

# SOUTH AFRICA

## VAAL RIVER

For the year ended 31 December 2005



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#### About this report:

AngloGold Ashanti is committed to reporting to a broad range of stakeholders. In addition to its operational and financial performance the company also reports on its economic, social and environmental performance – the so-called triple bottom line.

This country profile forms part of a broader group Report to Society, which is available on the company's website, or from the contacts detailed below.

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### Message from Robbie Lazare

Change has been a feature of the past year at the South African operations where the continuing transformation of the country, and the ongoing downsizing in, and uncertainties regarding the future of, the gold mining industry have had an effect on the economies of the surrounding communities. This has been exacerbated in recent times by the prevailing strength of the rand against the US dollar which has resulted in a declining revenue base in rand terms, placing greater pressure on margins at an operational level.

The recent welcome upturn in the gold price should allow the cost management strategies implemented in 2005 to have a positive impact on life-of-mine plans in 2007 which, in turn, should see an improvement for the South African operations and the lives of those affected by those operations.

It is widely understood that the South African gold mining industry is not the force it once was. Our own company employs fewer people and produces less gold at its South African operations than was once the case, but these developments must be put into context.

South Africa remains the most significant gold producer in the world. AngloGold Ashanti's South African operations remain the mainstay of the group, producing 43% of the company's gold in 2005. Of the group's total mineral resources and ore reserves, 49% and 42% respectively are held in this country. The group's capital expenditure of R2.208 billion (\$347 million) in South Africa in 2005 accounts for 48% of the group's total and is a good indicator of the confidence that the management and board of the company have in the long-term viability and importance of these operations.

The Moab Khotsong mine in the Vaal River area is the largest of AngloGold Ashanti's current projects and involves the sinking, construction and equipping of the shaft system to a depth of 3,130 metres below surface. The project is expected to produce 3.6 million ounces of gold over 15 years and has started commercial production. The total capital cost for this project is R4.19 billion (\$659 million).

It is essential to plan production going forward; it is also essential to address those issues that are important to our employees and their communities. While we hold the well-known view that the 'business of business is business', we also believe that business has an important role to play – particularly in South Africa – in bringing about economic development, in supporting the welfare of our communities and in driving the transformation of our still-new democracy.

**Robbie Lazare**

Executive Officer: South Africa

## Introduction

In South Africa, AngloGold Ashanti operates seven underground mines which are located in two geographical regions on the Witwatersrand Basin. The mines are:

- Great Noligwa, Kopanang, Tau Lekoa and Moab Khotsong which make up the Vaal River operations; and
- Mponeng, Savuka and TauTona which comprise the West Wits operations.

This report focuses on the Vaal River operations which are situated near the towns of Klerksdorp and Orkney in North West Province and the Free State. The Vaal River complex has four gold plants, one uranium plant and one sulphuric acid plant. The processing plants include crushers, mills, carbon-in-pulp (CIP) and electro-winning facilities, and are able to treat between 180,000 and 420,000 tonnes of ore per month. Although the Vaal River operations produce uranium oxide as a by-product, the value is not significant relative to the value of the gold produced.



## Geology of the Witwatersrand Basin

The Witwatersrand Basin comprises a 6-kilometre-thick sequence of interbedded argillaceous and arenaceous sediments that extend laterally for some 300 kilometres north-east/south-west and 100 kilometres north-west/south-east on the Kaapvaal Craton. The upper portion of the basin, which contains the orebodies, outcrops at its northern extent near Johannesburg.

Further west, south and east the Witwatersrand Basin is overlain by up to 4 kilometres of Archaean, Proterozoic and Mesozoic volcanic and sedimentary rocks. The basin is late Archaean in age and is considered to be around 2.7 to 2.8 billion years old.

Gold occurs in laterally extensive quartz pebble conglomerate horizons or reefs, that are generally less than 2 metres thick and are widely considered to represent laterally extensive braided fluvial deposits. Separate fan systems were developed at different entry points and these are preserved as distinct goldfields.

There is still much debate about the origin of the gold mineralisation in the Witwatersrand Basin. Gold was generally considered to have been deposited syngenetically with the conglomerates but there has been a swing to an epigenetic theory of origin.

