock as of the close of the last full fiscal year covered by this Annual Report was:

435,289,890 ordinary shares, with nominal value of Rand 50 cents per share

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.

YES x NO "

If this report is an annual or transition report, indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934.

YES " NO x

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports) and (2) has been subject to such filing requirements for the past 90 days:

YES x NO "

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files).

YES " NO "

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, or a non-accelerated filer. See definition of accelerated filer and large accelerated filer in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer x Accelerated filer " Non-accelerated filer " Smaller reporting company "

(Do not check if a smaller reporting company)

Indicate by check mark which basis of accounting the registrant has used to prepare the financial statements included in this filing:

US GAAP " International Financial Reporting Standards as issued Other "

by the International Accounting Standards Board x

If Other has been checked in response to the previous question, indicate by check mark which financial statement item the registrant has elected to follow:

Item 17 " Item 18 "

If this is an annual report, indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).

YES " NO x

Indicate by check mark whether the registrant has filed all documents and reports required to be filed by Sections 12, 13 or 15(d) of the Securities Exchange Act of 1934 subsequent to the distribution of securities under a plan confirmed by a court.

YES x NO "

\* Not for trading, but only in connection with the registration of American Depositary Shares, pursuant to the requirements of the Securities and Exchange Commission.

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## USE OF TERMS AND CONVENTIONS IN THIS ANNUAL REPORT

Harmony Gold Mining Company Limited is a corporation organized under the laws of the Republic of South Africa. As used in this Annual Report on Form 20-F, or this annual report, unless the context otherwise requires, the terms **Harmony** and **Company** refer to Harmony Gold Mining Company Limited; the term **South Africa** refers to the Republic of South Africa; the terms **we**, **us** and **our** refer to Harmony and, as applicable, its direct and indirect subsidiaries as a **Group**.

In this annual report, references to **R**, **Rand** and **c**, **cents** are to the South African Rand, the lawful currency of Sou Africa, **A**\$ refers to Australian dollars, **K** or **Kina** refers to Papua New Guinean Kina and references to \$, **US**\$ a **dollars** are to United States dollars.

This annual report contains information concerning our gold reserves. While this annual report has been prepared in accordance with the regulations contained in Securities and Exchange Commission Guide 7, it is based on assumptions which may prove to be incorrect. See *Item 3. Key Information Risk Factors Estimations of Harmony s gold reserve figures are based on a number of assumptions, including mining and recovery factors, future cash costs of production and the price of gold. As a result, quantities of gold produced may differ from current estimates.* 

This annual report contains descriptions of gold mining and the gold mining industry, including descriptions of geological formations and mining processes. We have explained some of these terms in the Glossary of Mining Terms included at the end of this annual report. This glossary may assist you in understanding these terms.

## PRESENTATION OF FINANCIAL INFORMATION

We are a South African company and the majority of our operations are located in our home country. Accordingly, our books of account are maintained in South African Rand and our annual and interim financial statements are prepared in accordance with International Financial Reporting Standards as issued by the International Accounting Standards Board ( IFRS ). Prior to fiscal year ended June 30, 2008, our annual financial statements (translated into US dollars) were prepared and filed with the US Securities and Exchange Commission ( SEC ) in accordance with generally accepted accounting principles in the United States ( US GAAP ). On December 21, 2007, the SEC adopted rules allowing foreign private issuers that file Annual Reports on Form 20-F to file financial statements with the SEC in accordance with IFRS without reconciliation to US GAAP. As per these rules, we include in this annual report our consolidated financial statements prepared in accordance with IFRS, translated into US dollars. All financial information, except as otherwise noted, is stated in accordance with IFRS.

In this annual report, we also present cash operating costs and cash operating costs per ounce, which are non-GAAP measures. An investor should not consider these items in isolation or as alternatives to production costs, cost of sales or any other measure of financial performance presented in accordance with IFRS. The calculation of cash operating costs, and cash operating costs per ounce may vary significantly among gold mining companies and, by themselves, do not necessarily provide a basis for comparison with other gold mining companies. For further information, see *Item 5. Operating and Financial Review and Prospects Costs Reconciliation of Non-GAAP Measures*.

We have included the US dollar equivalent amounts of certain information and transactions in Rand, Kina and A\$. Unless otherwise stated, we have translated: (i) balance sheet items at the closing rate as reported by Reuters on the last business day of the period (R9.98 per US\$1.00 as at June 30, 2013 and R8.21 per US\$1.00 as at June 30, 2012), (ii) acquisitions, disposals and specific items such as impairments at the rate prevailing at the dates applicable to such transactions and (iii) income statement items at the average rate for the year (R8.82 per US\$1.00 for fiscal 2013,

R7.77 per US\$1.00 for fiscal 2012 and R6.99 per US\$1.00 for fiscal 2011). Profit from discontinued operations included in the income statement in fiscal 2013 is translated from Rand to US dollars at the average exchange rate for the eight month period (R8.55 per US\$1.00 for the period July 1, 2012 to February 28, 2013). Capital expenditures for fiscal 2014 have been translated at the rates used for balance sheet items at June 30, 2013. By including these US dollar equivalents in this annual report, we are not representing that the Rand, Kina and A\$ amounts actually represent the US dollar amounts, as the case may be, or that these amounts could be converted at the rates indicated. For further information, see *Item 3*. *Key Information Exchange Rates*.

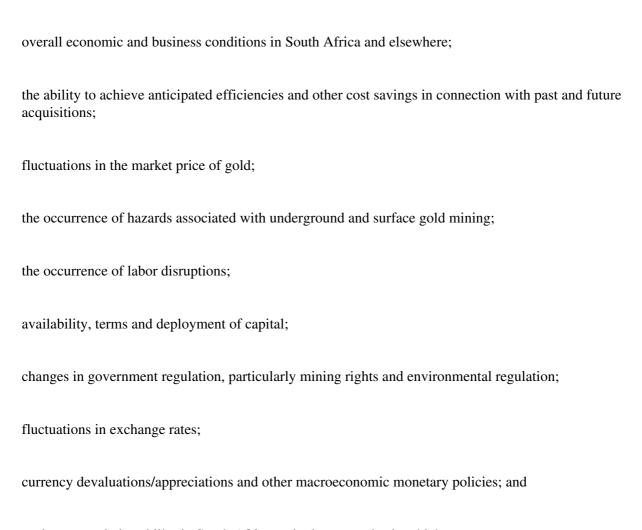
## FORWARD-LOOKING STATEMENTS

This annual report contains forward-looking statements within the meaning of the United States Private Securities Litigation Reform Act of 1995 with respect to our financial condition, results of operations, business strategies, operating efficiencies, competitive positions, growth opportunities for existing services, plans and objectives of management, markets for stock and other matters. These include all statements other than statements of historical fact, including, without limitation, any statements preceded by, followed by, or that include the words targets, believes, expects, aims intends will, may, anticipates, would, should, could, estimates, forecast, predice expressions or the negative thereof. In particular, among other statements, certain statements in *Item 4. Information on the Company, Item 5. Operating* 

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and Financial Review and Prospects and Item 11. Quantitative and Qualitative Disclosures About Market Risk are forward-looking in nature. Statements in this annual report that are not historical facts are forward-looking statements for the purpose of the safe harbor provided by Section 21E of the Securities Exchange Act of 1934, as amended (the **Exchange Act**), and Section 27A of the Securities Act of 1933, as amended.

These forward-looking statements, including, among others, those relating to our future business prospects, revenues and income, wherever they may occur in this annual report and the exhibits to this annual report, are necessarily estimates reflecting the best judgment of our senior management and involve a number of risks and uncertainties that could cause actual results to differ materially from those suggested by the forward-looking statements. As a consequence, these forward-looking statements should be considered in light of various important factors, including those set forth in this annual report. Important factors that could cause actual results to differ materially from estimates or projections contained in the forward-looking statements include, without limitation:



socio-economic instability in South Africa and other countries in which we operate. We undertake no obligation to update publicly or release any revisions to these forward-looking statements to reflect events or circumstances after the date of this annual report or to reflect the occurrence of unanticipated events.

PART I

# Item 1. IDENTITY OF DIRECTORS, SENIOR MANAGEMENT AND ADVISORS Not applicable.

#### Item 2. OFFER STATISTICS AND EXPECTED TIMETABLE

Not applicable.

# Item 3. KEY INFORMATION SELECTED FINANCIAL DATA

The selected consolidated financial data below should be read in conjunction with, and are qualified in their entirety by reference to, our consolidated financial statements and the notes thereto and with Item 3. Key Information Risk Factors, Item 5. Operating and Financial Review and Prospects, all included elsewhere in this annual report. Historical results are not necessarily indicative of results to be expected for any future period.

#### SELECTED HISTORICAL CONSOLIDATED FINANCIAL DATA

We are a South African company and the majority of our operations are located in our home country. Accordingly, our books of account are maintained in South African Rand and our annual and interim financial statements are prepared in accordance with IFRS. Prior to fiscal year ended June 30, 2008, our annual financial statements (translated into US dollars) were prepared and filed with the SEC in accordance with US GAAP. On December 21, 2007, the SEC adopted rules allowing foreign private issuers that file Annual Reports on Form 20-F to file financial statements with the SEC in accordance with IFRS without reconciliation to US GAAP. As per these rules, we have included in this annual report our consolidated financial statements prepared in accordance with IFRS, translated into US dollars. The selected historical consolidated income statement and balance sheet data for the last five fiscal years are, unless otherwise noted, stated in accordance with IFRS, and has been extracted from the more detailed information and financial statements prepared in accordance with IFRS, including our audited consolidated financial statements as of June 30, 2013 and 2012 and for each of the years in the three years ended June 30, 2013 and the related notes, which appear elsewhere in this annual report. The historical consolidated financial data at June 30, 2011, 2010 and 2009, and for each of the years in the two years ended June 30, 2010, have been adjusted for discontinued operations (discussed below).

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Discontinued operations for the periods below include the Evander operations in South Africa, as well as our Mount Magnet operations in Australia. The assets and liabilities of the Evander operation were classified as held for sale in fiscal 2012 following the signing of a sale of shares and claims agreement with Pan African Resources plc ( **Pan African** ). The results of this operation have been presented as a discontinued operation. In fiscal 2010, Australia s Mount Magnet operations were classified as held for sale and the results of the Mount Magnet operation presented as discontinued operations when an agreement for its disposal to Ramelius Resources Limited ( **Ramelius** ) was concluded. The reclassifications in respect of discontinued operations were done in terms of IFRS 5 Non-Current Assets Held for Sale and Discontinued Operations. See note 14 of the consolidated financial statements and *Item 4*. *Information on the Company Business Harmony s Mining Operations Discontinued operations Evander*.

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	2013 (\$ in million	2012	year ended Jun 2011 hare amounts an ounce)	2010	2009 g costs per
Income Statement Data			ounce,		
Revenue	1,803	1,953	1,659	1,351	1,105
(Impairment)/reversal of impairment of assets	(274)	7	(39)	34	38
Operating (loss)/profit	(195)	276	23	47	221
(Loss)/profit from associates			(7)	7	1
(Loss)/profit from continuing operations before taxation	(193)	250	33	49	222
Taxation	(69)	16	55	(30)	(44)
(Loss)/profit from continuing operations	(262)	266	88	19	178
Profit/(loss) from discontinued operations	36	75	(2)	(43)	133
Net (loss)/profit	(226)	341	86	(24)	311
Basic (loss)/earnings per share from continuing operations (US cents)	(61)	61	21	4	43
Diluted (loss)/earnings per share from continuing operations (US cents)	(61)	61	21	4	42
Basic (loss)/earnings per share (US cents)	(53)	79	20	(6)	75
Diluted (loss)/earnings per share (US cents)	(53)	79	20	(6)	74
Weighted average number of shares used in the computation of basic (loss)/earnings per share	431,880,814	430,817,682	429,310,123	426,381,581	414,120,732
Weighted average number of shares used in the computation of diluted (loss)/earnings per share	432,716,622	432,022,229	430,420,068	427,846,547	415,962,899
Dividends per share (US cents) <sup>(1)</sup>	12	14	7	6	
Dividends per share (SA cents) <sup>(1)</sup>	100	100	50	50	
Other Financial Data					
Cash operating cost per ounce of gold from continuing operations (\$/oz) <sup>(2)</sup>	1,154	1,100	1,004	788	586

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Total cash operating cost per ounce of gold (\$/oz) <sup>(2)</sup>	1,144	1,085	1,009	801	586
<b>Balance Sheet Data</b>					
Assets					
Property, plant and equipment	3,287	4,003	4,607	3,874	3,614
Assets of disposal groups classified as held for sale		174	40	32	
Total assets	4,230	5,263	5,880	5,141	4,925
Net assets	3,238	4,152	4,450	3,828	3,824
Equity and liabilities					
Share capital	4,035	4,036	4,033	4,027	4,004
Total equity	3,238	4,152	4,450	3,828	3,824
Borrowings (current and non-current)	254	221	230	156	47
Liabilities of disposal groups held for sale		46	2	18	
Other liabilities	738	844	1,198	1,139	1,054
Total equity and liabilities	4,230	5,263	5,880	5,141	4,925

- (1) Dividends per share relates to the dividends recorded and paid during the fiscal year.
- Cash operating costs is a non-GAAP measure. We calculate cash operating costs per ounce by dividing total cash operating costs by gold produced which therefore excludes the effect of the movement in the gold inventory from the cash operating cost amount. Cash operating costs, include mine production costs, transport and refinery costs, applicable general and administrative costs, ongoing environmental rehabilitation costs as well as transfers to and from deferred stripping and costs associated with royalties. Employee termination costs are included; however, employee termination costs associated with major restructuring and shaft closures are excluded. Cash operating costs have been calculated on a consistent basis for all periods presented. Changes in cash operating costs per ounce are affected by operational performance, as well as changes in the currency exchange rate between the Rand and the US dollar. Because cash operating costs is a non-GAAP measure, it should therefore not be considered by investors in isolation or as an alternative to production costs, cost of sales, or any other measure of financial performance calculated in accordance with IFRS. The calculation of cash operating costs and cash operating cost per ounce may vary from company to company and may not be comparable to other similarly titled measures of other companies. However, we believe that cash operating costs per ounce is a useful indicator to investors and management of a mining company s performance as it provides (1) an indication of the cash generating capacities of the mining operations, (2) the trends in cash operating costs as the company s operations mature, (3) a measure of a company s performance, by comparison of cash operating costs per ounce to the spot price of gold and (4) an internal benchmark of performance to allow for comparison against other companies. For further information, see Item 5. Operating and Financial Review and Prospects Costs Reconciliation of non-GAAP measures .

#### **EXCHANGE RATES**

Unless otherwise stated, balance sheet item amounts are translated from Rand to US dollars at the exchange rate prevailing on the last business day of the period (R9.98 per US\$1.00 as at June 30, 2013), except for acquisitions, disposals and specific items such as impairments that are converted at the exchange rate prevailing on the dates of the transactions and income statement item amounts that are translated from Rand to US dollars at the average exchange rate for the period (R8.82 per US\$1.00 for fiscal 2013). During the year, the Rand/dollar closing exchange rate ranged between R8.06 and R10.17 per US\$1.00. Profit from discontinued operations included in the income statement in fiscal 2013 is translated from Rand to US dollars at the average exchange rate for the eight month period (R8.55 per US\$1.00 for the period July 1, 2012 to February 28, 2013).

As of October 18, 2013, the exchange rate per US\$1.00 was R9.74.<sup>(1)</sup>

The following table sets forth, for the past five fiscal years, the average and period end rates for Rand expressed in Rand per US\$1.00. The exchange rates are sourced from Reuters, being the closing rate at period end.

Fiscal Year Ended June 30,	Average <sup>(2)</sup>	Period End(1)
2009	9.00	7.72
2010	7.58	7.63
2011	6.99	6.78
2012	7.77	8.21
2013	8.82	9.98
Month of	High	Low
May 2013	10.12	8.90
June 2013	10.17	9.78

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July 2013	10.16	9.63
August 2013	10.40	9.79
September 2013	10.29	9.57
October 2013 (through October 18, 2013)	10.07	9.74

<sup>(1)</sup> Based on the interbank rate as reported by Reuters.

Fluctuations in the exchange rate between Rand and the US dollar will affect the dollar equivalent of the price of ordinary shares on the Johannesburg Stock Exchange, which may affect the market price of the American Depositary Shares ( ADSs ) on the New York Stock Exchange. These fluctuations will also affect the dollar amounts received by owners of ADSs on the conversion of any dividends on ordinary shares paid in Rand.

<sup>(2)</sup> The daily average of the closing rate during the relevant period as reported by Reuters.

#### CAPITALIZATION AND INDEBTEDNESS

Not applicable.

#### REASONS FOR THE OFFER AND USE OF PROCEEDS

Not applicable.

## **RISK FACTORS**

In addition to the other information included in this annual report and the exhibits, you should also carefully consider the following factors related to our ordinary shares and ADSs. There may be additional risks that we do not currently know of or that we currently deem immaterial based on information currently available to us. Although Harmony has a formal risk policy framework in place, the maintenance and development of which is undertaken on an ongoing basis so as to help management address systematic categories of risk associated with its business operations, any of these risks could have a material adverse effect on our business, financial condition or results of operations, leading to a decline in the trading price of our ordinary shares or our ADSs. The risks described below may, in retrospect, turn out to be incomplete and therefore may not be the only risks to which we are exposed. Additional risks and uncertainties not presently known to us or that we now believe are immaterial (and have therefore not been included), could also adversely affect our businesses, results of operations or financial condition. The order of presentation of the risk factors below does not indicate the likelihood of their occurrence or the magnitude or the significance of the individual risks. The risks described below could occur individually or cumulatively and intensify in case of a cumulative occurrence.

#### Risks Relating to Our Business and the Gold Mining Industry

The profitability of our operations, and cash flows generated by those operations, are affected by changes in the price of gold. A fall in the gold price below our cash cost of production for any sustained period may lead to losses and require Harmony to curtail or suspend certain operations.

Substantially all Harmony s revenues come from the sale of gold. Although the gold price has increased over the last number of years, historically, the market price for gold has fluctuated widely and been affected by numerous factors, over which Harmony has no control, including:

demand for gold for industrial uses, jewellery and investment;

international or regional political and economic trends;

strength or weakness of the US dollar (the currency in which gold prices generally are quoted) and of other currencies;

financial market expectations on the rate of inflation;

interest rates;
speculative activities;
forward sales by gold producers;
actual or expected purchases and sales of gold bullion held by central banks or other large gold bullion holders or dealers; and

production and cost levels for gold in major gold-producing nations, such as South Africa, China, the United States and Australia.

In addition, current demand and supply affects the price of gold, but not necessarily in the same manner as current demand and supply affect the prices of other commodities. Historically, gold has retained its value in relative terms against basic goods in times of inflation and monetary crisis. As a result, central banks, financial institutions and individuals hold large amounts of gold as a store of value and production in any given year constitutes a very small portion of the total potential supply of gold. Since the potential supply of gold is large relative to mine production in any given year, normal variations in current production will not necessarily have a significant effect on the supply of gold or its price. Uncertainty on global economic conditions has impacted the price of gold significantly in fiscal 2013 and may continue to do so in the future.

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The volatility of gold prices is illustrated in the table, which shows the annual high, low and average of the afternoon London bullion market fixing price of gold in US dollars for the past ten years:

Annual gold price: 2003 2013

	Price	per ounce	(US\$)
Calendar year	High	Low	Average
2003	416	320	363
2004	454	375	410
2005	537	411	445
2006	725	525	604
2007	841	608	695
2008	1,011	713	872
2009	1,213	810	972
2010	1,421	1,058	1,225
2011	1,895	1,319	1,572
2012	1,792	1,540	1,669
2013 (year to October 18, 2013)	1,694	1,192	1,445

On October 18, 2013, the afternoon fixing price of gold on the London bullion market was US\$1,317/oz.

While the aggregate effect of these factors is impossible to predict, if gold prices should fall below Harmony s cash cost of production and capital expenditure required to sustain production and remain at these levels for any sustained period, Harmony may record losses and be forced to curtail or suspend some or all of its operations. In addition, Harmony would also have to assess the economic impact of low gold prices on its ability to recover any losses that may be incurred during that period and on its ability to maintain adequate reserves.

Harmony s average cash cost per ounce of gold produced from continuing operations was US\$1,154 in fiscal 2013, US\$1,100 in fiscal 2012 and US\$1,004 in fiscal 2011.

# Foreign exchange fluctuations could have a material adverse effect on Harmony's operational results and financial condition.

Gold is priced throughout the world in US dollars and, as a result, Harmony s revenue is realized in US dollars, but most of our operating costs are incurred in Rand and other non-US currencies, including the Australian dollar and Kina. Any significant and sustained appreciation of the Rand and other non-US currencies against the dollar will materially reduce Harmony s Rand revenues and overall net income.

As Harmony currently does not enter into forward sales, commodity derivatives or hedging arrangements on future gold production, it is exposed to the impact of any significant decreases in the gold price.

As a rule, Harmony sells its gold at the prevailing market price. Currently, the company does not enter into forward sales, commodity derivative or hedging arrangements to establish a price in advance for the sale of future gold production, although Harmony may do so in future. As a result, Harmony may realize the benefit of any short-term increase in the gold price, but is not protected against decreases; if the gold price should decrease significantly, Harmony s revenues may be materially adversely affected.

# Global economic conditions could adversely affect the profitability of Harmony s operations.

Harmony s operations and performance depend on global economic conditions. A global economic downturn may have follow-on effects on our business. These could include:

key suppliers could become insolvent, resulting in a break-down in the supply chain; or

the availability of credit may be reduced this may make it more difficult for Harmony to obtain financing for its operations and capital expenditure or make financing more expensive.

In addition, uncertainty on global economic conditions may also increase volatility or negatively impact the market value of Harmony s securities.

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Estimations of Harmony s gold reserves are based on a number of assumptions, including mining and recovery factors, future cash costs of production and the price of gold. As a result, quantities of gold produced may differ from current estimates.

The mineral reserve estimates in this annual report are estimates of the mill-delivered quantity and grade of gold in Harmony s deposits and stockpiles. They represent the amount of gold that Harmony believes can be mined, processed and sold at prices sufficient to recover its estimated future cash costs of production, remaining investment and anticipated additional capital expenditures. Harmony s mineral reserves are estimated based on a number of factors, which have been stated in accordance with the South African Code for the Reporting of Exploration Results, Mineral Resources and Mineral Reserves ( **SAMREC Code** ) and the Australian Code for the Reporting of Mineral Resources and Mineral Reserves ( **JORC** ), SEC Industry Guide 7 and Sarbanes-Oxley. Calculations of Harmony s mineral reserves are based on estimates of:

future cash costs;
future gold prices; and

future currency exchange rates.

These factors, which significantly impact mineral reserve estimates, are beyond Harmony s control. As a result, reserve estimates in this annual report should not be interpreted as assurances of the economic life of Harmony s gold and other precious metal deposits or the future profitability of operations.

Since these mineral reserves are estimates based on assumptions related to factors detailed above, should there be changes to these, we may in future need to revise these estimates. In particular, if Harmony s cash operating and production costs increase or the gold price decreases, recovering a portion of Harmony s mineral reserves may become uneconomical. This will lead, in turn, to a reduction in estimated reserves.

To maintain gold production beyond the expected lives of Harmony s existing mines or to increase production materially above projected levels, Harmony will need to access additional reserves through exploration or discovery.

Harmony s operations have limited proved and probable reserves, and exploration and discovery are necessary to maintain current gold production levels at these operations. Exploration for gold and other precious metals is speculative in nature, may be unsuccessful and involves many risks, including those related to:

locating orebodies;
geological nature of the orebodies;
identifying the metallurgical properties of orebodies;

estimating the economic feasibility of mining orebodies;

developing appropriate metallurgical processes;

obtaining necessary governmental permits; and

constructing mining and processing facilities at any site chosen for mining.

Harmony s exploration efforts might not result in the discovery of mineralization, and any mineralization discovered might not result in an increase in proved and probable reserves. To access additional reserves, Harmony will need to successfully complete development projects, including extensions to existing mines and, possibly, new mines. Development projects would also be required to access any new mineralization discovered by exploration activities around the world. Harmony typically uses feasibility studies to determine whether to undertake significant development projects. Feasibility studies include estimates of expected or anticipated economic returns, which are based on assumptions about:

future gold and other metal prices;

anticipated tonnage, grades and metallurgical characteristics of ore to be mined and processed;

anticipated recovery rates of gold and other metals from the ore; and

anticipated total costs of the project, including capital expenditure and cash costs.

A failure in our ability to discover new reserves, enhance existing reserves or develop new operations in sufficient quantities to maintain or grow the current level of our reserves could negatively affect our results, financial condition and prospects.

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Actual cash costs, capital expenditure, production and economic returns may differ significantly from those anticipated by feasibility studies for new development projects.

It can take a number of years from the initial feasibility study until development is completed and, during that time, the economic feasibility of production may change. In addition, there are a number of inherent uncertainties in developing and constructing an extension to an existing mine or any new mine, including:

availability and timing of necessary environmental and governmental permits;

timing and cost of constructing mining and processing facilities, which can be considerable;

availability and cost of skilled labor, power, water and other materials;

accessibility of transportation and other infrastructure, particularly in remote locations;

availability and cost of smelting and refining arrangements;

availability of funds to finance construction and development activities; and

spot and expected future commodity prices of metals including gold, silver, copper, uranium and molybdenum.

Harmony currently maintains a range of focused exploration programs, concentrating on areas not too distant from its operational mines, as well as a number of prospective known gold mineralized regions around the world. During fiscal 2012 and fiscal 2013, the bulk of exploration expenditure was allocated to activities in Papua New Guinea ( **PNG** ) and South Africa. However, there is no assurance that any future development projects will extend the life of our existing mining operations or result in any new commercial mining operations.

Costs associated with pumping water inflows from closed mines adjacent to our operations could adversely affect Harmony s operational results.

Certain of our mining operations are adjacent to the mining operations of other companies. A mine closure can affect continued operations at an adjacent mine if appropriate preventative steps are not taken. In particular, this could include the ingress of underground water when pumping operations at the closed mine are suspended. This can result in damage to property, operational disruptions and additional pumping costs, which would adversely affect any one of our adjacent mining operations.

Fluctuations in input production prices linked to commodities may adversely affect Harmony s operational results and financial condition.

Fuel, energy and consumables, including diesel, heavy fuel oil, chemical reagent, explosives, tyres, steel and mining equipment consumed in mining operations form a relatively large part of the operating costs and capital expenditure of a mining company. Harmony has no control over the costs of these consumables, many of which are linked to some degree to the price of oil and steel.

Fluctuations in oil and steel prices have a significant impact on operating cost and capital expenditure estimates and, in the absence of other economic fluctuations, could result in significant changes in the total expenditure estimates for new mining projects or render certain projects non-viable.

The supply of electricity and increases in the cost of power may adversely affect our results of operations and our financial condition.

In South Africa, each of our mining operations depends on electrical power generated by the state utility, Eskom, which holds a monopoly on the South African market. As a result of increased demand exceeding available generating capacity, South Africa has been subject to disruptions in electrical power supply. In fiscal 2008, electricity supply was interrupted by Eskom, halting production at certain of our mines. This led to management restructuring operating processes to control and reduce our consumption of electricity at all our operations. There have been no further disruptions and we have been able to continue production at a reduced electricity allocation as required by the energy conservation scheme ( **ECS** ) and interim rules imposed by Eskom. However, an insufficient supply of electricity may affect our operational results and financial condition.

As a result of Eskom s planned capital expansion program to deal with power constraints, an average annual tariff increase of 8% for the five-year multi-year price determination period has been approved by the National Energy Regulator South Africa ( **NERSA** ). The first increase was implemented on 1 April 2013. The South African Government is planning to implement a carbon tax with effect from 2015 and whilst details on the determination of quantum is not available, increases will have a negative impact on our results of operations going forward.

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PNG has limited power generation and distribution capacity. This capacity is increasing but, currently, Harmony mines and projects still partially rely on our own diesel-generated power. The cost of this power will fluctuate with changes in the oil price and water restrictions may further increase such costs.

Also, see Item 5. Operating and Financial Review and Prospects Electricity in South Africa.

We may experience problems in identifying, financing and managing new acquisitions and integrating them with our existing operations.

Acquiring new gold mining operations involves a number of risks including:

our ability to identify appropriate assets for acquisition and/or to negotiate acquisitions on favorable terms;

obtaining the financing necessary to complete future acquisitions;

difficulties in assimilating the operations of the acquired business;

difficulties in maintaining our financial and strategic focus while integrating the acquired business;

problems in implementing uniform standards, controls, procedures and policies;

increasing pressures on existing management to oversee a rapidly expanding company; and

to the extent we acquire mining operations outside South Africa, Australasia or PNG, encountering difficulties relating to operating in countries in which we have not previously operated.

Our ability to make successful acquisitions and any difficulties or time delays in achieving successful integration of any of such acquisitions could have a material adverse effect on our business, operating results, financial condition and share price.

Certain factors may affect our ability to support the carrying value of our property, plant and equipment, goodwill and other assets on our balance sheet.

Harmony reviews and tests the carrying value of its assets when events or changes in circumstances suggest that this amount may not be recoverable.

At least on an annual basis for goodwill, and when there are indications that impairment of property, plant and equipment and other assets may have occurred, estimates of expected future cash flows for each group of assets are prepared. These estimates are prepared at the lowest level at which identifiable cash flows are considered as being independent of the cash flows of other mining assets and liabilities. Expected future cash flows are inherently uncertain, and could materially change over time. Such cash flows are significantly affected by reserve and production

estimates, together with economic factors such as spot and forward gold prices, discount rates, currency exchange rates, estimates of costs to produce reserves and future capital expenditures.

As at June 30, 2013, Harmony had substantial amounts of property, plant and equipment, goodwill and other assets on its consolidated balance sheets. Impairment charges relating to property, plant and equipment and other assets were recorded in fiscal 2013 and if any one or a combination of these uncertainties should occur, management may be required to recognize further impairment charges, which could affect Harmony s financial results and condition. See *Item 5. Operating and Financial Review and Prospects Critical Accounting Estimates Impairment of Property, Plant and Equipment.* 

Given the nature of mining and the type of gold mines we operate, we face a material risk of liability, delays and increased cash costs of production from environmental and industrial accidents and pollution.

The business of gold mining involves significant risks and hazards, including environmental hazards and industrial accidents. In particular, hazards associated with underground mining include:

rock bursts;
seismic events;
underground fires;
cave-ins or fall-of-ground;
discharges of gases and toxic chemicals;
release of radioactive hazards;
flooding;
mining of pillars;

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# **Table of Contents** processing plant fire and explosion; critical equipment failures; accidents; and other conditions resulting from drilling, blasting and the removal and processing of material from a deep-level mine. Hazards associated with opencast mining (also known as open-pit mining) include: flooding of the open-pit; collapse of open-pit walls; processing plant fire and explosion; accidents associated with operating large open-pit and rock transportation equipment; and accidents associated with preparing and igniting of large-scale open-pit blasting operations. Hazards associated with waste-rock mining include: accidents associated with operating a waste dump and rock transportation;

production disruptions caused by weather;

processing plant fire and explosion; and

critical equipment failures.

We are at risk from any or all of these environmental and industrial hazards. The occurrence of any of these hazards could delay production, increase cash costs and result in financial liability to Harmony.

The nature of our mining operations presents safety risks.

The environmental and industrial risks identified above also present safety risks for Harmony s operations and its employees and could lead to the suspension and potential closure of operations for indeterminate periods. Safety risks, even in situations where no injuries occur, can have a material adverse effect on Harmony s operations and production.

See Item 4. Information on the Company Regulation Health and Safety Matters .

Illegal mining, or criminal mining, at our operations could pose a threat to the safety of employees and result in damage to property.

Security issues related to criminal mining came to the fore in fiscal 2009, when criminal mining activities resulted in the deaths of criminal miners. The threat of fire caused by these activities poses a risk to the safety of our employees and could also result in property damage, which in turn could have an adverse impact on production.

See Item 4. Information on the Company Regulation Health and Safety Matters .

#### Harmony s insurance coverage may prove inadequate to satisfy future claims against it.

Harmony has third-party liability coverage for most potential liabilities, including environmental liabilities. While we believe that our current insurance coverage for the hazards described above is adequate and consistent with industry practice, we may be subject to liability for pollution (excluding sudden and accidental pollution) or other hazards against which we have not insured or cannot insure, including those for past mining activities. Harmony also maintains property and liability insurance consistent with industry practice, but this insurance contains exclusions and limitations on coverage. In addition, there can be no assurance that insurance will be available at economically acceptable premiums. As a result, in future, Harmony s insurance coverage may not cover the claims against it for environmental or industrial accidents or pollution.

#### Harmony s operations may be negatively impacted by inflation.

Harmony s operations have been materially affected by inflation. Inflation in South Africa has fluctuated widely in recent years, reaching 11.6% at the end of fiscal 2008 before decreasing within the inflation range of 3% - 6% set by the South African Reserve Bank. At the end of fiscal 2012 and fiscal 2013, inflation was 5.5%. However, working costs, especially wages, have increased in recent years, resulting in significant cost pressures for the mining industry. In addition, electricity prices rose by 25% in fiscal 2010 and fiscal 2011, and 16% in fiscal 2012. A further average annual increase of 9.6% was affected in fiscal 2013. This will have a negative effect on the profitability of our operations.

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The inflation rate in PNG has remained relatively flat in recent years at around 7% but ended fiscal 2011 at 9.6% and 2012 at 6.9%. The annualized inflation stood at 7.5% at the end of fiscal 2013.

Harmony s profits and financial condition could be adversely affected when cost inflation is not offset by devaluation in operating currencies or an increase in the price of gold.

# The socio-economic framework in the regions in which Harmony operates may have an adverse effect on its operations and profits.

Harmony has operations in South Africa and PNG. As a result, changes or instability to the economic or political environment in any of these countries or in neighboring countries could affect an investment in Harmony. These risks could include terrorism, civil unrest, nationalization, renegotiation or nullification of existing contracts, leases, permits or other agreements, restrictions on repatriation of earnings or capital and changes in laws and policy, as well as other unforeseeable risks.

In PNG, a mining legislative and tax regime review has been commissioned whereby various PNG government agencies are involved in the process. The policies and legislation being reviewed are the Mining Act 1992, Mining Safety Act 1997, Mineral Policy and sector policies including offshore mining policy, sustainable development policy, involuntary relocation policy and mine closure policy.

It is difficult to predict the future political, social and economic direction in these countries, or any other country in which Harmony operates, and the impact government decisions may have on its business.

## Actual and potential shortages of production inputs may affect Harmony s operations and profits.

Harmony s operational results may be affected by the availability and pricing of consumables such as fuel, chemical reagents, explosives, steel and other essential production inputs. Issues with regards to availability of consumables may result from shortages as well as long lead times to deliver, which could result in production delays and production shortfalls. These shortages and delayed deliveries may be experienced where industrial action affects Harmony s suppliers. These issues could also affect the pricing of the consumables, especially if shortages are experienced. The price of consumables may be substantially affected by changes in global supply and demand, along with weather conditions, governmental controls and other factors. A sustained interruption to the supply of any of these consumables would require Harmony to find acceptable substitute suppliers and could require it to pay higher prices for such materials. Any significant increase in the prices of these consumables would increase operating costs and affect production considerations.

## We compete with mining and other companies for key human resources.

Harmony competes with mining and other companies globally to attract and retain key human resources at all levels with the appropriate technical skills and operating and managerial experience necessary to continue operating its business. The need to recruit, develop and retain skilled employees is particularly critical with historically disadvantaged South Africans ( HDSAs ), women in mining in South Africa, and recruiting and training local landowners in PNG. The global shortage of key mining skills, including geologists, mining engineers, metallurgists and skilled artisans has been exacerbated by increased mining activity across the globe. Despite various initiatives, there can be no assurance that we will attract and retain skilled and experienced employees. Should Harmony lose any of its key personnel, its business may be harmed and its operational results and financial condition could be affected. See *Item 6. Directors, Senior Management and Employees Employees*.

Since our South African labor force has substantial trade union participation, we face the risk of disruption from labor disputes and non-procedural industrial action.

Despite a history of constructive engagement with labor unions, there are periods when various stakeholders are unable to agree on dispute resolution processes. Disruptive activities on the part of labor, which normally differ in intensity, then become unavoidable. Due to the high level of union membership among our employees, we are at risk of production stoppages for indefinite periods due to strikes and other disputes, especially wildcat strikes. During fiscal 2013, Harmony s Kusasalethu operation was severely affected by unlawful strike action, which had a significant impact on our financial results. We are not able to predict whether we will experience significant labor disputes in future, or what the financial impact of any such disputes may be. See *Item 4. Information on the Company Business Harmony s Mining Operations Kusasalethu* and *Item 8. Financial Information Recent developments*.

South African employment law sets out minimum terms and conditions of employment for employees. Although these may be improved by agreements between us and the trade unions, prescribed minimum terms and conditions form the benchmark for all employment contracts. See *Item 6. Directors, Senior Management and Employees Employees*.

We are required to submit a report under South African employment law detailing the progress made towards achieving employment equity in the workplace. If this report is not submitted, we could incur substantial penalties.

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Developments in South African employment law may increase our cash costs of production or alter our relationship with our employees and trade unions, which may have an adverse effect on our business, operating results and financial condition.

#### HIV/AIDS poses risks to us in terms of productivity and costs.

The HIV/AIDS epidemic in South Africa and PNG poses risks to us in terms of potentially reduced productivity, and increased medical and other costs. If there is a significant increase in the incidence of HIV/AIDS infection and related diseases among the workforce over the next several years, this may have an adverse impact on our operations, projects and financial condition. See *Item 4*. *Information on the Company Regulation Health & Safety Matters*.

The cost of occupational healthcare services and the potential liabilities related to occupational health diseases may increase in future.

Harmony s operations in South Africa are subject to health and safety regulations which could impose significant costs and burdens. The present Mine Health and Safety Act 29 of 1996 imposes various duties on mines and grants the authorities broad powers to, among others, close unsafe mines and order corrective action on health and safety matters. Operations in PNG are subject to the following laws and regulations: PNG Mining Act 1992, PNG Mining Safety Act 1997, PNG Mining Safety Regulation 1935 (updated 2006) and PNG Environment Act 2000.

There is a risk that the cost of providing health services and implementing various programs could increase in future, depending on changes to underlying legislation and the profile of its employees. This increased cost, should it transpire, is currently indeterminate.

The Occupational Diseases in Mines and Works Act 78 of 1973 ( **ODIMWA** ) governs the payment of compensation and medical costs for certain illnesses contracted by people employed in mines or at sites where activities ancillary to mining are conducted. The principles of compensation under ODIMWA are currently being tested in the Mr. Thembekekile Mankayi v AngloGold Ashanti court case as well as class actions and other cases filed against the biggest three gold mining companies in South Africa, including Harmony. Please see *Item 8*. *Financial Information Legal Proceedings* for further information. Should anyone bring similar claims against Harmony in future, those claimants would need to provide evidence proving that silicosis was contracted while in the employment of the Company and that it was contracted due to negligence on the Company s part. The link between the cause (negligence by the Company while in its employ) and the effect (the silicosis) will be an essential part of any case. It is therefore uncertain as to whether the Company will incur any costs related to silicosis claims in the future and due to the limited information available on any claims and potential claims and the uncertainty of the outcome of these claims, no estimation can be made for the possible obligation. Should Harmony be unsuccessful in defending any claims that may be lodged, it would have an adverse impact on the Company s financial condition.

# Laws governing mineral rights affect our business.

Our operations in South Africa and PNG are subject to legislation regulating mineral rights and mining those rights. In South Africa, we are governed by the South African Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) ( MPRDA ) and in PNG by the Mining Act of 1992 (PNG). See *Item 4*. *Information on the Company Regulation South Africa* for a description of the principal objectives set out in the MPRDA.

A draft Mineral and Petroleum Resources Development Amendment Bill, 2012 was published in December 2012 for comment. As a result of the uncertainties surrounding the bill, many changes are expected and we cannot yet determine the full impact that the draft bill may have on our business.

Under the MPRDA, tenure over established mining operations is secured for up to 30 years (and then renewable for periods not exceeding 30 years each), provided that mining companies applied for new-order mining rights over existing operations within five years of May 1, 2004 or before the existing right expires, whichever was the earlier date and fulfil requirements specified in the MPRDA and the Broad-Based Socio-Economic Empowerment Charter for the South African mining industry ( **Mining Charter** ). The licenses for all of our South African operations have been granted. We will be eligible to apply for new licenses over existing operations, provided we comply with the MPRDA. Failure to comply with the conditions of the mining licenses could have a material adverse effect on our operations and financial condition.

