



Environmental performance 2013





# Environmental performance

## SCOPE OF SUPPLEMENTAL INFORMATION

The supplemental information on our website supplements the integrated annual report and covers the financial year from 1 July 2012 to 30 June 2013 (FY13). It follows a standalone but similarly comprehensive report for FY12. In line with its commitment to the principle of integrated reporting, Harmony Gold Mining Company Limited (Harmony) has again incorporated its broader social, environmental and economic performance throughout this report in line with the requirements of the King Report on Governance for South Africa (King III).

The aim of this information is to give all our stakeholders – shareholders, investors, employees, suppliers, regulatory authorities and governments around the world – an informative description of Harmony's business and operations, their impacts and the sustainable value we create.

The integrated annual report and supplemental information cover all Harmony's wholly owned operations in South Africa, as well as its joint venture in Papua New Guinea (PNG). They exclude discontinued operations, unless otherwise stated.

This data has been compiled in accordance with the G3 guidelines of the Global Reporting Initiative (GRI) and King III. All information covers FY13 with comparative annual data provided for information. Financial data is aligned with International Financial Reporting Standards (IFRS) as issued by the International Accounting Standards Board, the South African Companies Act, No 71 of 2008 (the act) and the Listings Requirements of the JSE Limited (JSE).

Any material restatements and changes are fully described in the relevant sections or at the beginning of the integrated annual report if their impact is company-wide.

Group material issues are disclosed in the integrated annual report, while discipline-specific issues precede each section in the supplemental information.

Harmony is committed to accurate, meaningful reporting. Acknowledging that this is a process of continual improvement, key sustainability indicators are externally assured each year, while preparatory work is completed on other indicators to ensure we steadily expand the scope of assurance. The report of our external assurers is on page 86 of the integrated annual report.

Detailed disclosure on Harmony, including regulatory filings, press releases, stock exchange announcements and quarterly reports, is available on our website at [www.harmony.co.za](http://www.harmony.co.za).



### FEEDBACK

We welcome your feedback to ensure we report on issues that matter to you. Go to [www.harmony.co.za](http://www.harmony.co.za) for the feedback form.

Specific comments and suggestions can also be directed to:

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Company secretary

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Throughout this report, unless otherwise stated:

- \$ or dollar refers to US dollars
- K refers to the currency of Papua New Guinea (kina)
- All production volumes are in metric tonnes (t)

For a full glossary of terms and acronyms please see our supplemental information suite at

[www.harmony.co.za/investors](http://www.harmony.co.za/investors)

# Environmental



## HIGHLIGHTS

- New group environmental targets established for FY14 to FY18, after Harmony met all key targets for the past five years
- Third in Carbon Disclosure Project, top 10 constituent of Nedbank BettaBeta Green exchange trade fund
- Successful rehabilitation programme reduced liability in specific mining rights by R145 million
- Sustainability framework approved
- Revised environmental policy approved
- Demand-side energy management projects (electrical energy efficiency initiatives) rolled out
- Showing improved energy efficiency
- 60% of Hidden Valley energy consumption is renewable

## Challenges

- Changing legislative framework and potential impact on business
- Regulators' institutional capacity constraints resulting in delays and backlogs in issuing licences
- Complexity of legacy issues and regional environmental impacts, as well as apportionment of liability in these cases
- Carbon tax impacts on business sustainability
- Reduced availability of Eskom funding for demand-side management initiatives
- Rising water and electricity costs impacts operational efficiency and drives conservation efforts

A number of compliance objectives are emerging in the environmental field, ranging from carbon tax to dual reporting between government departments, water targets for the mining industry and new legislation. Accordingly, we have reprioritised our objectives to ensure compliance as a minimum:

## OBJECTIVES IN FY13

Objective	Progress
Move to zero-discharge (closed-loop) system within five years for most operations	–
Process-water recycling to reduce freshwater intake (reduction of water footprint)	✓
Optimising mineral and non-mineral waste management	✓
Reduce environmental incidents, particularly water discharge and incidental overflow, and dust management	–
Energy efficiency and renewable energy projects	✓
Land management – accelerating rehabilitation programme	✓

✓ Completed or on track; – No change

# Material issues\*

- Water management to ensure consumption efficiencies, pollution prevention and control and availability for operational delivery.
- Decreasing environmental footprint and consequently reducing environmental liability
- Maximising sustainable value creation from mine-affected land
- Improving legal compliance
- Energy and carbon management, and reducing the carbon footprint

\*The section on Harmony's approach to sustainability (page 72 of the integrated annual report) details how we identified our material issues.

## Environmental performance

### Management approach

We recognise the impact of our business on surrounding communities and natural environments, and thus on our sustainability. Notwithstanding our responsibility to the environment, a profitable business enables us to better mitigate our environmental impacts.

Our aim is to ensure that we mitigate, manage and control any impacts using the resources generated by a profitable company. To achieve this, we have revised our environmental strategy, identifying key risks and instituting management systems to control and reduce these risks.

Under the company's revised environmental strategy, key risks were identified and management systems instituted to control and reduce these risks. Based on environmental assessments at our operations, objectives and targets were set; implementation of these management controls and its subsequent risk-reduction performance is closely tracked.

A board-approved environmental policy ([www.harmony.co.za/sustainability/governance](http://www.harmony.co.za/sustainability/governance)) supports this strategy to optimise environmental performance by:

- Managing the environment as an integral part of our business
- Focusing on the effectiveness of risk controls
- Reducing our environmental liability
- Ensuring sustainability, especially on mine closures
- Product life cycle stewardship
- Creating a sharing, learning, challenging and innovative environmental culture in Harmony
- Ensuring environmental compliance through internal and external audits

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 (EMSs) and implemented via the ISO 14001 system.

During the year, 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.

The social and ethics committee of the board has oversight of environmental strategy and performance in Harmony. In addition to a dedicated executive manager, an environmental leadership committee drives improvement strategically at group level, cascading down to the operations. At each operation, general managers are accountable for environmental performance, and each operation develops annual environmental management plans to identify opportunities to improve compliance and minimise pollution.



## Environmental performance

### **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 Mineral and Petroleum Resources Development Act (MPRDA), environmental management programmes (EMPs) for each operation have been approved by the Department of Mineral Resources (DMR). These are amended when necessary and resubmitted to the department.

Integrated water use licences were submitted for all operations as early as 2006. In the main, Harmony's operations are legitimate water users, operating under associated permits, licences or directives. At Kalgold, Harmony has applied for a water use licence and requested an interim directive.

Other key legislation for Harmony includes compliance with the National Environmental Management Act (NEMA), National Water Act (NWA) and the National Nuclear Regulator (NNR) Act. Harmony has received an exemption from the nuclear regulator's certificate of registration process for Kalgold as radiation levels are quite low at that operation.

Harmony received no environmental fines or sanctions in FY13. 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
- Accelerated rehabilitation and access to trust funds to reduce the environmental footprint.

In Papua New Guinea (PNG), all elements of Hidden Valley's environmental management programme are in place along with all other elements required under the ISO 14001 management standard. Environmental training and awareness is integrated into the business through an induction presentation to new employees and a monthly environmental awareness initiative communicated via the internet and toolbox talks for the workforce. In addition, front-line leadership training courses include an environment component.

The PNG Department of Environment and Conservation (DEC) commissioned a third-party compliance audit of Hidden Valley mine three years ago to address 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 appointment of an external stakeholder advisory panel. Since then, Hidden Valley has systematically implemented the environmental improvement plan to the satisfaction of the DEC and local landowners, with only two of 40 required actions outstanding by the end of the review period.