However, the most fundamental control to the gold distribution in the basin remains the sedimentary features, such as facies variations and channel directions. Gold generally occurs in a native form associated with pyrite and carbon, with quartz being the main gangue material.

### Geology of Vaal River

The reefs mined at the Vaal River operations are the Vaal Reef, the Ventersdorp Contact Reef (VCR) and the 'C' Reef:

- the Vaal Reef contains approximately 85% of the reserve tonnage with mining grades between 10 and 20g/t. It comprises a series of oligomictic conglomerates and quartzite packages developed on successive non-conformities. Several distinct facies have been identified, each with its unique gold distribution and grade characteristic;
- the VCR has a lower grade than the Vaal Reef, and contains approximately 15% of the estimated reserves. The economic portion is mainly concentrated in the western part of the lease area. It can take the form of a massive conglomerate, a pyretic sand unit with intermittent pebble layers or a thin conglomerate

horizon. The reef is located at the contact between the overlying Kliprivierberg Lavas of the Ventersdorp Super Group and the underlying sediments of the Witwatersrand Super Group which creates a distinctive seismic reflector. The VCR is located up to 1 kilometre above the Vaal Reef; and

- the 'C' Reef is a thin, small-pebble conglomerate with a carbon-rich basal contact, located approximately 270 metres above the Vaal Reef. It has less than 1% of the estimated reserves with grades similar to those of the Vaal Reef, but these are more erratic. The most significant structural features are the north-east striking normal faults which dip to the north-west and south-east, resulting in zones of fault loss.





## Great Noligwa

**Ownership:** 100% owned by AngloGold Ashanti

**Location:** Great Noligwa is situated on the Free State side of the Vaal River. It adjoins Kopanang and Moab Khotsoang.

**Geology:** The reefs mined at Great Noligwa are the Vaal Reef and the 'C' Reef, with the Vaal Reef accounting for by far the largest portion of the mineral resource here. The Vaal Reef has a distinct high-grade zone with an average grade of 23g/t, trending north to south. Mining is steadily moving out of the high-grade zones and grades are expected to decline gradually.

**Mining and processing:** The mine employs a scattered mining strategy owing to the complexity of the ore and operates a twin-shaft system serving eight main levels at an average depth of 2,400 metres. Access to the reef is from the footwall haulage and return airway development, with cross-cuts developed every 180 metres to the reef horizon. Raises are then developed on-reef to the level above and the reef is stoped out on strike with an average stope width of 150 centimetres. Approximately 4,000 metres of development is completed each quarter. As the orebody is narrow and tabular in nature, the production rate is measured in square metres mined and averages 35,000 square metres per month. Panels are on average 26 metres long.

At the Great Noligwa plant, conventional crushing, screening, semi-autogenous grinding (SAG) and carbon-in-leach (CIL) processing are followed by milling and treatment. It has a nominal throughput capacity of 230,000 tonnes of ore a month.

**Performance in 2005:** Gold production was down by 13% to 693,000 ounces and total cash costs were up by 13% in rand terms to R53,868 per kilogram. In dollar terms, total cash costs rose by 14% to \$264 per ounce. After allowing for the effect of unrealised non-hedge derivatives, gross profit decreased by 26% to \$87 million. Capital expenditure, at \$43 million, rose by 19% and was spent mainly on ore reserve development.

**Growth prospects:** As mining moves into lower grade areas, production at Great Noligwa is expected to decrease to between 651,000 and 677,000 ounces in 2006, at a total cash cost of between \$258 and \$268 per ounce. Capital expenditure during 2006 is anticipated to be between \$47 and \$49 million and will be spent mostly on ore reserve development.