The Mining Charter was signed by government and stakeholders in October 2002, and contains principles relating to the transfer, over a ten-year period, of 26% of South Africa's mining assets (as equity or attributable units of production) to HDSAs as defined in the Mining Charter. An interim target of 15% HDSA participation over five years was also set and the South African mining industry committed to securing financing to fund participation by HDSAs totaling R100 billion in the first five years of the Mining Charter's tenure. The Mining Charter provides for the review of the participation process after five years to determine what further steps, if any, are needed to achieve target participation of 26%. In order to measure progress in meeting the requirements of the Mining Charter, companies are required to complete a scorecard, in which the levels of compliance with the

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objectives of the Mining Charter can be ticked off after five and ten years, respectively. The Mining Charter and Scorecard require programs for black economic empowerment and the promotion of value-added production, such as jewelry-making and other gold fabrication, in South Africa. In particular, targets are set out for broad-based black economic empowerment in the areas of human resources and skills development; employment equity; procurement and beneficiation. In addition, the Mining Charter addresses socio-economic issues, such as migrant labor, mine community and rural development and housing and living conditions.

Following a review of progress made by the mining industry after five years of implementing the provisions of the Mining Charter, the Department of Mineral Resources ( **DMR** ) released the Revised Mining Charter on September 13, 2010. The requirement under the Mining Charter for mining entities to achieve a minimum of 26% HDSA ownership of mining assets by 2014 has been retained. Amendments in the Revised Mining Charter include, inter alia, the requirement by mining companies to:

- (i) facilitate local beneficiation of mineral commodities;
- (ii) procure a minimum of 40% of capital goods, 70% of services and 50% of consumer goods from HDSA suppliers (i.e. suppliers of which a minimum of 25% + 1 vote of their share capital must be owned by HDSAs) by 2014. These targets will exclude non-discretionary procurement expenditure;
- (iii) achieve a minimum of 40% HDSA demographic representation by 2014 at executive management (board) level, senior management (executive committee) level, core and critical skills, middle management level and junior management level;
- (iv) invest up to 5% of annual payroll in essential skills development activities; and
- (v) implement measures to improve the standards of housing and living conditions for mineworkers by
  converting or upgrading mineworkers hostels into family units, attaining an occupancy rate of one person per
  room and facilitating home ownership options for all mineworkers in consultation with organized labor.
   All these targets must be achieved by calendar 2014.

See Item 6. Directors, Senior Management and Employees Employees South Africa HDSAs in management and Item 6. Directors, Senior Management and Employees Employees South Africa Women in mining.

In addition, mining companies are required to monitor and evaluate their compliance to the Revised Mining Charter, and must submit annual compliance reports to the DMR. The revised scorecard makes provision for a phased-in approach for compliance with the above targets over the five year period ending in 2014. For measurement purposes, the Scorecard allocates various weightings to the different elements of the Revised Mining Charter. Failure to comply with the provisions of the Revised Mining Charter will amount to a breach of the MPRDA and may result in the cancellation or suspension of a mining company s existing mining rights. Harmony obtained all of its licenses four years ago and has no reason to believe that our mining licenses will be cancelled or suspended. Harmony will incur costs in meeting its obligations under the Revised Mining Charter and Scorecard.

The MPRDA also makes reference to royalties payable to the South African state in terms of the Mineral and Petroleum Resources Royalty Act (Act 28 of 2008) (the **MPRRA**). The MPRRA provides for the payment of a royalty according to a formula based on gross sales and EBIT, as defined under the MPRRA, after the deduction of capital expenditure. This rate is then applied to revenue to calculate the royalty amount due, with a minimum of 0.5% and a maximum of 5% for gold mining companies. For fiscal 2013, the average royalty rate for our South African operations was 1.34% of gross sales.

Mineral rights in PNG are controlled by the government of PNG which initially awards exploration licences but retains a statutory right to obtain a participating interest of up to 30% in mining development projects at historical cost. The government then administers mining tenements under the relevant mining legislation, and mining companies must pay royalties to the government based on production. The types of tenements issued include: exploration license; mining lease; special mining lease; alluvial mining lease; lease for mining purpose; and mining easement.

Harmony s PNG mining operation is subject to a 2% royalty payment to the government of PNG. If we want to expand any of our initiatives in PNG into additional areas under exploration, these operations would need to convert the existing exploration licenses prior to the start of mining and that process could require landowner title approval. There can be no assurance that any approval would be received.

Please also see *Item 4*. *Information on the Company Regulation* for further information.

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# We are subject to extensive environmental regulations.

As a gold mining company, Harmony is subject to extensive environmental regulation. We expect the trend of rising production costs due to compliance with South African and PNG environmental laws and regulations to continue.

The MPRDA, certain other environmental legislation and the administrative policies of the South African government regulate the impact of the Company s prospecting and mining operations on the environment. On the suspension, cancellation, termination or lapsing of a prospecting permit or mining authorization, Harmony will remain liable for compliance with the provisions of various relevant regulations, including any rehabilitation obligations until a closure certificate is issued by the DMR. This liability will continue until the appropriate authorities have certified that the Company has complied with such provisions.

Estimates of ultimate closure and rehabilitation costs are significant and based principally on current legal and regulatory requirements that may change materially. Environmental provisions are accrued when they become known, probable and can be reasonably estimated based on industry good practice. In future, Harmony may incur significant costs for compliance with increasingly stringent requirements being imposed under new legislation. This may include the need to increase and accelerate expenditure on environmental rehabilitation and to alter environmental provisions, which could have a material effect on its results and financial condition. Harmony may also face increased environmental costs should other mines in the vicinity fail to meet their obligations on pumping or treatment of water.

The South African government has reviewed requirements imposed on mining companies to ensure environmental restitution. For example, following the introduction of an environmental rights clause in South Africa's constitution, a number of environmental legislative reform processes have been initiated. Legislation passed as a result of these initiatives has tended to be materially more onerous than previous laws in South Africa. Examples of such legislation include the MPRDA, the National Nuclear Regulator Act 1999, the National Water Act of 1998 and the National Environmental Management Act 1998, which include stringent polluter pays provisions. The adoption of these or additional or more comprehensive and stringent requirements, particularly for the management of hazardous waste, pollution of ground and groundwater systems and duty to rehabilitate closed mines, may result in additional costs and liabilities.

Harmony s PNG operations are also subject to various laws and regulations relating to protection of the environment, which are similar in scope to those of South Africa. The Environment Act 2000 governs the environmental permitting and regulatory aspects of mining projects. An environmental impact statement is required when projects are likely to have an adverse impact on the environment. This statement must be lodged with the Department of Environmental Conservation where, for large projects, it may be forwarded to Environment Council for review. Public consultation is an integral part of this review.

See *Item 4.* Information on the Company Regulation Environmental Matters for further discussion on the applicable legislation and our policies on environmental matters.

Mining companies are increasingly required to consider and ensure the sustainable development of, and provide benefits to, the communities and countries in which they operate.

As a result of public concern about the perceived ill effects of economic globalization, businesses in general and large international companies such as Harmony, in particular, face increasing public scrutiny of their activities.

These businesses are under pressure to demonstrate that while they seek a satisfactory return on investment for shareholders, other stakeholders including employees, communities surrounding operations and the countries in which

they operate, also benefit from their commercial activities. Such pressures tend to be particularly focused on companies whose activities are perceived to have a high impact on their social and physical environment. The potential consequences of these pressures include reputational damage, legal suits and social spending obligations.

Existing and proposed mining operations are often located at or near existing towns and villages, natural water courses and other infrastructure. Mining operations must therefore be designed to mitigate and/or manage their impact on such communities and the environment. Specifically at our PNG operations, cognizance of landowner rights may require measures that could include agreed levels of compensation for any adverse impact the mining operation may continue to have on the community. The cost of these measures could increase capital expenditure and operating costs and therefore impact Harmony s operational results and financial condition.

Compliance with emerging climate change regulations could result in significant costs for Harmony, and climate change may present physical risks to our operations.

Greenhouse gases ( GHGs ) are emitted directly by Harmony s operations and indirectly as a result of consuming electricity generated by external utilities. Emissions from electricity consumption are indirectly attributable to Harmony s operations. There are currently a number of international and national measures to address or limit GHG emissions, including the Kyoto Protocol and the Copenhagen Accord, in various phases of discussion or implementation.

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The countries in which Harmony operates South Africa and PNG are non-Annex I countries and do not have emission reduction targets under the Kyoto Protocol in the first commitment period, ending 2012. Following recent environmental summits, including the one hosted in South Africa in 2011, South Africa has committed voluntarily to 30% clean energy by 2025, aiming for the country s GHG emissions to peak by 2020 2025, plateau for a decade and then decline by 40% by 2050. These targets were set out in the National Climate Change Response Policy, endorsed by the South African cabinet in October 2011.

In line with this aim, the country s key carbon-emitting sectors, including energy and transport, have until 2015 to finalize carbon budgets and appropriate strategies to support these targets. Adopting a carbon budget model reflects government s acceptance of the relative energy and carbon intensity of the economy and the need to create the setting required for industries to make the transition to a more carbon-constrained environment.

The Minister of Water and Environmental Affairs noted that government would actively consult with industry on developing carbon budgets to identify an optimal combination of mitigation actions to strike a balance between South Africa s socio-economic imperatives, especially creating and preserving jobs, as well as the need to manage climate change impacts and contribute to global efforts to stabilize GHG concentrations.

In February 2013, the South African finance minister announced that a carbon tax would be implemented in the 2015 financial year. The proposal is to implement the tax at a fairly low level, and define a rising price path over time at this stage, a carbon tax of US\$16/t (South African R120/t) of CO<sub>2</sub>e for 40% of scope 1 emissions is expected in 2015, increasing annually by 10% during the first phase (January 1, 2015 to December 31, 2019) followed by Phase 2 of another five years. The South African National Treasury issued an updated policy paper during May 2013 which provided an opportunity to comment up to August 2, 2013. Draft legislation is expected later in 2013 for implementation from January 1, 2015.

The South African National Treasury has established a working group comprising a number of different industries to evaluate the impact of this proposed tax on the different sectors of industry. Harmony is participating in this initiative through the Chamber of Mines.

As our current mines have a life expectancy of up to 25 years, we are undertaking capital projects to sustain and increase production at Phakisa, Doornkop, Kusasalethu, Tshepong and Hidden Valley operations. These expansions will extend our mining operations by ten years or more, by which time GHG regulations are expected to be a permanent feature of the global economy. Future climate change regulation will therefore need to be considered for all Harmony s extensions and acquisitions. All new greenfields and brownfields projects are required by company policy to consider the impact of climate change in their design and planning.

While Harmony is not conceptually opposed to using financial instruments as incentives in reducing emissions, we are concerned about the potential impact on the industry s competitiveness. We are working with both the industry task team on climate change and the Chamber of Mines to understand the implications for our business and optimal mechanisms to further promote emission reduction.

Harmony s exposure to Australian legislation is limited as the operations we owned there have been sold or are under care and maintenance. PNG s national office of climate change and environmental sustainability is studying the potential for future economic growth to be driven by renewable energy. Along with other Pacific Island countries, PNG has adopted a framework for action on climate change 2006 to 2015 and a disaster risk reduction and disaster management framework for action. The implications of these structures on Harmony s operations in PNG have not yet been established and studies are ongoing.

The largest portion of GHG emissions is predominantly electricity-related, with electricity expenditure amounting to 14% of Harmony s operational costs in South Africa. While cost management is clearly a strategic issue for Harmony, of even greater importance is that energy supply be constant and reliable, given the implications of loss of energy on both production and health and safety. GHG emissions regulations, which would increase the price of energy, will affect Harmony significantly, as will regulation that stipulates emission thresholds, or sets technology standards that may result in insecure energy supply. Already certain compliance costs from power suppliers are being passed on to the Group in the form of price increases. For instance, in South Africa since 2009, Harmony has paid a levy of R0.02 - 0.035 per kilowatt hour for electricity generated by fossil fuels. These levies may increase over time and additional levies may be introduced in future in South Africa or PNG, which could result in a significant increase in our costs.

See *Item 4.* Information on the Company Regulation Environmental Matters for disclosure regarding our GHG emissions.

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Our operations in South Africa are subject to water use licenses, which could impose significant costs.

Under South African law, Harmony s local operations are subject to water use licenses that govern each operation s water use. These licenses require, among other issues, that mining operations achieve and maintain certain water quality limits for all water discharges, where these apply. The majority of our South African operations are lawful users with existing water permits in terms of the Water Act of 1954. Nevertheless, the South African operations have applied to the relevant regional directors for water use licenses in terms of the National Water Act, 1998. Submissions were made as early as 2003 and Harmony has been working closely with the regional directors in the review process; a number of our operations have been issued with licenses or draft licenses.

We anticipate that the conditions of the licenses may require Harmony to consider and implement alternate water management measures that may have a significant cost implication for our business. Any failure on Harmony s part to achieve or maintain compliance with the requirements of these licenses for any of its operations may result in Harmony being subject to penalties, fees and expenses or business interruption due to revoked water licenses. Any of these could have a material effect on our business, operating results and financial condition.

See *Item 4. Information on the Company Regulation Environmental Matters* for disclosure regarding our water usage and management.

We may have exposure to rehabilitate potential groundwater pollution, which may include salination, and radiation contamination that may exist where we have operated or continue to operate.

Due to the interconnected nature of mining operations, any proposed solution for potential flooding and decant risk posed by deep groundwater needs to be a combined one supported by all mines located in the goldfields and government in the event of legacy issues. As a result, the DMR and affected mining companies are involved in developing a regional mine closure strategy. In view of limited current information, no reliable estimate can be made for this possible obligation, which could be material and have an adverse impact on Harmony s financial condition.

Harmony has initiated analytical assessments to identify, quantify and mitigate impacts, should they arise. Numerous scientific, technical and legal studies are under way to assist in determining the magnitude of possible contamination of groundwater and to find sustainable remediation solutions. Geohydrological studies were undertaken in the Free State and Kalgold operations and the modelling confirms that there is no risk of acid mine drainage ( AMD ) decant from any of these sites. Harmony has instituted processes to reduce possible future potential seepage and it has been demonstrated that monitored natural attenuation by the existing environment will contribute to improvement in some instance. The ultimate outcome of the matter cannot presently be determined and no provision for any potential liability has been made in the financial statements. Should these costs be significant, this could have a material impact on Harmony s operational results and financial condition.

See Item 4. Information on the Company Regulation Environmental Matters Environmental performance Use of resources Water .

Investors in the United States may have difficulty bringing actions, and enforcing judgments, against us, our directors and our executive officers based on the civil liabilities provisions of the federal securities laws or other laws of the United States or any state thereof.

We are incorporated in South Africa. Each of our directors and executive officers (and our independent registered public accounting firm) resides outside the United States. Substantially all of the assets of these persons and substantially all our assets are located outside the United States. As a result, it may not be possible for investors to

enforce a judgment against these persons or ourselves obtained in a court of the United States predicated upon the civil liability provisions of the federal securities or other laws of the United States or any state thereof. A foreign judgment is not directly enforceable in South Africa, but constitutes a cause of action which will be enforced by South African courts provided that:

the court that pronounced the judgment had jurisdiction to entertain the case according to the principles recognized by South African law with reference to the jurisdiction of foreign courts;

the judgment is final and conclusive;

the judgment has not lapsed;

the recognition and enforcement of the judgment by South African courts would not be contrary to public policy, including observance of the rules of natural justice which require that the documents initiating the United States proceeding were properly served on the defendant and that the defendant was given the right to be heard and represented by counsel in a free and fair trial before an impartial tribunal;

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the judgment does not involve the enforcement of a penal or revenue law; and

the enforcement of the judgment is not otherwise precluded by the provisions of the Protection of Business Act 99 of 1978, as amended, of the Republic of South Africa.

Compliance with new and changing corporate governance and public disclosure requirements adds uncertainty to our compliance policies and increases our costs of compliance.

Laws, regulations and standards relating to accounting, corporate governance and public disclosure, new SEC regulations and other listing regulations applicable to us are subject to change and can create uncertainty for companies like us. New or changed laws, regulations and standards could lack specificity or be subject to varying interpretations. Their application in practice may evolve over time as new guidance is provided by regulatory and governing bodies. This could result in continuing uncertainty on compliance matters and higher costs of compliance as a result of ongoing revisions to such governance standards.

In terms of Section 404 of the Sarbanes-Oxley Act of 2002, we are required to furnish a report by our management on our internal control over financial reporting. The report in this annual report contains, among other matters, an assessment of the effectiveness of our internal control over financial reporting as of the end of the fiscal year, including a statement as to whether or not our internal controls over financial reporting are effective. If we fail to maintain the adequacy of our internal controls, we may not be able to ensure that we can conclude on an ongoing basis that we have effective internal control over financial reporting in accordance with the Sarbanes-Oxley Act. The requirement to evaluate and report on our internal controls also applies to companies that we may acquire and therefore, this assessment may be complicated by any future acquisitions. While we continue to dedicate resources and management time to ensuring that we have effective controls over financial reporting, failure to achieve and maintain an effective internal control environment could have a material adverse effect on the market s perception of our business and our stock price. See *Item 15*. *Disclosure Controls and Procedures* for management assessment as of June 30, 2013. In addition to management s assessment of internal controls over financial reporting, we are required to have our independent registered public accounting firm publicly disclose their conclusions regarding the effectiveness of Harmony s internal controls over financial reporting.

We are committed to maintaining high standards of corporate governance and public disclosure, and our efforts to comply with evolving laws, regulations and standards in this regard have resulted in, and are likely to continue to result in, increased general and administrative expenses.

Sales of large quantities of our ordinary shares and ADSs, or the perception that these sales may occur, could adversely affect the prevailing market price of such securities.

The market price of our ordinary shares or ADSs could fall if large quantities of ordinary shares or ADSs are sold in the public market, or there is a perception in the marketplace that such sales could occur. Subject to applicable securities laws, holders of our ordinary shares or ADSs may decide to sell them at any time. The market price of our ordinary shares or ADSs could also fall as a result of any future offerings it makes of ordinary shares, ADSs or securities exchangeable or exercisable for its ordinary shares or ADSs, or the perception in the marketplace that these sales might occur. We may make such offerings of additional ADS rights, letters of allocation or similar securities at any time or from time to time in the future.

As we have a significant number of outstanding share options, our ordinary shares are subject to dilution.

We have several employee share option schemes in operation. The employee share option schemes came into effect in 2003 and 2006, while awards under an employee share ownership plan ( **ESOP** ) governed by a trust called the Tlhakanelo Employee Share Trust ( **Tlhakanelo Trust** ) for employees other than management were made in August 2012 and March 2013. Shares were issued to the trust on August 31, 2012. Our shareholders have authorized up to 60,011,669 of the issued share capital to be used for these plans. As a result, shareholders equity interests in us are subject to dilution to the extent of the potential future exercises of the options through share schemes.

# We may not pay dividends or make similar payments to our shareholders in the future.

Harmony s dividend policy is to pay cash dividends only if funds are available for that purpose. Whether funds are available depends on a variety of factors, including the amount of cash available, our capital expenditures and other cash requirements existing at the time. Under South African law, we are only entitled to pay a dividend or similar payment to shareholders if we meet the solvency and liquidity tests set out in the Companies Act 71 of 2008 (as amended) including its Regulations (the **Companies Act**) and our current Memorandum of Incorporation. Cash dividends or other similar payments may not be paid in the future.

In February 2007, the South African Government announced a proposal to replace Secondary Tax on Companies with a 10% withholding tax on dividends and other distributions payable to shareholders. On April 1, 2012, a dividends tax ( **Dividends** 

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**Tax** ) was introduced at a rate of 15% on dividends declared to beneficial shareholders borne by the shareholder receiving the dividend. Although the substitution of secondary tax on companies with Dividends Tax may reduce the tax payable on our South African operations, thereby increasing distributable earnings, the withholding tax will generally reduce the amount of dividends or other distributions received by shareholders.

In addition, Harmony s foreign shareholders face investment risk from currency exchange rate fluctuations affecting the market value of any dividends or distributions paid by the company.

# Our jointly-controlled assets may not comply with our standards

Harmony does not have full management control over some of its assets which are controlled and managed by joint venture partnerships. Management of such assets may not comply with our management and operating standards, controls and procedures. Failure to adopt equivalent standards, controls and procedures could lead to higher costs and reduced production, which could adversely affect our results and reputation.

# Breaches in our information technology security processes may adversely impact the conduct of our business activities

Harmony maintains global information technology ( IT ) and communication networks and applications to support our business activities. Our extensive IT infrastructure and network may experience service outages that may adversely impact the conduct of our business activities. IT security processes protecting these systems are in place and subject to regular monitoring and assessment. These security processes may not prevent future malicious action or fraud by individuals, groups or organizations resulting in the corruption of operating systems, theft of commercially sensitive data, including commercial price outlooks, mergers and acquisitions and divestment transactions, misappropriation of funds and disruptions to our business operations.

# Item 4. INFORMATION ON THE COMPANY BUSINESS

#### **History and Development of the Company**

Harmony is a gold-mining and exploration company with operations in South Africa and PNG, one of the world s premier new gold regions. Established over six decades ago, we are one of the largest gold mining companies in the world and the third-largest gold producer in South Africa. Harmony has 11 underground mines, one open-pit mine and several surface operations, mostly in South Africa s world-renowned Witwatersrand Basin, as well as in the Kraaipan Greenstone Belt. In PNG, Harmony has a 50% joint venture with Newcrest Mining Limited in the Hidden Valley open-pit gold and silver mine, the Wafi-Golpu project, and extensive exploration tenements. Harmony s own (100%-owned) exploration portfolio focuses principally on highly-prospective areas in PNG.

Our gold sales were 1.2 million ounces of gold in fiscal 2013. As at June 30, 2013, our mining operations reported total proved and probable reserves of 51.5 million ounces (including gold equivalent ounces), primarily from South African sources. In fiscal 2013, we processed 20.7 million tons of ore.

In fiscal 2013, 93% of our total gold production took place in South Africa. In fiscal 2013, approximately 90% of our gold came from our South African underground mines, and approximately 10% came from our South African surface operations (which include the Kalgold opencast operation and the Phoenix operation). For more detailed information

about our activities, see *Item 4. Information on the Company Business Harmony s Mining Operations Overview* and the notes to the consolidated financial statements included in this annual report. Mining is a highly regulated industry, and we operate under a variety of statutes and regulations. For more detailed information about these statutes and regulations, see *Item 4. Information on the Company Regulation* and *Item 10. Additional Information Memorandum of Incorporation*.

The majority of our exploration and evaluation done during fiscal 2013 has been focused on PNG. Our PNG exploration and evaluation opportunities are managed through the international office in Brisbane, Australia. Exploration in South Africa focused on Freddies 9, Masimong and Kalgold.

Harmony Gold Mining Company Limited was incorporated and registered as a public company in South Africa on August 25, 1950 (under registration number 1950/038232/06). We have expanded from a single lease-bound mining operation into an independent, world-class gold producer. From 1997 to 2004, we acquired additional mineral rights in the Free State, Mpumalanga, Gauteng and North West provinces in South Africa through various mergers and acquisitions. In our most recent transaction in fiscal 2010, we acquired the President Steyn 1 and 2 shafts, Loraine 3 shaft, Freddies 7 and 9 shafts as well as the President Steyn gold plant, collectively known as the Pamodzi Free State assets, from Pamodzi Gold Free State (Proprietary) Limited (In Liquidation) ( **Pamodzi FS** ). These shafts have been included in the Bambanani and Target operations. In building our international portfolio, we acquired Hill 50 and New Hampton in Western Australia in 2001 and 2002, respectively, and started our exploration portfolio in PNG with projects in the Morobe Province originally through our acquisition of Abelle in 2003. In the past three years, we disposed of several operations in South Africa and Australia. See *Item 4*. *Disposals* .

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Our principal executive offices are located at Randfontein Office Park, Corner of Main Reef Road and Ward Avenue, Randfontein, 1760, South Africa and the telephone number at this location is +27-11-411-2000.

## **Business overview**

## South African Operations

In South Africa, we operate a total of 11 underground operations, several surface operations including an opencast mine, and eight processing plants which are all located in the currently known goldfields in the Witwatersrand basin of South Africa as well as the Kraaipan Greenstone Belt. These operations produced approximately 1.052 million ounces in fiscal 2013, and South Africa represented approximately 58% (or 29.8 million ounces) of our total proved and probable reserves. The deep level gold mines are located in three provinces in this basin, being the Free State Province, the North-West Province and the West Rand Goldfields in Gauteng Province. Surface operations are located in all these provinces.

Ore from the shafts and surface material are treated at eight metallurgical plants in South Africa, located near the operations (five in the Free State Province, two in the North West Province and one in Gauteng). We are currently demolishing three plants in the Free State the Virginia plant's demolishment is near completion (vegetation of the area for the rehabilitation needs to commence), while the rehabilitation process at Steyn plant and St Helena plant is progressing well and will continue during fiscal 2014.

Each operation, consisting anywhere from a single shaft to a group of shafts or open-pit mine, is managed by a team headed up by a general manager. See *Harmony s Management Structure* below.

Operations are classified as Underground or Surface with the reportable segments per IFRS in South Africa being as follows:

Bambanani (includes Steyn 2 shaft), Doornkop, Joel, Kusasalethu, Masimong, Phakisa, Target 1, Target 3, Tshepong and the Unisel operations (the Evander operation has been disclosed under discontinued operations); and

all other shafts and surface operations, including those that treat historic sand dumps, rock dumps and tailings dams, are grouped together under *Other Surface* .

On March 20, 2013, Harmony signed transaction and funding agreements to give effect to an empowerment transaction to dispose 30% of Phoenix to BEE shareholders, which includes a free-carry allocation of 5% to a community trust that has been created and is currently controlled by Harmony. The transaction closed on June 25, 2013, following the fulfilment of the last condition precedent. In terms of the agreements, Phoenix was transferred to a newly incorporated subsidiary ( **PhoenixCo** ).

The awards to the BEE partners have been accounted for as in-substance options as the BEE partners will only share in the upside, and not the downside, of their equity interest in PhoenixCo until the date on which the financing provided by Harmony is fully repaid. On this date, the options will be exercised. The award of the options to the BEE partners is accounted for as an equity-settled share-based payment arrangement. The in-substance options carry no vesting conditions and the fair value of the options of US\$2.3 million has been expensed on the grant date, June 25, 2013.

# **International Operations**

Our interests internationally are currently located in PNG and represent 42% (or 21.7 million gold equivalent ounces) of our total proved and probable reserves as at June 30, 2013.

# **PNG** operations

In PNG, through our wholly-owned PNG-based subsidiaries, we own various development and exploration prospects, and one operating mine. This includes a 50% interest in what is collectively known as the Morobe Mining Joint Venture ( MMJV ), held through Morobe Consolidated Goldfields Limited ( Morobe Consolidated Goldfields ), Wafi Mining Limited ( Wafi ) and Morobe Exploration Limited ( MEL ).

In August 2008, Newcrest Mining Limited ( **Newcrest** ) acquired a 30.01% interest in our assets and tenements in the Morobe Province through the MMJV. By the end of fiscal 2009, Newcrest had earned an additional 19.99% in terms of the farm-in agreement, resulting in Newcrest and us each owning a 50% interest in the MMJV. Through the MMJV, we operate the Hidden Valley mine. The pre-feasibility study ( **PFS** ) at Wafi-Golpu which commenced during fiscal 2011 has been completed and the results released in August 2012. Further work is currently being performed to optimize the PFS business case in light of changes

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to long-term commodity prices and changes in investor expectations. We also have exploration projects that are wholly-owned, held through Harmony Gold (PNG) Exploration Limited ( HGEL ). We are continuing with exploration at three key project sites, being Mount Hagen, Amanab and Tari.

## Strategy

Our strategy is to build a globally competitive gold mining company known for growing profits and paying dividends, and backed by experienced teams with strong values that are committed to deliver. To achieve this, we are focused on optimizing operational delivery, increasing margins and sharing the rewards.

We have invested significant capital in developing and commissioning gold mining assets in South Africa. Harmony has undertaken a number of strategic initiatives in recent years with the aim of achieving robust and sustainable financial results, with better controlled cash costs and improved grade.

Each year, each element of Harmony s strategy is divided into its constituent components. The required actions are documented and monitored at board level throughout the year and the overall strategy is assessed and refined in July.

Short-term strategic goals live within a framework of non-negotiable values and long-term targets, including:

maximizing revenue

risk mitigation;

reducing costs and improving productivity;

conservative business planning;

managing impacts of the external environment;

improving productivity in South Africa;

retain balance sheet strength; and

allocation of capital sustaining and growth.

We have concluded several strategic transactions within and outside South Africa in the last three fiscal years, which are summarized below.

# **Principal Investments**

During fiscal 2013, Harmony purchased additional shares in Rand Refinery (Proprietary) Limited ( **Rand Refinery** ) in three tranches totaling US\$9 million, taking the Group s interest to just more than 10%. This investment has been accounted for as an investment in associate as Harmony can appoint a director to the board.

During fiscal 2012, we acquired a Tari tenement in PNG. This project comprises 31% of the tenement area that Harmony currently holds on its own in PNG, outside of the MMJV.

## **Disposals**

On February 28, 2013, the conditions precedent for the sale of Harmony s 100% interest in Evander Gold Mines Limited ( **Evander** ) to Pan African were fulfilled and the transaction was completed. Prior to completion of the transaction, Harmony received a distribution of US\$23 million from Evander. The final purchase consideration amounted to US\$144 million.

On January 6, 2012 Harmony disposed of its 40% investment in Rand Uranium (Proprietary) Limited ( **Rand Uranium** ) to Gold One International Limited ( **Gold One** ) for a consideration of US\$38 million. The investment in Rand Uranium had been accounted for as an investment in associate.

During September 2010, Harmony concluded an agreement with Witwatersrand Consolidated Gold Resources Limited ( **Wits Gold** ) for the cancellation of the Freegold farm-in option in exchange for Wits Gold shares. The conditions precedent were fulfilled on November 5, 2010 and Harmony received 4,376,194 shares in Wits Gold valued at R275 million (US\$41 million).

On July 20, 2010, the conditions precedent for the sale of the Mount Magnet operation were fulfilled. A total consideration of A\$35.3 million (US\$31.6 million) was received from Ramelius in exchange for 100% of the issued share capital in Mount Magnet.

## **Description of Mining Business**

#### **Exploration**

Exploration activities are focused on the extension of existing orebodies and identification of new orebodies, both at existing sites and at undeveloped sites.

Our gold-focused exploration program has two components:

on-mine exploration, which looks for resources within the economic radius of existing mines; and

new mine exploration, which is the global search for early to advanced stage projects.

Once a potential orebody has been discovered, exploration is extended and intensified in order to enable clearer definition of the orebody and the potential portions to be mined. Geological techniques are constantly refined to improve the economic viability of prospecting and mining activities.

We conduct exploration activities on our own or with joint venture partners. As at June 30, 2013, our prospecting interest measured 67,517 hectares (166,834 acres) in South Africa and 786,686, hectares (1,943,943 acres) in PNG. We spent US\$76 million on exploration in PNG and South Africa in fiscal 2013. In fiscal 2014, we intend to continue with exploration in PNG and South Africa. See *Item 4 Information on the Company Business International Mining Operations Exploration in PNG*.

## Mining

The mining process can be divided into two main phases: (i) accessing the orebody; and (ii) mining the orebody. This basic process applies to both underground and surface operations.

## Accessing the orebody

In our South African underground mines, access to the orebody is by means of shafts sunk from the surface to the lowest economically and practically mineable level. Horizontal development at various intervals of a shaft (known as levels) extends access to the horizon of the reef to be mined. On-reef development then provides specific mining access. Horizontal development at various intervals of the decline extends access to the horizon of the mineral to be mined. The declines are advanced on a continuous basis to keep ahead of the mining taking place on the levels above. In our open-pit mines, access to the orebody is provided by overburden stripping, which removes the covering layers of topsoil or rock, through a combination of drilling, blasting, loading and hauling, as required.

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## Mining the orebody

The process of ore removal starts with drilling and blasting the accessible ore. The blasted faces are then cleaned, and the ore is transferred to the transport system. In open-pit mines, gold-bearing material may require drilling and blasting, and is usually collected by bulldozers or shovels to transfer it onto trucks, which transport it to the mill.

In our South African underground mines, once ore has been broken, train systems collect ore from the faces and transfer it to a series of ore passes that gravity feed the ore to hoisting levels at the bottom of the shaft. The ore is then hoisted to the surface in dedicated conveyances and transported either by conveyor belts directly or via surface railway systems or roads to the treatment plants. In addition to ore, waste rock broken to access reef horizons must similarly be hoisted and then placed on waste rock dumps.

# **Processing**

We currently have eight operational metallurgical plants in South Africa. We also have a metallurgical plant at the Hidden Valley project in PNG. The principal gold extraction processes we use are carbon in leach, or CIL, and carbon in pulp, or CIP.

The gold plant circuit consists of the following:

#### Comminution

Comminution is the process of breaking up the ore to expose and liberate the gold and make it available for treatment. Conventionally, this process occurs in multi-stage crushing and milling circuits, which include the use of jaw and gyratory crushers and rod and tube and ball mills. Our more modern milling circuits include semi- or fully-autogenous milling where the ore itself is used as the grinding medium. Typically, ore must be ground to a minimum size before proceeding to the next stage of treatment.

#### **Treatment**

In most of our metallurgical plants, gold is extracted into a leach solution from the host ore by leaching in agitated tanks. Gold is then extracted onto activated carbon from the solution using either the CIL or CIP processes. The gold on the carbon is extracted into a solution using an elution process. The gold in solution is then either precipitated using zinc precipitation (only taking place at one of our plants) or it is plated onto the cathodes (electrowinning). Rough gold bars ( **dore** ) are produced from smelting the zinc or cathode sludge. Cathode sludge or dore bars produced are currently sent directly to the Rand Refinery, which is responsible for refining the bars and/or cathode sludge to a minimum good delivery status. Most of the South African plants no longer use smelting to produce dore. Our one South African zinc precipitation plant continues to smelt precipitate to produce rough gold bars.

All the production from our South African operations is sent to the Rand Refinery, which is owned by a consortium of the major gold producers in South Africa. Harmony holds 10.38% of Rand Refinery. The PNG gold production is refined in Australia at an independent refiner, The Perth Mint Australia.

## **Harmony s Management Structure**

We have a de-centralized management structure that is based on small, empowered management teams led by General Managers at each of our operations. In South Africa, the General Managers report to the Operating Officers, and are

responsible for business optimization, mineral reserve optimization, and for developing a business culture at the operations. They also focus on long-term viability and growth of the operations. The Operating Officers, in turn, report to the Chief Operating Officer. The General Managers are supported by a Mineral Reserve Manager, a Financial Manager, a Human Resources Manager and an Engineer Manager in ensuring the growth and long-term sustainability of the operations.

The Morobe Mining Joint Venture consists of three unincorporated joint ventures (Hidden Valley Mine Joint Venture ( **HVMJV** ), Wafi-Golpu Mine Joint Venture ( **WGMJV** ) and Morobe Exploration Joint Venture ( **MEJV** ), which are owned 50/50 by respective Harmony and Newcrest 100% owned subsidiaries ( **owners** )).

The Joint Ventures are managed by a Joint Venture Committee ( JVC ) appointed by the respective owners. The JVC is responsible for the supervision of each of the three Joint Ventures, and implementation of the owners policy and strategy. The members act as owner representatives within the unincorporated joint ventures.

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Three legal operator entities ( **operator co.** ), Hidden Valley Services Limited, Wafi-Golpu Services Limited and Morobe Exploration Services Limited have been established and appointed as operator of / agent for the respective unincorporated joint ventures (HVMJV, WGMJV and MEJV). Shareholding is held equally by the owners who appoint a board of directors ( **board** ) for each operator co.

The operator entity appoints an Operational Steering Committee, Chief Executive Officer and General Managers who are responsible for implementation of the operating plan as approved by the JVC as well as making recommendation to the JVC for growth and sustainability. The General Managers report to the Chief Executive Officer and the Operational Steering Committee. The General Managers are supported by functional managers.

# **Capital Expenditures**

Capital expenditures for all operations incurred for fiscal 2013 amounted to US\$429 million, compared with US\$414 million in fiscal 2012 and US\$444 million in fiscal 2011. During fiscal 2013, capital expenditure at PNG accounted for 28% of the total, with Kusasalethu accounting for 11% and Phakisa and Target 1 each accounting for 9% of the total. During fiscal 2012, capital expenditure in PNG accounted for 19% of the total, with Kusasalethu accounting for 13% while, Doornkop and Phakisa accounted for 9%, each. For fiscal 2011, capital expenditure at Kusasalethu and Phakisa each accounted for 12% of the total, with expenditure at PNG accounting for 11% and Doornkop and Target 1 accounting for 9% each. Capital development also took place at the Tshepong Sub 71 Decline. Revenue capitalized amounted to US\$1.9 million (2011: US\$3.9 million) for Steyn 2 and US\$0 million (2011: US\$23.1 million) for Target 3. Steyn 2 and Target 3 reached commercial levels of production at the end of September 2011 and June 2011 respectively.

The focus of our capital expenditures in recent years has been underground development and plant improvement and upgrades. Construction at these projects has been completed in certain areas, and production, if not yet at full capacity, has started from these areas at all our current growth projects. Capital will still be expended at these projects in the next three to five years to complete construction. During fiscal 2013, the capital expenditure was funded from the Company s cash reserves, as well as by the loan facilities (see *Item 5*. *Operating and financial review and prospects Liquidity and capital resources* ).

We have budgeted approximately US\$296 million for capital expenditures in fiscal 2014. Details regarding the capital expenditures for each operation are found in the individual mine sections under *Item 4*. *Information on the Company Business Harmony s Mining Operations*. We currently expect that our planned operating capital expenditures will be financed from operations and new borrowings as needed.

#### Reserves

As at June 30, 2013, we have declared attributable gold equivalent proved and probable reserves of 51.5 million ounces, broken down as follows: 29.8 million ounces gold in South Africa and 21.7 million gold and gold equivalent ounces in PNG. In instances where individual deposits may contain multiple valuable commodities with a reasonable expectation of being recovered (for example gold and copper in a single deposit) Harmony computes a gold equivalent to more easily assess the value of the deposit against gold-only mines. Harmony does this by calculating the value of each of the deposits commodities, then dividing the product by the price of gold. For example, the gold equivalent of a gold and copper deposit would be calculated as follows: ((gold ounces x gold price per ounce) + (copper pounds x copper price per pound)) / gold price per ounce. All calculations are done using metal prices as stipulated in the discussion below. Harmony assumes a 100% metallurgical recovery in its calculations unless otherwise stated. The year-on-year negative variance in mineral reserves is due to the following reasons:

normal depletion of 1.5 million ounces;

change in surface sources; and

scope changes of 0.9 million ounces which is the result of 0.6 million ounce increase of reserves due to the reclassification of resources and other minor increase across other operations in South Africa .

We use the SAMREC Code, which sets out the internationally recognized procedures and standards for reporting of mineral resources and mineral reserves. We use the term mineral reserves herein, which has the same meaning as ore reserves , as defined in the SAMREC Code. Our reporting of the PNG Mineral Reserves complies with JORC code. This code is materially the same as the SAMREC Code. In reporting of reserves, we have complied with Industry Guide 7 of the US Securities and Exchange Commission.

For the reporting of Mineral Reserves at our South African and PNG operations, the following parameters were applied:

a gold price of US\$1,400 per ounce;

an exchange rate of R8.89 per US dollar,

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the above parameters resulting in a gold price of R400,000/kg;

an uranium price of US\$50.00/lb for South Africa;

the Hidden Valley Operations and Wafi-Golpu project in the Morobe Mining Joint Venture used prices of US\$1 250/oz Au, US\$21/oz Ag, US\$15/lb Mo and US\$3.10/lb Cu at an exchange rate of A\$0.98 per US\$;

gold equivalent ounces are calculated assuming a US\$1400/oz Au, US\$ 3.10/lb Cu and US\$23.00/oz Ag with 100% recovery for all metals; and

gold equivalent is computed as the value of the company s gold, silver and copper from all mineral resources/reserves classifications divided by the price of gold. All calculations are done using metal prices as stipulated.