The Hidden Valley project's relationship with key stakeholders remains good and the joint-venture partners continue to be guided by advice from the technical advisory committee (an expert, independent and multi-stakeholder body) and external stakeholder advisory panel. Notably, the panel's annual report commended Hidden Valley for the transparent manner in which it is addressing key environmental and related social issues, and commented that the mine is establishing itself as a leader in terms of maintaining an environmentally sustainable and socially responsible mine.

### **ISO 14001 IMPLEMENTATION**

In line with our business strategy of building on growth and long-term assets, all existing operations comply with the International Standards Organisation's ISO 14001 standard while all new and long-life assets will be ISO-certified by 2015. To date, 70% of our assets are certified. Bambanani and Joel will be certified at the end of FY14. Tshpong, Phakisa, Masimong, Target plant and Harmony 1 plant received integrated certification (ISO 14001, OHSAS 18000 and ISO 9000) in the prior period.

As a few of our assets are nearing the end of their lives, a certification system adds only short-term value. All our operations with approved EMPs have outlined closure principles, which will be expanded once these operations (such as Steyn 2 and Unisel) near final closure. Closure plans will be drafted within five years of the event to align with ISO 14001 principles. The PNG operations are on track for certification in FY15. The internal certification gap audit was conducted in the final quarter of the year.

## Environmental performance

### ENVIRONMENTAL TARGETS

A review of group environmental targets for the past five years confirmed that Harmony had met all key targets by year end.

#### Targets FY09 – FY13

Key performance indicator	Performance		
	Baseline	Target	Actual FY09 – FY13 %
Water use for primary activities	FY08	10% reduction	67
Electricity	FY05	10% reduction	29
Carbon footprint intensity	FY05	10% reduction	28
Environmental legal compliance	FY08	0 fines	100
Water recycled	FY08	15% improvement	36
Each operation exceeding 100 000t CO <sub>2</sub> e emissions must develop and maintain energy conservation plans by 2013			100

New five-year targets have been set from FY14 – FY18. These are more conservative given the over-performance in the current five-year period. All targets have been evaluated at operational level and opportunities were identified to support the achievement of these targets over the next five years.

#### Group aggregate targets FY14 – FY18

	Baseline	FY18 target %
Reduce water use for primary activities – intensity and absolute	FY13	4.5
Reduce fresh water consumption (kl/t treated)	FY13	5
Reduce electricity consumption absolute	FY08	3
Reduce electricity consumption (MWh/t treated)	FY08	2
Reduce total carbon emissions	FY08	3
Reduce carbon emission intensity (CO <sub>2</sub> /t treated)	FY08	2
Environmental legal compliance (fines)	FY13	100
Improve on percentage water recycled (intensity and absolute)	FY13	5
Implementation of biodiversity action plans	FY13	80
Reduction in land available for rehabilitation	FY13	2

t/treated – tons of ore treated

### RESPONSIBLE USE OF RESOURCES

Our strategy is to manage available resources effectively and responsibly. Accordingly, over the past three years, all key group standards have been revised and new standards developed. In FY13, implementation of these standards has been closely monitored to ensure we meet our environmental targets and effectively manage our environmental exposures.

#### Water

Harmony's operations use significant amounts of water, and the growth of our assets depends on access to this resource. Although supply is adequate at present, water is rapidly becoming a competitive resource.

## Environmental performance

Internal risk assessments in FY13 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 water supply.

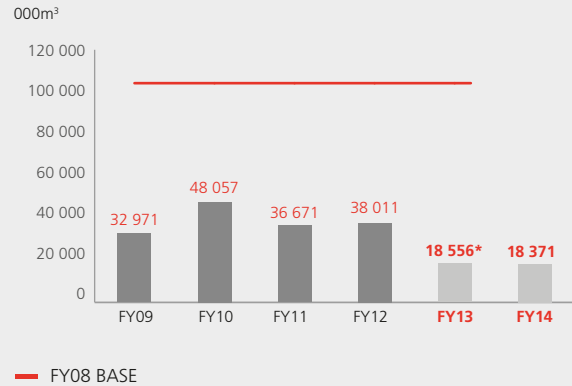
Intermittent water supply could pose a significant threat to the operational continuity of our mines and therefore the profitability of our business.

Harmony has adjusted its strategy to reduce its dependency on existing groundwater infrastructure, and a group-wide campaign to reuse processed water and continues to produce excellent results.

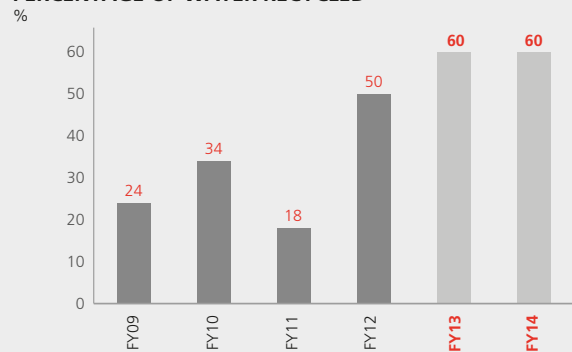
Specific actions to manage the risk of drought during the year included:

- A hydrological study was completed for all the Free State and Kalgold operations to ensure sufficient measures are in place so that no mine ever stands idle due to lack of water. These include:
  - Installing additional boreholes to supplement water supply
  - Process changes to improve water efficiency
  - Optimisation of water separation and recycling systems
  - Building larger return-water dams
  - Installing large covered tanks to reduce evaporation
- We also implemented specific water-related projects at a cost of almost R20 million:
  - Implemented a water optimisation project at the Free State operations to reduce dependency on potable water and maximise use of affected water
  - Invested in additional boreholes and groundwater infrastructure at Kalgold
  - Desilting initiative at Kusasaletu to increase the capacity of the return-water dam
  - Dredging water dams in the Free State to increase water-holding capacity

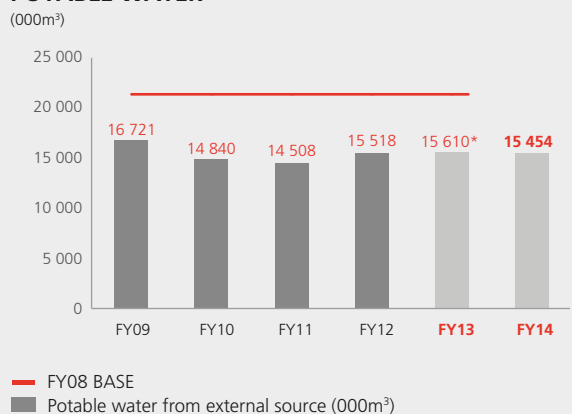
### WATER USE FOR PRIMARY ACTIVITIES



### PERCENTAGE OF WATER RECYCLED



### POTABLE WATER



\* Reduction is due to the exclusion of Evander and the revised definition of water used for primary activities. FY09 – FY12 includes statistics for Evander



## Environmental performance

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 underground mining operations and is pumped to surface
- Recycled water
- Boreholes.

Total water used for primary activities in FY13 decreased to 18 556 000m<sup>3</sup> (FY12: 38 011 000m<sup>3</sup>).

Our long-term targets to FY18 are to reduce water used for primary activities by 4.5%, while increasing the amount of

water recycled by 5% based on the average performance in each indicator across FY09 – FY13. We also aim to improve our efficiency of water consumption per tonne treated by 4.5% by 2018.