### Great Noligwa

		2005	2004
Gold production	000oz	693	795
Total cash costs	\$/oz	264	231
Total cash costs	R/kg	53,868	47,820
Total production costs	\$/oz	329	260
Total production costs	R/kg	67,024	53,781
Capital expenditure	\$ million	43	36
Capital expenditure	R million	275	235
Total number of employees		6,856	7,100
Employees		5,704	6,192
Contractors		1,152	908



## Kopanang

**Ownership:** 100% owned by AngloGold Ashanti

**Location:** Kopanang is located on the Free State side on the Vaal River and adjoins Great Noligwa.

**Geology:** The principal reef mined here is the Vaal Reef with the 'C' Reef, a secondary reef located around 200 metres above the Vaal Reef, being mined on a smaller scale. Given the complex geological units and lateral variations in reef character of the Vaal Reef, several distinct facies have been identified, each with its own unique gold distribution and grade characteristics. At Kopanang in particular, gold is intimately associated with narrow, discontinuous bands of pyrobitumen which are present in the Stilfontein facies of the Vaal Reef.

**Mining and processing:** Given the geologically complex nature of the orebody at Kopanang, a scattered mining method is used. Access to the orebody is mainly by footwall tunnelling, raised on the dip of the reef and stoped out on strike.

The Vaal River No 9 plant is a milling and treatment process and uses conventional SAG and CIP technology. Kopanang feeds one of the two plant streams predominantly with ore from the Vaal Reef; the other stream is fed exclusively by ore from the VCR from Tau Lekoa. Both streams are augmented by low-grade ore from the waste dumps.



## Tau Lekoa

**Ownership:** 100% owned by AngloGold Ashanti.

**Location:** Tau Lekoa is situated north of the Vaal River in North West Province.

**Geology:** The only reef mined at Tau Lekoa is the VCR which is part of the Ventersdorp Conglomerate Formation. This unit lies between the underlying Central Rand Group sediments of the Witwatersrand Group and the overlying Ventersdorp Supergroup lavas.

**Mining and processing:** Given the geologically complex nature of the orebody at Tau Lekoa, a scattered mining method is used. Access to the orebody is mainly by footwall tunnelling, with access to the reef being facilitated by raising on the dip of the reef and stoping operations taking place on strike.

Tau Lekoa has a twin shaft system and mines to a depth of 1,650 metres.

Tau Lekoa uses hydropower which has a centralised electro-hydraulic system as its primary source of energy production. Hydropower has been instrumental in improving labour productivity, which has played a vital role in assisting Tau Lekoa to achieve its business objectives.

Ore from the VCR from Tau Lekoa feeds one of two streams at the Vaal River No 9 plant (which uses a milling and treatment process and conventional SAG and CIP technology). Ore from the Vaal Reef from Kopanang feeds the other plant stream. Both streams are augmented by low-grade ore from the waste dumps.

**Performance in 2005:** Gold production at Tau Lekoa decreased by 10% to 265,000 ounces. Total cash costs rose in rand terms by 10%

**Performance in 2005:** Kopanang delivered a performance in line with that of last year at 482,000 ounces. Total cash costs declined in rand terms by 3% to R56,427 per kilogram, and in dollar terms by 1% to \$277 per ounce. Gross profit adjusted for the effect of unrealised non-hedge derivatives was \$8 million higher. Capital expenditure of \$41 million was 8% higher than that for the previous year and was spent mostly on ore reserve development.

**Outlook:** In 2006 gold production at Kopanang is expected to decrease to between 457,000 and 475,000 ounces at a total cash cost of between \$294 and \$306 per ounce. Capital expenditure for the year is anticipated to be between \$36 and \$38 million.

### Kopanang

		2005	2004
Gold production	000oz	482	486
Total cash costs	\$/oz	277	281
Total cash costs	R/kg	56,427	58,220
Total production costs	\$/oz	341	317
Total production costs	R/kg	69,594	65,460
Capital expenditure	\$ million	41	38
Capital expenditure	R million	264	244
Total number of employees		6,030	6,312
Employees		5,506	5,758
Contractors		524	554

to R83,885 per kilogram, and in dollar terms by 11% to \$410 per ounce. Gross loss, adjusted for the effect of unrealised non-hedge derivatives, increased to \$14 million, up by 133% on the previous year. Capital expenditure declined by 40% to \$15 million. This was spent on ore reserve development.