In order to define that portion of a measured and indicated mineral resource that can be converted to a proved and probable mineral reserve at our underground operations, we apply the concept of a cut-off grade. At our underground operations in South Africa, this is done by defining the optimal cut-off grade as the lowest grade at which an orebody can be mined such that the total profits, under a specified set of mining parameters, are maximized. The cut-off grade is determined using our Optimizer computer program which requires the following as input:

the database of measured and indicated resource blocks (per operation);

an assumed gold price which, for this mineral reserve statement, was taken as R400,000 per kilogram;

planned production rates;

the mine recovery factor which is equivalent to the mine call factor ( MCF ) multiplied by the plant recovery factor; and

planned cash costs (cost per tonne).

Rand per tonne cash costs of the mines are historically based, but take into account distinct changes in the cost environment, such as the future production profile, restructuring, right-sizing, and cost reduction initiatives.

For the block cave reserve at Golpu (PNG), we used the Opimizer mine planning software computer program to define the optimal mine plan and sequencing.

The open pit reserve at Hidden Valley (PNG) is defined by a pit design based on the optimal output from Whittle open pit optimization software.

See the table below in this section for the cut-off grades and cost per tonne for each operation.

The mineral reserves represent that portion of the measured and indicated resources above cut-off in the life-of-mine plan and have been estimated after consideration of the factors affecting extraction, including mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. A range of disciplines which includes geology, survey, planning, mining engineering, rock engineering, metallurgy, financial management, human resources management and environmental management have been involved at each mine in the life-of-mine planning process and the conversion of resources into reserves. The oreflow-related modifying factors used to convert the mineral resources to mineral reserves through the life-of-mine planning process are stated for each individual operation. For these factors, historical information is used, except if there is a valid reason to do otherwise. Owing to depth and rock engineering requirements at our underground mines, some mines design stope support pillars into their mining layouts which accounts for approximately 7% to 10% discounting. Further discounting relates to the life-of-mine extraction to provide for geological losses.

Our standard for narrow reef sampling with respect to both proved and probable reserve calculations for underground mining operations in South Africa is generally applied on a 6 meter by 6 meter grid. Average sample spacing on development ends is at 2 meter intervals in development areas. For the massive mining at the Target 1 operation, our standard for sampling with respect to both proved and probable reserves are fan drilling with B sized diamond drill holes (43mm core) sited at 50 meter spaced sections along twin access drives. The Kalgold opencast operations are sampled on diamond drill and reverse circulation drill spacing of no more than 25 meters on average. Surface mining at South African operations other than Kalgold involves recovering gold from areas previously involved in mining and processing, such as metallurgical plants, waste rock dumps and tailing dams (slimes and sand) for which random sampling is used.

The PNG resources are hosted in large porphyry or related mesothermal geological systems. Data is gained through diamond drilling using PQ down to NQ sized core. The core is cut in half, one half sampled at a maximum of 2 meter intervals and the other half stored in designated core storage facilities. Drill spacing at our Hidden Valley operations is typically on less

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than 20 meter centers for measured category, 20 to 40 meter centers for the Indicated category and greater than 40 meters for Inferred category material. Due to the nature of the Golpu porphyry mineralization, drill spacing is increased to 100 to 200 meters for indicated and greater for inferred. Assaying for gold is by fire assay and various methods are used for copper and other elements. All assays informing the resource calculation are analyzed at a National Association of Testing Authorities accredited commercial laboratory. Some sample preparation is done at the mine site laboratory. Extensive Quality Assurance/Quality Control work is undertaken and data is stored in an electronic database.

Our mining operations reported total proved and probable reserves as of June 30, 2013 are set out below:

# Mineral Reserves statement (Imperial) as at June 30, 2013 PROBABLE

OPERATIONS GOLD	PROV	ED RES	ERVES	F	RESERV	ES	TOTA	L RESE	RVES
	Tons	Grade	Gold oz <sup>(1)</sup>			Gold oz <sup>(1)</sup>	Tons		$Gold\ oz^{(1)}$
	(millions)	(oz/ton)	(000)	(millions)	(oz/ton)	(000)	(millions)	(oz/ton)	(000)
South Africa									
Underground									
Bambanani (incl Steyn 2)		0.323	836				2.6	0.323	836
Joel	1.8	0.163	296	4.3	0.157	677	6.1	0.159	973
Masimong	6.4	0.139	897	2.7	0.137	367	9.1	0.139	1,264
Phakisa	5.4	0.180	972	16.8	0.213	3,590	22.2	0.205	4,562
Target 1	4.8	0.142	684	5.0	0.162	805	9.8	0.153	1,489
Target 3	2.7	0.200	549	4.6	0.155	719	7.3	0.172	1,268
Tshepong	20.5	0.159	3,257	3.7	0.148	546	24.2	0.157	3,803
Unisel	2.2	0.127	285	0.9	0.121	109	3.1	0.125	394
Doornkop	3.0	0.122	362	5.5	0.158	862	8.4	0.145	1,224
Kusasalethu	9.7	0.215	2,085	30.2	0.161	4,856	39.9	0.174	6,941
<b>Total South Africa</b>									
Underground	59.1	0.173	10,223	73.7	0.170	12,531	132.8	0.171	22,754
South Africa Surface									
Kalgold	13.4	0.028	379	13.1	0.029	384	26.5	0.029	763
Free State Surface -									
Phoenix	111.5	0.009	1,037				111.5	0.009	1,037
Other	284.8	0.008	2,138	421.1	0.007	3,055	705.9	0.007	5,193
Total South Africa									
Surface	409.7	0.009	3,554	434.2	0.008	3,439	843.9	0.008	6,993
<b>Total South Africa</b>	468.8		13,777	507.8		15,970	976.7		29,747
Papua New Guinea <sup>(2)</sup>									
Hidden Valley	0.7	0.036	25	31.9	0.050	1,589	32.6	0.050	1,614
Hamata	0.0	0.046	1	2.5	0.061	154	2.5	0.061	155
Golpu				248.0	0.025	6,194	248.0	0.025	6,194
Total Papua New									
Guinea	0.7	0.037	26	282.4	0.028	7,937	283.1	0.028	7,963
GRAND TOTAL	469.5		13,803	790.2		23,907	1,259.8		37,710

- (1) Metal figures are fully inclusive of all mining dilutions and gold losses, and are reported as mill delivered tons and head grades. Metallurgical recovery factors have not been applied to the reserve figures.
- (2) Represents Harmony s attributable interest of 50%.

Note: 1 ton = 907 kg = 2,000 lbs

In addition to the gold reserves, we also report our gold equivalents for reserves for silver and copper from our PNG operations. Gold equivalent ounces are calculated assuming a US\$1,400/oz for gold, US\$3.10/lb copper and US\$23.00/oz for silver with 100% recovery for all metals.

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Gold Equivalents (2)

SILVER		RVES	PROBABL	E RESERVES	TOTAL	RESERVES
	Tons (millions)	Gold Equivalents (oz) <sup>(1)</sup> (000)	Tons (millions)	Gold Equivalents (oz) <sup>(1)</sup> (000)	Tons (millions)	Gold Equivalents (oz) <sup>(1)</sup> (000)
Hidden Valley	0.7	7	31.9	485	32.6	492
COPPER	RESE	OVED CRVES Gold Equivalents (oz) <sup>(1)</sup> (000)	Tons (millions)	E RESERVES Gold Equivalents (oz) <sup>(1)</sup> (000)	Tons (millions)	Gold Equivalents (oz) <sup>(1)</sup> (000)
Golpu			248.0	13,265	248.0	13,265
<b>Total Gold Equivalents</b>	0.7	7	279.9	13,750	280.6	13,756
Total Harmony including gold equivalents	469.5	13,809	790.2	37,657	1,259.8	51,466

In addition to the gold reserves, we also report our attributable reserves for silver and copper from our PNG operations. Metal prices are assumed at US23.00/oz for silver, US3.10/lb for copper, US50.00/lb for uranium and Molybdenum at US15/lb.

Papua New Guinea: Other (2)

SILVER		PROVE RESERV		PROBA	BLE RE	ESERVES	TOT	AL RESI	ERVES
	Tons (millions		Silver oz <sup>(</sup> (000)	1) Tons (millions)		Silver oz <sup>(1)</sup> (000)	Tons (millions)		Silver oz <sup>(1)</sup> (000)
Hidden Valley	0.7	0.594	409	31.9	0.926	29,515	32.6	0.919	29,924
Golpu				248.0	0.040	9,864	248.0	0.040	9,864
			Cu						
COPPER	Tons (millions	Grade ) (%)	lb <sup>(1)</sup> (millions	Tons (millions)	Grade (%)	Cu lb <sup>(1)</sup> (millions)	Tons (millions)	Grade (%)	Cu lb <sup>(1)</sup> (millions)
Golpu				248.0	1.096	5,992	248.0	1.096	5,992
MOLYBDENUM	Tons (millions	<b>Grade</b> (%)	Cu lb <sup>(1)</sup>	Tons (millions)	Grade (%)	Cu lb <sup>(1)</sup> (millions)	Tons (millions)	Grade (%)	Cu lb <sup>(1)</sup> (millions)

# (millions)

Golpu	248.0	0.162	40	248.0	0.162	40
South Africa:						

				$\mathbf{P}$	ROBAB	LE			
URANIUM	PROV	ED RES	ERVES	R	ESERV	ES	TOTA	AL RESI	ERVES
	Tons	Grade	$U_3O_8 lb^{(1)}$	Tons	Grade	$U_3O_8 lb^{(1)}$	Tons	Grade	$U_3O_8  lb^{(1)}$
	(millions)	(lb/ton)	(millions)r	nillions)	(lb/ton)	(millions)r	nillions)	(lb/ton)	(millions)
Masimong				5.4	0.361	2	5.4	0.361	2
Phakisa	5.4	0.265	1	16.8	0.210	4	22.2	0.223	5
Tshepong	11.0	0.195	2	12.1	0.226	3	23.0	0.211	5
Grand Total	16.4	0.218	4	34.2	0.239	8	50.6	0.232	12

<sup>(1)</sup> Metal figures are fully inclusive of all mining dilutions and gold losses, and are reported as mill delivered tons and head grades. Metallurgical recovery factors have not been applied to the reserve figures.

Note: 1 ton = 907 kg = 2,000 lbs

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<sup>(2)</sup> Represents Harmony s attributable interest of 50%.

Our methodology for determining our reserves is subject to change and is based upon estimates and assumptions made by management regarding a number of factors as noted above in this section. Cost per tonne and cut-off grade per operation are as follows.

OPERATIONS GOLD	UNDERGROUND OPERATIOSISRFACE AND MASSIVE MINI Cut-off Cut-off							
	Cut-off grade	cost	Cut-off grade	cost				
	(cmg/t)	(R/Tonne)	$(\mathbf{g}/\mathbf{t})$	(R/Tonne)				
South Africa Underground								
Bambanani	1,935	2,022						
Joel	800	1,360						
Masimong	850	1,232						
Phakisa	790	1,541						
Target 1			4.20	1,420				
Target 3	690	1,519						
Tshepong	650	1,514						
Unisel	1,100	1,367						
Doornkop	646	1,206						
Kusasalethu	670	1,398						
South Africa Surface								
Kalgold			0.50	209				
Free State Surface			0.136	34				
		<b>Cut-off</b>	<b>Cut-off</b>	<b>Cut-off</b>				
	<b>Cut-off</b>	cost	grade	cost				
	% Cu	(A\$/Tonne)	(g/t)	(A\$/Tonne				
Papua New Guinea								
Hidden Valley			0.860	20.4				
Hamata			0.860	20.4				
Golpu	0.2	22.0						
		<b>Cut-off</b>	<b>Cut-off</b>	<b>Cut-off</b>				
	Cut-off	cost	grade	cost				
	% Cu	(A\$/Tonne)	(g/t)	(A\$/Tonne				
SILVER			_					
Papua New Guinea								
Hidden Valley			0.860	20.4				
COPPER								
Papua New Guinea								
Golpu es on Cut-off:	0.2	22.0						

- 1) Surface and massive mining are stated in g/t (g/t is grams of metal per tonne of ore).
- 2) All SA underground operations are stated in cmg/t (cmg/t is the Reef Channel width multiplied by the g/t which indicates the gold content within the Reef Channel).

# **Notes on Cut-off cost:**

Cut-off cost refers to the cost in R/Tonne or A\$/Tonne to mine and process a tonne of ore.

# **Notes on Copper:**

Cut-off is stated in % Cu

# **Notes on Golpu:**

Cut-off is based on 0.2% copper; molybdenum and gold mined as by-product.

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# **Worldwide Operations**

# Description of Property

The following is a map of our worldwide operations:

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Our operational mining areas in South Africa are set forth below:

	Hectares	Acres
Doornkop (includes Doornkop extension)	4,352	10,754
Kusasalethu (includes Buffelsdoorn extension)	7,023	17,354
Free State (includes Masimong and Virginia operations)	21,235	52,471
Tshepong and Phakisa	10,799	26,684
Bambanani	2,356	5,822
Joel	2,356	5,822
St Helena	5,856	14,470
Kalgold	615	1,520
Target 1 (includes Loraine 1 and 2)	7,952	19,649
Target 3 (includes Loraine 3, 7 & 9)	3,085	7,623
Steyn 1 & 2	1,888	4,665
Total	67,517	166,834

In PNG, we hold tenements as set forth below:

	Hectares	Acres
PNG (50% - JV Interest)	417,386	1,031,383
PNG 100%	369,300	912,560
Total International Operations	786,686	1,943,943
TOTAL	854,203	2,110,777

In line with the rest of the South African mining industry, and in an effort to reduce costs, we have been rationalizing our mineral rights holdings in recent years. Accordingly, over the past three years, we have disposed of our shares and participation rights in areas within and outside of South Africa in which we have not actively pursued mining. However, in some cases we have retained certain participation rights and option clauses in properties and mining rights we have disposed of. We may continue to investigate further disposals.

# Geology

The major portion of our South African gold production is derived from mines located in the Witwatersrand Basin in South Africa. The Witwatersrand Basin is an elongated structure that extends approximately 300 kilometers in a northeast-southwest direction and approximately 100 kilometers in a northwest-southeast direction. It is an Archean sedimentary basin containing a six kilometer thick stratigraphic sequence consisting mainly of quartzites and shales with minor volcanic units. The majority of production is derived from auriferous placer reefs situated at different stratigraphic positions and at varying depths below the surface in three of the seven defined goldfields of the Witwatersrand Basin.

Our Hidden Valley project comprises low sulphidation carbonate-base metal-gold epithermal deposits within the Morobe Goldfield, in the Morobe Province of PNG. In the Hidden Valley project area, a batholith of Morobe Granodiorite (locally a coarse grained monzogranite) is flanked by fine metasediments of the Owen Stanley Metamorphics. Both are cut by dykes of Pliocene porphyry ranging from hornblende-biotite to feldspar-quartz porphyries. A number of commonly argillic altered and gold anomalous breccias are known, including both hydrothermal and over printing structural breccias. The Hidden Valley deposit is hosted in the Moribe Granodiorite,

dominated by a series of post-Miocene faults, both north and north-west trending, control the gold mineralization.

Our Wafi project comprises the sedimentary/volcaniclastic rocks of the Owen Stanley Formation that surround the Wafi Diatreme and host the gold mineralization. Gold mineralization occurs associated with an extensive zone of high-sulphidation epithermal alteration overprinting porphyry mineralization and epithermal style vein-hosted and replacement gold mineralization with associated wall-rock alteration. The Golpu Copper-Gold project is located about one kilometer northeast of the Wafi gold orebody. It is a porphyry (diorite) copper-gold deposit. The host lithology is a diorite that exhibits a typical zoned porphyry copper alteration halo together with mineralization in the surrounding metasediment. The mineralized body can be described as a porphyry copper-gold pipe. The Wafi gold mineralization and alteration partially overprints the upper levels of the Golpu porphyry copper-gold mineralization.

Harmony	S	Mining	O	perations
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In South Africa, we conduct underground mining at 11 operations, but report of ten segments per IFRS
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Bambanani (includes Steyn 2 Shaft from February 2010);
Doornkop;
Joel;
Kusasalethu;
Masimong;
Phakisa;
Target 1
Target 3 (previously Loraine 3);
Tshepong; and
Unisel (in addition to Unisel, the Virginia segment previously included Harmony 2, Merriespruit 1 & 3 and Brand 3 & 5. As of November 2010, Unisel was the only operating shaft and has been reported separately for the periods presented in this report).  We conduct surface mining at four sites (all included in Other Surface):
Free State (comprises Phoenix and other retreatment projects);
Freegold;

Kalgold; and

Target.

Surface mining conducted at the South African operations other than Kalgold involves recovering gold from areas previously involved in mining and processing, such as metallurgical plants, waste rock dumps and tailings dams (slimes and sand). We are conducting studies to determine the feasibility of further retreatment projects in the Free State, including uranium extraction from material.

The Evander operation was sold on February 28, 2013. Since the decision was made to sell the Evander operation in January 2012, it has been treated as a discontinued operation.

Internationally, we conduct mining activities in PNG at the Hidden Valley mine, which is a joint venture, known as the Morobe Mining Joint Venture, between Harmony and Newcrest in which we each have a 50% interest.

The following discussion is a two-part presentation of our operations:

an overview of our South African mining operations with a discussion and production analysis of each of our operating segments; and

an overview of our international (PNG) operations with a discussion and production analysis for Hidden Valley. We have also included a discussion on the exploration projects in the MMJV as well as for the wholly-owned projects.

Where we have translated the Rand amount budgeted for capital expenditures in fiscal 2014 into US dollars using the closing rate at the balance sheet date.

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# **South African Mining Operations**

Unless indicated otherwise, the discussions below are for continuing operations.

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## **Underground**

#### Bambanani

Introduction: We acquired Bambanani in January 2002 when we acquired the Freegold operations from AngloGold Ashanti Limited ( Anglogold ) through a 50% joint venture with African Rainbow Minerals Gold Limited ( ARMGold ). In September 2003, we acquired 100% of these operations when ARMGold became a wholly-owned subsidiary. During February 2010, we acquired President Steyn 1 & 2 Shafts in the transaction with Pamodzi FS. These shafts have been incorporated into Bambanani. These operations are located in the Free State Province. Production from the operations is processed through Harmony 1 Plant.

**History**: Exploration, development and production history in the area of the Freegold assets dates from the early 1900 s, leading to commercial production by 1932. Subsequent consolidation and restructuring led to the formation of Free State Consolidated Gold Mine (Operations) Limited, which became a wholly-owned subsidiary of Anglogold in June 1998.

In 1998, President Steyn Gold Mine (Free State) (Proprietary) Limited ( **PSGM** ) was formed after purchasing shafts from various individuals. During 2002, the mine was sold to Thistle Mining Inc, an international company with interests in the Philippines and South Africa. The mine struggled to make operational profits, and Thistle undertook a restructuring program in 2006, which together with an increase in the Rand gold price resulted in positive operational cash flows. In February 2008, PSGM was purchased by Pamodzi FS. The mine was operated from that time until March 2009, when Pamodzi FS was placed into liquidation.

**Geology**: The operations are located in the Free State Goldfield, which is on the south-western edge of the Witwatersrand basin. The Free State Goldfield is divided into two sections, cut by the north-south striking De Bron Fault. This major structure has a vertical displacement of about 1,500 meters in the region of Bambanani, as well as a lateral shift of 4 kilometers. Bambanani is to the west of the De Bron Fault. The reefs generally dip towards the east. Mining is conducted in the Basal Reef.

**Mining Operations**: These operations are subject to the underground mining risks detailed in the Risk Factors section. The management teams regularly revisit their mining strategy and management procedures in order to minimize risks.

Bambanani, near Welkom, has three surface shafts (Bambanani, Steyn 2 and West). Mining is conducted at depths ranging from 1,911 and 2,234 meters. Activities at the mine focus on the Basal Reef and are limited to shaft pillar extraction. The primary mining challenges at these operations are seismic risks, ventilation and fire avoidance. Bambanani is classified as a seismically active operation with seismic activity monitoring systems installed to do active seismic risk evaluation.

In the first quarter of fiscal 2012, we decided to halt mining in the sub-shaft after Bambanani had struggled to meet production targets and curb costs for a number of quarters. As such, mining activities moved from deeper operating areas to accelerated development of the shaft pillar. Bambanani is on track to continue mining the shaft pillar for around eight years until fiscal 2021, improving both the productivity and profitability of this mine. Steyn 2 shaft has commenced with the removal of its shaft pillar and is planning to complete this by October 2014. The ore from both of these shaft pillar extractions is hoisted at West shaft, which has been re-commissioned for this purpose.

The focus on standards and procedures is ongoing as preparations to mine the shaft pillar near completion. The shaft pillar was established through a series of up-dip panels and mining of the breast panels are in progress. Backfill will

be in place in the pillar to mitigate seismic events, with support in the face area enhanced by in-stope steel netting. A detailed seismic risk assessment was completed for the shaft pillar by the Institute of Mine Seismology of Stellenbosch, and some re-design work is under way to further mitigate identified risks. Bambanani and Steyn 2 is now a single operation (Steyn 2 barrel closed) and all services are routed through Bambanani/West shaft. Reef development has been halted, in line with the mine plan, and all capital development has been finalized in fiscal 2013.

Due primarily to mining in the high grade shaft pillar, grades improved in fiscal 2013. The increase in grade resulted in an increase in ounces produced of 52% and the operation returned to profitability as a result of the higher revenue and lower cash costs. The increased ounces produced also resulted in a decrease in the cash cost per ounce measure.

Due to additional work that was required for preparing the shaft pillar, there was a temporary increase in contractor labour crews working in the decline.

During fiscal 2013, Bambanani accounted for 6% (3% in 2012 and 7% in 2011) of our total gold production.

**Safety:** No fatalities were recorded at Bambanani during fiscal 2013 (2012: one) and the lost time injury frequency rate ( **LTIFR** ) was reported as 6.88 per million hours worked (2012: 8.51). This is a 19% improvement year-on-year. Bambanani recorded 2 million fall-of-ground fatality-free shifts during the second quarter of fiscal 2013.

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**Plant**: The ore from the operation is sent to Harmony One Plant for processing. See *Item 4*. *Information on the Company Business Metallurgy Harmony One Plant* for a discussion on the plant.

## **Production analysis:**

	Fiscal Year Ended June 30,		
Bambanani	2013	2012	2011
Production			
Tons ( 000)	231	217	470
Recovered grade (ounces/ton) <sup>(1)</sup>	0.290	0.198	0.203
Gold produced (ounces) <sup>(1)</sup>	66,970	44,174	98,092
Gold sold (ounces) <sup>(1)</sup>	66,359	43,982	99,443
Results of operations (\$)			
Product sales ( 000)	105,705	70,748	131,753
Cash cost ( 000)	66,964	76,911	118,442
Cash profit ( 000)	38,741	(6,163)	13,311
Cash costs			
Per ounce of gold (\$)	1,025	1,787	1,247
<b>Capex</b> ( 000) (\$ <b>)</b>	13,514	34,255	45,884

Ouring fiscal 2012, 1,157 (2011: 2,894) ounces were produced by Steyn 2 prior to it being considered to be in production. The revenue amounting to US\$1.9 million (2011: US\$3.9 million) has been credited against capital expenditure as the shaft was not considered to be in commercial production yet. The cost of these ounces has not been included in the cash cost per ounce amount. The calculation of grade also excludes these ounces. Tons milled at Bambanani increased to 231,000 in fiscal 2013, compared with 217,000 in fiscal 2012, and the recovered grade increased from 0.198 ounces/ton in fiscal 2012 to 0.290 ounces/ton in fiscal 2013, in line with the planned build-up in the shaft pillar. Ounces produced increased from 44,174 in fiscal 2012 to 66,970 in fiscal 2013. The average tons milled in fiscal 2013 was 19,250 tons per month, compared with 18,083 tons per month for fiscal 2012.

Revenue received increased from US\$70.7 million in fiscal 2012 to US\$105.7 million in fiscal 2013, mainly as a result of the increase in ounces produced and the recovered grade. Cash costs per ounce for Bambanani were US\$1,025 in fiscal 2013, compared with US\$1,787 in fiscal 2012. The cash costs per ounce decreased by 43% in fiscal 2013 compared with fiscal 2012, primarily due to the increase in ounces produced following the mining activity moving into the shaft pillar area in fiscal 2013.

Tons milled from Bambanani decreased to 217,000 in fiscal 2012, compared with 470,000 in fiscal 2011. Ounces produced were 44,174 in fiscal 2012, compared with 98,092 in fiscal 2011. Production was affected by major restructuring at Bambanani as the lower section of the mine was closed; mining will be focused on the upper pillar. The average tons milled in fiscal 2012 were 18,083 tons per month, compared with 39,200 tons per month for fiscal 2011.

Cash costs per ounce for Bambanani were US\$1,787 in fiscal 2012, compared with US\$1,247 in fiscal 2011. The cash costs per ounce increased by 43% in fiscal 2012 compared with fiscal 2011. This was mainly due to a 55% reduction in gold production as the lower section of the mine was closed, resulting in mining being focused on the upper pillar.

Assuming no additional reserves are identified, at expected production levels, it is foreseen that the reported proved and probable mineral reserves of 2.6 million tons (0.83 million ounces) will be sufficient for Bambanani to maintain underground production until approximately 2021. Any future changes to the assumptions upon which the mineral reserves are based, as well as any unforeseen events affecting production levels, could have a material effect on the expected period of future operations.

**Capital Expenditure**: Bambanani incurred approximately R119 million (US\$13.5 million) in capital expenditure in fiscal 2013, primarily to extract the shaft pillar.

## Doornkop

**Introduction**: Doornkop is located in the Gauteng Province of South Africa, approximately thirty kilometers west of Johannesburg. The operation is owned by Randfontein Estates Limited ( **REL** ). Doornkop currently operates under its own mining authorization of 2,941 hectares. Production is treated at the Doornkop plant.

**History**: Harmony acquired this operation when it took over REL in 2000.

**Geology**: These operations are situated in the West Rand Goldfield of the Witwatersrand Basin, the structure of which is dominated by the Witpoortjie and Panvlakte Horst blocks, which are superimposed over broad folding associated with the south-east plunging West Rand Syncline.

The Doornkop operation lease area is bounded by and lies to the south-east of the major north-easterly striking Roodepoort Fault, which dips to the south and constitutes the southern edge of the Witpoortjie Horst Block or Gap. This Horst

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Block is comprised of the stratigraphically older sediments of the West Rand Group, the overlying Central Rand Group sediments having been removed by erosion. A number of other faults, forming part of and lying southeast of the Roodepoort Fault, including the Saxon Fault, also constitute conspicuous structural breaks. A second major fault, the Doornkop Fault, which trends in an east west direction, occurs towards the southern portion of the lease area. This fault dips to the south and has an up-throw to the north.

Nearly the entire upper Witwatersrand section is present in the lease area and therefore all the major zones are present, though due to the distance of the area from the primary source of gold, the number of economic bands and their payability is limited. Eight of the well-known reefs are present in the area, but only the Kimberley Reef and South Reef are considered viable at this stage. The Kimberley Reef is contained in the Vlakfontein Member of the Westonaria Formation. This reef, also known as the K9 Reef horizon, rests on an unconformity and is a complex multi-pulse conglomerate, which can be separated into four facies or cycles. All four cycles consist on average of an upper conglomerate and a lower quartzite. The characteristics of every cycle are area-dependent and the grades are variable within each cycle. The South Reef is approximately 900 meters below the current Kimberley Reef mining, and between 7.5 and 60 meters above the Main Reef horizon. The hanging wall to the South Reef consists of siliceous quartzites with non-persistent bands of blue-shot grit and thin argillite partings. The footwall to the South Reef is a light colored and fairly siliceous quartzite. Secondary conglomerate bands and stringers in the hanging wall and footwall of the South Reef may contain sporadic gold values. The general strike of the reef is east-west, with a dip from 10 to 20 degrees. The orebody at Doornkop has a strike length of 4km and a width of 4km from west to east.

**Mining Operations**: These operations are subject to the underground mining risks detailed in the Risk Factors section.

Doornkop uses both mechanized bord-and-pillar and narrow-reef conventional mining. Due to the shallow to moderate depths of the operations, seismicity and high rock stress related problems are infrequent. There is a risk of subterranean water and/or gas intersections in some areas of the mines. However, this risk is mitigated by active and continuous management and monitoring, which includes the drilling of boreholes in advance of faces. Where water and/or gas are indicated in the drilling, appropriate preventative action is taken. The hoisting capacity of the Doornkop shaft is 185,000 tons per month.

The Doornkop South Reef Project was announced on January 22, 2003. The project involved the deepening of the Doornkop main shaft to 1,973 meters to access the South Reef between 1,650 and 2,000 meters below surface, and includes development towards these mining areas. The estimated final capital cost is R1,811 million (US\$181.5 million) with R 1,739 million (US\$174.2 million) spent as at June 30, 2013. The project is mostly completed. The remaining work is mainly for ventilation, where it is expected that the raise bore hole and required fan installations will be completed by December 2015.

The improvement in year-on-year production at Doornkop reflects mainly the production build-up on the South Reef. Development meters increased by 13% or 1,410 meters from the previous year, per planned build-up on the South Reef. As more mining takes place on the South Reef, the level of confidence on the geology of this reef improves. Few surprises were encountered during the year in terms of geology. The exploration programme at Doornkop is ongoing and will continue by means of development and exploration drilling. Year-on-year, the South Reef reserve included in the life-of-mine increased by 10%. Presently, the South Reef production continues to build up, and is expected to increase to 17,000 m² in fiscal 2014. Full production is expected to be achieved in fiscal 2018. Tons mined from the South Reef areas accounted for 64% of total tons mined in fiscal 2013 up from 62% the year before while the contribution from the Kimberley Reef declined from 38% to 36%.

Pilot drilling for the 6.1m diameter ventilation raise-bore hole was completed during the first quarter of fiscal 2013. The reaming of this ventilation hole started in September 2012. Progress has not been according to plan, and actions to improve on the drilling advance were tabled during July 2013. This action included re-evaluation of the current contract to include drilling over a 24 hour period.

A drive to further develop safety on rail bound equipment continued during fiscal 2013. The locomotive management system was completed. Installation underground started as well as training of the personal operating this fleet of rolling stock. Shaft bottom preparation work for the installation of skip arrestors continued and is expected to be completed by the end of the second quarter of fiscal 2014.

During the June 2013 quarter, the operation experienced illegal labor disruptions lasting four days. The appropriate action was taken regarding the labor unrest and no further disruptions were reported during the year.

During fiscal 2013, Doornkop accounted for 10% (8% in 2012 and 6% in 2011) of our total gold production.

**Safety**: Doornkop recorded a fatality-free year in fiscal 2013 (2012: two). The LTIFR improved to 5.30 (2012: 6.28) per million hours worked. The mine achieved more than 6 million fall-of-ground fatality-free shifts and more than 1.5 million fatality-free shifts during the year.

**Plant**: The ore from the operation is sent to Doornkop Plant for processing. See *Item 4*. *Information on the Company Business Metallurgy Doornkop Plant* for a discussion on the plant.

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### **Production analysis:**

	Fiscal Year Ended June 30,		une 30,
Doornkop	2013	2012	2011
Production			
Tons ( 000)	1,112	1,023	792
Recovered grade (ounces/ton)	0.105	0.097	0.102
Gold produced (ounces)	116,738	98,863	80,763
Gold sold (ounces)	114,135	98,027	81,149
Results of operations (\$)			
Product sales ( 000)	183,066	165,271	111,759
Cash cost (000)	118,144	111,016	85,999
Cash profit ( 000)	64,922	54,255	25,760
Cash costs			
Per ounce of gold (\$)	1,046	1,142	1,054
Capex ( 000) (\$)	32,354	37,813	41,782

Tons milled from Doornkop were 1,112,000 in fiscal 2013, compared with 1,023,000 in fiscal 2012. Recovered grade improved from 0.097 ounces per ton in fiscal 2012 to 0.105 in fiscal 2013. These increases were mainly due to production build-up in the South Reef. South Reef areas accounted for 64% of total tons mined in fiscal 2013, up from 62% in fiscal 2012. Ounces produced increased from 98,863 in fiscal 2012 to 116,738 in fiscal 2013, reflecting the production build-up of the South Reef. The average tons milled in fiscal 2013 was 92,667 tons per month, compared with 85,250 tons per month in fiscal 2012.

Revenue received increased from US\$165.3 million in fiscal 2012 to US\$183.1 million in fiscal 2013 as a result of the increase in ounces produced and the higher gold price received. Cash costs per ounce were 8.4% lower at US\$1,046/oz. In terms of unit cost, the annual increases in labor rates of 8% and the 9.6% increase in electricity costs were mitigated by the 18% increase in ounces produced and the effect of the exchange rate.

Tons milled from Doornkop were 1,023,000 in fiscal 2012, compared with 792,000 in fiscal 2011. This was mainly due to production build-up in the South Reef. South Reef areas accounted for 62% of total tons mined in fiscal 2012; up from 58% in fiscal 2011. The results were affected by safety-related stoppages after two fatalities in January 2012 and a management decision to upgrade infrastructure on the higher-grade South Reef. Recovered grade deteriorated slightly from 0.102 ounces per ton in fiscal 2011 to 0.097 in fiscal 2012. This was due to the decrease of the grade in the South Reef areas and the Kimberley reef areas. Ounces produced increased from 80,763 in fiscal 2011 to 98,863 in fiscal 2012, reflecting the production build-up of the South Reef. The average tons milled in fiscal 2012 were 85,250 tons per month, compared with 66,000 tons per month in fiscal 2011.

Revenue received increased from US\$111.8 million in fiscal 2011 to US\$165.2 million in fiscal 2012 as a result of the increase in ounces produced and the higher gold price received. Cash costs per ounce were 8% higher at US\$1,142/oz, mainly due to the increase in production. Contributing factors were the annual increase in labor rates of 9.2% and the 16% increase in electricity costs.

On a simplistic basis, assuming no additional resources are identified, at expected production levels, it is foreseen that: the reported proved and probable mineral reserve of 8.4 million tons (1.22 million ounces) will be sufficient for the Doornkop shaft to maintain production until approximately fiscal 2030. Any future changes to the assumptions upon which the mineral reserves are based, as well as any unforeseen events affecting production levels, could have a

material effect on the expected period of future operations.

Capital Expenditure: Harmony incurred R285 million (US\$32.4 million) in capital expenditure in fiscal 2013 at Doornkop, primarily for ongoing capital development (67%), other shaft and plant capital (20%) and the South Reef project (13%). The planned capital expenditure for fiscal 2014 is R241 million (US\$24.2 million), mainly for ongoing capital development, the South Reef project and other shaft and plant capital.

#### .Ioel

**Introduction**: Joel is located in the Free State Province, on the south-western edge of the Witwatersrand basin. The mine comprises of two shafts, North and South shafts. Previously ore mined at Joel was transported to Central Plant, 38 kilometers away, for processing, but since the re-commissioning of the Joel plant in November 2009, the ore is now processed on site.

**History**: Joel was purchased from a subsidiary of AngloGold at the same time as the rest of the Freegold assets in January 2002.

**Geology**: The main structures on Joel Mine are associated with the Platberg Extensional event, which formed the De Bron and associated faults. These faults are north-south striking, steeply dipping and typically have downthrows to the east in the order of 10 to 100m. These form a graben against the De Bron Fault, which has a 450m up throw to the east. East of the De Bron Fault the reef has been truncated/eroded against the Karoo.

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The complex nature of the reef, with multiple pulses of detrital influx and scouring non-deposition on paleotopographic highs and the mixing between the Beatrix, Beatrix-VS5 Composite Reef and Beatrix-VS5-Aandenk, has resulted in a highly irregular distribution of gold throughout the mining area. There are broad low and high-grade zones on the scale of hundreds of metres, which are considered likely to be repeated within the reef environment beyond the limits of the current development, however, the detailed grade distribution within these zones remains very unpredictable.

For the purposes of resource estimation, a detailed facies model is used and is based on detailed sedimentological observations and absence of well-mineralized reef at paleo-topographic highs.

**Mining operations**: These operations are subject to the underground mining risks detailed in the Risk Factors section. The management teams regularly revisit their mining strategy and management procedures in order to minimize risks.

Scattered mining takes place on the Beatrix Reef, down to a depth of some 1,400 meters. Upgrading of the infrastructure at North Shaft is currently in progress. The rock hoisting capacity at Joel is 80,000 tons per month.

While production at Joel has progressively moved to the deeper portions of the mine, some 1,400 meters 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.

By the end of fiscal 2011, Joel s lift shaft an integral part of the logistics of mining at this deep mine was equipped down to 129 level from 121 level. This has provided access to the higher grades at deeper levels. In addition, mining support design was altered with the shaft changing from shallow to intermediate depth. This will impact on the face advance as well as costs per square metre. The benefits of these changes were evident in the first half of fiscal 2013 when Joel recorded the lowest cash operating costs in the Company.

To ensure production targets are met, plans are in place to ensure the operability of North shaft through a planned maintenance program to minimize breakdowns, maintain blast advances and assess the feasibility of mining below 129 level. A feasibility study on mining 137 level and testing the upside potential of 145 level was completed by the end of June 30, 2013. The project was approved and began in the last quarter of fiscal 2012. During fiscal 2013, the decline project to 137 level started well, reflecting good progress with development metres. Managing the shaft and project schedules is critical for Joel, given its limited shaft flexibility.

A steady production performance for fiscal 2013 and higher recovered grades had a positive impact on gold recovered. Grade improved by 10%, with a 10% increase in volumes milled to 674,000 tonnes in fiscal 2013. This resulted in an overall increase of 21% in gold ounces produced to 103,782.

During fiscal 2013, Joel accounted for 9% of our total gold production (7% in fiscal 2012 and 4% in fiscal 2011).

**Safety**: Regrettably, Joel recorded two fatalities during fiscal 2013 (fiscal 2012: none). The LTIFR rate regressed to 2.42 from 1.77 in fiscal 2012. Joel plant recorded a period of one year without any lost time-or reportable injury during the first quarter and fourth quarter of fiscal 2013.

**Plant**: The ore from the operation is sent to Joel Plant for processing. See *Item 4*. *Information on the Company Business Metallurgy Joel Plant* for a discussion on the plant.

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### **Production analysis:**

	Fiscal Year Ended June 30,		une 30,
Joel	2013	2012	2011
Production			
Tons ( 000)	674	614	448
Recovered grade (ounces/ton)	0.154	0.139	0.104
Gold produced (ounces)	103,782	85,618	46,586
Gold sold (ounces)	102,625	86,132	46,618
Results of operations (\$)			
Product sales ( 000)	164,584	144,750	64,928
Cash cost ( 000)	74,131	72,798	59,690
Cash profit ( 000)	90,453	71,952	5,238
Cash costs			
Per ounce of gold (\$)	729	836	1,297
<b>Capex</b> ( 000) (\$)	18,100	10,822	10,461

Tons milled increased from 614,000 in fiscal 2012 to 674,000 in fiscal 2013 due to fewer stoppages occurring in fiscal 2013 compared to fiscal 2012 and increased waste tons from the 137 decline project. Grade increased by 11% to 0.154 ounces per ton and ounces produced increased from 85,618 in fiscal 2012 to 103,782 in fiscal 2013. The average tons milled in fiscal 2013 was 50,929 tons per month, compared with 46,837 tons per month in fiscal 2012.

Revenue increased by 14% to US\$164.6 million in fiscal 2013, due to the increases in production performance and the gold price year on year. The annual increase in labor rates of 8% and the increase of the electricity cost of 9.6% as well as the increase in production volumes resulted in higher cash costs. In dollar terms, this was offset by the effect of the 14% decrease in the R/US\$ average exchange rate. Cash costs per ounce decreased by 13% in fiscal 2013, primarily as a result of the increase in ounces produced.

Tons increased from 448,000 in fiscal 2011 to 614,000 in fiscal 2012. Grade increased by 34% to 0.139 ounces per ton and ounces produced increased from 46,586 in fiscal 2011 to 85,618 in fiscal 2012. The average tons milled in fiscal 2012 was 46,837 tons per month, compared with 37,333 tons per month in fiscal 2011. Revenue increased by 123% to US\$144.8 million in fiscal 2012, due to the increases in production performance and the gold price year-on-year. Cash costs per ounce decreased by 36% in fiscal 2012, primarily as a result of the increase in ounces produced.

Assuming no additional reserves are identified, at expected production levels, it is foreseen that the reported proved and probable mineral reserves of 6.1 million tons (0.97 million ounces) will be sufficient for Joel to maintain underground production until approximately 2025. Any future changes to the assumptions upon which the mineral reserves are based, as well as any unforeseen events affecting production levels, could have a material effect on the expected period of future operations.