Acid mine drainage is not an issue for Harmony. There may be some potential for acid mine drainage decanting at Kusasalethu and possibly Doornkop, but only at closure, and Harmony continues to participate in regional closure forums to ensure this is appropriately managed.

During the year, we recorded a few instances of discharge into a riverine environment (page 16). These were immediately addressed, and steps taken to monitor and manage any impact.

### Water used for primary activities

(000m <sup>3</sup> )	Target FY14	FY13	FY12	FY11	FY10	FY09	Baseline FY08
Water used for primary activities	18 371	18 556*	38 011	36 671	48 057	32 971	104 763
Potable water from external sources	15 454	15 610	15 519	14 509	14 840	16 721	21 323
Non-potable water from external sources	2 916	2 946	22 492	22 163	10 570	16 249	83 429
Surface water used	1 218	1 230	1 023	1 601	2 978	111	55 088
Groundwater used	1 699	1 716	21 469	22 096	25 665	15 742	28 352
Water recycled in process	27 317	27 593	38 337	8 266	25 107	10 491	34 521
Percentage of water recycled	60	60	50	18	34	24	25

\* Reduction is due to the exclusion of Evander and the revised definition of water used for primary activities

In PNG, high average rainfall and low evaporation levels combined with steep unstable topography present significant water management challenges for Hidden Valley mine:

- Controlling rainfall run-off to prevent erosion and sediment run-off to the river system
- Conserving site-water use to limit volumes of contaminated waste water discharged into the river system (including sewage effluent and discharge water from the tailings storage facility).

Conserving process water is particularly important at Hidden Valley as discharge water must first be treated to remove cyanide, and then filtered through activated carbon to remove contaminants. Water is only discharged to maintain a small ponded area on the tailings storage facility which, in turn, is required to maintain the integrity of the dam. The minimum volumes of raw water are therefore drawn from the river system for key processes. When combined with high rainfall and low evaporation, this draw creates a high positive water balance, which requires a high rate of discharge from the tailings storage facility and limits opportunities to recycle process water. Minimising raw-water use is also important to protect the mine during occasional droughts when available river water is greatly reduced.

Despite the focus on limiting raw-water use, the associated draw for the process plant at Hidden Valley mine increased during the year from 1 011 522m<sup>3</sup> in FY12 to 1 398 151m<sup>3</sup> in FY13.

### PNG Watut River water quality

Since construction began on the Hidden Valley mine, the joint venture partners have continually monitored current impacts on this river system. Studies were also commissioned to assess any future impacts. An experienced team, supported by an independent advisory committee, is managing a range of remedial actions that includes ongoing assessments of the river, riverine biology and aquatic life.

Since 2010, and independently confirmed by Hidden Valley's stakeholder panel, we have made significant progress in reducing mine-related sediment in the river:

- Under revised and approved permit criteria, there is a high level of compliance with all discharge parameters, except for cobalt and turbidity at Nauti. Morobe Mining Joint Venture (MMJV) is seeking regulatory approval to include these under a revised environmental improvement plan.

## Environmental performance

- Scheduled water quality monitoring at all Hidden Valley local and operational sites, consistent with environmental management plan commitments
- Compliance monitoring includes:
  - Manganese and all other elements at Nauti, lime dosing of the Watut at Pihema. An automated pH and lime dosing system is being installed, which is expected to reduce dissolved metal levels more effectively
  - Water extraction
  - Water discharges
  - Sewage treatment plant: system enhancements have resulted in a substantial improvement in oxygen levels and regulatory compliance from April 2013
  - Potable water bacterial mean counts: reduced mean turbidity levels are now compliant with permit criteria
  - Rehabilitation (see land management section).

### Acid mine drainage

Acid mine drainage, or acid rock drainage, is the outflow of acidic water from usually 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.

There were no specific risks to Harmony's South African operations from acidic water in FY13. All operations manage their fissure water, with little risk of acidic water reaching the environment. For closed operations, the risk has been assessed and no threat established. Where there is a risk of rising water levels and potential impact to the ore reserves of other operations or to the environment, water is pumped to the surface.

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

In the North West province, 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 after a directive from the Department of Water Affairs.

Harmony contested the validity of the directive with its case heard in October 2011 and judgment handed down on 29 June 2012. After the judge dismissed Harmony's application to have the directive set aside, we applied for leave to appeal to the Supreme Court. The appeal will be heard in November 2013.

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.

### WASTE MANAGEMENT

Harmony's mining and processing operations generate mineral and non-mineral waste. By effectively managing this waste, we limit the environmental impact of our activities and reduce our operating costs and risks, while supporting improved environmental performance and our biodiversity and water programmes.

Our comprehensive strategy is improving our understanding of the true cost of dealing with waste, which in turn helps in planning new projects and closure.

In line with our environmental policy, our mineral waste, non-mineral waste and hazardous materials guidelines are implemented via each operation's environmental management system. In addition, group standards cover all aspects of waste management from initial generation through handling, storage and transport to recycling, treatment or disposal.

### Mineral and non-mineral waste

(000t)	FY13	FY12	FY11	FY10
Accumulated tailings in tailings dams (active and dormant)	1 359 770	1 433 760*	6 039	4 635
Accumulated in waste rock dumps	169 115	165 085*	82 751	4 635
Scrap steel	5.583	10.355*	8.973	0.12
Scrap timber	1.994	2.128*	1.963	1.877
PVC	0.1	0.486*	0.276	0.257

\* New KPI for South Africa in FY12, FY13 and FY12 are group consolidated numbers. FY11 and FY10 only reflect PNG data

## Environmental performance

### Mineral waste

Mineral waste includes waste rock and tailings facilities:

- Waste rock comprises soils or bedrock removed to access ore during mining
- Tailings are the ground-up rock and process water left after gold has been extracted.

Carefully managing mineral waste reduces costs while maximising recovery of ore minerals and metals. Given the large volumes of material involved, any improvements in mineral waste management can have significant savings – from daily savings via reduced energy consumption to minimising future closure costs. In addition, in many cases there is residual economic value in mineral waste, as with our Phoenix reclamation initiative involving empowerment partners.

Mineral wastes have a potential impact on land through handling and storage. Any chemically reactive or radioactive waste is appropriately handled to protect people, wildlife and water quality.

We manage the potential environmental impacts of mineral waste by:

- Minimising the quantity of stored material to limit the disturbed footprint
- Ensuring storage sites are physically and chemically safe, and well engineered
- Progressive rehabilitation – returning impacted land to productive use after mining.

Minerals waste generated in FY13 totalled 32 807 322 tonnes which increased from 20 888 319 tonnes in FY12 (including Evander).

In FY13, the Harmony group reduced its total liability by R28 million after considering alternate rehabilitation methods, and rehabilitating waste rock.

In PNG, Hidden Valley's advanced waste management systems have elicited very positive feedback, particularly on its unique tailings storage facility, after several high-level site visits during the year which included PNG's minister for environment. As such, the current review of environmental and mining laws on managing and disposing of tailings is likely to have little impact on Hidden Valley's processes. This review is now on hold while legislative conflicts are resolved.

### Non-mineral waste

Non-mineral waste is mostly generated by our processing operations: from used oil, tyres, batteries and office waste, to more specialised waste streams. Because non-mineral waste is produced in much smaller volumes than mineral waste, it is managed through recycling, off-site treatment and disposal, or on-site landfills.