**Outlook:** Following on the disappointing performance of 2005, a decision has been made to incorporate the Tau Lekoa operations under the mine management of Kopanang. At the same time, the cost structure and production levels of the mine are being revised during 2006 in an attempt to return acceptable economic performances for the mine. It is expected that the 'new look' mine will be in place by October 2006. Accordingly, the capital programme at the mine is currently focused on the ore reserve development.

### Tau Lekoa

		2005	2004
Gold production	000oz	265	293
Total cash costs	\$/oz	410	370
Total cash costs	R/kg	83,885	76,428
Total production costs	\$/oz	509	432
Total production costs	R/kg	103,932	89,168
Capital expenditure	\$ million	15	25
Capital expenditure	R million	93	161
Total number of employees		4,105	4,252
Employees		3,021	3,398
Contractors		1,084	854



## Moab Khotsong

**Ownership:** 100% owned by AngloGold Ashanti. The decision to exploit the mineral resource on the Moab Khotsong lease area was taken in 1989 and development began in 1991.

**Location:** Moab Khotsong, which is still in development, lies to the south of and is contiguous with the lease area of Great Nologwa.

**Geology:** The mineral resource at Moab Khotsong is structurally complex and highly faulted, with large fault-loss areas. It is one of crustal extension, bound in the north and south by major south-dipping faults with north-dipping faults sandwiched between them. The mineral resource lies between 2,100 and 3,700 metres below surface, with only limited quantities of ore lying above 2,300 metres. The principal reef is the Vaal Reef of which the gold grade and morphology are considered to be a down-dip extension to the south and south-east of Kopanang and Great Nologwa mines. The reef comprises an oligomictic conglomerate, where gold is associated with carbon at the base.

The main shaft is collared on the hanging wall side of the Jersey Fault, which forms the northern boundary of the reef blocks. Access development towards the reef blocks will be gained through rocks of the West Rand Group, which include shale, siltstone and quartzite.

**Mining and processing:** Given the size of the shaft pillars, and because they are unable to provide the necessary protection against rock pressures at depth, the new Moab Khotsong shaft was sited in Great Nologwa's lease area. This enabled the extraction of the shaft pillar before the shaft was excavated and equipped, although it did require the development of long access tunnels to the reef.

A mid-shaft loading system, consisting of a single skip/cage combination with a hoisting capacity of 1,000 tonnes per day, is being used in the excavation of infrastructure and access development on the first two levels. The spacing between these levels is 300 metres so as to reduce the distance of the access development to the reef blocks, which are 2,500 metres away. The development of the

infrastructure on the lower three levels is under way.

Stoping is based on a sequential grid system with 5-metre-dip crush pillars between the raise lines. The raise lines are spaced 200 metres apart on the dip of the reef, with 30-metre-long panels. Backfill is carried to within 4 metres of the advancing stope faces and 75% of the total area extracted is likely to be backfilled.

Planned optimal production level ranges between 14,000 and 16,500 square metres per month on 66 panels over six mining levels, yielding some 95,000 reef tonnes per month. Development will peak at 2,500 metres per month, of which 380 metres will be developed on reef.

**Performance in 2005:** Moab Khotsong produced 30,000 ounces of gold. Revenue is being capitalised against pre-production costs.

**Growth prospects:** Moab Khotsong is the largest of South Africa's current projects. Located in the Vaal River area, the project involves sinking, constructing and equipping the shaft systems to a depth of 3,130 metres below surface, providing access tunnels to the reef horizon on 85, 95 and 101 levels, and developing the necessary ore reserves.

The project is expected to produce 3.6 million ounces of gold from 10 million tonnes of milled ore over 15 years. The project capital cost is estimated at \$659 million (at 2005 closing exchange rate), of which \$629 million has been spent to date.

The shaft was commissioned in March 2003 and stoping operations began in November of that year. Commercial production is scheduled for 2006 and full production, at an average of 495,000 ounces a year, is expected by 2012. The average cash cost (2006 real terms) is expected to be \$252 per ounce over the life of mine.

**Outlook:** Gold production of between 48,000 and 50,000 ounces is expected in 2006. Total cash costs are expected to be between \$654 and \$680 per ounce while capital expenditure of between \$82 and \$85 million is planned.