**Capital Expenditure:** We incurred R160 million (US\$18.1 million) in capital expenditures at Joel in fiscal 2013. This was mainly on ongoing capital requirements (R42.7 million (US\$4.8 million)) and the start-up of the 137 Decline Project (R75.9 million (US\$8.6 million)). Capital budgeted for fiscal 2014 is R 133.3 million (US\$13.4 million), primarily for ongoing capital development and the 137 Decline Project.

### Kusasalethu

**Introduction**: Kusasalethu is located near Carletonville on the Gauteng/North West border in South Africa. The assets and associated liabilities were purchased during fiscal 2001 for approximately R1 billion (US\$128.4 million) from Anglogold. Ore from the operation is treated at the Kusasalethu plant.

During October 2012, an interim workers committee organized an illegal strike at the operation. This was resolved following Chamber of Mines negotiations. Subsequent to the return to work during November 2012, sporadic incidents of illegal sit-ins and mass meetings occurred threatening the security and safety of the employees and operation. A decision was taken on December 20, 2012 to close Kusasalethu mine indefinitely. On January 7, 2013, Harmony announced that Kusasalethu would be placed on care and maintenance and that a Section 189 process would be initiated. On February 14, 2013 a ground breaking agreement was signed between all stakeholders calling for co-existence and the reopening of the mine. The start-up plan for the mine commenced on February 15, 2013 in a phased process.

**History**: Gold mining began at Kusasalethu in 1978 following approval of the project in 1974 by Elandsrand Gold Mining Company. Two surface shafts and two adjoining sub-vertical shafts were sunk at Elandsrand. The sub-vertical shafts at Elandsrand, which accessed the deeper part of the Ventersdorp Contact Reef (the **VCR**) the lease area, were completed in 1984. The deepening of the sub-vertical shafts to approximately 3,600 meters below surface has been completed after the deepening project was commissioned in 1991. Activities are currently focused on accessing and opening up areas of the new mine and on the development and construction of support infrastructure.

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**Geology**: At Kusasalethu we primarily exploit the VCR and the Elsburg Reef. Only the VCR is economic to mine and has been mined at depths below surface between 1,600 and 3,300 meters at the Kusasalethu operations. The VCR consists of a narrow (20 centimeters to 2 meters) tabular orebody of quartz pebble conglomerates hosting gold, with extreme lateral continuity. The VCR strikes east-northeast and has a regional dip of 21 degrees to the south-southeast. Local variations in dip are largely due to the terrace-and-slope palaeotopography surface developed during VCR deposition.

**Mining Operations**: The Kusasalethu mine is subject to the underground mining risks detailed in the Risk Factors section.

The Kusasalethu mine has the challenge of developing a new mine underneath the original mine after the shaft was deepened to access the deeper part of the VCR orebody. The operation is hampered by the lack of flexibility, and is being addressed in fiscal 2014 to 2017 by increasing the development profile. Due to the operating depths of the Kusasalethu underground operations, ventilation and refrigeration, seismicity and high rock stress are significant risks at the mine. Steps were taken during fiscal 2012 to improve the quality of the pre-conditioning at the stope face and seismic management systems so as to reduce the possibility of face ejection during small, volatile seismic events. Kusasalethu s sub-shaft has a hoisting capacity of 180,000 tons per month.

Dewatering from Deelkraal on 98 level is currently in progress and dewatering on 102 level will commence during fiscal 2014. Commissioning of 109 and 113 levels bulk air coolers will be completed by January 2014. The second escape from 115 to 75 level is in progress, with completion scheduled for January 2014.

In terms of grades, Kusasalethu has now reached an area of localized enrichment although the higher grade is diluted by waste being hoisted with reef and delivered to the plant. A decision to rehabilitate the shaft orepass system after major scaling took place inside these excavations resulted in only one orepass system being available for production. Estimates are that the rehabilitation work will be completed by December 2016.

Currently, 70% of production at Kusasalethu is from production areas below 100 level (the new mine expansion project) and 30% from production areas in the top mine, above 100 level. This ratio is planned to be maintained over the next five years.

The labor disruptions and the decision to close Kusasalethu temporarily had a significant effect on the production during fiscal 2013. By June 30, 2013, production had almost returned to normal levels.

In fiscal 2013, Kusasalethu operations accounted for approximately 8% (14% in 2012 and 14% in 2011) of Harmony s total gold production.

**Safety**: Regrettably, Kusasalethu recorded two fatalities during fiscal 2013 (fiscal 2012: four). The LTIFR improved to 4.25 (fiscal 2012:5.57). The mine achieved 2 million fall-of-ground fatality-free shifts and 1 million fatality-free shifts during the year. Kusasalethu plant also recorded an injury-free fourth quarter of fiscal 2013. The focus on safety and health at Kusasalethu remains a priority. Pre-planning sessions, including both stoping and development, have been escalated to senior level, with all department heads attending.

Seismicity remains a risk on Kusasalethu and the mine introduced in-stope netting through the Chamber of Mines Mining Industry Occupational Safety and Health ( **MOSH** ) initiative in fiscal 2012 to reduce fall-of-ground injuries. All stope panels on Kusasalethu are equipped with in-stope netting and bolting. The focus on proper pre-conditioning of all stope panels remains a priority.

**Plant**: The ore from the operation is sent to Kusasalethu Plant for processing. See *Item 4*. *Information on the Company Business Metallurgy Kusasalethu Plant* for a discussion on the plant.

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### **Production analysis:**

	Fiscal Year Ended June 30,		une 30,
Kusasalethu	2013	2012	2011
Production			
Tons ( 000)	784	1,320	1,212
Recovered grade (ounces/ton)	0.112	0.137	0.149
Gold produced (ounces)	88,093	181,105	180,334
Gold sold (ounces)	86,742	178,726	185,510
Results of operations (\$)			
Product sales ( 000)	137,477	298,671	253,812
Cash cost ( 000)	168,162	185,254	189,090
Cash profit ( 000)	(30,685)	113,417	64,722
Cash costs			
Per ounce of gold (\$)	1,951	1,046	1,008
<b>Capex</b> ( 000) (\$)	47,559	53,486	54,335

Tons milled from Kusasalethu decreased from 1,320,000 in fiscal 2012 to 784,000 in fiscal 2013. Ounces produced decreased by 51% in fiscal 2013 to 88,093, with an 18% decline in recovered grade. The decline in gold production is due to the unrest in labor relations with the concomitant shaft closure. The average tons milled in fiscal 2013 was 59,228 tons per month, compared with 100,323 tons per month in fiscal 2012.

Revenue was 54% lower at US\$137.5 million in fiscal 2013, mainly due to labor unrest that hampered the production in fiscal 2013. Cash costs per ounce increased by 87% to US\$1,951/oz as a result of the decrease in ounces produced due to the labor disruptions as well as the increase in average labor rates of 8.67% and the electricity increases of 9.6%. Electricity rates are expected to continue rising by an estimated 9.6% annually for the next two years.

Tons milled from Kusasalethu were 1,320,000 in fiscal 2012, compared with 1,212,000 in fiscal 2011. Ounces produced increased to 181,105 in fiscal 2012, compared with 180,344 in fiscal 2011 as a result of increased volumes in production. Mining continues in the old, upper areas of the mine, while the new mine project was completed. Recovered grades decreased during fiscal 2012, resulting in an average of 0.137 ounces per ton in fiscal 2012, compared to the average of 0.149 ounces per ton in fiscal 2011. The average tons milled in fiscal 2012 was 100,323 tons per month, compared with 101,000 tons per month in fiscal 2011.

Revenue was 18% higher at US\$298.7 million in fiscal 2012, mainly due to the higher average gold price. The increase in labor rates of 6.5% and the higher than normal electricity increases of 25% approved by NERSA were the main contributors to the increased cash cost. The increase in electricity costs, labor rates and inflation were the main contributors to the increase in cash cost from US\$1,008 per ounce in fiscal 2011 to US\$1,046 per ounce in fiscal 2012.

Assuming no additional reserves are identified, at expected production levels, it is foreseen that the reported proved and probable mineral reserves of 39.9 million tons, or 6.94 million ounces, will be sufficient for the Kusasalethu shaft to maintain underground production until approximately calendar year 2040. Any future changes to the assumptions upon which the mineral reserves are based, as well as any unforeseen events affecting production levels, could have a material effect on the expected period of future operations.

**Capital Expenditure**: Harmony incurred R419.5 million (US\$47.5 million) in capital expenditure at the Kusasalethu operation in fiscal 2013, mainly for ongoing development (53%) and equipment maintenance (39%). Harmony

budgeted R509.5 million (US\$51.1 million), for capital expenditure at the Kusasalethu operation in fiscal 2014, primarily for ongoing development expenditure.

## Masimong

**Introduction**: Masimong is located in the Free State Province, near Riebeeckstad. The Masimong complex comprises an operating shaft, 5 Shaft, and a second shaft, 4 Shaft, which, although closed, is used for ventilation, pumping and as a second outlet.

**History**: Masimong is located in the Free State Goldfield on the south-western edge of the Witwatersrand Basin. The Company purchased the Masimong complex (formerly known as Saaiplaas Shafts 4 and 5) during September 1998.

Geology: Masimong is located in the Free State Goldfield, to the east of the De Bron Fault. The reef mostly dips towards the west at 20 degrees, although Masimong is structurally complex and dips of up to 40 degrees have been measured. The operation exploits the Basal Reef, which varies from a single pebble lag to channels on more than two meters thick (although the thicker channels greater than one meter were only seen on Masimong 4 in the Steyn facies). It is commonly overlain by shale, which thickens northwards and completely disappears again north of the North dyke. Masimong is also mining secondary reefs, most notably the B Reef (140 meters above Basal). The B Reef is a highly channelized orebody. Within the channels, grades are excellent, but this falls away to nothing outside of the channels. Consequently, the operation has undertaken extensive exploration to locate these pay channels.

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Mining Operations: The operations are subject to the underground mining risks detailed in the Risk Factors section. Due to the shallow to moderate depths of the underground operations, seismicity related problems are relatively infrequent. We regularly revisit our mining strategy and management procedures in connection with our efforts to mitigate risks of these problems. There is a risk of subterranean water and/or gas intersections in some areas of the mine. However, this risk is mitigated by active and continuous management and monitoring, which includes the drilling of boreholes in advance of faces. Where water and/or gas are indicated in the drilling, appropriate preventative action is taken. Mining is conducted at depths ranging from 1,518 meters to 2,142 meters. Ore is treated at the Harmony 1 Plant, approximately 23 kilometers away. 5 Shaft has a hoisting capacity of 120,000 tons per month.

Grade remains challenging at Masimong, due to the variability of the B Reef. Further difficulty was experienced with respect to grade in 2013. This was due primarily to problems experienced with contamination after the re-commissioning of the waste transfer system, together with a decline in MCF over the year and lower grades from the B Reef as from February 2013. Management has undertaken to focus on clean mining in the September 2013 quarter in order to improve the MCF.

The planned compressor move which started during fiscal 2013 will assist in reducing the amount of air lost from the compressor running from Saaiplaas 3 shaft and 4 Shaft. When the project is completed, the compressor in the remote shaft can be switched off. Maintenance on the seven kilometer pipe line will then not be necessary and the effectiveness of the compression system will be improved.

The fatal accident on March 6, 2013 had a negative impact on production on the shaft, not only due to the stoppage of the shaft after the accident but subsequent slow start-up in production for the remainder of the fiscal year.

The mine received integrated ISO 14001, OHSAS 18000 and ISO 9000 certification during the year.

The project to convert Company hostels into quality family rental units was showcased during the year when the Masimong 4 hostel conversion was officially opened. This formed part of the municipal spatial development framework focused on urban renewal.

In fiscal 2013, Masimong accounted for approximately 10% (8% in fiscal 2012 and 11% in fiscal 2011) of our total gold production.

**Safety**: Regrettably, Masimong recorded one fatal accident in fiscal 2013 (2012: nil). The LTIFR improved significantly to 7.31 per million hours worked (2012: 13.52). In spite of the fatality in March 2013, there was a major improvement in all other safety parameters. The mine also recorded more than 2.5 million fall-of-ground fatality-free shifts, as well as 1.5 million fatality-free shifts.

**Plant**: The ore from the operation is sent to Harmony One Plant for processing. See *Item 4*. *Information on the Company Business Metallurgy Harmony One Plant* for a discussion on the plant.

# **Production analysis:**

	Fiscal Ye	Fiscal Year Ended June 30,		
Masimong Shaft Complex	2013	2012	2011	
Production				
Tons ( 000)	958	1,029	957	

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0.121	0.101	0.144
116,256	103,526	137,605
115,679	102,978	139,437
185,886	173,652	189,716
110,484	108,583	108,172
75,402	65,069	81,544
960	1,057	788
19,339	26,771	25,446
	116,256 115,679 185,886 110,484 75,402	116,256       103,526         115,679       102,978         185,886       173,652         110,484       108,583         75,402       65,069         960       1,057

Tons milled from Masimong decreased by 7% to 958,000 in fiscal 2013, compared with 1,029,000 in fiscal 2012 primarily due to the split of waste and reef tons. Recovered grade increased as a result of the commissioning of the waste transfer system to 0.121 ounces per ton from 0.101 ounces per ton in fiscal 2012. Ounces produced increased by 12% to 116,256 in fiscal 2013, compared with 103,526 in fiscal 2012. Year-on-year gold production increased due to an increase in grade, although this was offset by the decrease in the production volumes. The average tons milled in fiscal 2013 was 79,833 tons per month, compared with 85,750 tons per month in fiscal 2012.

Revenue increased from US\$173.6 million in fiscal 2012 to US\$185.9 million in fiscal 2013. The increase in ounces sold as a result of the increase in the recovered grade was the main contributor to the increase in revenue. Cash costs per ounce decreased by 9% mainly as a result of the increase in ounces produced. This was, however, partially offset by the increases in labor costs (the annual labour rate increases between 7.5% and 10%) and the 9.6% increase in electricity tariffs in fiscal 2013. Cash costs per ounce at US\$960 in fiscal 2013 compared with US\$1,057 in fiscal 2012.

Tons milled from Masimong increased by 8% to 1,029,000 in fiscal 2012, compared with 957,000 in fiscal 2011, and ounces produced were 103,526 in fiscal 2012, compared with 137,605 in fiscal 2011. Year-on-year gold production decreased due to a decrease in grade, which declined from 0.144 ounces per ton in fiscal 2011 to 0.101 ounces per ton in fiscal 2012. The reduction in grade was due to damage to the reef pass system that resulted from wear and tear. Subsequently the reef and waste were transported through the existing waste pass system while re-development of the reef system was done. This resulted in dilution of grade from underground. The average tons milled in fiscal 2012 was 85,750 tons per month, compared with 79,750 tons per month in fiscal 2011.

Revenue decreased from US\$189.7 million in fiscal 2011 to US\$173.6 million in fiscal 2012. The decrease in recovered grade was the main contributor to the decrease in revenue; however, this was partially negated by an increase in the average gold price received. Cash costs per ounce increased by 34% from US\$1,057 in fiscal 2012 compared with US\$788 in fiscal 2011. The biggest contributors to the increase were the increase in labor costs (the annual labor rate increases between 7.5% and 10%) and the 25% increase in electricity tariffs. These increases were partially offset by the 11% increase in the R/US\$ exchange rate.

Assuming no additional reserves are identified, at expected production levels, it is foreseen that the reported proved and probable mineral reserves of 9.1 million tons (1.26 million ounces) will be sufficient for the Masimong shaft complex to maintain underground production until approximately fiscal 2026. Any future changes to the assumptions upon which the reserves are based, as well as any unforeseen events affecting production levels, could have a material effect on the expected period of future operations.

**Capital Expenditure**: Masimong incurred approximately R170.6 million (US\$19.3 million) in capital expenditures in fiscal 2013, largely spent on the compressor move to 5 Shaft and building a medical hub on-site. We have budgeted a total of R157 million (US\$15.8 million) for capital expenditure at Masimong in fiscal 2014, primarily for ongoing capital development, completion of the compressor move and medical hub, as well as an overhead electrical line between 4 Shaft and 5 Shaft.

### Phakisa

**Introduction**: We acquired Phakisa when we, in January 2002, acquired the Freegold operations from Anglogold through a 50% joint venture with ARMGold. In September 2003, we acquired 100% of these operations when ARMGold became a wholly-owned subsidiary. The operation is located in the Free State Province. Production from the operations is processed through Harmony 1 Plant. First production took place during September 2007, with a build-up to full production expected by fiscal 2014.

**History**: Exploration, development and production history in the area of the Freegold assets dates from the early 1900 s, leading to commercial production by 1932. Subsequent consolidation and restructuring led to the formation of Free State Consolidated Gold Mine (Operations) Limited, which became a wholly-owned subsidiary of Anglogold in June 1998.

Sinking at Phakisa started in February 1994 and was suspended in May 1999, 2,357 m below collar. It was acquired by Harmony in 2002 and sinking recommenced in July 2003. The mine came into production in fiscal 2008.

**Geology**: The operation is located in the Free State goldfield, which is on the south-western edge of the Witwatersrand basin. The goldfield is divided into two sections, cut by the north-south striking De Bron Fault. The Phakisa mine is located to the west of the De Bron Fault. Mining is conducted in the Basal Reef. The reefs generally dip towards the east.

**Mining Operations**: These operations are subject to the underground mining risks detailed in the Risk Factors section. The management teams regularly revisit their mining strategy and management procedures in order to minimize risks.

The shaft depth is currently at 2,427 meters below collar. The Sub 75 decline expansion project, consisting of five levels, will enable the mine to operate to a depth of some 2,643 metres below collar with a monthly capacity of 72,000 tons. The decline sinking will commence in July 2014. Phakisa includes the Nyala shaft, five kilometres away, which is used to hoist rock and as a second escape route. All rock is transported via a rail system on 55 level to the Nyala shaft for hoisting to surface. Phakisa produces 1,800 tons of ice per day, resulting in water temperatures of <14°C which, in turn, improved both ventilation and productivity. The production build-up was affected by the failure of the shaft lining, brattice wall and certain buntons sets within

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sections of the Freddies no. 3 ventilation shaft during fiscal 2013. The failure resulted in the surface fan at the ventilation shaft having to be stopped and alternative temporary ventilation solutions had to be sought until the rehabilitation is completed towards the end of December 2013. This also had an impact on the commissioning of the fridge plants on 55 level. Ventilation and cooling the shaft adequately until the ventilation shaft is commissioned remains a challenge.

Development at Phakisa is currently centered close to the shaft in the lower-grade areas. The major drive is on developing the area to the north to access higher-grade zones and move closer to the average reserve grade. Grades will improve further as development progresses towards the north and more reef is exposed in the major north-west to south-east trending Basal Reef payshoot. Grade variability remains a risk. Opening up face length quickly to the north high grade blocks is a challenge but will mitigate the variability of the grade.

The underground fire that occurred in fiscal 2013 was sealed off immediately and production resumed in other unaffected areas. Following the sealing off of the fire, the affected areas were abandoned.

The mine received integrated ISO 14001, OHSAS 18000 and ISO 9000 certification during fiscal 2012. Phakisa maintained the certification during fiscal 2013.

During fiscal 2013, Phakisa accounted for 7% (6% in 2012 and 4% in 2011) of our total gold production.

**Safety**: The LTIFR for fiscal 2013 was 8.80 per million hours worked (2012: 8.87). Regrettably, one fatality was recorded during the year (2012: none). Phakisa also recorded 2.5 million fall-of-ground fatality-free shifts during the year, as well as a three-year fatality-free period in the fall-of-ground, development and rail-bound equipment categories. Notably, the strong improvement in safe use of rail-bound equipment reflects both internal initiatives and the mine s success as an implementation site for the related MOSH initiative. Management is also concentrating on reducing fall-of-ground incidents by implementing best-practice standards.

**Plant**: The ore from the operation is sent to Harmony One Plant for processing. See *Item 4*. *Information on the Company Business Metallurgy Harmony One Plant* for a discussion on the plant.

	Fiscal Year Ended June 30,		une 30,
Phakisa	2013	2012	2011
Production			
Tons ( 000)	565	575	427
Recovered grade (ounces/ton)	0.139	0.142	0.133
Gold produced (ounces)	78,225	81,695	56,649
Gold sold (ounces)	77,902	81,276	57,227
Results of operations (\$)			
Product sales ( 000)	124,984	136,953	78,831
Cash cost ( 000)	111,349	103,338	67,658
Cash profit ( 000)	13,635	33,615	11,173
Cash costs			
Per ounce of gold (\$)	1,428	1,279	1,200
<b>Capex</b> ( 000)	38,252	38,925	52,866

Tons milled decreased from 575,000 tons in fiscal 2012 to 565,000 tons in fiscal 2013, with ounces produced decreasing from 81,695 ounces to 78,255 ounces. This reflects the impact of the underground fire and failure of the

Freddies no.3 ventilation shaft. Grade was lower in fiscal 2013 at 0.139 ounces per ton, compared to 0.142 in fiscal 2012. The average tons milled in fiscal 2013 was 47,083 tons per month, compared with 47,917 tons per month in fiscal 2012.

Revenue was 9% lower at US\$124.9 million in fiscal 2013 as a result of lower production. Cash costs per ounce for Phakisa were US\$1,428 per ounce in fiscal 2013, compared with \$1,279 per ounce in fiscal 2012. This increase is primarily attributable to the decrease in tons mined, as well as the increase in cost of labour and electricity.

Tons milled increased from 427,000 tons in fiscal 2011 to 575,000 tons in fiscal 2012, with ounces produced increasing from 56,649 ounces to 81,695 ounces. This was as a result of the planned ramp-up in production during the year. Grade was higher in fiscal 2012 at 0.142 ounces per ton, compared to 0.133 in fiscal 2011. The average tons milled in fiscal 2012 was 47,917 tons per month, compared with 35,583 tons per month in fiscal 2011.

Revenue was 74% higher at US\$136.9 million in fiscal 2012 as a result of the higher average gold price received and the increase in production. Cash costs per ounce for Phakisa were US\$1,279 per ounce in fiscal 2012, compared with \$1,200 per ounce in fiscal 2011. This increase is primarily attributable to the increase in tons mined, as well as the cost of employees transferred to Phakisa from shafts that were closed during fiscal 2011.

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Assuming no additional reserves are identified, at expected production levels, it is foreseen that the reported proved and probable mineral reserves of 22.2 million tons (4.56 million ounces) will be sufficient for the Phakisa shaft to, once production commences, maintain production until approximately fiscal 2034. Any future changes to the assumptions upon which the reserves are based, as well as any unforeseen events affecting production levels, could have a material effect on the expected period of future operations.

**Capital Expenditure**: We incurred approximately R337 million (US\$38.2 million) in capital expenditures at the Phakisa operations in fiscal 2013, mainly for the expansion project and ongoing development. We have budgeted R336 million (US\$33.6 million) for capital expenditures in fiscal 2014, primarily for ongoing capital development, abnormal and shaft capital.

### Target 1

**Introduction**: We acquired Target 1 when Avgold became a wholly-owned subsidiary in fiscal 2004. Target 1 is situated in the town of Allanridge in the Free State Province, some 270 kilometers southwest of Johannesburg. Located on the northern limit of the Welkom Goldfields, the site is accessed via the R30 motorway situated between the towns of Bothaville and Welkom.

**History**: Target 1 was initially explored through surface drilling in the late 1980s with further exploration being undertaken from a 5.6 kilometer-long decline, commenced in 1995, driven from 203L at Loraine No. 1 Shaft. A positive feasibility study into the development of a 105 ktpm operation was produced in May 1998 resulting in the decision to develop Target 1. A detailed mine design was produced in 2000 and the mine officially opened in May 2002. Upon closure of the Loraine mine in August 1998, the Loraine No. 1 and No. 2 Shafts were transferred to the Target mine, becoming Target No. 1 and No. 2 Shafts, respectively. No 5 Shaft being the up-cast Ventilation Shaft.

**Geology**: The gold mineralization currently exploited by Target 1 is contained within a succession of Elsburg and Dreyerskuil quartz pebble conglomerate reefs hosted by the Van Heeverrust and Dreyerskuil Members of the Eldorado Formation, respectively. Additional mineral resources have been delineated in the Big Pebble Reefs of the Kimberley Formation but these are not planned to be exploited in the current life-of-mine plan.

The majority of the mineral reserves at Target 1 are contained within the Eldorado Fan, a structure with dimensions of some 135 meters vertically, 450 meters down-dip and 500 meters along strike. The Eldorado Fan is connected to the subsidiary Zuurbron Fan by a thinner and lower grade sequence of Elsburg Reefs termed the Interfan area. To the north of the Eldorado Fan, a number of fans have been intersected by surface drilling of which the Siberia and Mariasdal Fans are the most significant. These fans are subject to ongoing technical studies and do not form part of the current Target 1 life-of-mine mineral reserve.

A number of faults that displace the reefs of Target 1 have been identified, of which the most prominent are the north-south trending Eldorado Fault and the east-west trending Dam and Blast Faults. The Eldorado uplifts the more distal portions of the Elsburg and Dreyerskuil Reefs while the Blast Fault forms the northern border of Target 1.

Target North is sub-divided into the Paradise, Siberia and Mariasdal areas by the east-west trending Siberia and Mariasdal Faults. To the north of the Siberia Fault, the Eldorado Fault continues trending more to the northwest and an additional north-south trending fault, the Twin Fault has uplifted the distal portions of the reefs. North of the Mariasdal Fault, the reef horizons are at a depth greater than 2,500 meters below surface. Resources have been delineated on strike up to 15 kilometers north of Target 1 mine.

Approximately 40 kilometers north of Target 1, surface boreholes have intersected gold bearing reefs in the Oribi area close to the town of Bothaville. Resources have been delineated at Oribi on the VCR and Elsburg at depths of approximately 2,750 meters below surface.

**Mining operations**: Target is subject to the risks associated with underground mining detailed in the Risk Factors section. The management teams regularly revisit their mining strategy and management procedures in order to minimize risks.

Mining operations at Target 1 comprise one primary underground mine, with a depth of approximately 2,420 meters and a hoisting capacity of 99,200 tons per month. The shaft was commissioned in May 2002, making use of information systems and mechanization, combined with process-driven organizational design that relies on a multi-skilled workforce. The majority of the production is derived from mechanized mining; however, conventional stoping is still employed primarily to de-stress areas ahead of the mechanized mining.

After solid results during the first three quarters of fiscal 2013, the loading from the massive stopes was severely hampered in the fourth quarter by large rocks. This was as a result of the high volume of pillars that was being mined in high stress zones left in Block 1 & 2. This also negatively affected the availability of massive stopes which, in turn, affected the mining mix. With ventilation and cooling issues resolved, all eight narrow-reef, conventional mining crews were in production by the end of fiscal 2013; the average mining grade achieved in the narrow-reef areas was also higher than expected, which in conjunction with the higher grades in the massives stopes resulted in an increase in MCF year on year by 2%. Collectively, this has enabled Target 1 to perform consistently and manage its ore reserves better, which is crucial to the mine s success.

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In fiscal 2013, Target 1 accounted for 11% (9% in fiscal 2012 and 8% in fiscal 2011) of our total gold production.

**Safety**: Reflecting the concerted effort in recent years to improve safety, Target 1 recorded a third consecutive fatality-free year. In the third quarter of fiscal 2013, Target 1 achieved three consecutive accident-free months as well as 54 consecutive months rail bound equipment injury-free. Target plant also recorded three injury-free quarters, while the shaft recorded an injury-free third quarter during fiscal 2013. The LTIFR regressed 78% to 3.66 per million hours worked (2012: 2.06) as a result of a challenging fourth quarter. The mine also achieved more than 1.5 million fall-of-ground fatality-free shifts as well as 1.5 million fatality-free shifts.

**Plant**: The ore from the operation is sent to Target Plant for processing. See *Item 4*. *Information on the Company Business Metallurgy Target Plant* for a discussion on the plant.

### **Production analysis:**

	Fiscal Year Ended June 30,		
Target 1	2013	2012	2011
Production			
Tons ( 000)	790	869	805
Recovered grade (ounces/ton)	0.161	0.134	0.127
Gold produced (ounces)	127,542	116,708	102,110
Gold sold (ounces)	126,191	117,190	102,594
Results of operations (\$)			
Product sales ( 000)	203,388	196,397	140,363
Cash cost ( 000)	106,221	110,031	102,690
Cash profit ( 000)	97,167	86,366	37,673
Cash costs			
Per ounce of gold (\$)	842	940	968
<b>Capex</b> ( 000) (\$)	37,521	33,290	42,059

Tonnages milled from Target 1 decreased significantly from 869,000 tons in fiscal 2012 to 790,000 tons in fiscal 2013. This decrease was mainly due to the loadings from the massive stopes being hampered by large rocks created by the high stress zones in Block 1 & 2. Maintenance of the average mining grades and continuing focus on clean-up and clean mining resulted in an improved recovery grade, which increased significantly from 0.134 ounces per ton in fiscal 2012 to 0.161 ounces per ton in fiscal 2013. Ounces produced increased by 9% to 127,542 in fiscal 2013, primarily as a result of higher grade massive stopes that were mined in the remaining pillars of Block 1 & 2. The average tons milled in fiscal 2013 was 65,833 tons per month, compared with 72,147 tons per month in fiscal 2012.

Revenue increased to US\$203.4 million in fiscal 2013 as a result of the higher average gold price and the increase in ounces produced. Cash costs per ounce decreased from US\$940/oz in fiscal 2012 to US\$842/oz in fiscal 2013. This was mainly due to improved production from higher grade in the massive stopes and a reduction in cash costs.

Cash costs for Target 1 were US\$106.2 million in fiscal 2013, compared with US\$110 million in fiscal 2012. This decrease was primarily attributed to a decrease in maintenance costs on Target 1 compared to fiscal 2012 where unscheduled maintenance on load-haul dumpers ( **LHDs** ) and dump trucks negatively impacted on cash costs.

Tonnages milled from the Target 1 operations increased significantly from 805,000 tons in fiscal 2011 to 869,000 tons fiscal 2012. Ounces produced increased by 14% to 116,708 in fiscal 2012, primarily as a result of an increase in tons

milled and the increase in the recovered grade. Maintenance of the average mining grades, and continuing focus on clean-up and clean mining resulted in an improved recovery grade which increased from 0.127 ounces per ton in fiscal 2011 to 0.134 ounces per ton in fiscal 2012. The average tons milled in fiscal 2012 was 72,147 tons per month compared with 67,083 tons per month in fiscal 2011.

Revenue increased from US\$140.4 million in fiscal 2011 to US\$196.4 million in fiscal 2012 as a result of the higher average gold price and the increase in ounces produced.

Cash costs for Target 1 were US\$110.0 million in fiscal 2012, compared with US\$102.7 million in fiscal 2011. This increase was primarily attributed to an increase in electricity costs and increased maintenance costs on Target 1 due to unscheduled maintenance on LHDs and dump trucks. Cash costs per ounce were US\$940 in fiscal 2012, compared with US\$968in fiscal 2011. This decrease was due to an increase in ounces produced.

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Assuming no additional reserves are identified, at expected production levels and, at the current planned gold price, it is foreseen that the reported proved and probable mineral reserves of 9.8 million tons (1.48 million ounces) will be sufficient for Target to maintain underground production until approximately 2024. Any future changes to the assumptions upon which the mineral reserves are based, as well as any unforeseen events affecting production levels, could have an effect on the expected period of future operations.

Capital Expenditure: Target 1 incurred approximately R331 million (US\$37.5 million) in capital expenditures in fiscal 2013, principally for ongoing capital development (R192 million (US\$21.8 million)), development of Block 3 (R33 million (US\$3.7 million)) and the replacement of production vehicles (R43 million (US\$4.9 million)). We have budgeted R292 million (US\$29.2 million) in fiscal 2014, principally for ongoing capital development and the replacement of production vehicles.

# Target 3

**Introduction:** Target 3 (previously Loraine 3) and Freddies 7 & 9 shafts were acquired from Pamodzi FS in February 2010. Target 3 is situated near the town of Allanridge in the Free State Province, some 270 kilometers southwest of Johannesburg. Located on the northern limit of the Welkom Goldfields, the site is accessed via the R30 motorway situated between the towns of Bothaville and Welkom.

**History:** Numerous corporate actions since the 1940 s until the 1990 s saw the Loraine 3 and Freddies 7 & 9 shafts change ownership a number of times. Previous owners include the Free State Development and Investment Corporation, Johannesburg Consolidated Investment, Avgold and Anglogold. In 1998, PSGM was formed after purchasing Loraine 3 and Freddies 7 & 9 shafts from various individuals. During 2002, the mine was sold to Thistle Mining Inc, an international company with interests in the Philippines and South Africa. The mine struggled to make operational profits, and Thistle undertook a restructuring program in 2006, which together with an increase in the Rand gold price resulted in positive operational cash flows. In February 2008, PSGM was purchased by Pamodzi FS. The mine was operated from that time until March 2009, when Pamodzi FS was placed into liquidation.

**Geology**: At Target 3 Shaft there remains a mix of remnant ore blocks including shaft pillar blocks where scattered mining can be exploited, and a number of areas of virgin ground where conventional mining can take place, with the potential to exploit zone 3 in the Freddies 9 Shaft area.

The gold mineralization currently exploited by Target 3 is contained within the Basal Reef, B Reef, A Reef (Kimberly Formation) and Elsburg Reef, a succession of Elsburg a pebble conglomerate reefs hosted by the Van Heeverrust (Eldorado Formation). Synclinal fold forms the major structural feature and is manifested as an asymmetric syncline whose axis trends N 15° W, with a general plunge of 10 - 12° north.

The dip of the western limb of the syncline is often in excess of 55° eastwards, however, due to local faulting and minor folding the reefs may be vertical in places. Below the EA1 Reef, all zones and reefs subcrop against either the Boulder Beds (Uitkyk) or against EA (van den Heeversrust) reefs. The lower EA Reefs (EA1-EA8) subcrop against either higher EA Reefs or Boulder Beds, while the upper reefs (EA12-EA15) generally appear to become more conformable with the Boulder Beds (Uitkyk). The subcrop areas also reveal evidence of alternating transgressive and regressive episodes in a relatively short space of geologic time. Below the EA1 Reef the underlying Rosedale Beds of the Eldorado Formation, the Aandenk Formation and the Dagbreek Formation all appear conformable with one another, although subtle very low angle unconformities exist between each one.

The eastern limb of the syncline has an almost constant dip of  $10^{\circ}$  to  $25^{\circ}$  dipping to the west, similar to that of the Uitkyk Beds.

North-south trending thrust faults (Rheedersdam Fault), which are confined to the western margin of the Goldfield and may have formed in response to either compressional forces or extensional forces.

The Spes Bona thrust faults of which two are major reverse faults both plunge to the north and attenuate northwards. To the south of 3 Shaft these reverse fault systems persist through the southern boundary of Loraine, and tie up with the Phillippi Fault, encountered near the western boundary of Freddies and eventually the Rheedersdam Fault. These faults displace the Basal Reef and cuts through an older set of faults which have their relative downthrows to the east. The set of Spes Bona thrust faults taken together as a reverse fault system still represent a major structural deformity.

The Target 3 Shaft ore body has characteristics that suit massive mining techniques in the Eldorados which enable design to be centered on a mechanized operation, utilizing employees from Target 1 skilled in this type of mining, to produce gold at low cash costs.

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Mining operations: Target 3 is subject to the risks associated with underground mining detailed in the Risk Factors section. The management teams regularly revisit their mining strategy and management procedures in order to minimize risks. The depth of the mine is approximately 2,174 metres and the hoisting capacity increase from 36,000 tons to 64,000 tons after the Barlow winder was commissioned. On the B-Reef, pre-development reef drives are being used to identify high grade zones, similar to the approach employed by Masimong.

Infrastructure improvements and shaft build-up continued during fiscal 2013. This included a new belt on 71 level to facilitate build-up of the sub-shaft on the higher grade Basal Reef. The improvements have resulted in better control of spillages and loading time of ore. Target 3 is currently busy with the installation of the measuring flask and loading bins on level 71 that will increase the hoisting capacity from 21,000 tons to 40,000 tons and eliminate spillage completely. The rock hoist winder up-grade in the sub-shaft has been completed.

Although challenges remain in improving sub-shaft conditions, the new fridge plant has supported access to more panels in the sub-shaft, contributing in turn to higher grades. Mining on non-critical development ends was halted at the interim stage, improving the recovery grade. Higher grades are expected when volumes mined from the sub-shaft increase.

In fiscal 2013, Target 3 accounted for 5% of our total gold production, compared to 3% in fiscal 2012 and 2% in fiscal 2011.

**Safety**: Reflecting the concerted effort in recent years to improve safety, Target 3 recorded a third consecutive fatality-free year. The LTIFR regressed by 16% to 8.75 per million hours worked (2012: 7.57). Target 3 achieved 1 million fatality-free shifts and 1 million fall-of-ground fatality-free shifts in fiscal 2013.

**Plant**: The ore from the operation is sent to Target Plant for processing. See *Item 4*. *Information on the Company Business Metallurgy Target Plant* for a discussion on the plant.

## **Production analysis:**

	Fiscal Year Ended June 30,		Tune 30,
Target 3	2013	2012	2011
Production			
Tons ( 000)	355	348	83
Recovered grade (ounces/ton) <sup>(1)</sup>	0.147	0.104	0.106
Gold produced (ounces) <sup>(1)</sup>	52,277	36,106	25,882
Gold sold (ounces) <sup>(1)</sup>	51,859	36,298	26,718
Results of operations (\$)			
Product sales ( 000)	83,573	60,799	14,120
Cash cost ( 000)	57,635	55,123	13,987
Cash profit ( 000)	25,938	5,676	133
Cash costs			
Per ounce of gold (\$) <sup>(1)</sup>	1,116	1,523	1,513
<b>Capex</b> ( 000) (\$\)	16,444	11,527	20,732

(1)

During fiscal 2011, 17,073 ounces were produced by Target 3 prior to it being considered to be in production. The revenue, amounting to US\$24.8 million, has been credited against capital expenditure as the shaft was not considered to be in commercial production. The cost of these ounces has not been included in the cash cost per ounce amount. The calculation of grade also excludes these ounces.

Tonnages milled increased from 348,000 tons in fiscal 2012 to 355,000 tons in fiscal 2013. Maintenance of the average mining grades and increased grades in B and Basal Reefs in the sub-shaft resulted in an improved recovery grade which increased from 0.104 ounces per ton in fiscal 2012 to 0.147 ounces per ton in fiscal 2013. In fiscal 2013 ounces produced increased by 45% to 52,277 ounces, primarily as a result of an increase in the recovered grade. The average tons milled in fiscal 2013 was 29,583 tons per month, compared with 29,000 tons per month in fiscal 2012.

Revenue increased to US\$83.6 million in fiscal 2013 as a result of the increase in ounces produced. Cash costs per ounce decreased from US\$1,523/oz in fiscal 2012 to US\$1,116/oz in fiscal 2013. This was mainly due to the increase in production from the sub-shaft. Cash costs for Target 3 were US\$57.6 million in fiscal 2013, compared with US\$55.1 million in fiscal 2012. This increase was primarily attributed to an increase in electricity costs of 9.6% as well as an increase in labour to meet the production profile. Cash costs per ounce were US\$1,116/oz in fiscal 2013, compared with US\$1,523/oz in fiscal 2012. This decrease was due to the increase in ounces produced as a result of the improved recovered grade in fiscal 2013.

Tonnages milled from the Target 3 operations increased significantly from 83,000 tons in fiscal 2011 to 348,000 tons in fiscal 2012. Ounces produced increased by 40% to 436,106 in fiscal 2012, primarily as a result of the build-up in production at Target 3. Recovery grade decreased marginally from 0.106 ounces per ton in fiscal 2011 to 0.104 ounces per ton in fiscal 2012. The average tons milled in fiscal 2012 was 29,000 tons per month, compared with 6,917 tons per month in fiscal 2011.

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Cash costs for Target 3 were US\$55.1 million in fiscal 2012, compared with US\$13.9 million in fiscal 2011. This increase was primarily attributed to an increase in electricity costs, earlier than planned labour transfers to Target 3 from other Harmony operations to avoid retrenchments, and an increase in production. Cash costs per ounce were US\$1,523 in fiscal 2012, compared with US\$1,513 in fiscal 2011. This increase was due to higher labor, electricity and maintenance costs which were offset with the increase in production in fiscal 2012.

Assuming no additional reserves are identified, at expected production levels and, at the current planned gold price, it is foreseen that the reported proved and probable mineral reserves of 7.3 million tons (1.26 million ounces) will be sufficient for Target 3 to maintain underground production until approximately 2029. Any future changes to the assumptions upon which the mineral reserves are based, as well as any unforeseen events affecting production levels, could have an effect on the expected period of future operations.