During the year, 7 677 tonnes of waste (including plastics, paper, steel and wood) was recycled throughout the group, generating R2.6 million.

To limit the potential impact of non-mineral waste, we are reducing the volume and hazard of these wastes by reusing and recycling where possible, and ensuring responsible storage, treatment and disposal for the balance.

## ENERGY MANAGEMENT

### Integrating energy management into our business strategy

- Harmony's long-term business strategy (post 2015) focuses on optimising our assets and developing our greenfields operations. Accordingly, the environmental strategy supports our business strategy, particularly from a carbon-management perspective, by:
  - Rebalancing asset portfolio  
Harmony's asset portfolio will be rebalanced by closing energy-intensive operations and developing assets with lower carbon intensities. This strategic decision supports a reliable lower-carbon energy supply, and minimises the impact of higher energy costs and potential exposure to carbon tax. Although this is part of our long-term strategy, we have already closed four shafts where payable reserves were not meeting rising energy demands
  - Involvement in renewable energy and reducing electricity consumption from the grid:  
Harmony plans to build a sound knowledge base in renewable energy over the next five years, starting with an 18MW solar park in North West province, and another solar park in the Free State. Both projects will be implemented on Harmony-owned land
  - Optimising supply mix for a balance between fossil fuel and renewable energy  
We are pursuing greater use of renewable energy at our PNG operations, subject to technical and economic feasibility. For example, the business philosophy at Wafi-Golpu is to promote hydropower and biodiesel over conventional fossil fuel-based power generation
  - Implementing energy efficient policies  
Harmony will continue its short-term strategy of identifying and pursuing energy efficiency projects.

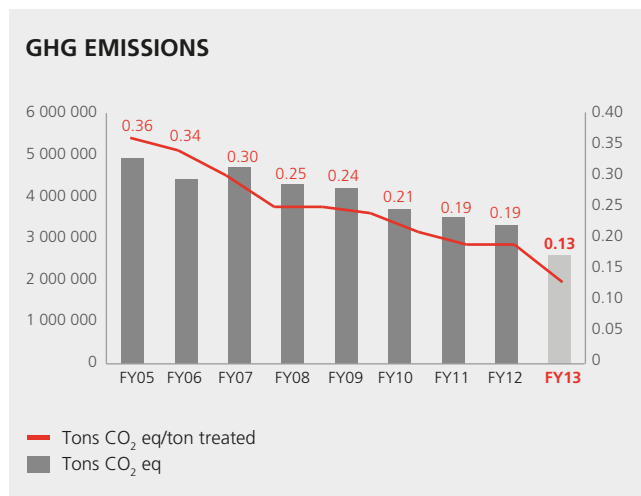
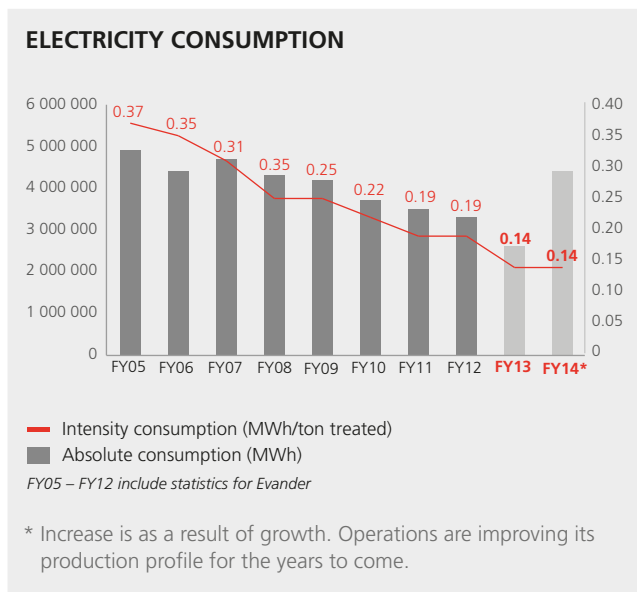
Harmony is building a strategic and reputational advantage over competitors by optimising energy use, managing related costs and reducing emissions intensity:

- Harmony's active move to renewable energy in PNG will ensure a low-carbon energy supply for our expansion business
- Our energy-efficiency initiatives reduce operational costs – the basis of our competitive edge
- The potential financial implication of carbon tax on Harmony's SA operations has already been considered in our technical plans and future budgets, positioning Harmony well to meet government's future tax regulations
- Our consistent high score in the Carbon Disclosure Leadership Index (third in 2012, from fourth in 2011 and 17th in 2010), coupled with seven years of carbon footprint experience and external emissions verification, also means the group is well placed to meet SA's mandatory Greenhouse gas reporting (GHG) reporting from October 2013
- Harmony is working with government to capitalise on climate change opportunities, such as land rehabilitation, biodiversity, energy management, carbon sequestration and solar power.

# Environmental performance

Like all mining companies, Harmony is a major user of electricity, mostly supplied by South Africa's power utility, Eskom, and mostly driven by coal-fired power stations.

Energy is therefore a significant and growing portion of our operating costs, given rising electricity tariffs. After an average increase of 22% in each of FY10, FY11 and FY12, tariffs rose by a further 9.6% in FY13 – the first of the next three-year price determination period. These cumulative increases have catapulted energy efficiency from an environmental consideration to a business imperative.



Projects voluntarily implemented or continuing to enhance energy efficiency during the review period are summarised below. The expected lifetime of all projects is to the end of life-of-mine, or until new technology, with better returns and savings, is developed and implemented. Collectively, these are expected to reduce electricity use by 5.7% and decrease Harmony's scope 2 emissions by some 136 386t CO<sub>2</sub>e.

## Energy savings from DSM initiatives

### Compressed air energy efficiency project

Harmony implemented projects at Saaiplaas plant, Tshepong, Kusasaletu, Bamabanani, Steyn 2 and Unisel to reduce total energy consumption by 31.8GWh per year.

Compressed air is used in mines for pneumatic drilling, instrumentation, refuge bay ventilation and air agitation. We installed surface and underground compressed air-control valve units and hydraulic equipment to monitor, optimise and automatically control demand. This reduced the amount of compressed air required, and lowered electricity consumption by the compressors. At Saaiplaas plant, we installed standalone compressors which deliver high volumes of compressed air at low pressure. This enabled us to stop a large 3MW compressor for a saving of 1.2MW. As such, the project directly reduces Harmony's scope 2 emissions, supporting our emission reduction target.

Harmony is registering this as a carbon credit project under the clean development mechanism of the United Nations framework convention on climate change.

Estimated annual CO<sub>2</sub>e savings

31 482

### Mine cooling

Harmony implemented cooling optimisation on the existing cooling plant at Kusasaletu to reduce total energy consumption by 9.38GWh per year. Since the plant reduces electricity required to meet Kusasaletu's cooling demand, the project reduces Kusasaletu's scope 2 emissions.

928 620

### Water management

We initiated energy efficiency projects at Kusasaletu and Tshepong to optimise underground water consumption and reduce total power consumption by 9.38GWh per year. By reducing electricity used for pumping water, the project is reducing Harmony's scope 2 emissions and carbon footprint.