**Capital Expenditure**: Target 3 incurred approximately R145 million (US\$16.4 million) in capital expenditures in fiscal 2013, principally for ongoing capital development (R56 million (US\$6.3 million)) the remainder was utilized for upgrading of engineering infrastructure. In fiscal 2014 we plan to spend R78 million (US\$7.8 million) on capital development and R78 million (US\$7.8 million) on upgrading and maintenance of the infrastructure.

## **Tshepong**

**Introduction**: We acquired Tshepong when we, in January 2002, acquired the Freegold operations from Anglogold through a 50% joint venture with ARMGold. In September 2003, we acquired 100% of these operations when ARMGold became a wholly-owned subsidiary. These operations are located in the Free State Province.

**History**: Exploration, development and production history in the area of the Freegold assets dates from the early 1900 s, leading to commercial production by 1932. Subsequent consolidation and restructuring led to the formation of Free State Consolidated Gold Mine (Operations) Limited, which became a wholly-owned subsidiary of Anglogold in June 1998.

**Geology**: The operation is located in the Free State Goldfield, which is on the south-western edge of the Witwatersrand basin. The Tshepong mine is located to the north and west of Welkom. Mining is primarily conducted in the Basal Reef, with limited exploitation of the B Reef. The reefs generally dip towards the east or northeast while most of the major faults strike north-south.

**Mining Operations**: The operation is subject to the underground mining risks detailed in the Risk Factors section. The management teams regularly revisit their mining strategy and management procedures in order to minimize risks.

Mining is conducted at depths ranging from 1,671 and 2,245 meters at Tshepong. The grade at Tshepong is sensitive to stoping width, and this is rigorously controlled by the under-cut mining method used at this mine.

The sub-71 project, which will connect Tshepong with Phakisa, remains on track. This project extends the existing double decline from 71 to 76 level to enable mining on both 73 and 75 levels. The project s goal is to sink the decline to 76 level by June 2013 and this was achieved on target. Secondary support and construction work is estimated to complete by June 2014. Reef and waste in the decline area cannot be split at this point in time, due to the infrastructure in the decline area not being completed yet, which currently affects belt and therefore recovered grade.

Production was impacted by several labor disruptions during the June 2013 quarter, as well as by the closure of a section linked to Phakisa for ten days as a result of the underground fire at Phakisa. The fatality during the year resulted in four lost shifts in Section 114 due to the DMR stoppage and did not result in a stoppage for the entire mine.

During fiscal 2013, approximately 80% of the mining in Tshepong was on the edges of the main high-grade pay shoot. As mining continued south and north the grade values continue to be erratic and marginal. The continuation of the main higher grade pay shoot will be mined in the decline area once Sub 71 decline reaches full production and will have a positive effect on the average mining grade going forward.

The mine received integrated ISO 14001, OHSAS 18000 and ISO 9000 certification during fiscal 2012 and will be recertified in 2015. Compliance is monitored annually.

During fiscal 2013, Tshepong accounted for 12% (13% in 2012 and 16% in 2011) of our total gold production.

**Safety**: The overall safety performance improved, with LTIFR at 8.67 (2012: 12.54) per million hours worked. There was, regrettably, one fatality during the year (2012: two). Tshepong also recorded 1 million fatality-free shifts and more than 1.9 million fall-of-ground fatality-free shifts during fiscal 2013.

**Plant**: The ore from the operation is sent to Harmony One Plant for processing. See *Item 4*. *Information on the Company Business Metallurgy Harmony One Plant* for a discussion on the plant.

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### **Production analysis:**

	Fiscal Year Ended June 30		une 30,
Tshepong	2013	2012	2011
Production			
Tons ( 000)	1,147	1,359	1,481
Recovered grade (ounces/ton)	0.116	0.125	0.140
Gold produced (ounces)	133,554	169,980	207,950
Gold sold (ounces)	132,944	169,177	209,976
Results of operations (\$)			
Product sales ( 000)	213,869	285,644	287,257
Cash cost (000)	161,756	164,197	167,742
Cash profit (000)	52,113	121,447	119,515
Cash costs			
Per ounce of gold (\$)	1,212	973	810
<b>Capex</b> ( 000) (\$)	35,195	37,068	39,030

Tons milled during fiscal 2013 decreased year on year by 16% to 1,147 tons in fiscal 2013 compared with 1,359 tons in fiscal 2012. Production during the year was impacted by inefficiencies related to long travelling distances between workplaces and the shaft. During the fourth quarter of fiscal 2013, Tshepong was affected by the fire at Phakisa, during which a section was sealed off and subsequently could not produce. Gold production decreased by 21% from 169,980 ounces in fiscal 2012 to 133,554 ounces in fiscal 2013. During fiscal 2013, the grade was negatively impacted by the lower-grade areas mined around the payshoot. The recovery grade decreased to 0.116 in fiscal 2013 compared with 0.125 in fiscal 2012. The decrease in the average mining grade is in line with the life-of-mine profile. The average tons milled in fiscal 2013 was 95,583 tons per month, compared with 113,250 tons per month in fiscal 2012.

Revenue decreased by 25% to US\$213.9 million in fiscal 2013, primarily as a result of the lower ounces produced and sold. Cash costs for Tshepong were US\$161.8 million in fiscal 2013, compared with US\$164.2 million in fiscal 2012. Cash costs were primarily impacted by the annual increase in the costs of labor (7.5% to 10%) and the increase in electricity rates of 9.6% as well as the effect of inflation on costs of materials and supply contracts. Cash costs per ounce were US\$1,212 in fiscal 2013, compared with US\$973 in fiscal 2012. The increase in unit cost is attributable primarily to the decrease in the number of ounces of gold produced.

Tons milled decreased from 1,481,000 to 1,359,000 in fiscal 2012. Production output was disrupted by two fatal accidents during the year, as well as safety-related stoppages imposed by the DMR. Gold produced was 18% lower in fiscal 2012 at 169,980 ounces. This decrease was due to the lower tons mined, as well as the decrease in the recovery grade. The average tons milled in fiscal 2012 was 113,250 tons per month, compared with 123,417 tons per month in fiscal 2011.

Revenue reduced by 0.5% to US\$285.6 million in fiscal 2012. Cash costs for Tshepong were US\$164.2 million in fiscal 2012, compared with US\$167.7 million in fiscal 2011. Cash costs per ounce US\$973 in fiscal 2012, compared with US\$810 in fiscal 2011. The increase in unit cost is attributable primarily to the decrease in the number of ounces of produced. The increase in cash costs were primarily due to increases in the cost of labor, increased in electricity as well as the effect of inflation on costs of material and supply contracts.

Assuming no additional reserves are identified, at expected production levels and, at the current planned gold price, it is foreseen that the reported proved and probable mineral reserves of 24.2 million tons (3.8 million ounces) will be sufficient for Tshepong to maintain underground production until approximately 2029. Any future changes to the assumptions upon which the mineral reserves are based, as well as any unforeseen events affecting production levels, could have an effect on the expected period of future operations.

**Capital Expenditure**: Tshepong incurred approximately R310 million (US\$35.2 million) in capital expenditure during fiscal 2013. The expenditure was primarily for the decline project, ongoing development and the building of a medical hub on site. For fiscal 2014 capital expenditure of R276.4 million (US\$27.7 million) is planned, primarily for ongoing capital development, the decline project, purchase of rescue packs for all underground employees, as well as a surface refrigeration project.

#### Unisel

**Introduction**: Unisel is located in the Free State Province, near Virginia. Unisel formed part of operations which also included the original Harmony mines, Brand shafts 1 and 3. By the end of fiscal 2011, only Unisel was still in operation, following the closure of Merriespruit 1 during December 2010. Mining is conducted at Unisel at depths ranging from 1,000 meters to 2,000 meters. Ore is treated at the Harmony 1 Plant.

**History**: Our operations in the Free State began with the Harmony mine, which is an amalgamation of the Harmony, Virginia and Merriespruit mines. Beginning in 1996, we began purchasing neighboring mine shafts. The Unisel mine was purchased in September 1996, the Saaiplaas mine Shafts 2 and 3 were purchased in April 1997, the Brand mine Shafts 1, 2, 3 and 5 were purchased in May 1998. Of these operations, Unisel is the sole remaining producer.

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**Geology**: The Unisel operation is located in the Free State Goldfield on the south-western edge of the Witwatersrand Basin. The basin, situated on the Kaapvaal Craton, has been filled by a 6 kilometer thick succession of sedimentary rocks, which extends laterally for hundreds of kilometers. The Free State goldfield is divided into two sections, cut by the north-south striking De Bron Fault.

Unisel is situated to the west of the De Bron Fault. Dips are mostly towards the east, averaging 30 degrees but become steeper approaching the De Bron Fault. The western margin area is bound by synclines and reverse thrusts faults and is structurally complex. Towards the south and west, reefs sub-crop against overlying strata, eventually cutting out against the Karoo to the west of the lease area.

Most of the mineral resource tends to be concentrated in reef bands located on one or two distinct unconformities. A minority of the mineral resource is located on other unconformities. Mining that has taken place is mostly deep-level underground mining, exploiting the narrow, generally shallow dipping tabular reefs.

The Basal Reef is the most common reef horizon. It varies from a single pebble lag to channels of more than two meters thick. It is commonly overlain by shale, which thickens northwards. To the south, the shale is not developed. The second major reef is the Leader Reef, located 15-20 meters above the Basal Reef. Further north, it becomes poorly developed with erratic grades. The reef consists of multiple conglomerate units, separated by thin quartzitic zones, often totaling up to 4 meters thick. A selected mining cut on the most economic horizon is often undertaken.

The Middle Reef, a secondary reef, is mined at Unisel where it comprises approximately 5% of the shaft production. The Middle Reef is a localized channel deposit and lies at irregular elevations between the Basal and the Leader reef.

Mining Operations: The operations are subject to the underground mining risks detailed in the Risk Factors section. Due to the shallow to moderate depths of the underground operations, seismicity related problems are relatively infrequent with the exception of the deeper areas on the eastern margin of the operations where the problem receives constant attention. We regularly revisit our mining strategy and management procedures in connection with our efforts to mitigate risks of these problems. There is a limited risk of subterranean water locally and/or gas intersections in some areas of the mine. However, this risk is mitigated by active and continuous management and monitoring, which includes the drilling of boreholes in advance of faces. Where water and/or gas are indicated in the drilling, appropriate preventative action is taken. The principal challenges at the operations of achieving optimal volumes and grades of ore production are addressed by stringent mineral reserve management.

At Unisel, both Basal and Leader Reef development produced good results by focusing on areas in the E block. Although the cooling project has been completed, environmental restraints remain a concern. Middle Reef development is focused primarily on level 12 in the decline after which the focus will move to level 13. No development was undertaken on the A or B Reefs. Overall, the shaft produced reserves on the Basal and Leader Reefs. Future development will continue to focus more on the better-grade E block and portions of the Brand 5 shaft pillar. Focus on underground environmental conditions and ongoing training of crews led to an increase in tons produced

In fiscal 2013, the Unisel operation accounted for approximately 5% (4% in fiscal 2012 and 5% in fiscal 2011) of Harmony s total gold production.

**Safety:** Unisel recorded an improved performance across several safety indicators during the year, reflecting the benefits of an improved relationship with organised labour. The safety record during fiscal 2013 improved to an LTIFR of 12.27 (2012: 15.83) per million hours worked. Regrettably there was one fatality during fiscal 2013 (2012: one). Unisel recorded over 1.7 million fall-of-ground fatality-free shifts during fiscal 2013.

**Plant**: The ore from the operation is sent to Harmony One Plant for processing. See *Item 4*. *Information on the Company Business Metallurgy Harmony One Plant* for a discussion on the plant.

### **Production analysis:**

	Fiscal Year Ended June 30,		June 30,
Unisel Operations	2013	2012	2011
Production			
Tons ( 000)	492	434	500
Recovered grade (ounces/ton)	0.118	0.118	0.125
Gold produced (ounces)	58,289	51,216	62,661
Gold sold (ounces)	58,000	51,056	63,497
Results of operations (\$)			
Product sales ( 000)	93,483	86,454	86,693
Cash cost ( 000)	64,307	63,609	62,999
Cash profit (000)	29,176	22,845	23,694
Cash costs			
Per ounce of gold (\$)	1,111	1,253	1,009
Capex ( 000) (\$)	8,833	9,150	11,373

Tons milled from the Unisel operation improved to 492,000 in fiscal 2013, compared with 434,000 in fiscal 2012, and ounces produced improved to 58,289 in fiscal 2013, compared with 51,216 in fiscal 2012. This is mainly attributable to the improvement in our production year on year as a result of improved conditions in the E block and the ongoing training program conducted at Unisel, while our recovered grade stayed constant from fiscal 2012 to 2013 at 0.118 ounces per ton. The average tons milled in fiscal 2013 was 41,000 tons per month, compared with 36,167 tons per month in fiscal 2012.

Revenue increased from US\$86.5 million in fiscal 2012 to US\$93.5 million in fiscal 2013. The increase is mainly due to the increase in tons milled and ounces produced. Cash costs increased marginally by 1% in fiscal 2013 to US\$64.3 million in fiscal 2013, compared with US\$63.6 million in fiscal 2012. The increase was mainly due to the increase in our production from fiscal 2012 to 2013. Cash costs per ounce were US\$1,111 in fiscal 2013, compared with US\$1,253 in fiscal 2012. This decrease was attributable primarily to an improvement in our ounces produced by 14% for fiscal 2013.

Tons milled from the Unisel operation decreased to 434,000 in fiscal 2012, compared with 500,000 in fiscal 2011, and ounces produced were 51,216 in fiscal 2012, compared with 62,661 in fiscal 2011. This is mainly attributable to the safety stoppages by the DMR and a slow start up after the Christmas break. The recovered grade decrease from 0.125 ounces per ton in fiscal 2011 to 0.118 ounces per ton in fiscal 2012. The slightly higher recovered grade year on year did not contribute significantly to the lower ounces produced. The average tons milled in fiscal 2012 was 36,167 tons per month, compared with 41,667 tons per month in fiscal 2011.

Cash costs increased by 1% in fiscal 2012 to US\$63.6 million, compared with US\$62.9 million in fiscal 2011. Cash costs per ounce were US\$1,253 in fiscal 2012, compared with US\$1,009 in fiscal 2011. This increase was attributable primarily to an 18% drop in ounces produced for fiscal 2012.

Assuming no additional reserves are identified, at expected production levels, it is foreseen that the reported proved and probable mineral reserves of 3.1 million tons (0.39 million ounces) will be sufficient for the Unisel operation to maintain production until approximately 2019. However, any future changes to the assumptions upon which the reserves are based, as well as any unforeseen events affecting production levels, could have a material effect on the expected period of the future operations.

**Capital Expenditure**: Unisel incurred approximately R78 million (US\$8.8 million) in capital expenditures at the Unisel operation in fiscal 2013, principally for ongoing capital development. We have budgeted R79 million (US\$7.9 million) in fiscal 2014. The majority of this capital will be spent on the ongoing development capital, major equipment repairs/replacements and shaft projects, as well as the hostel privatization project.

## Metallurgy

Harmony has eight metallurgical plants in South Africa. Details are discussed below.

### Doornkop Plant

The Doornkop metallurgical plant, commissioned in 1985, is a conventional CIP plant, which was used to treat waste rock and other surface accumulations. It is now treating all ore from underground mining at the Doornkop and some of the ore from Gold One s Cooke operations. The plant is serviced by a surface rail network from the Cooke shafts and by a conveyor belt configuration system from Doornkop shaft. During fiscal 2010 a split-stream configuration for the milling thickening and thickener underflow process that isolates the Doornkop ore from the ore from Gold One, which is treated in terms of a toll agreement, was adopted to improve the accuracy of gold accounting to the respective companies.

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The following table sets forth processing capacity and average tons milled during fiscal 2013 for the Doornkop plant:

		Average Milled for the Fiscal Year Ended
Plant	<b>Processing Capacity</b>	June 30, 2013
	(tons/month)	(tons/month)
Doornkop Plant	242,500	163,738

In fiscal 2013, the Doornkop plant recovered approximately 94.82% of the gold contained in the ore delivered for processing.

## Harmony One Plant

The ore from Bambanani, Tshepong, Masimong, Unisel and Phakisa is sent to Harmony One Plant for processing. This plant, which processes underground ore, waste rock and various surface accumulations, was commissioned in 1986 and is a conventional CIP plant processing ore that has been milled by fully-autogenous grinding. Gold is recovered from the eluate solution using zinc precipitation and a precoat vacuum filter. The precipitate recovered from the filter is calcined and smelted to bullion.

The following table sets forth processing capacity and average tons milled during fiscal 2013 for the Harmony One Plant:

		Average Milled for the
		Fiscal Year
		Ended
Plant	<b>Processing Capacity</b>	June 30, 2013
	(tons/month)	(tons/month)
Harmony One Plant	390,000	368,779

In fiscal 2013, Harmony One Plant recovered approximately 94.99% of the gold contained in the ore delivered for processing.

### Joel Plant

The Joel Plant is a hybrid CIP/CIL plant and was commissioned in 1987. During fiscal 2005, it was decided to close the Joel Plant and place the plant under care and maintenance. Joel Plant was re-commissioned in November 2009 and during fiscal 2013 the plant processed an average of 50,929 tons per month with two mills. This comprised 100% reef. The current monthly capacity is 80,000 tons of rock.

The following table sets forth processing capacity and average tons milled during fiscal 2013 for the operating plant:

Plant Processing Capacity Average Milled for the Fiscal Year Ended

 June 30, 2013

 (tons/month)
 (tons/month)

 Joel Plant
 80,000
 50,929

In fiscal 2013, the Joel Plant operations recovered approximately 94.96% of the gold ore delivered for processing.

# Kalgold Plant

Ore is trucked from the pit at Kalgold and is directly tipped into the feed bin of the pre-primary crusher or stockpiled. The ore then undergoes a four phase crushing process before it reaches the Dome stockpile. Three ball mills are used to grind the ore down to less than 75 micron for the leaching process. The plant was evaluated by a team of internal and external experts, which then prepared an action plan to address outstanding maintenance and implement improvements. The activities include replacing the carbon in-leach tanks. The plant refurbishment project will be completed in third quarter of fiscal 2014.

The following table sets forth processing capacity and average tons milled during fiscal 2013 for the plant:

		Average Milled for the
		Fiscal Year
		Ended
Plant	<b>Processing Capacity</b>	June 30, 2013
	(tons/month)	(tons/month)
CIL	145,000	116,515

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In fiscal 2013, the plant at our Kalgold operations recovered approximately 81.46% of the gold contained in the ore delivered for processing.

### Kusasalethu Plant

Commissioned in 1978, the Kusasalethu Plant consists of milling in closed circuit with primary and secondary hydrocyclones, thickening and cyanide leaching in a CIP pump cell carousel circuit. The CIP was commissioned after an upgrade of the facility in 1999. Ore from Kusasalethu underground operations is delivered to the plant for treatment via conveyor belt after being hoisted from underground. Loaded carbon from the Kusasalethu Plant is transported by road to the Kinross Plant (at Evander, which was sold in February 2013) for elution, electro-winning and smelting to produce gold. During fiscal 2013 construction of an elution plant was started and was commissioned in September 2013. Elutions from the Kinross Plant will be phased out systematically from the second quarter of fiscal 2014. Residues from the CIP are pumped either to a backfill plant or directly to the tailings facility.

The following table sets forth processing capacity and average tons milled during fiscal 2013 for the plant:

		Average Milled for the
		Fiscal Year
		Ended
Plant	<b>Processing Capacity</b>	June 30, 2013
	(tons/month)	(tons/month)
Kusasalethu Plant	165,000	59,228

In fiscal 2013, the Kusasalethu Plant recovered approximately 96.0% of the gold contained in the ore delivered for processing.

## Target Plant

The ore from Target 1 and Target 3 is sent to Target Plant for processing. Target Plant was commissioned in November 2001 and currently treats both underground ore and surface sources, which include both waste rock dump and plant clean up material. The process route comprise of a closed circuit SAG mill as well as a closed circuit ROM mill. Both these mills are in closed circuit with hydro-cyclones. The milling circuit is followed by thickening, cyanide leaching, CIP adsorption, elution, electro-winning, smelting and tailings disposal. Both the milling circuits are incorporated in the gravity concentration circuit and the concentrates from this circuit are processed via intensive cyanidation and electro-winning.

The following table sets forth processing capacity and average tons milled during fiscal 2013:

		Average Milled for the
		Fiscal Year
		Ended
Plant	<b>Processing Capacity</b>	<b>June 30, 2013</b>
	(tons/month)	(tons/month)
Target Plant	105,000	98,445

In fiscal 2013, the Target Plant recovered approximately 96.35% of the gold contained in the ore delivered for processing.

### Other Surface

**Introduction**: Other Surface consists of Kalgold, Phoenix and the other tailings retreatment operations. As the results of operations for Other Surface consist primarily of the results from Kalgold and Phoenix, these two operations are discussed separately.

### Kalgold

**Introduction**: Harmony s only opencast mining operation in South Africa is the Kalgold gold mine that is situated 60 kilometers south of Mahikeng in the North West Province of South Africa.

**History**: Harmony acquired Kalgold on July 1, 1999 and fully incorporated Kalgold into its existing operations in October 1999. Prior to Harmony s acquisition of the Kalgold mine, the mine had already been in operation for three years.

**Geology**: The Kalgold operation is located within the Kraaipan Greenstone Belt. This is part of the larger Amalia-Kraaipan Greenstone terrain, consisting of north trending linear belts of Archaean meta-volcanic and metasedimentary rocks, separated by granitoid units. Mineralization occurs in shallow dipping quartz veins, which occur in clusters or swarms, within the

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steeply dipping magnetite-chert banded iron formation. Disseminated sulphide mineralization, dominated mostly by pyrite, occurs around and between the shallow dipping quartz vein swarms. The D Zone is the largest orebody encountered and has been extensively mined within a single open-pit operation, along a strike length of 1,300m. Mineralization has also been found in the Mielie Field Zone (adjacent to the D Zone), the A Zone and A Zone West (along strike to the north of the D Zone), and the Watertank and Windmill areas to the north of the A Zone.

**Mining Operations**: The Kalgold operation is engaged in open-pit mining. This operation is subject to the opencast mining risks detailed in the Risk Factors section. Small subterranean water intersections in the pit are common and are actively managed and appropriate action is taken when necessary. The primary mining challenges at the Kalgold operations of achieving optimal volumes and grades of ore production are addressed by stringent mineral reserve management. The processing design capacity of the Kalgold operation is 165,345 tons per month.

Volumes at Kalgold increased by 4% in fiscal 2013, due to improved availability of the pre-primary crusher for fiscal 2013. Gold produced increased by 28% to 42,825 ounces. The Kalgold plant was evaluated by a team of internal and external experts, which then prepared an action plan to address outstanding maintenance and implement improvements. A project to replace the carbon in-leach tanks was commissioned in the first quarter of fiscal 2013. The plant paving footprint project started in the fourth quarter of fiscal 2013 and will be completed in the second quarter of fiscal 2014. Two replacement mills were bought to replace the current A&B mills; this project and the plant refurbishment project will be completed in third quarter of fiscal 2014.

The Watertank pit was mined out in fiscal 2013 and all mining activities moved to A zone pit with full production from only A zone pit from the third quarter of fiscal 2013. All planned mining volumes for fiscal 2013 were exceeded. Harmony continued with brownfields exploration in areas surrounding the Kalgold operation.

In fiscal 2013, the Kalgold operations accounted for approximately 4% (3% in fiscal 2012 and fiscal 2011) of our total gold production.

**Safety**: The Kalgold operations recorded another fatality-free year during fiscal 2013. The Kalgold operations had a LTIFR of 3.87 (2012: 1.27) per million hours worked in fiscal 2013. Kalgold also recorded more than 1.5 million fatality-free shifts during the year.

**Plant**: The ore from the operation is sent to Kalgold Plant for processing. See *Item 4*. *Information on the Company Business Metallurgy Kalgold Plant* for a discussion on the plant.

#### **Production analysis:**

	Fiscal Year Ended June 30,		
Kalgold	2013	2012	2011
Production			
Tons ( 000)	1,542	1,480	1,775
Recovered grade (ounces/ton) <sup>(1)</sup>	0.028	0.023	0.023
Gold produced (ounces) <sup>(1)</sup>	42,825	33,469	40,285
Gold sold (ounces) <sup>(1)</sup>	40,607	33,630	41,828
Results of operations (\$)			
Product sales ( 000)	64,689	56,931	57,064
Cash cost (000)	42,694	40,003	45,473

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Cash profit ( 000)	21,995	16,928	11,591
Cash costs			
Per ounce of gold (\$) <sup>(1)</sup>	1,071	1,176	1,135
Capex ( 000) (\$)	5,948	9,836	2,631

Tons milled increased from 1,480,000 in fiscal 2012 to 1,542,000 in fiscal 2013. Recovery grade improved to 0.028 in fiscal 2013 from 0.023 in fiscal 2012, primarily as a result of higher grades from the A Zone area. Ounces produced increased by 28% to 42,825 in fiscal 2013, compared with 33,469 in fiscal 2012, due to the higher volumes and improved recovery grade. The average tons milled in fiscal 2013 was 116,495 tons per month, compared with 111,865 tons per month in fiscal 2012.

Revenue increased by 14% to US\$64.6 million in fiscal 2013, due to the increase in ounces produced. Cash costs per ounce decreased by 9% to US\$1,071/oz, mainly due to the higher ounces produced. Cash costs increased from US\$40.0 million in fiscal 2012 to US\$42.7 million in 2013 due to the increase in production as a result of opening the A Zone pit in fiscal 2013.

Tons milled decreased from 1,775,000 in fiscal 2011 to 1,480,000 in fiscal 2012. Ounces produced decreased by 17% to 33,469 in fiscal 2012, compared with 40,285 in fiscal 2011, due to the lower volumes. This decrease was due to breakdown in pre-primary crusher in the first quarter of 2012. The average tons milled in fiscal 2012 was 111,865 tons per month, compared with 134,187 tons per month in fiscal 2011.

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Revenue decreased from US\$57.1 million in fiscal 2011 to US\$56.9 million in fiscal 2012, mainly due to the decrease in ounces produced; however, the decrease in production was offset due to the higher average gold price received. Cash costs decreased from US\$45.4 million in fiscal 2011 to US\$40.0 million in 2012. Cash costs per ounce increased by 4% in fiscal 2012 to US\$1,176/oz, mainly due to the lower ounces produced.

Assuming no additional reserves are identified and at expected production levels, it is foreseen that the reported proved and probable mineral reserves of 26.5 million tons (0.76 million ounces) will be sufficient for the Kalgold operations to maintain production until approximately fiscal 2028. However, any future changes to the assumptions upon which the reserves are based, as well as any unforeseen events affecting production levels, could have a material effect on the expected period of future operations.

**Capital Expenditure**: Harmony incurred approximately R52 million (US\$5.9 million) in capital expenditures at the Kalgold operations in fiscal 2013, primarily for plant refurbishment. Harmony budgeted R68 million (US\$6.8 million) for capital expenditures in fiscal 2014, primarily for plant refurbishment.

#### **Phoenix**

**Introduction**: Phoenix is a tailings retreatment operation, located at Virginia and adjacent to our current and historical mining operations in the Free State Province. The Saaiplaas plant is used for the treatment of the material from this project. During the year, Harmony entered into agreements to dispose of 30% of the operation to BEE shareholders. The transaction was concluded on June 25, 2013. Refer to note 34 of the consolidated financial statements for details on the accounting treatment of the transaction.

**History**: The project commenced during fiscal 2007 and is aimed at treating the surface sources from our operations in the Free State Province.

**Safety**: Safety at the Phoenix operations improved year-on-year in fiscal 2013 with no lost time injuries reported. LTIFR improved to 0 per million hours worked from 2.54 per million hours worked in fiscal 2012. There were no fatalities during fiscal 2013 (2012: none). The plant recorded 2,455 reportable injury-free days in fiscal 2013.

**Plant**: The Saaiplaas Plant, commissioned in the late 1950 s, has been converted from the zinc precipitation filter process to the CIL. During 2007, the ROM mills were de-commissioned and the plant started treating slime from Dam 22 and Brand A tailings storage facilities. The plant currently processes reclaimed slime at 6 million tons per annum.

The following table sets forth processing capacity and average tons milled during fiscal 2013 for the Saaiplaas plant:

Average Milled for the Fiscal Year Ended

Plant Processing Capacity (tons/month) (tons/month)

Saaiplaas Plant 500,000 446,493

In fiscal 2013, Saaiplaas Plant recovered approximately 43.4% of the gold contained in the material delivered for processing.

**Mining operations**: Phoenix, which began five years ago, involves retreating around 6 million tons annually at plant capacity. Phoenix operations were severely hampered by residue deposition dam stability concerns resulting in tonnage reduction to 423,000tpm upon recommendation from the consultants. A major capital project to construct a new cyclone dam on the St Helena 1, 2, 3 dam footprint for depositing the full plant residue tonnage at 500,000tpm was completed and commissioned during March 2013.

A new standalone compressor plant was installed as a partially ESKOM funded project to save power consumption and costs, was commissioned successfully in August 2012.

Plant recovery dropped from 46.3% to 43.4% year-on-year, due to slow gold dissolution through the CIL circuit resulting in high soluble gold losses increasing from 0.021g/t in fiscal 2012 to 0.030g/t in fiscal 2013. Plans to increase processed volumes up to 992,000 tons per month, at which rate the life of the project is around 12 years, remain on hold pending further investigation and consideration of options involving potentially converting Central plant to slime treatment when the surface sources are depleted.

During fiscal 2013, Phoenix accounted for 2% of our total gold production (2% in fiscal 2012 and 1.5% in fiscal 2011).

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### **Production analysis:**

	Fiscal Year Ended June 30,		
Free State (Phoenix)	2013	2012	2011
Production			
Tons ( 000)	5,908	5,509	5,846
Recovered grade (ounces/ton)	0.005	0.005	0.003
Gold produced (ounces)	26,588	26,427	18,937
Gold sold (ounces)	25,882	26,749	18,873
Results of operations (\$)			
Product sales ( 000)	41,397	44,939	25,847
Cash cost ( 000)	25,497	25,981	20,761
Cash profit ( 000)	15,900	18,958	5,086
Cash costs			
Per ounce of gold (\$)	986	966	1,141
Capex ( 000) (\$)	17,690	3,800	3,108

Tons milled increased by 7.24% year on year to 5,908,000 tons attributed to the early commissioning of the new cyclone residue dam. Ounces produced increased from 26,427 ounces in fiscal 2012 to 26,588 in fiscal 2013 as a result of the increase in tons milled. The recovered grade remained consistent at 0.005 in fiscal 2013.

Revenue decreased by 7.9% to US\$41.4 million in fiscal 2013 as a result of the decrease in the average gold price received in fiscal 2013. Cash costs per ounce in fiscal 2013 were US\$986/oz, compared with US\$966/oz in fiscal 2012, due to an increase in labor costs, the increase in electricity tariffs of 9.6%, and the increase in the cost of reagents.

Tons treated from Phoenix decreased to 5,509,000 fiscal 2012, compared with 5,846,000 in fiscal 2011. Ounces produced increased to 26,427 in fiscal 2012, compared with 18,937 in fiscal 2011, primarily due to the improved gold dissolution and recovery. The recovered grade improved to 0.005 ounces per ton in fiscal 2012. The grade of the tons treated is dependent on the waste grade at the time at which the original deposition was done.

Revenue increased by 74% to US\$44.9 million in fiscal 2012, as a result of the higher average gold price received and the increased gold production. Cash costs were US\$25.9 million in fiscal 2012, compared with US\$20.8 million in fiscal 2011, primarily due to the higher costs of reagents, power unit cost increases, increased water pumping costs and increased mining contractor costs. Cash costs per ounce reduced during fiscal 2012 to US\$966/oz, compared with US\$1,141 in fiscal 2011, due to the improved recovery and increase in ounces produced more than offsetting the increase in cost of consumables, water pumping, contractors and electricity increases.

**Capital Expenditure**: We incurred approximately R156 million (US\$17.6 million) capital expenditure in fiscal 2013, mainly for to build the cyclone dam and also for the new standalone compressor plant. For 2014, R1 million (US\$0.1 million) is planned, mainly for the reclaim pump stations and a carbon store.

#### **Discontinued operations**

### Evander

**Introduction:** The Evander operations are located in the province of Mpumalanga in South Africa and comprise an amalgamation of the former Kinross, Bracken, Leslie and Winkelhaak mines into a mining right of 36,898 hectares, and additional adjacent prospecting rights comprising 19,933 hectares. Ore is treated at the Kinross plant. An agreement in principle to sell the Evander operations was signed on May 30, 2012. All conditions precedent in the sales agreement were met and the sale of the Evander operations to Pan African was concluded on February 28, 2013.

**History:** Gold mining in the Evander Basin began in 1955. Eventually, four mining operations were established at Evander. In 1996, as a result of the depletion of mineral reserves, all four mining areas were merged to form Evander Gold Mines Limited. In August 1998, Harmony acquired Evander as a wholly-owned subsidiary.

**Geology:** The area covered by Evander s mining authorization and mineral rights is situated within the Evander basin, a geologically discrete easterly extension of the main Witwatersrand Basin. Only one economic reef type, the Kimberley Reef, is mined at Evander. In addition to the faulting of the reef horizon, there are numerous dykes and sills that complicate the mining layouts, the most significant of which is an extensively developed dolerite footwall sill that occasionally intersects the Kimberley Reef, causing displacements within it.

**Mining Operations:** Due to the fact that the Evander mining operations were only included in the Harmony Group for eight months before the sale of operations was concluded, there is no comparative data to report for fiscal 2013. The discussion included below pertains to fiscal 2012 and fiscal 2011.

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### **Production analysis:**

	Fiscal Year Ended June 30,		
Evander	<b>2013</b> <sup>(1)</sup>	2012	2011
Production			
Tons ( $000^{3}$ )	430	704	916
Recovered grade (ounces/ton) <sup>(2)</sup>	0.146	0.154	0.096
Gold produced (ounces) <sup>(2)</sup>	62,855	108,317	87,900
Gold sold (ounces) <sup>(2)</sup>	60,862	108,123	88,544
Results of operations (\$)			
Product sales ( 000 <sup>3</sup> )	102,256	180,809	121,452
Cash cost ( $000^3$ )	63,397	98,684	26,167
Cash profit ( 000 <sup>3</sup> )	39,958	82,125	26,167
Cash costs			
Per ounce of gold (\$) <sup>(2)</sup>	1,009	919	1,070
<b>Capex</b> ( 000) (\$\frac{3}{2})	16,419	22,817	28,102

<sup>(1)</sup> Amounts include results up until the end of February 2013.

Tons milled at the Evander operations were 704,000 in fiscal 2012, compared with 916,000 in fiscal 2011, and ounces produced 108,317 in fiscal 2012 compared with 87,900 in fiscal 2011. Recovered grade was 0.154 ounces per ton in fiscal 2012, compared with 0.096 in fiscal 2011. The increase in the recovered grade was a direct result of having more mining crews in the higher grade decline section, as the ventilation constraints were relieved.

Revenue increased from US\$121.5 million in fiscal 2011 to US\$180.8 million in fiscal 2012 as a result of the increase in ounces produced. The decrease in cash costs from US\$1,070 per ounce in fiscal 2011 to US\$919 per ounce in fiscal 2012 was attributable primarily to the increase in gold ounces produced in fiscal 2012 compared to fiscal 2011 due to the improvement in recovered grade.

**Capital Expenditure:** Harmony incurred approximately R140 million (US\$16.4 million) in capital expenditures at the Evander operations in fiscal 2013. The expenditure was primarily for the re-engineering project at Evander 8 as well as ongoing development.

<sup>(1)</sup> Amounts include production from surface sources.

**International Mining Operations** 

Papua New Guinean Operations and Exploration

### Overview

**Introduction**: Fiscal 2013 was the fifth year of the Morobe Mining Joint Venture between Harmony and Newcrest. The Morobe Mining Joint Venture comprises the following three 50:50 joint ventures:

- 1. the Hidden Valley Joint Venture;
- 2. the Wafi-Golpu Joint Venture; and
- 3. the Morobe Exploration Joint Venture.

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Outside of the Morobe Province, Harmony has expanded the PNG exploration portfolio with three key projects that are 100% owned:

- 1. Mount Hagen in the Western Highlands;
- 2. Amanab in the Sandaun Province; and
- 3. Tari in the Southern Highlands Province.

In terms of regional geological setting, Harmony s tenement interests are all located within the New Guinea mobile belt. The mobile belt comprises tracts of metamorphosed Lower Jurassic and Cretaceous sediments and oceanic crust. These rocks have undergone deformation in the collision zone between the Australian and Pacific Plates and multiple intrusive events including Tertiary granodiorite and younger mineralized porphyries.

Exploration expenditure in PNG for fiscal 2013 was US\$73.2 million. This breaks down into US\$58.4 million as Harmony s 50% contribution to the Morobe Mining Joint Venture exploration program and US\$14.8 million for Harmony 100% projects. Results from exploration work have been highly encouraging, with resource drilling outlining higher grades in the upper levels of the Golpu copper-gold deposit and high-grade extensions of the deposit at depth that remain open. A number of targets with the potential for major stand-alone gold and copper/gold deposits were identified and advanced to the drill testing phase.

#### **Hidden Valley Operation**

**Introduction**: The Hidden Valley Mine is an open pit gold-silver mine and processing plant, managed by the Hidden Valley Joint Venture. Newcrest purchased an initial 30.01% interest in the project on June 30, 2008, and provided sole funding of the project to June 30, 2009 to earn a further 19.99%. On June 30, 2009 Newcrest formally achieved 50% ownership in the project, such that the project is now a 50:50 joint venture between Newcrest and Harmony.

The mine comprises a mining lease and access easement in the Wau District of Morobe Province, PNG and is located 210 kilometers north-northwest of Port Moresby and 90 kilometers south-southwest of Lae, the two largest cities in PNG. Access to the project is by sealed road from the deepwater port of Lae to Bulolo and an all-weather gravel road from Bulolo to the Hidden Valley mine site.

Two separate open pits are in operation, being Hidden Valley-Kaveroi ( **HVK** ) pit, and Hamata pit. The processing plant has been constructed to process a nominal 4.2 million tonnes (dry metric) of ore per year from the two pits.

**History**: Alluvial gold was first discovered at Hidden Valley in 1928 but it was not until the early 1980 s that the area was investigated by CRA Exploration using modern exploration techniques that resulted in the discovery of the Hidden Valley and Kaveroi gold deposits on EL 677. The Hamata deposit was discovered and first drilled by RGC Ltd in 1987 on EL497. The two tenements were subsequently acquired and combined into the one project by Australian Goldfields Ltd ( **AGF** ) in 1997. A number of feasibility studies have been prepared for the Hidden Valley Project by the various owners, including one by Abelle in 2003. Harmony extensively reviewed and updated the Abelle feasibility study during fiscal 2006 which was presented to the board during June 2006 with subsequent approval given for construction of the project. In late 2007, Harmony began a search for a partner to partake in all of our Morobe Province PNG mining and exploration activities, culminating in the selection of Newcrest in 2008.

Mining operations: The HVK pit, at an elevation of between 2,500 meters and 2,700 meters above sea level, is the larger pit supplying the majority of the ore and is located some 5 to 6 kilometers from the processing plant. Ore from HVK is delivered to the plant by an Overland Conveyor (OLC). The smaller Hamata pit is directly adjacent to the processing plant and is at an elevation of between 1,850 meters and 2,040 meters above sea level. The resources are mined in a sequence that sees the low silver, high gold Hamata ore mined in conjunction with the Hidden Valley/Kaveroi oxide/transition ores (high silver), to be followed by the Hidden Valley/Kaveroi primary ores.

A total of 4.1 million tons (100% basis) of ore was milled during fiscal 2013. All the de-bottlenecking projects in the process plant, other than the upgraded oxygen plant, were completed during the fiscal year and the facility demonstrated that the nameplate throughput of 4.6 million tons (100% basis) per annum can be sustained. Further detailed study work to better understand the scope of work and capital budget required to increase the processing plant capacity to 5.2 million tons (100% basis) per annum will be undertaken during the next 12-24 months.

Increased waste stripping (to expose the ore) in the open pit mining process was also attended to during the past financial year and the planned 2014 monthly rates were comfortably achieved every month during the last quarter of fiscal 2013.