9 286

## Environmental performance

Energy savings from DSM initiatives	Estimated annual CO <sub>2</sub> e savings
<p><b>Main fan vane control and load clipping</b> Main surface fans in all operations circulate large volumes of air underground. The project to improve the energy efficiency of these fans at our South African operations began in 2011. By installing rotational inlet vane controls at each main fan to reduce the volume of air flow when mining activities are minimal, we are reducing electricity consumption by 6GWh per year, as well as lowering scope 2 emissions and therefore Harmony's carbon footprint.</p>	5 940
<p><b>Ventilation fan project</b> We initiated a project at Kusasaletu, Bambanani, Doornkop, Masimong, Phakisa, Target, Unisel and Joel to reduce total energy consumption by 59.4GWh per year. This involved replacing underground auxiliary fans with more energy-efficient fans equipped with impellers that reduce electricity drawn by 30%, while delivering the same air flow and pressure as before. At Kusasaletu, 40 fans are being installed. This project is reducing Harmony's electricity consumption and scope 2 emissions, supporting our reduction targets. Harmony is registering this as a carbon credit project under the clean development mechanism of the United Nations framework convention on climate change.</p>	58 806

In FY13, total electrical energy use dropped 11.6% to 2 704 220MWh (FY12: 3 058 219MWh). The impact of our energy initiatives is evident when we compare FY13 performance to total Harmony consumption in FY08 of 3 568 908MWh.

As noted in the prior report, given our five growth projects to increase production, resource use (water, energy, timber, cyanide and other chemicals) is likely to increase in the short term. Accordingly, we continue to focus on improving the efficiency of our resource use for a positive impact on both the environment and cost of production.

### Supporting a national target

The South African government's 2005 energy efficiency strategy set a national improvement target of 12% by 2015. Given that industrial and mining companies are the largest users of energy in the country, these sectors have 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.

We have worked closely with Eskom to manage electricity use and peak demand, underlining our commitment to reduce energy consumption. This includes demand-side management (DSM) strategies to reduce electricity consumption in peak periods; timing our 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.

In total, we have implemented eight DSM energy efficiency projects in recent years, resulting in a load reduction of 21.4MW and energy savings of 10 625.9MWh per month. Ten other energy-saving initiatives were implemented outside the Eskom DSM process, resulting in demand reduction of 14.81MW and 10 984MWh per month:

We have also committed to 14 DSM projects for completion in FY14 (with a load reduction of 32.4MW during evening peak times and 5 557MWh per month) and ten projects in FY15:

## Environmental performance

Mine/region	Initiative
All production shafts	<ul style="list-style-type: none"> <li>• Energy efficient LED (light-emitting diode) lighting in mine haulages</li> <li>• Underground ventilation fans</li> <li>• Optimisation of ore transport</li> <li>• Wastage of compressed air management</li> </ul>
All plants	Mill lubrication – energy reduction with improved lubrication
All electricity consumers	<ul style="list-style-type: none"> <li>• Online energy monitoring and management</li> </ul>
Kusasaletu	<ul style="list-style-type: none"> <li>• Underground carbon jet fan</li> <li>• Bulk air cooler peak-load clipping</li> <li>• Managing process water wastage</li> </ul>
Bambanani fridge plant	Peak-load clipping
Phakisa and Nyala	Pumps – load shifting
Masimong	Compressor move
Tshepong	Cooling optimisation
Solar geysers	Installed at Harmony-owned villages

In FY13, Harmony reduced its South African electricity consumption by 186.6GWh and emissions by 184 767t CO<sub>2</sub>e (FY12: 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. Total electricity generated from diesel in FY13 at PNG was 41 534MWh (FY12: 32 000MWh). This should reduce significantly in the year ahead as Hidden Valley increases its percentage of hydropower.

In PNG we are geared to maximising the dependency on alternative energy by diversifying the energy mix – 60% of Hidden Valley's electricity is supplied by the hydropower grid, and 40% by onsite diesel generators. Harmony is also investigating the use of bio-energy in PNG.

Hidden Valley was connected to the new hydropower transmission line, part of the PNG electricity grid, two years ago. While the mine is currently only drawing some 60% of its requirements from the national grid, this is reducing reliance on diesel-generated power and the amount of fuel that needs to be trucked to this remote site. Management is cautiously confident of securing a higher percentage of grid power in FY13, 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 SAG mill (or 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.

### Renewable energy initiatives

The National Energy Regulator of South Africa (Nersa) approved renewable energy feed-in tariff (REFIT) 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, prioritised 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 within the next financial year

## Environmental performance

- Turbines – Harmony will convert its turbines at Kusasaletu to deliver power using mine water from surface
- Solar geysers – replacing electrical with solar geysers at Harmony-owned villages.

Collectively, the projects being considered could reduce CO<sub>2</sub>e emissions by 635 000t over the next two years, but many of these would require alternate funding to execute timeously. Accordingly, Harmony and Nedbank are registering three projects under the clean development mechanism for carbon trading. The objective of carbon trading is to maximise the financial gain from energy-saving initiatives, while building our reputation as a good corporate citizen and responsible environmental steward.

### Climate change and greenhouse gas emissions

#### Challenge

A policy paper on South Africa's carbon tax was released for public comment by National Treasury in May 2013. While Harmony is not opposed to using financial instruments as incentives to reduce GHG emissions, we are concerned about the potential impact of this tax on the industry's competitiveness. The policy paper indicates that carbon tax will only be levied on Harmony's direct (scope 1) emissions, and that Eskom will be taxed for the company's indirect (scope 2, electricity) emissions. Current electricity pricing policy allows Eskom to pass through the full tax to the consumer, meaning the national utility has no incentive to reduce its own greenhouse gas (GHG) emissions. The paper also clarifies that tax-relief measures will only be available for Harmony's scope 1 emissions.

Since these emissions only contribute 3% to our overall GHG inventory (with scope 2 emissions making up the balance), the proposed method of taxation poses a significant risk to Harmony's business, as we will not be able to capitalise on any tax relief measures for the largest contributor to our carbon footprint.

By participating in National Treasury's working group (and written comment to treasury), and through Chamber of Mines initiatives, Harmony will propose that companies should be eligible for tax relief on both scope 1 and scope 2 emissions. Through the ITTCC (industry task team on climate change), we will propose that carbon tax be made a deductible cost for corporate income taxes and that levels of support be raised in line with global practice. Global levels of tax relief are over 90% for the most emission-intensive industries.

Risk assessments in recent years have identified and quantified the direct impact of climate change on our business, and the correlation between climate change and increased GHG emissions.

Harmony's business strategy is therefore strongly influenced by the drive to reduce GHG emissions. Related business decisions include closing carbon-intensive shafts, implementing land rehabilitation programmes, and reprioritising capital for energy efficiency and renewable energy projects.

Guided by our specific climate change risk management process, we are also focused on reducing the use of fossil fuels and developing initiatives to mitigate and absorb GHGs to reduce our carbon footprint.

During the year, we reduced carbon emissions in South Africa further, meeting our five-year internal target of 15%, with an actual annual reduction of 9% (FY12: 8%). The South African government plans to implement a carbon tax from 2015 and while details on how the level of this tax will be determined are not yet available, we do expect an increase in the cost of power generation. Harmony, through its membership at Industry Task Team on Climate Change (ITTCC) and through the Chamber of Mines, is engaging the Department of National Treasury and other regulators on the implications of the tax challenges to the mining industry and recommendations for implementation.