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Throughout the past year truck haulage from the HVK pit to the processing plant supplemented the OLC to ensure that the delivery of ore to the processing plant was optimised. The project to upgrade and integrate the crusher and OLC system commenced execution during the latter half of the year and the project was in performance testing as part of the commissioning of the system at the end of fiscal 2013. It is expected that the system will achieve the planned throughput early in the next fiscal year reducing the cash cost of the operation by eliminating the truck haulage of HVK ore.

The mine produced (50% Harmony share basis) 85,007 ounces of gold and 856,309 ounces of silver during the fiscal year. Current estimates are that at annual full production over 14 years, Hidden Valley will produce (50% basis) on average 112,500 ounces of gold and 1.5 Moz of silver annually.

Hidden Valley mine was connected to the national electricity grid in fiscal 2011. The supply has steadily increased during the past financial year, with 90% of the site requirements during the last quarter of fiscal 2013 supplied from the national grid. This has resulted in a significant decrease in operational cost for the mine by reducing the diesel requirements for power generation by 80% during the past fiscal year.

All waste rock mined at Hidden Valley is either used to build the tailings storage facility or retained in waste rock dumps on site so that the potential for impacts on the environment are minimized and managed effectively. The construction of waste rock dumps in the wet, steep terrain at Hidden Valley is challenging and innovative waste dump designs are being implemented. Available waste rock dump capacity to match the targeted HVK mining rate is critical and dump construction is planned for the next fiscal year to increase available capacity.

Implementation of Hidden Valley s policy of community engagement and local employment, as well as training local employees, continued throughout the year and a review of the memorandum of agreement ( MOA ) between Hidden Valley, the landowners and the government commenced during the latter parts of the financial year.

**Geology**: The major gold-silver deposits of the Morobe Goldfield, and the Hidden Valley project are hosted in the Wau Graben. The Wau Graben developed as a back-arc rift basin in the southern extension of the New Guinea Mobile Belt (Owen Stanley Foreland Thrust Belt) covering an area of approximately 850 square kilometers in which the Morobe Goldfield, including the Hidden Valley and Hamata deposits are developed.

The Hidden Valley and Hamata Deposits are interpreted as a low-sulphidation or adularia-sericite-type epithermal gold-silver system. The Hidden Valley deposit further forms part of the carbonate-base-metal-gold subgroup, with abundant carbonate vein-gangue. Other gold-silver deposits around the Pacific Rim in this sub-group are Kelian (Indonesia), Woodlark (PNG) and Gold Ridge (Solomon Islands).

Discrete zones of intense stockwork fracture and mineralized veining comprise individual lodes. At the Hidden Valley deposit, gold and silver are related to the flat-lying Hidden Valley Zone ( HVZ ) and steeply-dipping (Kaveroi Creek Zone, KCZ ) sheeted vein swarms associated with an underlying shallow thrust. The Hamata deposit gold is contained with structurally controlled shallow dipping veins associated with sericite-pyrite alteration.

**Safety**: The implementation of a comprehensive risk management strategy at Hidden Valley is evident in the good safety performance for the year, with no fatalities (2012: none) and only one lost-time injury, resulting in an LTIFR of 0.15 (2012: 0.75). A key aspect of the risk management strategy is ensuring that each work function is undertaken within a risk management framework, and that hazards are identified and managed to maintain this safety performance.

**Plant**: The processing plant production rate is 4.2 million tonnes of ore per annum and operates using process routes that complement the metallurgical characteristics of the ore types mined. The processing plant operates as:

- (a) a primary crushing plant for the low silver Hamata ores;
- (b) a primary and secondary crushing plant for Hidden Valley / Kaveroi ore; and
- (c) a combined treatment of all ore through grinding, gravity gold recovery, flotation, flotation concentrate leaching and counter-current decantation circuit ( **CCD** ) with Merrill-Crowe zinc precipitation, CIL of flotation and CCD tailings, gold room to produce bullion bars and tailings detoxification via the INCO process.

The circuit is designed to enable discard of flotation tailings when treating primary ore only from Hidden Valley / Kaveroi orebodies. Tailings from the CCD circuit would still be subject to final treatment through the CIL circuit.

The gravity gold recovered is processed through an intensive cyanide leach followed by electro-winning circuit to produce a high quality dore product.

Gold and silver rich carbon is processed in an elution plant and precious metals are recovered in the gold room via Merrill-Crowe zinc precipitation stream independent of the CCD circuit.

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All tailings are stored in a tailings storage facility, and all water recovered is subjected to detoxification prior to being recycled or released to the environment.

The processing plant and tailings storage facility was built to meet the requirements of the International Cyanide Management Code. Gold production commenced in August 2009 and the plant is currently ramping up to targeted production.

### **Production analysis (50% basis):**

	Fiscal Ye	Fiscal Year Ended June 30,		
Hidden Valley	2013	2012	2011	
Production				
Tons milled ( $000$ )	2,033	1,948	1,852	
Tons mined ( 000))	1,964	2,205	2,167	
Recovered grade (ounces/ton)				
- Gold	0.042	0.046	0.054	
- Silver	0.420	0.440	0.401	
Gold produced (ounces)	85,007	88,800	100,246	
Silver product (ounces)	856,309	857,540	673,032	
Gold Sold (ounces)	84,299	89,315	101,017	
Results of operations (\$)				
Product sales ( 000)	134,779	149,787	139,688	
Cash cost (000)	136,443	109,595	102,294	
Cash profit ( 000)	(1,664)	40,192	37,394	
Cash costs				
Per ounce of gold (\$)	1,611	1,238	993	
Capex ( 000) (\$)	57,343	38,168	41,376	

<sup>(1)</sup> The Hidden Valley operation stockpiles low grade ore, which is accounted for as inventory. Tons milled can be greater than tons mined during the year as a result of processing these stockpile tons.

Ore tons mined decreased 11% to 1,964,000 tons in fiscal 2013. Tons milled by the plant increased from 1,948,000 in fiscal 2012 to 2,033,000 in fiscal 2013. This was despite downtime to the overland conveyor for belt repairs and extreme wet weather events during the summer adversely affecting the haulage of ore to the mill from mining operations. Ounces of gold produced decreased to 85,007 in fiscal 2013 compared with 88,800 in fiscal 2012 due to lower gold grade and lower recoveries.

Revenue decreased by 10% to US\$134.8 million in fiscal 2013 due to the lower average gold price received and lower grades recovered. Cash costs increased from US\$109.6 million in fiscal 2012 to US\$136.9 million in fiscal 2013, primarily due to increased truck haulage and increased contractor costs. Cash costs per ounce increased by 30% to US\$1,611/oz, due to the lower produced ounces, as well as the other factors mentioned above.

Ore tons mined increased 2% to 2,205,000 tons in fiscal 2012. Tons milled by the plant increased from 1,852,000 in fiscal 2011 to 1,948,000 in fiscal 2012. This was despite downtime to the overland conveyor for belt repairs and extreme wet weather events during the summer adversely affecting the haulage of ore to the mill and from mining operations. Ounces produced decreased to 88,800 in fiscal 2012 compared with 100,246 in fiscal 2011 due to lower

gold grade and lower recoveries.

Revenue increased by 7% to US\$149.8 million in fiscal 2012 due to the higher average gold price received. Cash costs increased from US\$102.3 million in fiscal 2011 to US\$109.6 million in 2012 primarily due to increased truck haulage and significant strengthening in the Kina against US dollars. Cash costs per ounce increased by 25% to US\$1,238/oz, due to the lower produced ounces, as well as the other factors mentioned above.

Assuming no additional reserves are identified, and at expected production levels, it is foreseen that the reported proved and probable mineral reserves of 2.267 million ounces of gold and gold equivalents will be sufficient for the operation to maintain production until approximately fiscal 2026. However, any future changes to the assumptions upon which the reserves are based, as well as any unforeseen events affecting production levels, could have a material effect on the expected period of future operations.

**Capital Expenditure**: Attributable capital expenditure by Harmony during the year was US\$57.3 million, which included work on approved mine development (sustaining capital) projects, further process plant debottlenecking (including the upgraded oxygen plant which will be commissioned early during the next fiscal year), new mobile equipment and the crusher and OLC upgrade. Harmony s portion of the capital budgeted for fiscal 2014 is US\$20.7 million.

### Exploration in PNG

The Morobe JV land holding comprises some 4,173 km<sup>2</sup> of tenure. The tenements sit in a broader strategic alliance area where both Harmony and Newcrest operate as JV partners. The tenement package encompasses the Wafi-Golpu and Hidden Valley projects and is a key strategic holding in the Morobe goldfields district. Although prospecting and mining activities date back to the early 1900s, the true potential of the district is only now beginning to crystallise. Fiscal 2013 exploration expenditure for the Morobe JV totaled A\$39.7 million.

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The 2013 work program focused on the Wafi-Golpu pre-feasibility study, with a significant amount of drilling (54,265m) mostly focussed the upper levels of the deposit. Outside of the Wafi-Golpu project area, greenfields exploration continued, with drill programs conducted on five separate prospects in the Morobe JV area. Exploration statistics for fiscal 2013 include:

diamond drilling; and

2,956 surface samples (soils, rock chips, trenches). The underlying strategy of the MMJV exploration program is threefold:

Wafi-Golpu:

resource definition and brownfields exploration to develop Wafi-Golpu into a second mining operation for the MMJV; and

Wafi transfer greenfields exploration targeting discovery of additional resources to expand Wafi-Golpu into a mineral district;

Hidden Valley district brownfields exploration in a 10km radius of the Hidden Valley plant to develop resources to replace mining depletion and supplement millfeed with high grade ore, and support expansion; and

regional greenfields exploration develop a project pipeline capable of delivering additional quality resources and sustaining future growth and operations in the province.

Work programs and results for these activities are detailed below.

The drilling success highlights the fact that the region is under-explored and still has significant potential for the discovery of additional multimillion-ounce gold deposits. Accordingly, the Morobe Exploration JV proposes to spend A\$74 million on exploration in fiscal 2014, of which A\$37 million will be Harmony s share. This includes drilling costs incurred on the Golpu project resource definition program.

### Wafi-Golpu Project

**Introduction**: The Wafi-Golpu JV prospect is a 50:50 joint venture with Newcrest of Australia. Harmony s ownership is through its wholly-owned subsidiary, Wafi Mining Limited. The first exploration at Wafi dates back to the nationwide porphyry copper search by CRA Exploration Ltd in the late 1960 s. Elders Resources farmed-in to the project from 1989-1991, and AGF subsequently farmed-in to the project for a short period in 1997 prior to going into administration in 1998. Aurora subsequently acquired the project from Rio Tinto (CRA) in 1999, with ownership passing to Abelle when it merged with Aurora in 2002. We assumed control of the Wafi Project by way of the

acquisition of Abelle in 2003. The project is held under 2 contiguous exploration licenses (EL 440, and EL 1105), totaling 130.5 square kilometers. The Wafi-Golpu Project comprises a porphyry and epithermal copper and gold system within a 2.5km x 2.5km area and contains numerous lodes including the Golpu copper gold porphyry, the Nambonga gold copper porphyry and the Wafi epithermal gold lodes. The Wafi gold mineralization is hosted by sedimentary/volcanoclastic rocks of the Owen Stanley Formation which surrounds the intrusive Wafi Diatreme. Gold mineralization occurs in the form of extensive high-sulphidation epithermal alteration overprinting porphyry mineralization and epithermal style vein-hosted and replacement gold mineralization with associated wall-rock alteration.

Geography: The Wafi prospect is located near Mount Watut in the Morobe Province of PNG, approximately 60 kilometers southwest of Lae and about 60 kilometers northwest of Wau. The Wafi camp is located at an elevation of approximately 400 meters above sea level in terrain that is mountainous and forested in most areas. The site is accessed by sealed road (Lae to Bulolo) which comes within 5 kilometers of the eastern edge of the tenements and 15 kilometers from the Wafi camp. From the sealed road, a 38 kilometer dirt-base access track to the prospect is accessible during most weather conditions. The site is serviced by helicopter when the road access is cut due to extreme wet weather. Watut Valley is located immediately west of the project, and the foothills of Watut Valley provide an option for placement of ore processing and mine infrastructure.

**Project Status**: The fiscal 2013 drill program undertaken at Wafi-Golpu comprised 54,000m and was undertaken in order to develop orebody knowledge for the Golpu deposit and surrounds for informing various pre-feasibility studies and development concepts.

The Wafi-Golpu deposits were developed as part of an intrusive complex localized within the Wafi transfer structure. The intrusive complex has a footprint of roughly 2.5 by 2.5 kilometer, centred on a diatreme breccia. Golpu represents a zoned multiphase porphyry copper-gold deposit off the northeastern margin of the diaterme. The potassic core (K feldspar-biotite-

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magnetite-bomite-chalcopyrite) of the mineralized porphyry grade outwards into propylitic alteration (chlorite-epidote-pyrite +/- hematite). Wafi represents a high-sulphidation epithermal gold deposit. The main gold zones defined to date are located on the southern margin of the diatreme breccia. However, the epithermal gold mineralization and its associated alteration zones are widespread, and partly overprints the upperlevels of the mineralized Golpu porphyry.

At Golpu, drilling has demonstrated better continuity of the mineralized porphyries in the upper portions of the deposit and extended the known high grade zones. Drilling in the lower portions of the deposit to better define high-grade porphyry architecture within the broader mineralized envelope is ongoing.

Away from Golpu, stepout drilling testing the Wafi epithermal gold system has provided several highly significant drill intercepts with potential to develop into new high-grade gold opportunities for the project.

The drill scope for fiscal 2014 comprises approximately 30,000m and caters for project requirements including infrastructure/orebody access, hydrogeological and geotechnical work. However, a significant component of the planned program remains focused on orebody knowledge and brownfields exploration to expand existing resources.

**Pre-feasibility study**: The key driver behind studies and early works activities in fiscal 2012 was the definition and positioning of Wafi-Golpu as a future production asset. The drilling work undertaken was to support an improved understanding of the structural framework of the porphyry copper-gold system, and to test the potential for additional high grade mineralization.

In parallel key early works site activities were progressed as a strategy to mitigate project schedule risk to first production. These activities included on going improvements to site access roads, the construction of river crossing bridges, expansion of construction camp facilities and support services, environmental permitting and community affairs.

The pre-feasibility study, completed in September 2012, presented a development approach that was considered to be capital-intensive, restricted by a long payback duration, and a high residual risk profile. These key elements were considered unfavourable to the owners and potential investors in the current and foreseeable investor climate.

Given the high capital intensity of the proposed project, a three-phase study validation and optimization process was initiated.

Phase 1 commenced in October 2012 and focused on addressing the key risks, opportunities and recommendations made by the Pre-feasibility Study Competent Independent Review Panel.

Phase 2 commenced in April 2013. At that time, Harmony and Newcrest issued a project development brief in which the capital intensity and execution strategy were reconsidered and improved through the consideration of alternative staged mine development options. This initiative considered and evaluated 22 potential options, from which four potential business cases were determined.

The options were evaluated in the context of a reduced start-up mine production rate, a reduction in the scope requirements to achieve first production, and a reconsideration of the design specification; all of which are considered key drivers to reducing the overall capital intensity of the project and the time taken to first production. In addition, a deconstruction of the project drivers, the success criteria, commercial strategy, and base cost of capital aided the assessment of the alternative development options.

The approach has resulted in a new way of thinking, geared towards defining options which maximise investor returns, and the requirements to improve the overall earned value of the study effort. The result of this approach was that the overall project development schedule envisaged in the pre-feasibility study was no longer a key driver of the project. The delivery strategy and execution plans have therefore also been reconsidered with, and all unnecessary procurement, commitments and contracting initiatives have been scaled down or terminated.

This phase culminated in a forward work plan with the following recommendations to advance the project:

long-term (4+ years): pursue the lean development of Golpu;

medium-term (2-4 years): it is considered critical to gain orebody access and commence a feasibility study, based on an optimized pre-feasibility study; and

short-term (< 2 years): it is recommended that a body of work be undertaken which addresses key risks for the Golpu business cases:

validate the scoping targets of the lean development approach;

validate lower cost execution strategies and methods;

conduct further targeted resource definition and risk mitigation drilling in the lower mine zone and selected upper mine zones;

identify potential project and third party infrastructure funding sources, aligning an execution and contracting strategy;

progress the underground access studies through a pre-feasibility and feasibility study;

progress minor site works to support underground ore body access requirements; and

establish an optimized pre-feasibility study, to be used as a foundation for a definitive feasibility study. *Wafi Transfer Structure & Regional Targets* 

**Introduction**: The Wafi structural corridor is outlined by the faulted contact between the Babwa conglomerate and the Owen Stanley metamorphics. It comprises over 17km of strike with a number of prospects defined by high tenor gold and copper-gold geochemistry in stream sediment sampling. The entire corridor ranks as a high priority target for major mineralised gold and porphyry copper-gold systems similar to Wafi Golpu.

**Geology**: The Wafi Transfer structure separates the Tertiary Babwaf conglomerate in the west from Jurassic and Cretaceous metasedimentary rocks of the Owen Stanley Metamorphic group in the east. Regional magnetics show a number of magnetic intrusive centers similar to those at the Wafi-Golpu project, and suggest excellent potential for additional mineralized porphyry copper-gold and related gold deposits.

**Project Status**: Drill programs were undertaken at the Kesiago, Zimake and Mt Tonn prospects during fiscal 2013, with target generation ongoing throughout the year.

**Kesiago Prospect (EL1103):** The Kesiago prospect lies approximately 5km south-west of Wafi-Golpu on the Wafi transfer structure. Final results were received from a nine hole drilling program and interpretation was completed in fiscal 2013.

Results indicate multiple phases of alteration and mineralization similar to Wafi-Golpu. The widespread alteration and mineralization events seen in drill core are interpreted as an extension of the Wafi-Golpu system over 3km to the south. The area between Wafi and Kesiago was highlighted for further work in fiscal 2014.

**Zimake (EL1590):** The Zimake target is a circular magnetic anomaly approximately 5km x 6km, located approximately 12 km to the north-east of Wafi Golpu. In fiscal 2012, surface geochemical sampling outlined a 1.5 km area with elevated copper and gold up to 0.2% Cu 0.5 g/t Au, and an initial drill program commenced with two holes completed by year end.

A third hole, ZIMDH003 comprising 674m was drilled in 2013 to complete first dass drill testing at the Zimake prospect. The drilling did not encounter economic mineralisation, and outlined long intervals of unaltered hornblende diorite. Minor chalcopyrite occurs as vein infill, with very weak epidote alteration. The presence of chalcopyrite may explain the surface geochemical anomaly however further drilling is targeting the potassic altered hornfelsed margin of the diorite, which may be a focus for mineralization.

Mt Tonn (EL1316): The Mt Tonn prospect lies approximately 7.5 km along strike to the southeast of Wafi-Golpu on the Wafi transfer structure. Previous geochemical sampling programs had identified several high order copper-gold anomalies coincident with magnetic anomalies.

Two holes were drilled to test this anomaly for a total of 783m. Drilling outlined a thrusted sequence of propylitic altered conglomerates and metasediments thrusted over the unaltered pliocene clastic sediments of the Babwaf conglomerate. Results are currently being interpreted in the context of a regional structural model for the Wafi Transfer.

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#### Hidden Valley ML Exploration

**Brownfields Exploration Project Status**: Work to delineate additional resources and delineate high-grade feedstock for Hidden Valley continued on the following:

generative work targeting the Watut fault commenced. 494 soil samples and 64 rock chips were collected as part of a systematic program to generate new targets along strike to the northwest of Hidden Valley;

Kerimenge-Kulang trend: Drilling was completed at Kerimenge (EL497) for a total of 2987.5m to test the depth below the main resource and its strike extensions and to collect metallurgical samples. Results have defined a flat to moderately dipping sill of low grade mineralized porphyry. A tollgate report is to be completed on the prospect along with a resource model for the mineralization; and

surface geochemical sampling and mapping of the Escarpment fault system around historic Wau mining centre. 40 line kilometres of exposed creek and road cut were mapped and 384 rock chip samples collected. Soil sampling to a total of 192 samples is 75% complete. Preliminary results are encouraging with a 1.5 by 1km zone of advanced argillic alteration identified at the 11 Peg prospect at upper Wau. Coincident surface gold geochemistry is highly anomalous in soils and is open to the north. Surface sampling and mapping to the north of the anomaly continues.

In addition, drilling to define a limestone hardrock resource began at the Limestone Project.

**Limestone Project (EL497):** Nine drill holes were completed for a total of 997.5m. Drilling tested the limestone to a depth of 200m and outlined an open ended resource area with a strike length of 850m and width of 450m. Preliminary modeling has outlined a potential hardrock limestone resource of approximately 78Mt, which could be further expanded with additional drilling.

### Other Morobe regional exploration

The highlight of the regional generative exploration activities is the Garawaria prospect which could be one of the largest and most prospective Au anomalies ever developed on the Morobe tenement package.

Drilling to follow up anomalous trenching results began and three drill holes were completed for a total of 1,478m to test the major surface gold anomaly. Results were encouraging with broad low grade intercepts in all drill holes, accompanied by elevated arsenic levels. Integration of surface mapping, geochemistry, drill and mineralogy zonation data indicate potential for high-grade structurally controlled gold-silver-arsenic mineralization to the southeast of current drilling. Drilling to test the core of the target zone has been approved with two drill holes planned.

#### 100% Harmony PNG tenements

A total of A\$14.4 million (K31.8 million) was spent on greenfields exploration outside of the Morobe JV on Harmony-owned projects in fiscal 2013 where work is now focused on two key projects:

Amanab: Located in Sandaun Province of western PNG, some 160km north of the Ok-Tedi copper-gold mine, targeting vein stockwork hosted gold mineralization; and

Tari: Located in the Southern Highlands Province, around 50km south-west of Porgera, targeting porphyry copper-gold and associated gold base metal skarn mineralization.

HGEL now holds interest in over 3,693km<sup>2</sup> (912,560 acres) of exploration tenure in PNG. A budget of A\$9.8 million has been approved for fiscal 2014.

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**HGEL** tenement portfolio:

# Mount Hagen Project (Harmony 100%)

**Introduction**: The Mount Hagen project forms a contiguous block of tenure covering 661km² (163,336 acres) in the Western Highlands region. Over the past year, exploration work at Mount Hagen focused on the Kurunga Intrusive Complex to

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follow up defined targets at Penamb and Penamb East prospects and completion of a tollgate review of the project. Reconnaissance exploration activities also took place at Maramp prospect, 23km east of Kurunga to test a porphyry copper-gold anomaly.

**Project Status**: Drilling has been completed at the Penamb and Penamb East prospects for a total of 3,281m. Reconnaissance exploration activities occurred at Maramp prospect 23km east of Kurunga, comprising of ridge and spur soil and rock chip sampling and detailed geological mapping.

Preliminary modeling of the Pemamb West porphyry indicated the potential for a low grade copper resource. A tollgate review was completed for the Mount Hagen project and concluded the drilling to date had tested the key targets in the western half of the project area (the Kurunga Intrusive Complex) and that the potential for an economic mineral deposit was unlikely. A withdrawal from the project was approved by Harmony executives, and the process of withdrawal is 90% complete.

### Penamb Prospect (EL1596)

Drilling to a total of 1,744m was completed in two drill holes at Penamb prospect to test the eastern extension of the Penamb West porphyry system. These drill holes intersected zones of elevated copper mineralization, increasing the strike of the copper mineralization to 800m. This zone of low grade copper mineralization remains open along strike and at depth, but drilling to date would suggest that the possibility of an economic copper-gold orebody within 800m of the surface is unlikely.

### Penamb East Prospect (EL1611)

Drilling to a total of 1,536m was completed in three drill holes at Penamb East prospect to test a surface gold anomaly of +100ppb gold which extended from Penamb prospect to the northeast. Results from this drilling indicated only patchy development of gold mineralization associated with structural zones in the drill core.

Preliminary modeling of the Penamb West porphyry indicated a potential low grade copper resource.

### **Maramp Prospect (EL1864)**

A reconnaissance soil and rock chip sampling program and mapping program was completed to test coincident copper-zinc stream sediment anomaly which was underlain by a magnetic intrusive. A total of 189 soil samples and one rock chip sample were collected and detailed geological mapping of the anomaly. Results indicated a 1km long anomaly with elevated copper and molybdenum. As no gold was associated with this anomaly, no further work is recommended at the Maramp prospect.

#### **Amanab Project (Harmony 100%)**

**Introduction**: The Amanab Project covers 464km² (114,656 acres) in the West Sepik Province and encompasses the Amanab alluvial goldfield, which is one of 17 recognized alluvial goldfields on the PNG mainland.

Regional geology includes Cretaceous metamorphic (phyllites, slates, marble and volcanics) intruded by younger metadiorites and there is a major anomalous stream sediment footprint. Magnetic anomalies at Amanab may reflect intrusions at depth and as an under explored area with no drill testing for the hard rock source it makes it highly prospective for large-scale epithermal gold deposits (+2Moz) and porphyry copper-gold deposits.

**Project Status**: In fiscal 2013 work recommenced to test the 1km long, 500m wide, northwest trending gold anomaly which had been previously identified by soil sampling. Surface sampling and mapping has concentrated on the Yup River East prospect at Amanab. A total of 485 rock chip samples and 247 soil samples have been collected at the Yup River East prospect. Approximately 41 line kilometres of mapping was also completed. Encouraging results have outlined a 2km² gold soil anomaly. High grade gold-silver telluride mineralization was outlined from channel sampling and numerous high grade gold results were obtained from outcropping quartz veins.

Planned work in fiscal 2014 includes reprocessing magnetics and identifying structural intersections or extensional zones below cover to target opportunities to develop vein stockwork zones with bulk tonnage potential.

### Tari Project (Harmony 100%)

**Introduction**: The Tari Project consists of two granted exploration licenses encompassing some 2,568km2 (634,566 acres) of tenure in the Southern Highlands. Regional data assessment identified the tenements as being highly prospective for an Ok-Tedi-style copper-gold system. Key porphyry-epithermal gold targets have been identified at Kopiago and Parero Creek on the Porgera transfer structure some 30 km southwest of Mount Kare. Geologically the tenements are located in Miocene carbonates, intruded by Late Miocene/Pliocene dioritic to monzonitic intrusions within the Papuan Fold Belt. The Lake Kopiago magnetic target is conspicuous as being intensely fractured by dominant NE trending fault systems, similar to the Porgera NE trending transfer.

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**Project Status**: Drilling commenced during fiscal 2013 on EL1786 with a total of 1967m completed to date (drill holes KPDD001-4). Drilling was designed to test the potential for porphyry/epithermal mineralization below outcropping skarn mineralization and limestone and shallow lake sediment cover at Lake Kopiago. Multiple styles of alteration and mineralization have been observed in drill core to date including:

- (i) skarn sulphide alteration with anomalous gold and copper assays in pyrrhotite skarn zoning into high grade massive sulphide mineralization much like Ok Tedi;
- (ii) hydrothermal breccias with disseminated pyrite; and
- (iii) epithermal coliform banding and brecciated base-metal-carbonate veining. Processing of core and assays are underway and drilling of hole KPDD005 is currently in progress.

Project generation for EL1785 has commenced with five targets identified for follow-up work. Initial program work was completed on the Kagoma and Mt Pagaruma prospects with some 138 surface reconnaissance samples collected to date. Results on hand showed no significant assays from the Kagoma target and the area has been downgraded. However, field work at the Mt Pagaruma prospect has shown positive signs with pannable gold from in exposure of fault pug on the eastern side of the target area. The prospect is located approximately 60 km southwest of Porgera on EL1785, and was initially developed on the basis of historic exploration results. Previous explorers identified anomalous gold in stream sediment results in two streams on the southwest flank of Mt Pagaruma. Field work is to continue in fiscal 2014.

#### REGULATION

#### **Mineral Rights**

#### South Africa

South African law no longer provides for the separate ownership of surface and mineral rights. The promulgation of the Mineral and Petroleum Resources Development Act ( **MPRDA** ) in May 2004, and its amendment in July 2013, provides that all mineral rights in South Africa are now vested in the South African State. The principal objectives of the Act are:

to recognize the internationally accepted right of the state of South Africa to exercise full and permanent sovereignty over all the mineral and petroleum resources within South Africa;

to give effect to the principle of South Africa s custodianship of its mineral and petroleum resources;

to promote equitable access to South Africa s mineral and petroleum resources to all the people of South Africa:

to substantially and meaningfully expand opportunities for HDSAs including women, to enter the mineral and petroleum industry and to benefit from the exploitation of South Africa s mineral and petroleum resources;

to promote economic growth and mineral and petroleum resources development in South Africa;

to promote employment and advance the social and economic welfare of all South Africans;

to provide security of tenure in respect of prospecting, exploration, mining and production operations;

to give effect to Section 24 of the South African Constitution by ensuring that South Africa s mineral and petroleum resources are developed in an orderly and ecologically sustainable manner while promoting justifiable social and economic development; and

to ensure that holders of mining and production rights contribute towards socio-economic development of the areas in which they are operating.

Under the MPRDA, tenure over established mining operations is secured for up to 30 years (and renewable for periods not exceeding 30 years each thereafter), provided that mining companies applied for new-order mining rights over existing operations within five years of May 1, 2004, or before the existing right expired, whichever was the earlier date and fulfilled requirements specified in the MPRDA, its Regulations and the Mining Charter.

A draft Mineral and Petroleum Resources Development Amendment Bill, 2012 ( MPRDA Bill ) was published in December 2012 for comment. The MPRDA Bill aims, amongst other things, to remove ambiguities that exist within the MPRDA, provide for the regulation of associated minerals, provide for partitioning of rights, enhance provisions relating to beneficiation of minerals, and to promote national energy security and to streamline administrative processes.

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The MPRDA Bill, however, raises some concerns as it relates to Harmony s business:

#### Concentration of rights

The MPRDA Bill seeks to amend the MPRDA to provide that the Minister must refuse to provide a mining right or an exploration right if this will result in a concentration of rights under the control of the applicant.

#### Ownership of tailings created before 1 May 2004

The MPRDA provides that historic tailings are not regulated in terms of the MPRDA; however, the MPRDA Bill purports to amend the MPRDA so as to render historic tailings subject to regulation under the MPRDA, resulting in the South African State gaining custodianship of historic tailings.

### Mineral beneficiation

A key change is that the MPRDA Bill now makes it mandatory for the Minister to initiate or promote the beneficiation of minerals and petroleum resources in the Republic of South Africa . The MPRDA Bill affords the Minister broad discretion over beneficiation, without providing any criteria under which such discretion should be exercised.

#### Issue of a closure certificate

The MPRDA Bill envisages that a rights holder will remain liable for environmental and associated damage caused by prospecting and mining operations, even after (and notwithstanding) the issue of a closure certificate by the Minister. This means that a rights holder will no longer be indemnified from liability after the issue of a closure certificate.

Harmony is, through the Chamber of Mines, working closely with government to ensure that the MPRDA Bill is drafted to support continued investment in mining in South Africa.

The Mining Charter was signed by the government and stakeholders in October 2002 and contains principles relating to the transfer, over a ten-year period, of 26% of South Africa s mining assets (as equity or attributable units of production) to HDSAs, as defined in the Mining Charter. An interim target of 15% HDSA participation over five years was set and to this end, the South African mining industry committed to securing financing to fund participation of HDSAs in an amount of R100 billion within the first five years of the Mining Charter s tenure. The Mining Charter provides for the review of the participation process after five years to determine what further steps, if any, are needed to achieve the 26% target participation. In order to measure progress in meeting the requirements of the Mining Charter, companies are required to complete a Scorecard, in which the levels of compliance with the Mining Charter can be ticked-off after five and ten years respectively. The Mining Charter and Scorecard require programs for black economic empowerment and the promotion of value-added production (mineral beneficiation), such as jewelry-making and other gold fabrication, in South Africa. In particular, targets are set out for broad-based black economic empowerment in the areas of human resource and skills development; employment equity; procurement beneficiation and direct ownership. In addition, the Mining Charter addresses socio-economic issues such as migrant labor, mine community and rural development, and housing and living conditions.

Following a review of the progress made by the mining industry after five years of implementing the provisions of the Mining Charter, the DMR amended the Mining Charter and the Revised Mining Charter was released on September 13, 2010. The requirement under the Mining Charter for mining entities to achieve a 26% HDSA ownership of mining assets by the year 2014 has been retained. Amendments to the Mining Charter in the Revised Mining Charter include, inter alia, the requirements by mining companies to:

- (i) facilitate local beneficiation of mineral commodities;
- (ii) procure a minimum of 40% of capital goods, 70% of services and 50% of consumer goods from HDSA suppliers (i.e. suppliers of which a minimum of 25% + 1 vote of their share capital must be owned by HDSAs) by 2014. These targets will however be exclusive of non-discretionary procurement expenditure;
- (iii) achieve a minimum of 40% HDSA demographic representation by 2014 at top management (board) level, senior management (EXCO) level, core and critical skills, middle management level and junior management level:
- (iv) invest up to 5% of annual payroll in essential skills development activities; and
- (v) implement measures to improve the standards of housing and living conditions for mineworkers by converting or upgrading mineworkers hostels into family units, attaining an occupancy rate of one person per room and facilitating home ownership options for all mineworkers in consultation with organized labor.

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All targets must be achieved by the end of calendar 2014.

In addition, mining companies are required to monitor and evaluate their compliance with the Revised Mining Charter, and must submit annual compliance reports to the DMR. The Scorecard makes provision for a phased-in approach for compliance with the above targets over the five year period ending in 2014. For measurement purposes, the Scorecard allocates various weightings to the different elements of the Revised Mining Charter. Failure to comply with the provisions of the Revised Mining Charter will amount to a breach of the MPRDA and may result in the cancellation or suspension of a mining company s existing mining rights.

We actively carry out mining and exploration activities in all of our material mineral rights areas. Accordingly, the MPRDA has not had a significant impact on these mining and exploration activities because we applied for and were granted the conversion of all of our old-order mining rights into mining rights in terms of the MPRDA. We now have to comply with the required annual and bi-annual reporting to the DMR on the Social and Labor Plans, Environmental Management Programs, and Progress Reports on our prospecting rights.

We have already complied with the requirements of the Mining Charter, with regards to HDSA ownership, and our effective ownership, as defined by the Mining Charter, is 28%. We have been working on our program of licensing since 2004, which involved the compilation of a mineral assets register and the identification of all of our economic, mineral and mining rights. We have secured all old mining rights and validated existing mining authorizations. Our strategy has been to secure all strategic mining rights on a region-by-region basis. The conversion of mining rights for our operations was granted and all of our mining areas are secured/supported by new-order mining rights.

The Mineral and Petroleum Royalty Act 28 of 2008 and the Mineral and Petroleum Royalty Administration Act 29 of 2008 were assented to on November 21, 2008 with the commencement date set as May 1, 2009. However, the date on which royalties became payable was deferred to March 1, 2010. Royalties are payable to the government according to formula based on earnings before interest and tax. This rate is then applied to revenue to calculate the royalty amount due, with a minimum of 0.5% and a maximum of 5% for gold. For fiscal 2013, the average royalty rate for our South African operations was 1.34% of gross sales.

# Papua New Guinea

According to the Mining Act of 1992 (PNG) mineral rights in PNG belong to the government of PNG, which has a statutory right to acquire up to 30% of any project at the historic exploration cost prior to grant of the Mining Lease.

The government then issues and administers mining tenements under the relevant mining legislation, and mining companies must pay royalties to the government based on production.

The key difference in PNG is that citizens have the right to carry out non-mechanized mining of alluvial minerals on land owned by them. These customary rights do not extend over a mining lease, unless an alluvial mining lease is obtained.

Almost all land in PNG is owned by a person or group of persons, and is not generally overlaid by landowner title issues. There is, however, considerable difficulty in identifying landowners of a particular area of land because land ownership may arise from both contract and inheritance, and because of the absence of a formal written registration system.

Prior to commencing exploration, compensation for loss or damage must be agreed with the landowners. Prior to commencing mining, a written agreement must be entered into with landowners dealing with compensation and other

matters.

In PNG, Morobe Consolidated Goldfields Limited and Newcrest PNG 1 Limited hold a mining lease and various exploration licenses granted by the Minerals Resource Authority for the Hidden Valley Project. Both parties have obligations under a memorandum of agreement with the state, local government and the landowners.

Wafi Mining Limited and Newcrest PNG 2 Limited hold various exploration licenses granted by the Minerals Resource Authority for the Wafi-Golpu Project, and have entered into a compensation agreement with landowners on one of its exploration licenses.

HGEL manages three main project areas which include the Amanab project in the Sandaun Province, Mount Hagen project in the Western Highlands Province and Tapini project in the Central Province. A fourth project area, Tari project in the Southern Highlands was granted a tenement in 2012 and another application remains pending. At June 30, 2013, Harmony was in the process of withdrawal / relinquishment from the Mount Hagen Project.

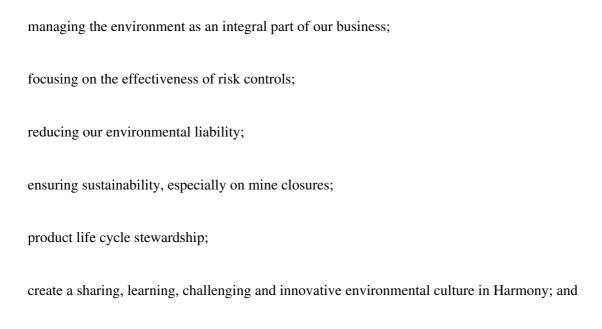
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In PNG there are no applicable exchange control restrictions but the PNG central bank does have to be informed of all transactions and has to approve lending facilities and interests rates charged.

#### **Environmental Matters**

We are committed to conducting our business in an ethically, morally, socially and environmentally responsible manner that will protect human health, natural resources and the environment in which we operate. We aim to balance our economic, social and environmental goals and responsibilities to achieve sustainable, profitable growth in our business and, more importantly, to work with communities and regulatory agencies to implement sound management practices which will ensure that our mining is conducted in an environmentally-safe manner. In addition, with regard to legacy mining impacts, we remain committed to identifying and implementing coordinated remediation plans that are acceptable to all relevant parties.

A board-approved environmental policy supports the strategy of optimising environmental performance by:



ensuring environmental compliance through internal and external audits.

Ultimate oversight for environmental strategy and performance in Harmony rests with the Social and Ethics Committee of the board. In addition to an executive environmental manager, an environmental leadership committee drives environmental improvement strategically at group level, which cascades down to the various operations. At each operation, general managers are accountable for environmental management, and each operation develops annual environmental management plans to identify opportunities to increase compliance and minimize pollution.

To ensure consistency across the group, technical and performance standards and guidelines have been developed. All group standards are incorporated into operational environmental management systems ( EMS ) and implemented via the ISO 14001 system.

During fiscal 2013, the environmental policy was updated and was approved by the board. This sets out our commitment to closing our mines in a way that ensures long-term environmental stability and a post-mining beneficial

land use that promotes sustainable livelihoods in the communities where we operate. The revised policy also articulates our understanding of the total life cycle of our product we will promote the responsible refining, beneficiation and use of our product within our sphere of influence.

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### South Africa

To address and minimize the impact of the Company s operations on the environment, taking into account regulatory requirements, the board has approved a number of five year targets relating to emissions to air, water consumption and usage, energy consumption, recycling and land use, namely:

#### **Compliance**

The Company will maintain the number of environmental fines at zero.

### Energy management and Carbon Footprint

Harmony s aggregate group target for reduction in absolute electricity consumption is 3% by fiscal 2018, based on a 2008 base year.

Harmony s aggregate group target for reduction in energy consumption per ton milled is 2% by fiscal 2018, based on a 2008 base year.

Harmony s aggregate group target for reduction in absolute Carbon Footprint in CQequivalent per ton milled is 2% by fiscal 2018, based on a 2008 base year.

### **Biodiversity**

All sites to implement 80% of biodiversity action plans by 2018.

#### Water Management

The aggregate group target for reducing fresh water consumption (water use for primary activities) in kilolitres ( **KL** ) is a 4.5% improvement by fiscal 2018, based on a 2013 base year.

The aggregate group target for reducing fresh water consumption (water use for primary activities) in KL per ton milled is a 5% improvement by fiscal 2018, based on a 2013 base year.

The aggregate group target for improving on the percentage of water recycled (intensity and absolute) is 5% by fiscal 2018, based on a 2013 base year.

#### Rehabilitation

The aggregate group target is to reduce land available for rehabilitation by 2% by fiscal 2018, based on a 2013 base year.