In FY13, we submitted Harmony's seventh response to the Carbon Disclosure Project (CDP). The year-on-year progress remains encouraging: in FY10, we scored 74 to rank 17th among 71 companies. In FY11, we improved to fourth place, and featured on the Carbon Disclosure Leadership Index for the first time with a score of 91. In FY12, we moved up a notch to third with a 98% score (for details, see [www.cdproject.net](http://www.cdproject.net)). Harmony is thus well-placed to meet South Africa's mandatory GHG reporting, which comes into effect in October 2013.

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. Harmony's exposure to Australian legislation is limited as the operations we owned there have been sold.

## Environmental performance

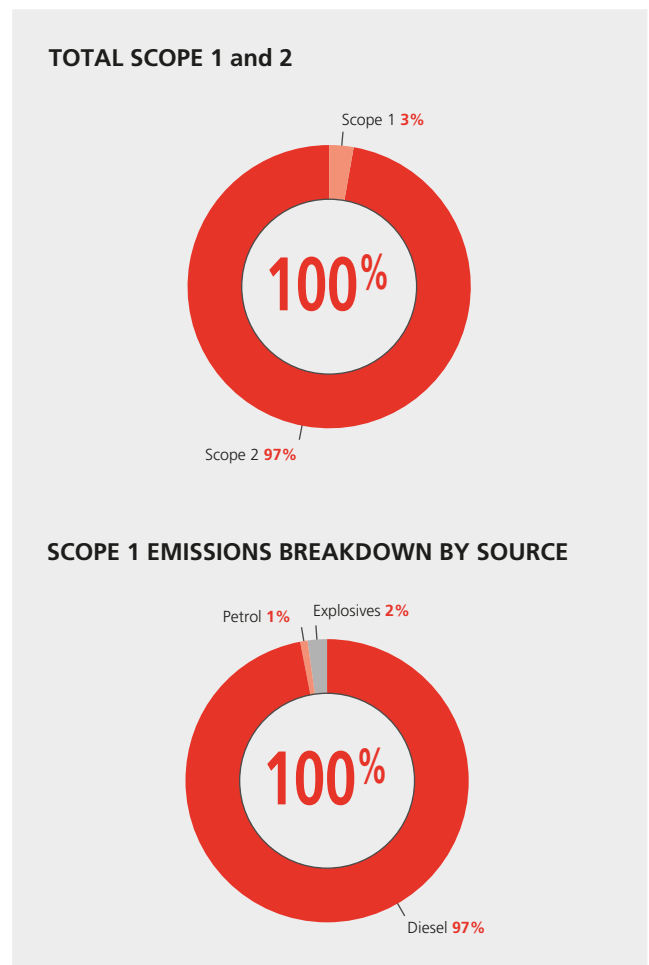
PNG has drafted a climate change policy and circulated it for public comment. The country also became a member of the Global Green Growth Institute in January 2013, which will provide support and funding for capacity building, research and related programmes. Once the national policy is ratified, which could be in the September 2013 parliamentary session, MMJV will implement its own aligned policy.

Harmony is developing the framework for a GHG management strategy, including standardised emission measurements and estimation techniques at PNG. GHG emissions in PNG are only direct and treated as scope 1 emissions as they all derive from diesel generators. Purchased electricity comes from a green hydro-powered station.

Our green house gas (GHG) emissions primarily relate to electricity, which accounts for some 10% of operational costs in South Africa. Carbon pricing will indeed impact on the cost of electricity at Harmony.

As our current mines have a life expectancy of up to 25 years, capital projects are under way to sustain and increase production at the Phakisa, Doornkop, Kusasaletu, Tshepong and Hidden Valley operations. These expansions would extend our mining operations by 10 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. As company policy, all greenfield and brownfield projects are required to consider the impact of climate change in their design and planning.

Harmony's total scope 1 and 2 emissions in FY13 were 3 029 993t CO<sub>2</sub>e (FY12: 3 365 000t CO<sub>2</sub>e), a decrease of 9% mainly due to energy efficiency initiatives. These emissions are mostly indirect and stem from electricity used and purchased from Eskom.



### AIR QUALITY MANAGEMENT

Harmony complies with South Africa's air quality management standards to ensure that any dust generated is monitored and minimised.

As example, Harmony owns 49 tailings storage facilities (TSFs) in the Free State. Under dry and windy conditions, these facilities can produce fugitive dust which, in turn, could become a nuisance factor for TSF workers and surrounding communities. Harmony responded by increasing suppression initiatives on the slimes dams, and improving our monitoring programme. While our monitoring results show we were within compliance limits, we are working with the department to access trust funds to rehabilitate these slimes dams.



## Environmental performance

Based on an analytical approach, we have proactively prioritised the implementation of mitigation measures to reduce dust generated by our TSFs (despite being within environmental compliant limits) at a combined cost of R385 million. These include:

- *Retreatment of tailings:* In the Free State, our Phoenix operation is currently retreating tailings from regional TSFs to minimise dust emissions (and extract any residual gold). During the year, Phoenix retreated 5Mt of process water and rock waste through the Saaiplaas plant
- *Investing in state-of-the-art tailings disposal technology:* We installed new technology that uses cyclones to deposit tailings on the TSFs. This reduces dust generated from the

TSFs by separating the tailings into two separate flows before being dumped on the TSF – the underflow which carries the coarse tailings (sand) and the overflow which carries the fines. This technology ensures that small particles (which are easily entrained in high winds) are captured in the middle of the TSF, and the coarser fraction (which cannot become airborne in high winds) lie on the outer zone of the TSF. This minimises dust generation

- *Wind breaks and windrows on our slimes dams.* In the last year, Harmony spent R46.8 million on dust mitigation and control.

### MATERIALS USED

Primary materials used include rock and ore, liquefied petroleum gas (LPG), grease, cyanide, fuels, and lubricating and hydraulic oils.

#### Materials used by operations

	FY13	FY12	FY11	FY10
Rock mined (ore and waste) (000t)	38 668	34 868	30 250	31 037
Ore mined (000t)	13 312	14 010	12 063	12 336
Waste rock recycled (000t)	8 008	8 191	3 200	1 763
Slimes recycled (000t)	5 358	6 955	5 236	7 306
LPG (t)	1.08	0.55	0.62	0.60
Grease (t)	61	51	22*	182
Cyanide (000t)	8	11	8	8
Petrol and diesel (ℓ)	61 354**	30 135	44 788*	51 826
Lubricating and hydraulic oil (ℓ)	3 860	2 457	2 206	3 986

\* FY13 excludes Evander and previous years not restated

\*\* Increase was predominantly due to increased usage at Hidden Valley for the period that the overland conveyor malfunctioned

#### Cyanide

Harmony is a signatory to the International Cyanide Management Code for the manufacture, transport and use of cyanide in producing gold. This voluntary industry programme was developed by the United Nations' Environment Programme and International Council on Mining and Metals (ICMM).

Harmony complies with the code at all its major gold operations. To date, all metallurgical plants, except Kalgold, have been certified as compliant. Studies are under way to optimise the consumption and disposal of cyanide, after which Kalgold will review its application for certification.

Harmony used 8 025 tonnes of cyanide during FY13 (FY12: 11 000 tonnes).

Both Harmony and Newcrest are signatories to the cyanide code. Hidden Valley mine is on track for compliance and possible certification by December 2013. Since commissioning the processing plant in FY10, measured cyanide concentrations have complied with environment permit limits at the Nauti Village compliance point.

#### PRODUCT RESPONSIBILITY

Gold is both a commodity and monetary asset. Given its precious and enduring qualities, gold is rarely wasted with around 15% of the metal consumed each year recycled.

Annual demand for gold comes from:

- The jewellery market
- Industrial sector (electronics, dentistry and other industrial and decorative applications)
- Investment.

## Environmental performance

Rand Refinery Proprietary Limited (in which Harmony now holds 10.38%) markets our gold to customers around the world, mainly India, China, the Middle East and USA.

As Harmony does not directly market its product, marketing communications, customer privacy and compliance issues do not apply. Our investor relations activities include marketing the company to current and potential investors, in line with relevant legislation and the listing requirements of the stock exchanges on which our shares are quoted. No related complaints were received in FY13.

As Harmony is not directly involved with product labelling, providing service information or dealing directly with customers, no customer satisfaction surveys are conducted.

No incidents of non-compliance with regulations, voluntary codes or related to health and safety impacts concerning the provision and use of gold were identified at Harmony in FY13.

Gold is a benign product with no significant health or safety impacts. Mining activities, however, can affect the health and safety of employees, communities and the environment. Harmony is involved in various initiatives to ensure the health, safety and livelihoods of its employees and communities, and safeguard the environment in which it operates.

### SIGNIFICANT ENVIRONMENTAL INCIDENTS

Significant incidents are those with an impact beyond Harmony's boundaries that may cause irreparable harm, and may require considerable expenditure to remedy (table below).

Severity level	Mitigation costs	Natural environment		
		Environmental impact	Reputational impact	Legal impact
5	<R3 million	Very significant impact on highly valued species, habitat or ecosystem	International condemnation	Potential director liability
4	<R1 million	Significant impact on sensitive species, habitat or ecosystem	National and international concerns – non-governmental organisation involvement	Very significant fines or prosecutions
3	<R500 000	Serious medium-term environmental effects	Serious adverse media attention – locally/nationally	Major breach of regulation – possible directive
2	<R250 000	Moderate short-term effects but not affecting ecosystem function	Local complaints and possible media attention	Breach of regulation with investigation
1	<R100 000	Limited damage to minimal area of low impact	Local complaints	Low-level non-compliance

Significant environmental incidents (Level 3 and above) reported in FY13 included:

- Saaiplaas – residue spillage from plant
- Kusasaletu – return water dam overflow after heavy rainfall
- Harmony plant 1 – spillage after slimes delivery pipeline burst
- Kusasaletu – return water dam sump overflow after temporary closure
- Hidden Valley – release of a plume of lime dust requiring evacuation and shut-down of the process plant.

All issues are being addressed through our environmental management plans.

### LAND MANAGEMENT

#### Radiation

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 prioritised 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.

## Environmental performance

The NNR instructed Harmony to rehabilitate the decommissioned Joint Metallurgical Service (JMS) site in the Free State as its high radiation activity levels pose a safety risk to communities and environmental pollution risk.

Based on research undertaken in Chernobyl using phytoremediation (crops to bio-absorb radiation), Harmony proposed a similar rehabilitation methodology at the JMS site. NNR has agreed to support our trial. The area south of JMS will be vegetated with a range of indigenous phytoremedial plants and monitored for five years.

### Land management and environmental conservation

Ensuring appropriate closure plans and funding mechanisms are in place is a priority for Harmony. Rehabilitation and closure is therefore planned from concept stage for new operations or greenfield projects and during the life-of-mine for existing operations.

As a responsible mining company, 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.

### Rehabilitation

Land management (ha)	Mining right area	Land disturbed to date	Land rehabilitated in FY13
Kalgold	991	444.6	42.1
Kusasaletu & Deelkraal	5 604.5	270.2	4.1
Doornkop	905.4	392	9.8
ARM shafts (1, 2, 3, 4, 6 & 7)	5 980.2	434.6	0
Joel 1 & 2	2 161.9	296.6	0
Target 1, 2 & 3	4 327.0	280.9	0
President Steyn South (Steyn 1, 2 & plant)	1 846.8	135.6	19.4
President Steyn North (Steyn 7 & 9)	1 650.5	136.9	7.5
Virginia, Masimong, Saaiplaas, Unisel, Merriespruit, Harmony & Brand	22 583.0	3 780.5	112.2
Bambanani, JMS, Harmony 1 plant	2 355.8	1 454.2	0
Eland, Kudu, Sable, Nyala, Tshepong, Phakisa, Western Holdings 5	10 798.7	1 700.6	84.5
St. Helena 2, 4, & 8	4 912.4	496.9	45
St. Helena 10	944	27.7	0
PNG	680	97.0	21
<b>Total</b>	<b>65 741.4</b>	<b>9 948</b>	<b>345.6</b>

## Environmental performance

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 or 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.

The total rehabilitation liability was determined at R2.11 billion for South African operations in June 2013 while funding is R2.33 billion. Harmony is one of few mining companies where rehabilitation liabilities are fully funded in advance.

In the prior year, we implemented a rehabilitation strategy for decommissioned operations in the Free State and at Kusasaletu'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, and helping provincial authorities meet socio-economic imperatives, particularly job creation.

By the end of FY13, we had made excellent progress in rehabilitating decommissioned infrastructure, creating employment for over 230 local residents in the process:

- Completed in FY12: Virginia 2 shaft, plant and hostel; Brand 1, 2 and 3 shafts; Saaiplaas mill plant; St Helena 2 shaft and hostel, 4 shaft and plant; Steyn 1 shaft; Freddie's 7 shaft; Evander Winkelhaak plant
- In FY13 – 18 headgear demolitions (with 15 fully rehabilitated by year end and two scheduled for FY14)
- Reclaiming waste rock dumps
- Slimes retreatment through Saaiplaas plant.

Through these initiatives, we have reduced the total group liability by a value of around R124 million, created around 200 local jobs and entrenched stakeholder awareness of our commitment to social and environmental stewardship.

While our strategy is focused on removing obsolete infrastructure and making shaft barrels safe, our ultimate objective is to ensure we create meaningful post-mining land use that is able to support socio-economic and economic sustainability.

Accordingly, we have approved the feasibility assessments on a labour-intensive but highly sustainable bio-energy initiative as well as an agri-processing project with potential downstream industrial activity to support socio-economic development in the Free State.

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 such as:

- Sungazer lizard
- Lesser Flamingo
- Bullfrog
- Off-site rhino protection programme.

In August 2013, Harmony signed a memorandum of agreement with the Endangered Wildlife Trust (EWT) aiming to conserve the sungazer lizard and its habitat. An endemic species to the Free State and southern Mpumalanga, the sungazer occurs close to Harmony's operations near Welkom. EWT's conservation efforts have a determined focus to study its habitat and biology. The Conservation Stewardship Programme, one of the key tools to protect the habitat, seeks to formally proclaim suitable habitat under relevant levels of commitment, ranging from biodiversity agreements to official nature reserves.

Two more conservation projects are being rolled out with BirdLife South Africa (BLSA) in the Free State operating area. Memorandums of agreement were signed with BLSA for both projects in August 2013. The first, already under way, is the Avianator programme which aims to develop resources and inter-link lesson plans, allowing teachers to implement environmental education on birds and their habitats. It allows a learner's environmental knowledge to grow, to understand the necessity of conservation and comprehend the link with human livelihoods. The second agreement is for conservation of the threatened lesser flamingo. A workshop will be facilitated by BLSA's experts (similar to the initiative at Kamfer Dam in Kimberley) and relevant stakeholders to determine the feasibility of creating a designated area, ie a designated important bird area for conservation of the lesser flamingo in the Welkom area. Appropriate budgets have been approved for all three conservation initiatives.