# **Environmental performance**

# Use of resources

Water

Harmony s operations use significant amounts of water, and access to this resource is vital for the growth of our assets. Although we have an adequate supply at present, water is fast becoming a competitive resource.

Internal risk assessments in fiscal 2013 identified risks and opportunities directly linked to Harmony s business strategy, with the major climate change risk being a change in rainfall patterns and the attendant risk of intermittent water supply. Intermittent water supply could pose a significant threat to the operational continuity of our mines and therefore the profitability of our business. Harmony has adjusted its strategy to reduce its dependency on existing groundwater infrastructure, and a group-wide campaign to re-use processed water continues to produce excellent results.

Our South African operations do not draw water directly from surface sources, such as rivers, except for Kalgold which draws water from the aquifer. Water is sourced from:

bulk water service providers and municipalities;
surface water run-off;
water that ingresses into deep-level mining operations and is then pumped to the surface;
recycled water; and
boreholes.

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The Far Western Region Dolomitic Water Association is dealing with a number of water-related issues in the area, including an exercise to remediate the impact of radiation in the Wonderfonteinspruit catchment. While Harmony is a member of the committee working to reduce the impact on this area, it has no operational involvement in the upper region of this catchment, highlighted as the first area requiring intervention. Only one site may be linked to our operations, but this was deemed of lower environmental risk by an intergovernmental team and not requiring any urgent intervention. Harmony considers that any exposure in this catchment is limited and manageable.

### Acid mine drainage

Acid mine drainage, or acid rock drainage, is the outflow of acidic water, usually from abandoned or operational metal or coal mines. Other areas where the earth has been disturbed by mining activities may also contribute acidic water to the environment.

Our current focus is on improving our understanding of the groundwater and surface water regimes. In the last year, geo-hydrological assessments were undertaken in the Free State region, Kalgold and Doornkop. In terms of acid mine drainage, the studies confirm there is no risk of decant from the Free State operations, or Kalgold. From the perspective of surface water pollution, rehabilitation is being prioritized at the joint metallurgical scheme site and the acid plant site in the Free State, as well as at decommissioned shafts and infrastructure in the Free State and at Kusasalethu.

Harmony continues to work closely with regional partners to identify the longer-term risks of acid mine drainage and establish sustainable solutions.

Harmony carried a third of the costs of pumping and treating fissure water in the Klerksdorp, Orkney, Stilfontein and Hartbeesfontein ( **KOSH** ) Basin for nearly five years. This followed a directive from the Department of Water Affairs. Once the land in question was sold to another mining group in 2009, Harmony requested the department to withdraw the directive given that the relevant section (section 19) of the National Water Act does not provide for holding people responsible for pollution in perpetuity once they are no longer connected to the land. After the department refused to withdraw the directive, Harmony lodged an application in the High Court to have this set aside. The case was heard in October 2011 and judgment handed down in June 2012. The judge dismissed Harmony's application to have the directive set aside and made no order on cost, stating his view that Harmony was not a frivolous litigant as it raised constitutional issues of importance aimed at vindicating a constitutional principle of legality. Harmony has applied for leave to appeal and the appeal will be heard in November 2013. Potential exposure to the Company at June 30, 2013 is approximately R42 million (US\$4.2 million), which has been provided.

Water is being discharged from our Doornkop operation under directive but is in the process of being licensed. Based on the draft licence received, Doornkop is able to comply with its licensing conditions. An intensive water-monitoring program is in place and reporting to the regulator takes place routinely.

#### Energy consumption

Our energy consumption is largely in the form of electricity drawn from South Africa s power utility, Eskom, which in turn is primarily driven by coal-fired power stations. Hoisting, cooling and ventilation systems all need electrical power, making Harmony a major user of electricity. Energy is therefore a significant and growing portion of our operating costs, given rising electricity tariffs.

After the electricity supply crisis in 2008/2009, domestic tariffs have increased steadily and are scheduled to rise further in the year ahead. Following a 25% increase in fiscal 2010 and 2011, with a further16% in fiscal 2012 and

9.6% in fiscal 2013, these cumulative increases have catapulted energy efficiency from an environmental consideration to a business imperative.

South Africa s 2005 energy efficiency strategy set a national improvement target of 12% by 2015. As industrial and mining companies are the largest users of energy in South Africa, these sectors have been set a final energy demand reduction target of 15% by 2015. While this target is currently voluntary, it is effectively mandatory given the 10% demand reduction imposed by ESKOM after the electricity crisis in 2008.

NERSA approved the renewable energy feed-in tariff guidelines in April 2009. While there is still debate on certain issues in these guidelines, this is expected to stimulate the development of renewable energy in the country once it becomes more financially feasible to invest in alternative energy options.

Harmony is committed to reducing its energy consumption and has worked closely with Eskom to manage its electricity use and peak demand both before and after the energy crisis. The Company has a number of efficiency projects under way. Harmony has also actively engaged with Eskom in demand-side management ( **DSM**) strategies to reduce electricity consumption during peak periods such as early morning and late afternoon. This involves measures such as timing pumping to coincide with cheaper off-peak periods, making more efficient use of Eskom tariffs that reward load-shifting, and improving the efficiency of pumping operations.

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We installed sophisticated equipment and variable speed motors that reduce the surge in power consumption when a pump is started. While the software supporting these systems has been complex and costly to develop and implement, significant savings are reflected in lower electrical energy consumed. We have several projects that have been approved by Eskom for partial DSM funding and several more that have been submitted to Eskom for approval. Seven more energy efficiency projects are in the final stages of investigation.

Renewable energy initiatives

NERSA approved renewable energy feed-in tariff guidelines in 2009. Although there is ongoing debate on certain issues in these guidelines, this is slowly stimulating the development of renewable energy in the country as it becomes more feasible to invest in these options. At present, Harmony is considering a number of renewable and alternate energy projects, prioritized below:

Bio-energy the feasibility study was concluded for a project to develop biomass capability in the Free State, and implementation began in August 2013. The intention is to convert rehabilitated land as part of the provincial rehabilitation initiative into value-creating opportunities for local communities. We will convert electrical heating (and heating by polyfuel) of elution water at our gold plants to gas heating.

The Harmony Solar Park aims to develop solar capability at Kalgold to feed into the Eskom grid. This proposal was submitted into the public tender process in August 2013.

Photovoltaic feasibility study completed for 1MW photovoltaic power plant in the Free State.

Carbon sink Harmony has completed a pre-feasibility study on establishing a plantation on impacted land. The feasibility study will resume during fiscal 2014.

Turbines Harmony will convert its turbines at Kusasalethu to deliver power using mine water from the surface.

Solar geysers replacing electrical with solar geysers at Harmony-owned villages. *Climate change and greenhouse gas emissions* 

Harmony remains focused on reducing the use of fossil fuels and developing initiatives to mitigate and absorb GHGs to reduce its carbon footprint.

In fiscal 2013, Harmony reduced its South African electricity consumption by 186.6GWh and emissions by 184,767t CO<sub>2</sub>e (fiscal 2012: 74.4GWh and 74,400t CO<sub>2</sub>e). Our challenge remains to create an enabling environment and allocate adequate resources to achieve our goals and commitments.

In 2013, Harmony submitted its seventh response to the Carbon Disclosure Project. The year-on-year progress is encouraging; in fiscal 2012, we scored 98% to rank third in the top 100 Johannesburg Stock Exchange Limited ( **JSE** )

participating companies (in fiscal 2011, we scored 91% to rank fourth).

GHGs are emitted directly by Harmony s operations and indirectly as a result of consuming electricity generated by external utilities. Emissions from electricity consumption are indirectly attributable to Harmony s operations. There are currently a number of international and national measures to address or limit GHG emissions, including the Kyoto Protocol and the Copenhagen Accord, in various phases of discussion or implementation.

The countries in which Harmony operates South Africa and PNG are non-Annex I countries and did not have emission reduction targets under the Kyoto Protocol in the first commitment period, ending 2012. Following recent environmental summits, including the one hosted in South Africa in 2011, South Africa has committed voluntarily to 30% clean energy by 2025, aiming for the country s GHG emissions to peak by 2020 2025, plateau for a decade and then decline by 40% by 2050. These targets were set out in the National Climate Change Response Policy, endorsed by the South African cabinet in October 2011.

In line with this aim, the country s key carbon-emitting sectors, including energy and transport, have until 2015 to finalise carbon budgets and appropriate strategies to support these targets. Adopting a carbon budget model reflects government s acceptance of the relative energy and carbon intensity of the economy and the need to create the setting required for industries to make the transition to a more carbon-constrained environment.

The Minister of Water and Environmental Affairs noted that government would actively consult with industry on developing carbon budgets to identify an optimal combination of mitigation actions to strike a balance between South Africa s socio-economic imperatives, especially creating and preserving jobs, as well as the need to manage climate change impacts and contribute to global efforts to stabilise GHG concentrations.

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As our current mines have a life expectancy of up to 25 years, we are undertaking capital projects to sustain and increase production at Phakisa, Doornkop, Kusasalethu, Tshepong and Hidden Valley operations. These expansions will extend our mining operations by ten years or more, by which time GHG regulations are expected to be a permanent feature of the global economy. Future climate change regulation will therefore need to be considered for all Harmony s extensions and acquisitions. All new greenfields and brownfields projects are required by company policy to consider the impact of climate change in their design and planning.

While Harmony is not conceptually opposed to using financial instruments as incentives in reducing emissions, we are concerned about the potential impact on the industry s competitiveness. We are working with both the industry task team on climate change and the Chamber of Mines to understand the implications for our business and optimal mechanisms to further promote emission reduction.

Harmony s exposure to Australian legislation is limited as the operations we owned there have been sold or are under care and maintenance.

PNG s national office of climate change and environmental sustainability is studying the potential for future economic growth to be driven by renewable energy. Along with other Pacific Island countries, PNG has adopted a framework for action on climate change 2006 to 2015 and a disaster risk reduction and disaster management framework for action. The implications of these structures on Harmony s operations in PNG have not yet been established and studies are ongoing.

The largest portion of GHG emissions is predominantly electricity-related, with electricity expenditure amounting to 10% of Harmony s operational costs in South Africa. While cost management is clearly a strategic issue for Harmony, of even greater importance is that energy supply be constant and reliable, given the implications of loss of energy on both production and health and safety. GHG emissions regulations, which would increase the price of energy, will affect Harmony significantly, as will regulation that stipulates emission thresholds, or sets technology standards that may result in insecure energy supply. Already certain compliance costs from power suppliers are being passed on to the Group in the form of price increases. For instance, in South Africa since 2009, Harmony has paid a levy of R0.02 to R0.03 per kilowatt hour for electricity generated by fossil fuels. These levies may increase over time and additional levies may be introduced in future in South Africa, which could result in a significant increase in our costs.

### Land management

Radiation is a possible risk at most gold mines. At Harmony, surface radiation is managed by reducing the affected footprints, especially at legacy sites, to support legal compliance and reduce environmental liability. We are steadily improving our understanding of the groundwater and surface water regimes. In terms of surface water pollution, rehabilitation has been prioritized at the joint metallurgical scheme site and the acid plant in the Free State, as well as at decommissioned shafts in the Free State and Deelkraal plants.

Rehabilitation and closure is planned from concept stage for new operations or greenfield projects and during the life-of-mine for existing operations. We continuously identify land that we can rehabilitate to a sustainable, value-creating alternative use. Where feasible, we refurbish infrastructure for use by local communities. For decommissioned operations, we are developing comprehensive closure plans for consideration and approval by the regulators.

Harmony has around 65,000 hectares of land under management in mining rights and disturbed areas under rehabilitation. None of our producing operations are in areas of high biodiversity value, inside or outside protected areas, and only one of our operational areas affects listed species (under the International Union for Conservation of

Nature and Natural Resources ( IUCN ) Red Data species). This is the vulnerable sungazer lizard (Cordylus giganteus) (endemic to the Free State and parts of Mpumalanga) which occurs in our Free State operating area.

In fiscal 2012, we implemented a rehabilitation strategy for decommissioned operations in the Free State and at Kusasalethu s Deelkraal section in Gauteng. This focuses on reducing environmental liability, eliminating potential safety and health exposures for both our people and society in general.

From an ecological perspective and linked to the premier s eco-tourism initiative in the Free State, we are working with expert NGOs to proclaim certain rehabilitated areas as ecological conservation sites for species including IUCN Red Data species.

# ISO14001 implementation

An ISO14001 EMS is being introduced progressively across our operations, and it is planned that the implementation program at the longer-life operation will be completed in 2015. In fiscal 2010, Harmony reviewed its strategy on ISO 14001,

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deciding that all operations would comply with these standards while all new and long-life assets would be ISO-certified within three years. This decision was aligned to our business strategy for scaling down certain operations while developing others. Given that a few of our assets are nearing the end of their lives, implementing a certification system would add only short-term value. All our operations with approved environmental management programs ( EMPs ) have outlined closure principles, which will be expanded once these operations (such as Steyn 2 and Unisel) near final closure. Long-life assets that will benefit from continuous improvement were therefore prioritized for certification. These long-life assets are: Doornkop, Kusasalethu, Kalgold, Bambanani, Masimong, Phakisa, Tshepong, Saaiplaas, Target 1 and 3, Joel and all new projects. Operations currently certified are: Doornkop, Kusasalethu, Kalgold, Phakisa, Tshepong, Masimong, Target 1&3. Bambanani and Joel will be certified at the end of fiscal 2014.

In fiscal 2011, Doornkop plant and Kusasalethu were certified to ISO 14001 standards. Evander shaft was certified in the first quarter of fiscal 2012, with certification for its plant and tailings facility planned for March 2013. Kalgold was certified in the first quarter. Tshepong, Phakisa, Masimong, Target shaft, Target plant and Harmony 1 plant received ISO 14001, OHSAS 18000 and ISO 9000 certification by the end of fiscal 2012. Implementation at other operations is ongoing, and action plans to address all high-risk impacts are under way.

Our PNG operations are on track for certification in fiscal 2015.

The EMS forms the basis for the implementation of the environmental policy and monitoring compliance, while the Environmental Management Program Report ( **EMPR** ) developed in line with legislative requirements, contains specific as well as general principles governing environmental management during the life of the mine. The EMPRs identify individual impacts, mitigation measures and rehabilitation requirements.

Generic closure objectives are set and high-level closure plans formulated within the EMPR, including investigation of the potential for re-use of existing infrastructure, preparation of a rehabilitation plan, rehabilitation and vegetation of the affected area and post-closure monitoring. These EMPRs are legally binding and forms part of our submission for, and receipt, of mining rights conversions.

A group-level environmental audit as well as a number of annual compliance audits were undertaken during the year, most notably by the DMR. Areas of non-compliance identified by the audits have been and are being addressed.

# **Environmental management and auditing**

To ensure legislative compliance, appropriate environmental management systems are being implemented at all operations to ensure a formal, systematic approach.

As required by the MPRDA, an environmental management program have been drawn up for each operation, submitted and approved by the DMR. These plans are amended when necessary and resubmitted to the department. Harmony s operations are legitimate water users, operating under associated permits, licenses or directives. At Kalgold, Harmony has applied for a water use license and requested an interim directive.

Integrated water use licences were submitted for all operations as early as 2006.

Doornkop has received a draft water use licence, and the final licence is imminent. After initially submitting an application in 2006, a re-submission of the water use license application was lodged in August 2011 to include additional water uses.

Other key legislation for the Company includes compliance with the National Environmental Management Act, National Water Act and the National Nuclear Regulator Act. Harmony has received an exemption from the nuclear regulator s certificate of registration process as radiation levels are fairly low for Kalgold.

Harmony received no environmental fines or sanctions in fiscal 2013. Issues being addressed at present include:

approval of the rehabilitation strategy for Kalgold s D-zone pit, which Harmony proposes to convert into a strategic water resource. The DMR s decision is pending; and

accelerated rehabilitation and access to trust funds to reduce the environmental footprint. Significant environmental incidents

Significant incidents are defined as those that have an impact outside the Group s boundaries, which may cause irreparable harm or which require significant expenditure to remedy. In fiscal 2013, the following significant environmental incidents were reported:

Saaiplaas residue spillage from plant;

Kusasalethu return water dam overflow after heavy rainfall;

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Evander dam overflow after excessive rainfall;

Harmony plant 1 spillage after slimes delivery pipeline burst; and

Kusasalethu return water dam sump overflow after temporary closure. All these issues are being addressed through our EMPs.

# Financial provision

In accordance with legislation, Harmony has constituted independent environmental rehabilitation trust funds to make adequate financial provision for the expected cost of environmental rehabilitation at mine closure and for the discharge of its obligations and contingent liabilities. Each operation reviews and updates the financial provision for its expected environmental closure liability annually in consultation with a consultant. This estimate is then used to calculate the contributions to be made to the rehabilitation trust funds, and, if necessary, adjustments are made to the trust fund provisions.

The accumulated amount in the various South African rehabilitation trust funds was US\$201 million at the end of June 2013 (2012: US\$243 million), while the total rehabilitation liability was estimated at US\$213 million (2012: US\$301 million). We have guarantees for the environmental liabilities amounting to US\$35 million (2012: US\$47 million). No contributions were made to the trust funds during fiscal 2013. US\$6 million was contributed to the trust funds during fiscal 2012.

The assets of each mine within each fund are ring-fenced and may not be used directly to cross-subsidize one another without the authorization from the regulator.

# Papua New Guinea

Our PNG operations are in various phases of activity including exploration, pre-feasibility study and operations build-up. We are subject to applicable environmental legislation including specific site conditions attached to the mining tenements imposed by the PNG Government Department of Environment and Conservation ( **DEC** ), the terms and conditions of operating licenses issued by the PNG Mineral Resources Authority ( **MRA** ) and DEC, and the environment permits for water extraction and waste discharge issued by DEC.

All PNG operations have departments and personnel dedicated to environmental matters who are responsible for implementing the Company environmental management programs, monitoring the impact of mining on the environment and responding to impacts that require specific attention outside of the normal program of environmental activities.

# Environmental management and auditing

A framework for a Sustainable Business Management System ( **SBMS** ) is being developed which will comply with relevant Australian and international standards and principles for safety, environment, quality and sustainable development (including AS/NZS ISO14001: Environmental Management Systems, Equator Principles, and the Cyanide Code).

This system, with respect to environmental management systems only, was implemented at Hidden Valley during the 2013 calendar year and will be implemented at all other MMJV operations in 2015.

The PNG DEC commissioned a third party compliance audit of the Hidden Valley mine in 2010 following stakeholder concerns about sedimentation impacts on the Watut River. This led to the development of a DEC-approved environmental improvement plan to address compliance concerns and the appointment of an external stakeholder advisory panel. The Hidden Valley joint venture partners are systematically implementing the environmental improvement plan to the satisfaction of the DEC and local landowners. The project s relationship with key stakeholders remains good and the joint-venture partners continue to be guided by advice from the stakeholder panel and the technical advisory committee (an expert, independent and multi-stakeholder body).

# Use of resources

### Water

The Hidden Valley mine receives an average of three meters of rain each year, coupled with annual evaporation of about one meter. The excess rainfall, combined with steep unstable topography, creates significant water management challenges for the mine. Rainfall run-off must be controlled to prevent erosion and sediment run-off to the river system. Site-water use must also be conserved to limit volumes of contaminated waste water discharged into the river system. These waste-water streams include sewage effluent and discharge water from the tailings storage facility ( TSF ).

Conserving process water is particularly important because TSF discharge water must first be treated to remove cyanide, and then filtered through activated carbon to remove contaminants prior to discharge. Water is only discharged to maintain a small ponded area on the TSF which, in turn, is necessary to maintain the integrity of the TSF. The minimum volumes of raw water are

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therefore drawn from the river system for key processes. This draw, however, in combination with high rainfall and low evaporation creates a high positive water balance, necessitating a high rate of discharge from the TSF and limiting the opportunity for process water recycling. Minimizing raw-water use is also important in protecting the project against occasional El Nino droughts when volumes of available river water are greatly reduced.

Despite the strong focus on limiting raw-water use, the associated draw for the process plant at the Hidden Valley mine increased during the year, from 1,011,522m<sup>3</sup> in fiscal 2012 to 1,252,936 m<sup>3</sup> in fiscal 2013.

Construction of the Hidden Valley mine has contributed to sedimentation in the Watut River system. This has caused concern among downstream communities living on the river banks. In fiscal 2010, the joint venture partners commissioned a series of studies to assess current and future impacts on this river system. These sediment and biological studies indicated impacts on the Watut River, partly from activities at Hidden Valley and from other sources along the river. The acid rock generation evidence (low pH & elevated dissolved metals) are observed at the toes of the waste dumps and the uppermost points of Kaveroi Creek just below the Hidden Valley Mine Pit. The lime dosing at Pihema Creek downstream of the mine pit helps to reduce the dissolved metal levels and increase the pH. The surface water run-off also contributes to the dilution of the dissolved metals downstream of the mine.

The joint venture s annual environmental report for the 2012 calendar year, as submitted to the DEC, highlighted a number of performance improvements at Hidden Valley compared to the prior year. Notably, sediment emissions were substantially reduced again, with sediment levels in the Watut trending toward pre-construction levels. The dissolved metal levels at Nauti are in compliance with the PNG aquatic protection criteria with occasional manganese spikes. The dissolved cobalt level is a PNG criteria issue and is being addressed by the PNG Department of Environment and Conservation.

### Acid Rock Drainage

In PNG, there are issues with acid rock drainage ( ARD ) being generated from waste rock dumps but any impact on the environment is mitigated by adding lime to maintain natural levels of alkalinity at the compliance point. Water sampling and studies continue to improve the understanding of ARD impacts, and enable plans to be formulated for longer-term reduction and mitigation.

### Energy consumption

In the third quarter of fiscal 2011, Hidden Valley was connected to the new hydropower transmission line, part of the PNG electricity grid. While Hidden Valley is currently only drawing 60% (fiscal 2012: 45%) of its requirements from the national grid, this has already significantly reduced reliance on diesel-generated power on site and the amount of fuel to be trucked to this remote site. Management is cautiously confident of securing a higher percentage of grid power, with the target of 96% hydro power within the next two years.

The Hidden Valley plant was designed with the latest technology to ensure optimal use of energy: photovoltaic switches control general lighting, all motors have energy efficient design and, in the semi-autogenous grinding mill (the biggest user of power), 10MW is equipped with a slip recovery drive that recovers load losses and regenerates power back into the local grid when the mill is operating below optimum efficiency.

In constructing the Wafi-Golpu site, we are drawing on lessons learned at Hidden Valley and elsewhere to develop a design tailored to be as environmentally responsible as possible with world-class health, safety, procurement and community elements. All design criteria consider the use of renewable energy options versus conventional power generation, while the design of plant and infrastructure is characterised by energy efficiency and conservation.

Climate change and greenhouse gas emissions

PNG s national office of climate change and environmental sustainability is studying the potential for future economic growth to be driven by renewable energy. Along with other Pacific Island countries, PNG has adopted a framework for action on climate change 2006 to 2015 and a disaster risk reduction and disaster management framework for action. The implications of these structures on Harmony s operations in PNG have not yet been established and studies are ongoing.

Harmony is developing a framework for an internal GHG management strategy, including standardized emission measurements and estimation techniques at PNG. In the past, GHG emissions in PNG were only direct and treated as scope 1 emissions as these were derived from diesel generators with no electricity purchased. This changed in fiscal 2011 because Hidden Valley mine, previously under construction, is now fully operational, and was connected to the national grid in March 2011.

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### Land management

Land is a significant resource in the largely mountainous terrain of PNG, and any land clearing is managed by permit from the environment and community affairs department. Hidden Valley follows a strategy of progressive rehabilitation, with an on-site high-capacity nursery continually hardening thousands of seedlings for field planting.

Hidden Valley mine is not in a biodiversity protected area. Although five 2011 IUCN Red List species could occur in the area, none has been confirmed and there is no evidence that Hidden Valley mine has affected critical habitat.

Significant environmental incidents

Significant environmental incidents reported in fiscal 2013 included the release of plume lime dust, requiring evacuation and shut-down of the process plant. All incidents were fully addressed.

# Financial provision

A closure plan has been developed for Hidden Valley, with a provision for rehabilitation and closure liabilities of US\$52.8 million.

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# **Health and Safety Matters**

Please note that all numbers exclude Evander, unless expressly stated otherwise.

### Legislation

For many years, the safety of persons working in South African mines and quarries was controlled by the Mines and Works Act of 1956 and then by the Minerals Act of 1991 which was replaced by the Mine Health and Safety Act. The Minerals Act of 1991 has subsequently been repealed and the MPRDA promulgated. The Mine Health and Safety Act has since been amended by the Mine Health and Safety Amendment Act, Act 74 of 2008. The objectives of the Mine Health and Safety Act ( MHSA ) are:

to protect the health and safety of persons at mines;

to require employers and employees to identify hazards and eliminate, control and minimize the risks relating to health and safety at mines;

to give effect to the public international law obligations of South Africa that concern health and safety at mines;

to provide for employee participation in matters of health and safety through health and safety representatives and the health and safety committees at mines;

to provide effective monitoring of health and safety measures at mines;

to provide for enforcement of health and safety conditions at mines;

to provide for investigations and inquiries to improve health and safety at mines;

to promote a culture of health and safety in the mining industry;

training in health and safety in the mining industry; and

co-operation and consultation on health and safety matters between the State, employers; employees and their representatives.

The MHSA prescribes general and specific duties for employers and others, determines penalties and a system of administrative fines, and provides for employee participation by requiring the appointment of health and safety

representatives and the establishment of health and safety committees. It also entrenches the right of employees to refuse to work in dangerous conditions. Key amendments to the MHSA include the following:

training records must be kept;
employer investigations;
permanent committees of the MHSC;
health and safety management system;
administrative fines increased from R200,000 to R1 million; and

offences applicable to the employer.

Australia, via each state and territory has a well regulated system of occupational health and safety ( OH&S ), comprising legislation (through acts and regulations) and codes of practice. Australia is moving to National OH&S legislation, and draft legislation has been circulated to the various levels of government and industry for consultation. Some of the draft legislation specifically applies to the mining industry, including specific legislation and extensive codes of practice and guidelines. There is also a well-developed certification and licensing system for employees for the usage of certain items of plant and equipment. The legislation governing this area also refers to the many Australian Standards - specifically AS/NZS 4801, which is the Australian Standard and New Zealand Standard for Occupational Health and Safety Management Systems. In the event of injury while at work, employees are protected by a compulsory workers compensation scheme, which are different for each state.

PNG has a significant mining industry, and a developing system of OH&S. The PNG Mining (Safety) Act of 1977 is the principal legislation, which addresses a range of issues such as working hours, minimum safety and reporting requirements. Other legislation and regulations also apply.

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### Management approach to safety

Harmony s objective is to eliminate all work-related injuries and illness. To accelerate the execution of our safety and health strategy and continually improve safety performance in South Africa, we created an executive position for safety and health in August 2011. The appointed executive has over 18 years experience in the mining industry and a good understanding of underground conditions and the working environment to which our underground workers are exposed. Each operation is monitored monthly using a formal review system, while major safety issues are reviewed annually during the health and safety workshop.

Our safety strategy includes behavioural aspects, competency training and development, and risk management as well as research and new technologies. We believe safety in the workplace can be addressed only through a co-operative approach that ensures the right infrastructure is in place—from systems and planning, to communication and training. We also believe management and employees must accept joint responsibility for their actions. It is therefore imperative that the working environment empowers people—management, supervisors, workers and union representatives—to stop work and withdraw from the mining area when they feel it is unsafe, or prevent others from acting in an unsafe way.

Equally, safety is about attitudes and mindsets. We have renewed our focus on implementing, communicating and reinforcing safety in the workplace, and created a centralised safety function to coordinate initiatives between regions and mines.

Guided by an occupational health and safety policy, our cooperative health and safety management framework involves the active participation of management, unions and DMR representatives at all levels, and is aligned with the MHSA.

Safety is a key performance indicator for management and a key component of performance reward for our people. Historically, the safety-related bonuses were based on reactive performance measures — we are now developing ways to assess safety performance on proactive measures.

In line with the South African mining industry, 2013 health and safety milestones and our own targets, safety management and performance targets have been set, and integrated into the performance parameters at each operation. The 2013 safety milestone is a fatality rate of 0.03 per million hours worked, achieved by the end of 2013. This milestone was agreed by the CEOs of all mining companies and the Mine Health and Safety Council at the 2003 industry safety summit. At Harmony, the steady improvement in the LTIFR is encouraging and proves that the foundation of better safety performance built over recent years remains intact. We accept that we have some way to go to reach the industry goal for reducing fatal accidents; at 0.11, Harmony s South African rate is at its lowest in ten years, but we will continue striving to meet the milestone target of 0.03 and achieve our aspiration of operating with zero fatalities.

Health and safety committees are in place at all operations, as required by the MHSA, and full-time health and safety stewards and health and safety representatives have been appointed. There were 48 full-time health and safety stewards in place at the South African operations in fiscal 2013 (2012: 61). These committees comprise management and elected employee representatives to ensure the active participation of our people in safety and health management. All safety representatives receive additional training in line with revised Mining Qualifications Authority standards. The committees meet monthly to discuss employee health and safety issues, and formal health and safety agreements are in place at all operations to deal with related issues.

Initiated by the chief executive officer, over the past two years Harmony has instituted a focused and multifaceted drive to transform the Company s approach from reactive to proactive by improving the safety culture across all operations through a high-level internal health and safety review, adopting leading health and safety practices, improving the Harmony safety risk management system, integrating proactive key performance measures in incentive schemes, continuously improving standards and procedures, implementing e-learning to improve safety-related training, implementing a Harmony culture alignment program and through integrating both the safety management standards (management systems) and safety culture initiatives (people) to function as one strategy.

The first step towards a more sustainable safety performance was to improve our safety management framework. IRCA Global an internationally recognised company with expertise in the field of safety, health, environmental and quality management was contracted to perform a gap audit against global standards in Harmony's South African operations. Nine operations received total scores above 80%, and five received three- or four-star ratings under international standards. However, common critical shortcomings in safety management identified during the audit were quality of issue-based and continuous risk assessments, managing change, technical planning in terms of risk, managing close-out actions and leadership controls. Identified critical shortcomings in safety and health management are being incorporated into an improved safety and health management framework for Harmony, which will be aligned to the OHSAS 18001 standard for occupational health and safety management. Expert task teams have been established to review and finalize this framework.

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A high-level internal safety audit team of mining and safety experts was established in the third quarter of fiscal 2012. The team s main objective is to verify conditions in risk areas at Harmony s operations and establish the effectiveness of existing management systems to ensure the safety of employees. The team will also review the implementation level of strategic health and safety programs and standards at all operations.

By year end, audits had been completed at ten South African operations. Each audit report, with the actions implemented by management to ensure gaps are effectively addressed, is reviewed by the chief executive and other executives at every operation.

Safety literacy remains a material issue. To address this, e-learning programs (spanning safety and refresher training) are in place at five operations. In addition, pictorial briefs are used at shaft level to communicate mine accidents and safety messages, and we are implementing virtual reality training to improve risk identification.

In South Africa, the DMR remains vigilant about ensuring compliance with safety legislation. Harmony continues to work closely with the department to resolve issues, minimize safety stoppages and ensure that all safety standards are implemented and enforced at our operations. In fiscal 2013 the Harmony South African operations received 78 Section 54/55 instructions. Three operations were completely stopped and two operations were partially stopped for a specific period after serious/fatal accidents occurred. The majority of instructions were issued to rectify deviations from standards and were focused on specific sections of each operation.

In fiscal 2013, Harmony initiated a three-year grant totalling R4.7 million to the University of Pretoria to establish a chair in rock engineering and numerical modelling in the mining industry. This focused research on a safer working environment in the hard-rock mining industry offers benefits all stakeholders, and will strengthen the partnership between academic institutions and our industry in developing further safety improvements.

Harmony s ground-control strategy has been converted into draft e-learning format and all blasting certificate holders were earmarked for this training at the different facilities. A test version of the e-learning material was installed at Doornkop and demonstrated in April 2013. This will be implemented at all training centres in due course.

All applicable underground South African operations have adopted the entry examination and making safe and bolting with netting leading practice developed by MOSH. Bolted netting in stopes and development faces has been rolled out as a leading practice at all Harmony underground operations. A minimum standard for nets was developed and implemented through the procurement department.

Harmony s South Afircan mines will be focussing on the adoption of a new leading practice, the Trigger Action Response Plan ( **TARP** ), in fiscal 2014. The TARP is a systematic process where fall-of-ground related hazards are identified, escalated if necessary and treated by the correct level of supervision. Joel served as the demonstration mine for this initiative, which proved very successful.

RBE audits were conducted at all underground operations during the year. These verified compliance to the RBE code of practice, and specifically focused on locomotive conversions and rail conditions to comply with national standard (SANS 10339) specifications.

During the year, we began installing a proximity detection system on underground rail-bound machinery, an electronic device fitted to mobile machinery that detects other mobile machinery nearby. The operator receives a visual and audible warning signal to which he can react if another vehicle approaches. Linked to this is the Guardcom system, which incorporates a handheld unit that allows the guard of a train to electronically signal the driver and stop the train by activating an emergency stop button in an emergency. The unit also has a tilting device that stops the locomotive

automatically if it exceeds a certain angle, i.e. should the guard stumble and fall. Implementation will be phased over 18 months as it involves much training, changing behaviour, amending infrastructure and fitting units to locomotives. This initiative will put Harmony in the forefront of this safety area in the South African gold mining industry.

Safety performance at Hidden Valley in PNG is monitored by Harmony s regional executive committee. As this is a line management responsibility, safety managers at each operation report through appropriate channels to this executive committee, which in turn reports to the Harmony executive committee, social and ethics committee and technical committee of the board. Safety strategy is guided by Harmony s health and safety policy.

In PNG, the joint venture partners continue to make good progress in developing a sustainable business management system aligned to ISO standards. Following the ISO 14001 phase 1 certification audit in 2012, the system will be externally audited every two to three years against these standards. Identifying and managing workplace hazards is an important element in improving safety performance in PNG, with site-level risk assessments ensuring each job is completed safely and efficiently. In addition, the hazard identification and risk assessment approach is being successfully implemented, supported by ongoing training and coaching.

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Performance is measured against agreed indicators. In fiscal 2012, field-level risk assessments were successfully rolled out at Hidden Valley mine and the top ten risks for each section identified. This was accompanied by further education for the workforce, and specific training for high-risk aspects such as defensive driving. Following a safety management plan review with all contractors in the prior year, specific safety performance indicators were developed for each contractor as per the requirements of the PNG Mineral Resources Authority and monitored monthly by safety managers during the review period. The benefits are expected to result in an improved LTIFR for the new financial year.

In PNG, we face different safety risks, given the terrain and level of safety awareness among the workforce. Vehicle operation has been identified as our primary safety risk. A vehicle focus group was established, led by senior managers from each site, and a risk workshop convened to identify opportunities to improve vehicle movement safety. The workshop focused on:

increasing the use of data from the in-vehicle monitoring system (a live tracking system installed in some vehicles);

reviewing road signage and road conditions, and making improvements;

increased driver behaviour monitoring through a dedicated traffic focus group;

improved escort control for delivery convoys; and

advertising and education sessions.

Ongoing activities include reviewing and updating traffic management plans and driver competency assessments. The team is also developing procedures and audit protocols. The second key risk in PNG involves aviation activities, highlighted by two helicopter slinging incidents in the third quarter at our exploration operations. A review of third-party aviation providers, aligned with the basic aviation risk standard, was completed in the final quarter. No immediate safety or flight issues were identified, but general recommendations were made for improvement and adherence to current procedures.

At the Wafi site, the focus was on addressing vehicle-related risks. This included speed checks, vehicle inspections and ensuring all drivers are properly licensed and authorized. Road reviews and upgrades have reduced risks.

### Safety performance

Regrettably, nine employees died in mine-related accidents in fiscal 2013 at our South African operations (fiscal 2012: ten). We extend our condolences to their families, friends and colleagues and reiterate our commitment to reaching our goal of zero fatalities.

In line with our values and policies, Harmony provides the family of the deceased with counseling and financial assistance. The South African operations fatal injury frequency rate (**FIFR**) improved by 8% year on year to 0.11 (fiscal 2012: 0.12) and the LTIFR improved to 6.03 (fiscal 2012: 7.54) per million hours worked.

In PNG, the FIFR remained 0.00, while the LTIFR was 0.12 (FY12: 0.45). Commendably six South African mines have operated for a full year without a fatality the challenge is to reach this milestone at all operations.

Fatal injuries related to falls of ground improved by 67% year on year (from three to one) while trucks and tramming related fatalities regress from one to two. The fall-of-ground injury frequency rate has improved 42% year on year, reflecting a major safety focus in recent years. Regrettably, a period of 15 months without a fatality of this nature ended in the third quarter of fiscal 2013 after a fatal accident at Masimong.

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### Criminal Mining

In South Africa, illegal mining remains a concern at many Free State gold operations. In addition to significant safety and health risks for our own employees and for the illegal miners, there is a substantial associated cost in terms of destroyed assets and infrastructure, security and loss of skills (if employees are involved). Ultimately, this impacts on investment and job creation.

Illegal mining is a complex issue, and there is no simple solution. We are encouraged by the rising level of cooperation between mine managers, authorities, unions, employees, communities and non-governmental organisations.

We continue to liaise with the DMR, the South African Police Service, the South African Justice Department, private security companies and affected communities. After successful lobbying by the industry, criminal mining has recently been seen by the courts as organized crime, compared with trespass charges in the past. We believe that prison sentences, as opposed to monetary fines, are a greater deterrent.

While these criminal activities continued on both surface and underground operations, enhanced access control and underground security processes are proving effective. In fiscal 2013, technical and physical security measures at our metallurgical plants were upgraded. We continue to focus on communicating the risks and consequences of illegal mining and fraud to our own workforces, and our zero-tolerance approach has seen a number of employees dismissed for related offences.

### Healthcare services

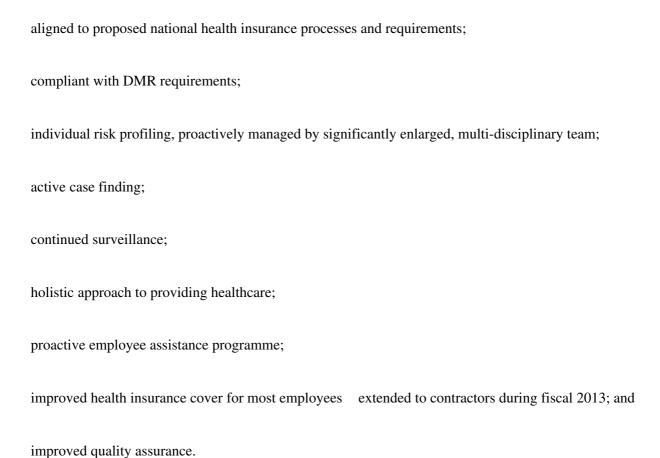
Harmony values the health and well-being of all its employees and the communities affected by its activities. The Company is therefore committed to preventing all illnesses — not only occupational illnesses but other lifestyle diseases such as hypertension, diabetes and HIV — through continued medical surveillance, active case finding, early detection and treatment as part of an integrated managed healthcare system. As part of our strategy, we participate in state initiatives such as tuberculosis ( **TB** ) and HIV programs.

Harmony Healthcare provides tertiary, secondary and primary healthcare as well as occupational health services to around 80% of its employees through Company-managed healthcare facilities and preferred provider arrangements.

The health and well-being of the balance of Harmony employees, their dependents and contractors is ensured through medical aid membership or third-party service providers, as part of their employment benefits.

Our proactive approach to healthcare is beginning to deliver the expected benefits. As part of this R100 million investment, six new health hubs in South Africa are at various stages of completion. Tshepong was commissioned in the first quarter of fiscal 2014, with the remaining hubs due for commissioning by December 2013. In tandem we have trebled the number of medical professionals, with teams of 25 to 35 per hub providing a 24-hour service. Each team has a social worker, health educator, primary healthcare doctor and occupational health specialist.

As demonstrated by the success of the pilot hub at Target in the prior year, these hubs provide an integrated, proactive healthcare service to bring primary, occupational and wellness facilities closer to the mine. While improving the quality of healthcare, this model also reduces the cost of centralized healthcare services and improves labour availability and productivity. Other key benefits include:



During fiscal 2013, a noticeable impact on absenteeism was achieved through decentralized service provision and an integrated management approach to proactive healthcare and wellness. During fiscal 2013, Harmony Healthcare embarked on the implementation of a clinical system that will form the basis of individual disease management plans. The implementation is scheduled for completion in fiscal 2014.