## Environmental performance

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. The mine's closure plan makes provision for rehabilitation and closure liabilities of US\$52.8 million.

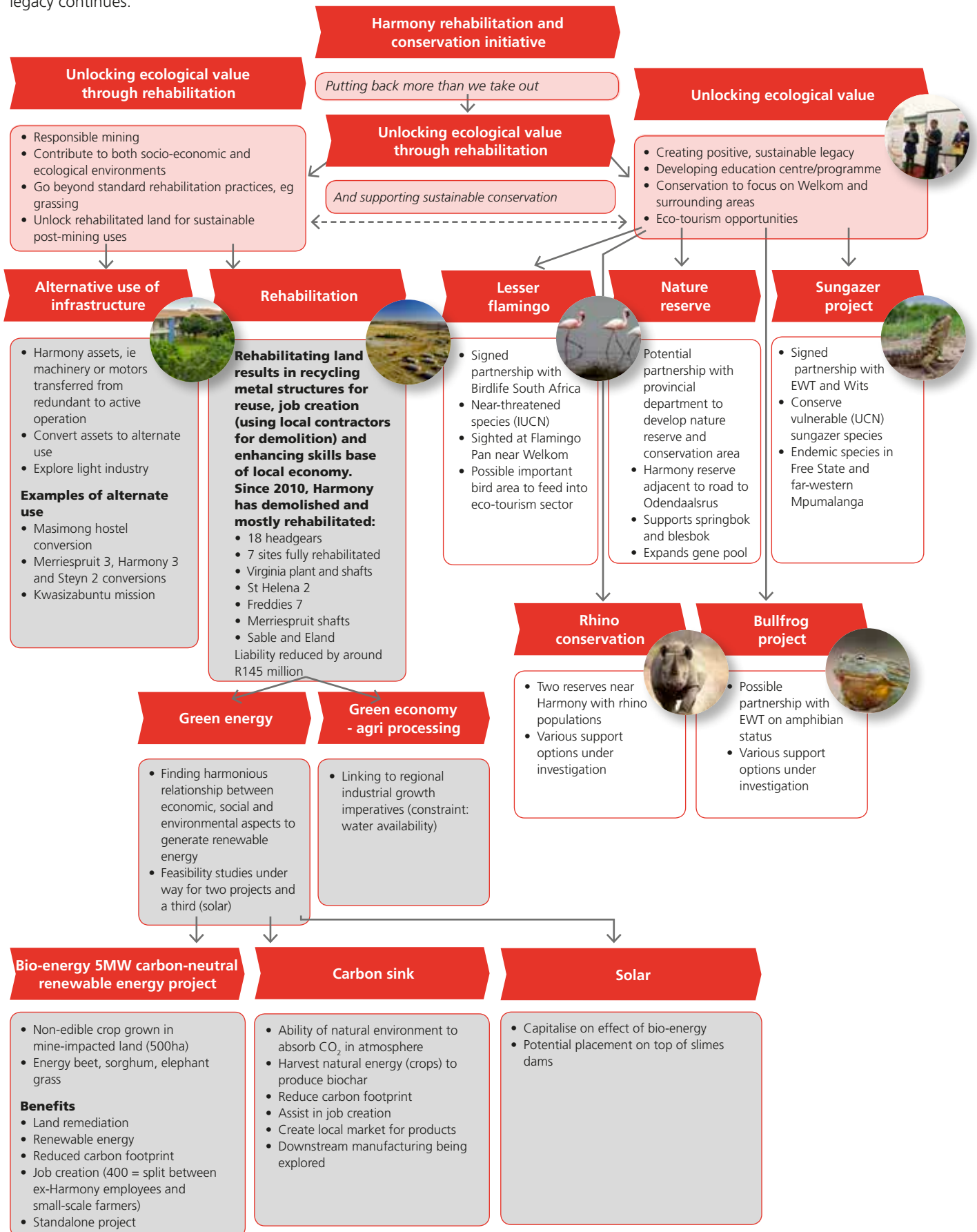
Hidden Valley mine is not in a biodiversity protected area. Although five 2011 IUCN Red List species could occur in the area, none have been confirmed and there is no evidence that Hidden Valley mine has affected critical habitat. The species in question are a vulnerable species of tree kangaroo (*Dendrolagus dorianus*); an endangered species of tree kangaroo (*Dendrolagus goodfellowi*); the vulnerable nectar bat (*Syconycteris hobbit*); the vulnerable harpy eagle (*Harpyopsis novaeguineae*) and the critically endangered long-beaked echidna (*Zaglossus bruijnii*).

Harmony has strategies in place to manage impacts on biodiversity, including an environmental management system aligned with ISO 14001, and ongoing rehabilitation activities to restore the habitat for native species. As part of this approach, most sites have developed biodiversity action plans in terms of which they are steadily removing alien and invasive plant species. In addition, in the Free State, a nursery has been established on rehabilitated ground to cultivate indigenous species that will be used to repopulate affected or remediated land.

# Environmental performance

## REHABILITATION AND VALUE CREATION

Harmony unlocks land for alternative value-creation through its rehabilitation efforts. While compliance requires the mine to leave the land in a generally improved state, Harmony prefers to create sustainable value either ecological or societal to ensure our legacy continues.



# Environmental performance

## DIRECTORATE AND ADMINISTRATION

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Berlin Stock Exchange: HAM1  
Registration number: 1950/038232/06  
Incorporated in the Republic of South Africa  
ISIN: ZAE 000015228

### FORWARD-LOOKING STATEMENTS

#### Private Securities Litigation Reform Act

#### Safe Harbour Statement

This report contains "forward-looking statements" within the meaning of Section 27A of the Securities Act of 1933, as amended, and 21E of the Securities Exchange Act of 1934, as amended, that are intended to be covered by the safe harbour created by such sections. These statements may be identified by words such as "expects", "looks forward to", "anticipates", "intends", "believes", "seeks", "estimates", "will", "project" or words of similar meaning. All statements other than those of historical facts included in this report are forward-looking statements, including, without limitation, (i) estimates of future earnings, and the sensitivity of earnings to the gold and other metals prices; (ii) estimates of future gold and other metals production and sales, (iii) estimates of future cash costs; (iv) estimates of future cash flows, and the sensitivity of cash flows to the gold and other metals prices; (v) statements regarding future debt repayments; (vi) estimates of future capital expenditures; and (vii) estimates of reserves, and statements regarding future exploration results and the replacement of reserves. Where the Company expresses or implies an expectation or belief as to future events or results, such expectation or belief is expressed in good faith and believed to have a reasonable basis. However, forward-looking statements are subject to risks, uncertainties and other factors, which could cause actual results to differ materially from future results expressed, projected or implied by such forward-looking statements. Such risks include, but are not limited to, gold and other metals price volatility, currency fluctuations, increased production costs and variances in ore grade or recovery rates from those assumed in mining plans, project cost overruns, as well as political, economic and operational risks in the countries in which we operate and governmental regulation and judicial outcomes. For a more detailed discussion of such risks and other factors (such as availability of credit or other sources of financing), see the Company's latest Annual Report on Form 20-F which is on file with the Securities and Exchange Commission, as well as the Company's other SEC filings. The Company does not undertake any obligation to release publicly any revisions to any "forward-looking statement" to reflect events or circumstances after the date of this report, or to reflect the occurrence of unanticipated events, except as may be required under applicable securities laws.



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