One of the most apparent benefits of our new approach is the dramatic decline in sick leave. We continue to focus on managing absenteeism, which declined across the company to 4.6% during the fiscal 2013 year (fiscal 2012: 5.1%). Absenteeism due to illness decreased by 20.5% at mine level. Acknowledging the potential economic and social impact of a rising absenteeism rate, we are establishing multi-disciplinary attendance and absenteeism review boards at mine level to proactively manage sick absenteeism and absenteeism related to psychosocial issues. Benchmarking Harmony against its peers and companies of similar scale, we set 3.5% as an acceptable sick absenteeism rate.

In keeping with wellness and fitness to work, an amended return-to-work strategy is being piloted. The annualized cost of healthcare delivery is around 10% of our total labour cost. Previously fixed costs absorbed 91% of the South African healthcare budget. Under the new healthcare model, fixed costs are down significantly as are shifts lost per medical visit. The contact rate per employee per month has decreased from 4.3 when primary healthcare was still

mostly nurse-driven to 2.5 currently with a doctor focus, and is expected to decrease further.

### Occupational health

In compliance with South Africa s MHSA, medical surveillance medical surveillance is ongoing at the Company s dedicated centres. A total of 44,321 medical surveillance examinations were conducted in fiscal 2013 (fiscal 2012: 47,894) including entry examinations (for new employees), annual examinations, exit (end of service) examinations, and out-of-cycle examinations (for transfers, for example).

In PNG, medical centres at Hidden Valley, Wafi and Wau provide full-time primary healthcare and occupational health surveillance to employees, dependents and the local community. While the Wau centre is only available to dependents and community members for emergencies, four community health facilities provide services at Babuaf near Wafi and Nauti, Kwembu and Winima near Hidden Valley. In PNG, 17,898 health contacts were made at all MMJV medical centres (fiscal 2012: 18,840).

Harmony aligns its reporting on occupational health statistics to international standards such as the International Labour Organization code of practice on recording and notification of occupational accidents and diseases, as well as the MHSA. Where employees are diagnosed with a compensable occupational illness, Harmony submits details on their behalf of the relevant bodies, depending on the illness and associated legislation. Harmony contributes annually to The Medical Bureau for Occupational Diseases and the Compensation Commissioner of Occupational Diseases a statutory body responsible for certification and compensation under the Occupational Diseases in Mines and Works Act of 1973 and the Rand Mutual Assurance Company an industry body providing compensation under the Compensation for Occupational Injuries and Diseases Act of 1993.

In PNG, an integrated business information system provides numerous administrative functions for health, safety, risk management and human resources. This includes a medical register that tracks and reviews each patient s progress from initial health contact throughout the treatment process.

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In South Africa, the primary occupational health risk areas in fiscal 2013 were noise-induced hearing loss ( **NIHL** ), occupational lung disease including silicosis, TB and other HIV-related illnesses, and heat stress. In PNG, the primary health risks at Hidden Valley were upper respiratory tract infections ( **URTIs** ) and malaria, neither of which are occupational illnesses. However, given the impact on our workforce and communities, we have invested considerable financial and human resources in proactively combating these conditions.

**Noise-induced hearing loss**: Harmony is committed to industry milestones for NIHL under the auspices of the Mine Health and Safety Council ( MHSC ):

after December 2008, the hearing conservation programs implemented by the industry must ensure no deterioration in hearing greater than 10% among occupationally-exposed individuals; and

total noise emitted by all equipment in any workplace must not exceed 110dB(A) at any location (includes individual pieces of equipment) by December 2013.

The hearing conservation program at Harmony includes issuing individually moulded hearing protection devices for working areas with high noise levels. This includes all categories of underground employees and selected categories of surface occupations.

Harmony s strategy is to issue all exposed employees with personalised hearing protection devices, which reduce the noise level by 25 decibels. By year end, 96% of employees and 60% of contractors exposed to noise levels above 82dB(A) had been fitted with personalised hearing protection devices. The number of personalised devices issued to date was 27,329 at the end of fiscal 2013 (split 25,409 for employees and 1,920 for contractors). Encouragingly, contractor compliance increased notably during the year.

Although we made good progress with issuing personal hearing protection devices during the period, a concern was raised by Harmony s high-level audit team about compliance in using these devices in the workplace. More focus will therefore be placed on monitoring compliance at the workplace and reporting compliance levels. Training in the use and benefits of these devices is part of e-learning material used during annual refresher training.

Detecting hearing loss is done by audiometric testing during annual medical examinations and is measured against the employee s baseline test. Early detection enables management to counsel the employee at an early stage and to investigate the working area to prevent more serious loss of hearing. The project initiated at Oppenheimer Hospital in the Free State four years ago to detect NIHL (5 10% hearing loss) early is now available at our healthcare facilities. This project is monitored through annual audiograms for all employees exposed to noise risk at work.

In fiscal 2013, the number of NIHL cases compensated dropped to 52 (fiscal 2012: 101). While we are committed to continuous improvement, the industry target to prevent any hearing loss of more than 10% against each exposed individual s baseline remains a challenge for Harmony.

**Occupational lung disease**: Silicosis and TB are the two primary occupational lung diseases in the gold mining industry in South Africa and remain long-term concerns for Harmony. Chronic obstructive airways disease does occur, but less frequently.

**Silicosis** 

Silicosis is linked to long-term exposure to quartz silica dust and can cause increased susceptibility to TB. Under the auspices of the MHSC, Harmony committed to the following milestones:

95% of all exposure measurement results to be below the occupational exposure limit for respirable crystalline silica of 0.1mg/m³ by December 2008. Compliance improved steadily through fiscal 2013 to 93.5%, although still below the milestone requirement. Every measurement above 0.1mg/m³ is investigated and addressed. Harmony has recorded a significant improvement in the year-on-year comparison of exposure groups; and

from December 2013, using present diagnostic techniques no new cases of silicosis among previously unexposed individuals (not exposed before 2008, or someone entering the industry in 2008) this milestone is monitored by the submission department, in-house technology and the Rand Mutual Assurance Company. Harmony s approach to minimising dust includes a range of engineering controls, in addition to two focal areas:

Installing fogger systems at strategic positions

Harmony adopted this practice as part of the MOSH initiative, and has installed 66 foggers in areas of potential high dust exposure as planned. All Harmony s South African operations are members of the MOSH community of practice for adoption and meet regularly to discuss progress and challenges in implementing leading practices.

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Footwall and sidewall treatment in intake airways

Intake airways are treated to allay dust by means of spray cars at pre-determined intervals or with fixed spray systems that can be activated manually or automatically on pre-set timers.

The silica quartz content of dust is highly variable. This presents a challenge in measuring the effectiveness of engineering controls to minimize dust in the workplace. Harmony thus concentrates on controlling the total respirable dust load, which will automatically reduce silica quartz exposure.

In general, the dust loading decreased from fiscal 2012. Dust control in stoping workplaces remains a concern which is being addressed through training and awareness programmes. All development ends are equipped with water blasts to settle dust directly after the blast.

To date, no new cases of silicosis have been reported among individuals who entered the industry since 2008. In fiscal 2013, 772 suspected (submitted) cases (fiscal 2012: 872) were reported to the Medical Bureau of Occupational Diseases, and 185 cases certified (fiscal 2012: 161). The annual rate for certified cases fluctuates depending on backlogs at the reporting authority.

Silicosis continues to receive heightened attention and Harmony, as a member of the Chamber of Mines, is participating in processes to address issues relating to historical silicosis cases. In August 2012, Harmony and its subsidiaries were served with court papers entailing an application by three former employees requesting the South Gauteng High Court to certify a class action for silicosis sufferers. In essence, the applicants want the court to declare them as representing a class of people for purposes of instituting an action for relief and to obtain directions as to what procedure to follow in pursuing the relief required against Harmony its subsidiaries. Harmony has retained legal counsel in this regard. Due to the limited information available on any claims and potential claims and the uncertainty of the outcome of these claims, no estimation can be made for the possible obligation. Please see Item 8. *Financial Information Legal Proceedings* for further information.

### **Tuberculosis**

TB hampers the health and productivity of workers (absenteeism, treatment costs, compensation, allocated resources, etc.) and there is increasing pressure on the gold mining industry to reduce its incidence. While the trend for TB across the industry is gradually declining, incidence rates are still unacceptably high. We continue to liaise and cooperate with local departments of health on specific TB training for nursing staff, and the additional resources required to improve our collective management of this disease.

In line with the World Health Organization ( **WHO** ) and the national TB strategic plan in South Africa, Harmony s comprehensive TB control program includes early case findings, directly observed therapy short-course, chemotherapy and a radiological TB screening project. Harmony exceeds the national plan in certain respects such as:

identifying early TB resistance through state of the art specialized generic and biochemical tests and analysis;

investigative diagnostic tests for early detection;

ultraviolet lights for infection control an additional 241 ultraviolet lights were installed during fiscal 2013, whilst the 790 ultraviolet lights installed during fiscal 2012 were maintained;

annual X-rays of employees exposed to dusty work environments for early TB detection; and

ongoing monitoring and education.

In fiscal 2013, 629 cases were certified (fiscal 2012: 568). In PNG, only two cases of TB have been reported over the last fiscal year.

Contractors are currently referred to state facilities for TB treatment and excluded from the calculation above. For optimal infection control, it is preferable to manage all TB cases, including contractors. As such, the TB management program will be extended to contractors to facilitate better control of contract-worker TB, certificates of fitness and potential cross-infection of Harmony employees.

In March 2013, we commissioned the Human Sciences Research Council, which specialises in TB and HIV research, to assess TB control in our Free State operations to identify and prioritise key attributable factors. This is expected to be complete by the end of October 2013, with key activities of the assessment including:

secondary analysis using data from TB clinics;

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qualitative and quantitative assessments from interviews;

review of TB documentation; and

infection control assessments in living environments and healthcare facilities.

Multidrug-resistant TB ( MDR TB ) remains a growing concern for the industry; treatment is costly and protracted (e.g. 18 months treatment means many more shifts lost), affected employees are unlikely to return to work which involves risk, and the disease has a high mortality rate despite treatment. With 36 cases of MDR TB diagnosed in fiscal 2013 (compared to 33 in fiscal 2012), the incidence rate per 100,000 of 113 is up 11% on the 97 recorded in the prior year. At the end of fiscal 2013, there were 68 employees on MDR TB treatment, compared to 95 at the end of fiscal 2012, reflecting the protracted treatment period.

### Heat stress

Extensive refrigeration and ventilation measures are in place at all operations where temperatures are above normal working ranges. These heat-tolerance testing and acclimatization programmes support and protect employees exposed to excessive heat in the workplace. In fiscal 2013, 16,577 (excluding Evander) heat tolerance tests were undertaken (fiscal 2012: 20,472).

### Upper respiratory tract infections

Hidden Valley is 3km above sea level but most employees are from lower, warmer areas. This regular altitude change contributes to respiratory ailments, mostly due to viral infections. 5,087 employees were treated for such complaints in fiscal 2013 (fiscal 2012: 5,428). A program has been developed to educate the workforce about URTIs, as well as gastro-intestinal hygiene, and is being rolled out across the operations.

### Malaria

PNG is a high-malaria zone with over 1.5 million cases identified each year by the WHO. We support provincial programs to eradicate the source, including spraying sites, distributing treated mosquito nets and providing treatment regimes.

In addition, a residual spraying program will begin in the Wafi-Golpu communities after completion of household and malaria surveillance surveys. This will then move to other high-risk communities in the Huon Gulf and Bulolo districts. The MMJV also began issuing treated mosquito nets as standard personal protective equipment to all employees and contractors at all sites: over 5,000 treated nets have been distributed to employees and contractors to protect their families against the disease. Ongoing malaria awareness education is provided to employees, contractors and communities through community health meetings, inductions and toolbox meetings.

In fiscal 2013, 1,812 employees were treated for malaria (fiscal 2012: 1,871). The number of people presenting with malarial symptoms rose slightly during fiscal 2013, albeit from a low base in the first quarter.

In addition, the joint venture partners are working with a non-profit partner, Oil Search Health Foundation ( **OSHF** ) to combat major community and employee health risks. The objective is to develop a plan to bring preventive medical treatment for the major employee illnesses (e.g. malaria, TB and gastro-intestinal) closer to the source of the problem. This will be done cost-effectively, and in a way that avoids the joint venture becoming the owner and operator of local

community hospitals and clinics.

By mid-year, OSHF had completed its baseline health assessment in our host communities. This will inform the structure and scope of the Medical Store Keeper ( MSK ) infrastructure in host communities. Following workshops with the joint venture s sustainability and medical staff, the scope of work was developed for phase 2, establishing the MSK system and training local (host community) staff to man the MSK points. A portion of this training is focused on collecting reliable data on the status of community health in each area.

### HIV/AIDS Policy

Harmony has developed an extensive and appropriate response to HIV/AIDS over a number of years. Managing this pandemic is a critical component of our approach to sustainable development given the significant impact on our employees, their dependents, and local and labor-sending communities in South Africa. It manifests in higher absenteeism, reduced performance and loss of skills to the company, as well as the economic burden on households when the breadwinner becomes ill or dies. There is also an increased financial load on state healthcare facilities. See Item 3. Key Information Risk Factors Risks Relating to Our Business and the Gold Mining Industry HIV/AIDS poses risks to Harmony in terms of productivity and costs and Item 3. Key Information Risk Factors Risks Relating to Our Business and the Gold Mining Industry The cost of occupational healthcare services and the potential liabilities related to occupational health diseases may increase in the future .

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Management of HIV/AIDS

In South Africa, HIV prevalence level among employees in the Group in fiscal 2013 is estimated at 24% as reported in fiscal 2012. This estimate is based on best-available state information and empirical modeling undertaken for the Company in fiscal 2012. No prevalence testing may be undertaken by law. The model continues to suggest that prevalence levels in Harmony will decline over the next ten years as increased awareness and testing, combined early introduction of antiretroviral drugs, culminate in a reduced infection rate nationally.

We recognise that the following pillars are important in managing HIV/AIDS:

health promotion strategy aimed at changing attitudes towards HIV and AIDS using education and awareness programs;

preventative strategy to avoid or eliminate the threat of HIV and AIDS as well as associated health risks, and to significantly reduce the number of new cases;

evidence-based curative interventions to ensure appropriate treatment of all employees diagnosed with HIV and optimum outcomes at the point of care, including home-based care; and

monitoring compliance with treatment plans for affected individuals. HIV/AIDS continues to be managed at three levels in Harmony:

at a clinical level HIV symptoms are managed at our healthcare facilities;

Company-wide and mine-specific initiatives mine-based HIV/AIDS committees are an integral part of health and safety committees, which meet monthly; and

Group policy and practice level monitored by a healthcare specialist.

The program is managed by an external provider using qualified registered professional nurses and protocols aligned with the South African Department of Health, WHO and the HIV Clinicians Society of Southern Africa.

The focus on HIV/AIDS is part of a wider range of chronic diseases managed by the Company. Because the co-infection rate between TB and HIV/Aids is high, all healthcare workers pay special attention to the needs of immune-compromised employees. Voluntary counseling and testing ( VCT ) facilities, information and education are vital elements of our prevention campaigns. Equally, we focus on early detection as early intervention greatly increases the likelihood of long and healthy lives for employees. Harmony s approach that HIV/AIDS is a chronic illness and should be managed as such (like diabetes or hypertension) has had a positive impact on the response to VCT.

In the 2012 calendar year, we continued a year-long campaign targeting 100% VCT participation among our employees. By the end of fiscal 2013, some 90% of the Harmony workforce had received counselling, and 36% agreed to testing. A total of 6,490 individuals were tested (fiscal 2012: 9,861). Although we are making progress in terms of counseling, the poor uptake reflects the ongoing stigma attached to the pandemic. Over the past three years, 56,750 HIV/AIDS tests have been performed in Harmony for employees, contractors and some community members. To ensure consistent results throughout the company in terms of VCT and uptake, we are focusing on the role of health educators, peer educators and implementing an appropriate framework for an employee assistance programme. We continue to encourage HIV-positive employees to participate in Harmony s wellness programme. This includes counseling on lifestyle choices and nutrition, treating opportunistic infections and antiretroviral therapy ( ART ). All employees have access to ART, either through Group healthcare facilities or private medical aid schemes. State-funded facilities in South Africa also provide ART and some employees seek treatment there because of the stigma associated with the disease. Harmony supports the national HIV counseling and testing campaign and extended this to all primary healthcare facilities and occupational healthcare centres as an ongoing service in recent years.

In fiscal 2013, 4,460 employees participated in the highly active antiretroviral therapy program (fiscal 2012: 4,066).

### Radiation

Radon exposures at all Harmony operations are well-controlled through systemic and operational controls and barriers. All South African operations comply with the dose limit of 100mSv in five years, with a maximum exposure of 50mSv in a single year. Administrative controls are in place to ensure workers do not exceed the dose limits.

In addition to regular self-inspections and internal audits, the company achieved an average compliance index of 93% during 21 inspections and audits conducted by the National Nuclear Regulator. Radiological clearances are being conducted at decommissioning sites to facilitate the future declassification of these areas.

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# **Item 4A. UNRESOLVED STAFF COMMENTS**

There are no unresolved comments between the Company and the staff of the SEC s Division of Corporation Finance.

### Item 5. OPERATING AND FINANCIAL REVIEW AND PROSPECTS

You should read the following discussion and analysis together with the consolidated financial statements, including the related notes, appearing elsewhere in this annual report.

### Overview

We are currently the third largest producer of gold in South Africa and are an important producer in PNG. Our gold sales for fiscal 2013 were 1.20 million ounces of gold. As at June 30, 2013, our mining operations and projects reported total proved and probable reserves of approximately 51.5 million gold equivalent ounces and, in fiscal 2013, we processed approximately 20.7 million tons of ore.

For segment purposes, management distinguishes between Underground and Surface, with each shaft or group of shafts or open-pit mine managed by a team (headed by a single general manager) being considered to be an operating segment.

Our reportable segments are as follows:

Bambanani, Doornkop, Joel, Kusasalethu, Masimong, Phakisa, Target 1, Target 3, Tshepong, Unisel and Hidden Valley;

the Evander operation is classified as discontinued operations; and

all other shafts and surface operations, including those that treat historic sand dumps, rock dumps and tailings dams, are grouped together under *Other Underground* and *Other Surface* .

# **Critical Accounting Policies and Estimates**

The preparation of our financial statements in accordance with IFRS requires management to make estimates and assumptions that affect the reported results of our operations. Actual results may differ from those estimates. We have identified the most critical accounting policies upon which our financial results depend. Some of our accounting policies require the application of significant judgment and estimates by management in selecting the appropriate assumptions for calculating financial estimates. By their nature, these judgments are subject to an inherent degree of uncertainty and are based on our historical experience, terms of existing contracts, management s view on trends in the gold mining industry and information from outside sources.

Our significant accounting policies and critical accounting estimates and judgments are described in more detail in note 2 and 3, respectively, as well as the relevant notes to the consolidated financial statements. This discussion and analysis should be read in conjunction with the consolidated financial statements and related notes included in Item 18. *Financial Statements* . Management has identified the following as critical accounting policies because estimates used in applying these policies are subject to material risks and uncertainties. Management believes the

following critical accounting policies, together with the other significant accounting policies discussed in the notes to the consolidated financial statements, affect its more significant judgments and estimates used in the preparation of the consolidated financial statements and could potentially impact our financial results and future financial performance.

### Gold mineral reserves

Gold mineral reserves are estimates of the amount of ounces that can be economically and legally extracted from the Group s properties. In order to calculate the gold mineral reserves, estimates and assumptions are required about a range of geological, technical and economic factors, including quantities, grades, production techniques, recovery rates, production costs, commodity prices and exchange rates.

Estimating the quantities and/or grade of the reserves requires the size, shape and depth of the orebodies to be determined by analyzing geological data such as the logging and assaying of drill samples. This process may require complex and difficult geological judgments and calculations to interpret the data. These reserves are determined in accordance with the SAMREC Code, JORC and SEC Industry Guide 7.

Because the economic assumptions used to estimate the gold mineral reserves change from year to year, and because additional geological data is generated during the course of operations, estimates of the mineral reserves may change from year to year. Changes in the proved and probable reserves may affect the Group s financial results and financial position in a number of ways, for example depreciation and amortization charged in the income statement may change as they are calculated on the units-of-production method.

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The estimate of the total expected future lives of our mines could be materially different from the actual amount of gold mined in the future. See *Item 3*. Key Information Risk Factors Estimations of Harmony s gold reserve figures are based on a number of assumptions, including mining and recovery factors, future cash costs of production and the price of gold. As a result, quantities of gold produced may differ from current estimates.

# **Depreciation of Mining Assets**

Depreciation of mining assets is computed principally by the units of production method over the life-of-mine, based on estimated quantities of economically recoverable proved and probable reserves, which can be recovered in future from known mineral deposits.

The preparation of consolidated financial statements in compliance with IFRS requires management to assess the useful life of each of its operations separately based on the characteristics of each deposit and select the reserve/resource base that best reflects the useful life of the operation. In most instances, management considers the use of proved and probable reserves for the calculation of depreciation and amortisation expense to be the best estimate of the life of the respective mining operation. Therefore, for most of the Company s operations, we use proved and probable reserves only, excluding all inferred resources as well as any indicated and measured resources that have not yet been deemed economically recoverable.

In some instances, however, proved and probable reserves alone may not provide a realistic indication of the useful life of mine and related assets. In these instances, management may be confident that certain inferred resources will eventually be classified as measured and indicated resources, and if economically recoverable, they will be included in proved and probable reserves. Management is approaching economic decisions affecting the mine on this basis, but has not yet done the necessary development and geological drill work to improve the confidence to the required levels to designate them formally as reserves. In these cases, management, in addition to proved and probable reserves, may also include certain, but not all, of the inferred resources associated with these properties as the best estimate of the pattern in which the asset s future economic benefits are expected to be consumed by the entity.

Management only includes the proved and probable reserves and the inferred resources that have been included in the life-of-mine plan. To be included in the life-of-mine plan, resources need to be above the cut-off grade set by management, which means that the resource can be economically mined and is therefore commercially viable. This consistent systematic method for inclusion in the life-of-mine plan takes management s view of the gold price, exchange rates as well as cost inflation into account. The board of directors and management approach economic decisions affecting these operations based on the life-of-mine plans that include such resources. In declaring the resource, management would have had to obtain a specified level of confidence of the existence of the resource through drilling as required by the SAMREC Code or JORC. For further discussion on mineral reserves, see - Gold mineral reserves in this section.

During the periods presented, the Company added the inferred resources that were included in the life-of-mine plans at Doornkop and Masimong to the proved and probable reserves in order to calculate the depreciation expense. The depreciation calculation for all other operations was done using only the proved and probable reserves. At these two operations, there has been a steady conversion of the inferred resources included in the life-of-mine plan into measured and indicated resources that are then classified as reserves if economically viable. In addition, there have been no instances during the periods presented where subsequent drilling or underground development indicated instances of inappropriate inclusion of inferred resources in such

life-of-mine plans. As such, management is confident that the inclusion of the inferred resources included in the life-of-mine plan in calculating the depreciation charge is a better reflection of the pattern of consumption of the future economic benefits of these assets than would be achieved by excluding them.

Management s confidence in the economical recovery of these inferred resources is based on historical experience and available geological information. The surface drilling spread (surface boreholes) and underground advance drilling at Doornkop South Reef and Masimong have indicated that the portion of the inferred resources included in the life-of-mine plan exist and can be economically mined with a high level of confidence in the orebodies. The surface boreholes have been used to determine the existence of the orebodies as well as the location of major geological structures and the mineralogy of the orebodies. However, since further drilling and underground development necessary to classify the inferred resources as measured and/or indicated resources and then as reserves, if economically recoverable, has not been done yet, they remain in the inferred resource category. Geological drilling can only be done as and when the underground infrastructure is advanced.

Additional confidence in existence and commercial viability is obtained from the fact that the orebodies surrounding these two operations have already been mined over many years in the past. We mine continuations of the same reefs that these mined-out operations exploited. At Masimong and Doornkop South Reef, the geological setting of the orebodies are such that there is an even distribution of the mineralized content, and reliance can be placed on the comparable results of the surrounding mines. As these results are already known, simulations and extrapolations of the expected formations can be done with a reasonable degree of accuracy. Although this information will not allow the classification of inferred resources to measured and indicated resources and then as a reserve if economically viable, it does provide management with valuable information and increases the level of confidence in existence and grade expectation.

Future capital expenditure necessary to access these inferred resources, such as costs to complete a decline or a level, has also been included in the cash flow projections for the life-of-mine plan and have been taken into account when determining the pattern of depreciation charge for these operations.

Due to the fact that the economic assumptions used to estimate the proved and probable reserves and resources change from year to year, and because additional geological data is generated during the course of operations, estimates of the resources and proved and probable reserves may change from year to year. Changes in the proved and probable reserves and the inferred resource base used in the life-of-mine plan may affect the calculation of depreciation and amortization. The change is recognized prospectively.

The relevant statistics for the two operations have been included below.

		Applicable to the	Fiscal Year E	anded June 30
Doornkop South Reef		2013	2012	2011
A	Years (life-of-mine plan)	16	14	16
B	Reserves (Tons million)	5.4	3.5	2.3
В	Resources (Tons million)	29.1	25.5	25.2
D	Total inferred resources (Tons million)	23.3	21.2	22.0
E	Inferred resources included in life-of-mine plan (Tons million)	14.3	14.5	15.1

# **F** Future development costs

	Rand million	227.3	227.0	205.0
	US\$ million	27.7	33.5	26.9
G	Depreciation expense for the fiscal year			
	As reported (US\$ million)	12.1	13.4	4.9
	Excluding inferred resources (US\$ million)	23.2	35.7	12.2

Ma	simong	Applicable to the 2013	ne Fiscal Year 2012	r Ended June 3 2011
A	Years (life-of-mine plan)	13	12	13
В	Reserves (Tons million)	7.6	7.3	8.1
В	Resources (Tons million)	124.9	99.2	106.7
D	Total inferred resources (Tons million)	100.9	81.8	87.9
E	Inferred resources included in life-of-mine plan (Tons million)	4.9	5.1	4.9
F	Future development costs			
	Rand million	0.0	85.0	21.1
	US\$ million	0.0	12.5	2.8
G	Depreciation expense for the fiscal year			
	As reported (US\$ million)	14.1	12.5	8.9
	Excluding inferred resources (US\$ million	on) 15.8	13.9	10.0

# Impairment of Property, Plant and Equipment

We review and evaluate our mining assets for impairment when events or changes in circumstances indicate the related carrying amounts may not be recoverable. An impairment loss is recognized for the amount by which the asset s carrying amount exceeds its recoverable amount. The recoverable amount is the higher of an asset s fair value less costs to sell and value in use. For the purposes of assessing impairment, assets are grouped at the lowest levels for which there are separately identifiable cash flows (cash generating units). Each operating shaft, along with allocated common assets such as plants and administrative offices, is considered to be a cash generating unit as each shaft is largely independent of the cash flows of other shafts and assets.

Future cash flows are estimated based on estimated quantities of recoverable minerals, expected gold prices (considering current and historical prices, price trends and related factors), production levels and cash costs of production, capital and reclamation costs, all based on detailed life-of-mine plans. The significant assumptions in determining the future cash flows for each individual operating mine at June 30, 2013, apart from production cost and capitalized expenditure assumptions unique to each operation, included a short-term gold price of US\$1,250 per ounce, while the medium- and long-term gold price used were US\$1,300 and US\$1,400 per ounce, respectively. The term recoverable minerals refers to the estimated amount of gold that will be obtained from proved and probable reserves and related exploration stage mineral interests, except for other mine-related exploration potential and Greenfields exploration potential discussed separately below, after taking into account losses during ore processing and treatment. Estimates of recoverable minerals from such exploration stage mineral interests are risk adjusted based on management s relative confidence in such materials. With the exception of other mine-related exploration potential and Greenfields exploration potential, estimates of future undiscounted cash flows are included on an area of interest basis, which generally represents an individual operating mine, even if the mines are included in a larger mine complex. In the case of mineral interests associated with other mine-related exploration potential and Greenfields exploration potential, cash flows and fair values are individually evaluated based primarily on recent exploration results and recent transactions involving sales of similar properties.

As discussed above under *Gold mineral reserves*, various factors could impact our ability to achieve our forecasted production schedules from proved and probable reserves. Additionally, gold prices, capital expenditure requirements

and reclamation costs could differ from the assumptions used in the cash flow models used to assess impairment. The ability to achieve the estimated quantities of recoverable minerals from exploration stage mineral interests involves further risks in addition to those factors applicable to mineral interests where proved and probable reserves have been identified, due to the lower level of confidence that the identified mineralized material can ultimately be mined economically. Assets classified as other mine-related exploration potential and Greenfields exploration potential have the highest level of risk that the carrying value of the asset can be ultimately realized, due to the still lower level of geological confidence and economic modeling.

During fiscal 2013, we recorded an impairment of assets of US\$274 million, while a net reversal of impairment of assets of US\$7 million was recorded in fiscal 2012 and an impairment of US\$39 million was recorded in fiscal 2011. Material changes to any of these factors or assumptions discussed above could result in future impairment charges, particularly around future gold price assumptions. A 10% decrease in gold price assumed at June 30, 2013 would have resulted in the additional impairment amounting to US\$2 million for Steyn 2 (included in the Bambanani segment), an impairment at Target 1 of US\$35 million and an additional impairment to Hidden Valley of US\$197 million.

# Carrying Value of Goodwill

We evaluate, on at least an annual basis, the carrying amount of goodwill to determine whether current events and circumstances indicate that such carrying amount may no longer be recoverable. For the purposes of assessing impairment, assets are grouped at the lowest levels for which there are separately identifiable cash flows (cash generating units). Each operating shaft, along with allocated common assets such as plants and administrative offices, is considered to be a cash generating unit as each shaft is largely independent of the cash flows of other shafts and assets. To accomplish this, we compare the recoverable amounts of our cash generating units to their carrying amounts. The recoverable amount is the higher of an asset s fair value less costs to sell and value in use. If the carrying value of a cash generating unit were to exceed its recoverable amount at the time of the evaluation, an impairment loss is recognized by first reducing goodwill, and then the other assets in the cash generating unit on a pro rata basis. Assumptions underlying fair value estimates are subject to risks and uncertainties. If these assumptions change in the future, we may need to record impairment charges on goodwill not previously recorded.

As at June 30, 2013 substantially all of our goodwill related to the Phakisa, Tshepong and Bambanani cash generating units, for which there is no significant risk of failing the goodwill impairment test. During fiscal 2011, we recorded an impairment of US\$1.5 million on goodwill relating to St Helena (in *Other Underground* segment). No impairment was recorded during fiscal 2012 or fiscal 2013.

### Provision for environmental rehabilitation

Our mining and exploration activities are subject to various laws and regulations governing the protection of the environment. Estimated long term environmental obligations, comprising pollution control, rehabilitation and mine closure, are based on the Group's environmental management plans. Annual changes in the provision consist of finance costs relating to the change in the present value of the provision and inflationary increases in the provision estimate, as well as changes in estimates. The present value of environmental disturbances created is capitalized to mining assets against an increase in the rehabilitation provision. The rehabilitation asset is depreciated as discussed above. Rehabilitation projects undertaken, included in the estimates are charged to the provision as incurred. The cost of ongoing current programs to prevent and control pollution is charged against income as incurred.

# Deferred taxes

The taxable income from gold mining at our South African operations was subject to a formula to determine the taxation expense. The tax rate calculated using the formula was capped to a maximum mining statutory rate of 34% for fiscal 2013 and fiscal 2012 (43% for fiscal 2011), depending on whether or not the taxpayer has elected to be exempt from Secondary Taxation on Companies). With the introduction of Dividends Tax in South Africa on April 1, 2012, the higher tax rate formula was abolished resulting in lower income tax and deferred tax rates in some of our entities. See *Item 5. Results of Operations Continuing Operations Income and Mining Taxes*. Taxable income is determined after the deduction of qualifying mining capital expenditure to the extent that it does not result in an assessed loss. Excess capital expenditure is carried forward as unredeemed capital expenditure and is eligible for deduction in future periods, taking the assessed loss criteria into account. Further to this, mines are ring-fenced and are

treated separately for tax purposes, with deductions only being available to be claimed against the mining income of the relevant ring-fenced mine.

In terms of IAS 12 Income Taxes, deferred tax assets and liabilities are measured at the tax rates that are expected to apply to the period when the asset is realized or the liability is settled, and at our South African operations, such average tax rates are directly impacted by the profitability of the relevant ring-fenced mine. The deferred tax rate is therefore based on the current estimate of future profitability of an operation when temporary differences will reverse, based on tax rates and tax laws that have been enacted at balance sheet date.

The future profitability of each ring-fenced mine, in turn, is determined by reference to the life-of-mine plan for that operation. The life-of-mine plan is based on parameters such as the Group s long term view of the US\$ gold price and the Rand/US\$ exchange rate, as well as the reserves declared for the operation. As some of these parameters are based on market indicators, they differ from one year to the next. In addition, the reserves may also increase or decrease based on updated or new geological information.

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We do not recognize a deferred tax asset when it is more likely than not that the asset will not be utilized. Assessing recoverability of deferred tax assets requires management to make significant estimates related to expectation of future taxable income. Estimates of future taxable income are based on forecasted cash flows from operations, reversals of deferred tax liabilities and the application of existing tax laws in each jurisdiction. To the extent that future taxable income differs significantly from estimates, our ability to realize the net deferred tax assets recorded at the balance date could be impacted. Additionally, future changes in tax laws in the jurisdictions in which we operate could limit our ability to obtain the future tax benefits represented by deferred tax assets recorded at the balance date.

During fiscal 2013, management evaluated the deferred tax asset related to Hidden Valley, following the recognition of the impairment of assets. Harmony derecognized the deferred tax asset to the extent which future taxable profits are no longer probable. The full amount related to Hidden Valley of US\$56 million was derecognized. Subsequent increases in the deferred tax asset will be recognized when future taxable profits are probable.

### Revenue

Most of our revenues are derived from the sale of gold. As a result, our operating results are directly related to the price of gold. Historically, the price of gold has fluctuated widely. The gold price is affected by numerous factors over which we do not have control. See *Item 3. Key Information Risk Factors The profitability of our operations, and cash flows generated by those operations, are affected by changes in the price for gold. A fall in the gold price below our cash cost of production for any sustained period may lead to losses and require Harmony to curtail or suspend certain operations .* 

As a general rule, we sell our gold produced at market prices to obtain the maximum benefit from increases in the prevailing gold price and do not enter into hedging arrangements such as forward sales or derivatives that establish a price in advance for the sale of our future gold production.

Significant changes in the price of gold over a sustained period of time may lead us to increase or decrease our production in the near-term.

### Harmony s Realized Gold Price

The average gold price in US dollars received by us has generally increased since January 1, 2003. In fiscal 2013, the average gold price in US dollars received by us for continuing operations was US\$1,603 per ounce. The market price for gold (and, accordingly, the price received by us) is affected by numerous factors over which we have no control. See *Item 3. Key Information Risk Factors The profitability of our operations, and cash flows generated by those operations, are affected by changes in the price for gold. A fall in the gold price below our cash cost of production for any sustained period may lead to losses and require Harmony to curtail or suspend certain operations .* 

The following table sets out the average, the high and the low London Bullion Market price of gold and our average US dollar sales price during the past three fiscal years:

	Fisc	Fiscal Year Ended		
		June 30,		
	2013	2012	2011	
		(\$/oz)		
Average	1,605	1,673	1,369	

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High	1,792	1,895	1,553
Low	1,192	1,483	1,157
Harmony s average sales price continuing operations	1,603	1,681	1,370

Our average sales price differs from the average gold price due to the timing of our sales of gold within each year.

### Costs

Our cash costs typically make up between 70% and 75% of our total costs (excluding impairments). The remainder of our total costs consists primarily of exploration costs, employment termination costs, corporate and sundry expenditure, and depreciation and amortization. Our cash costs consist primarily of production costs exclusive of depreciation and amortization. Production costs are incurred on labor, equipment, consumables and utilities. Labor costs are the largest component and typically comprise between 60% and 65% of our production costs.

Our cash costs for continuing operations have increased from US\$1,004 per ounce in fiscal 2011 to US\$1,154 in fiscal 2013, mainly as a result of lower production volumes, the impact of increased labor and energy costs, as well as inflationary pressures on supply contracts.

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Our US translated costs are very sensitive to the exchange rate of the Rand and other non-US currencies to the US dollar. See *Item 5. Operating and Financial Review and Prospects Exchange Rates*. Appreciation of the Rand and other non-US currencies against the US dollar increases working costs at our operations when those costs are translated into US dollars. See *Item 3. Key Information Risk Factors Foreign exchange fluctuations could have a material adverse effect on Harmony's operational results and financial condition*.

The average exchange rate of the South African Rand depreciated approximately 14% against the US dollar in fiscal 2013 compared to fiscal 2012. In the case of our International operations, the Australian dollar remained unchanged, while the Kina appreciated by 4% against the US dollar in fiscal 2013.

Going forward, we expect a longer term decrease in the real cash costs per ounce, primarily as a result of the completion of the major development projects, being Doornkop, Kusasalethu, Phakisa and Hidden Valley. As these operations ramp up to full production in the next three or so years, the volumes mined will increase and reduce the unit cost per ounce. This will, however, be offset by the increased production costs from the development projects. Management will continue with a thorough review of costs at all operations and ensure that costs are properly managed and within budget. However, it should be noted that there are risks beyond our control such as safety stoppages, which would result in production being negatively affected while certain costs would still be incurred. This could result in our costs not decreasing as expected. This is discussed in more detail in *Item 3. Key Information Risk Factors Given the nature of mining and the type of gold mines we operate, we face a material risk of liability, delays and increased cash costs of production from environmental and industrial accidents and pollution and The nature of our mining operations presents safety risks .* 

# Reconciliation of Non-GAAP Measures

Total cash costs and total cash costs per ounce are non-GAAP measures.

Our cash costs consist primarily of production costs and are expensed as incurred. The cash costs are incurred to access ore to produce current mined reserves. Cash costs do not include capital development costs, which are incurred to allow access to the ore body for future mining operations and are capitalized and amortized when the relevant reserves are mined.

Total cash costs include mine production costs, transport and refinery costs, applicable general and administrative costs, costs associated with movements in production inventories, ore stockpiles, as well as ongoing environmental rehabilitation costs as well as transfers to and from deferred stripping and costs associated with royalties. Employee termination cost is included, however employee termination costs associated with major restructuring and shaft closures are excluded. The costs associated with movements in production inventories are excluded from total cash costs. Gold ounces produced are used as the denominator in the total cash costs per ounce calculation.

Changes in cash costs per ounce are affected by operational performance, as well as changes in the currency exchange rate between the Rand and the US dollar and, in the case of the International operations, the Australian dollar and Kina. Total cash costs and total cash costs per ounce are non-GAAP measures. Total cash costs and total cash costs per ounce should not be considered by investors in isolation or as an alternative to production costs, cost of sales, or any other measure of financial performance calculated in accordance with IFRS. In addition, the calculation of total cash costs and total cash costs per ounce may vary from company to company and may not be comparable to other similarly titled measures of other companies. However, we believe that cash costs per ounce is a useful indicator to investors and management of a mining company s performance as it provides (1) an indication of the cash generating capacities of our mining operations, (2) the trends in cash costs as the Company s operations mature, (3) a measure of a company s performance, by comparison of cash costs per ounce to the spot price of gold and (4) an internal benchmark

of performance to allow for comparison against other companies.

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# Continuing operations

The following is a reconciliation of total cash costs from continuing operations, as a non-GAAP measure, to the nearest comparable GAAP measure, cost of sales from continuing operations:

	Fiscal year ended June 30,		
	2013	2012	2011
	(in \$ millions,	except for oun	ce amounts)
Total cost of sales from continuing operations under			
IFRS	1,831	1,561	1,533
Depreciation and amortization expense	(220)	(247)	(230)
Rehabilitation credit/(costs)	2	2	(6)
Care and maintenance costs of restructured shafts	(8)	(11)	(17)
Employment termination and restructuring costs	(5)	(10)	(20)
Share-based payments	(30)	(11)	(18)
(Impairment)/reversal of impairment of assets	(274)	7	(39)
Other	(4)	(15)	15
Gold inventory movement	20	6	(17)
Total cash costs from continuing operations	1,312	1,282	1,201
Per ounce calculation:			
Ounces produced <sup>(1)</sup>	1,137,297	1,165,046	1,195,361
Total cash cost per ounce from continuing operations	1,154	1,100	1,004