## Mineral resources and ore reserves

Mineral Resources and Ore Reserves are reported in accordance with the minimum standard described by the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC Code, 2004 edition), and also conform to the standards set out in the South African Code for the Reporting of Mineral Resources and Mineral Reserves (the Samrec 2000 Code). Mineral Resources are inclusive of the Ore Reserve component unless otherwise stated.

AngloGold Ashanti had Mineral Resources of 175.8 million ounces and Ore Reserves of 63.3 million ounces as of 31 December 2005. Of these, Vaal River accounted for Mineral Resources of 47.3 million ounces and Ore Reserves of 17.0 million ounces (the respective numbers for the South Africa region as a whole are 86.9 million ounces and 26.8 million ounces).



		Metric			Imperial		
		Tonnes million	Grade g/t	Contained gold tonnes	Tons million	Grade oz/t	Contained gold million oz
<b>Mineral resources</b> (as at 31 December 2005)							
Great Noligwa	Measured	9.7	18.69	181.5	10.7	0.545	5.8
	Indicated	8.7	17.04	148.3	9.6	0.497	4.8
	Inferred	0.8	15.37	12.1	0.9	0.448	0.4
	<b>Total</b>	<b>19.2</b>	<b>17.81</b>	<b>341.9</b>	<b>21.2</b>	<b>0.519</b>	<b>11.0</b>
Kopanang	Measured	2.1	17.76	37.3	2.3	0.518	1.2
	Indicated	17.8	16.45	293.2	19.7	0.480	9.4
	Inferred	1.4	15.32	22.1	1.6	0.447	0.7
	<b>Total</b>	<b>21.4</b>	<b>16.5</b>	<b>352.6</b>	<b>23.6</b>	<b>0.481</b>	<b>11.3</b>
Moab Khotsong	Measured	0.3	16.28	5.1	0.3	0.475	0.2
	Indicated	11.1	23.53	261.6	12.3	0.686	8.4
	Inferred	6.3	21.78	136.5	6.9	0.635	4.4
	<b>Total</b>	<b>17.7</b>	<b>22.79</b>	<b>403.2</b>	<b>19.5</b>	<b>0.665</b>	<b>13.0</b>
Tau Lekoa	Measured	7.0	5.72	40.4	7.8	0.167	1.3
	Indicated	40.0	4.99	199.9	44.1	0.146	6.4
	Inferred	-	-	-	-	-	-
	<b>Total</b>	<b>47.1</b>	<b>5.10</b>	<b>240.2</b>	<b>51.9</b>	<b>0.149</b>	<b>7.7</b>
Vaal River Surface	Measured	-	-	-	-	-	-
	Indicated	298.9	0.42	126.3	329.5	0.012	4.1
	Inferred	12.4	0.63	7.8	13.6	0.018	0.3
	<b>Total</b>	<b>311.3</b>	<b>0.43</b>	<b>134.1</b>	<b>343.2</b>	<b>0.013</b>	<b>4.3</b>
<b>Ore reserves</b> (as at 31 December 2005)							
Great Noligwa	Proved	6.0	8.65	52.2	6.6	0.252	1.7
	Probable	11.1	8.23	91.2	12.2	0.24	2.9
	<b>Total</b>	<b>17.1</b>	<b>8.38</b>	<b>143.4</b>	<b>18.9</b>	<b>0.244</b>	<b>4.6</b>
Kopanang	Proved	1.1	9.66	10.9	1.2	0.282	0.4
	Probable	19.7	8.13	160.4	21.7	0.237	5.2
	<b>Total</b>	<b>20.9</b>	<b>8.22</b>	<b>171.4</b>	<b>23.0</b>	<b>0.24</b>	<b>5.5</b>
Moab Khotsong	Proved	0.6	9.39	6.0	0.7	0.274	0.2
	Probable	8.5	12.46	106.4	9.4	0.364	3.4
	<b>Total</b>	<b>9.2</b>	<b>12.25</b>	<b>112.5</b>	<b>10.1</b>	<b>0.357</b>	<b>3.6</b>
Tau Lekoa	Proved	3.9	4.17	16.1	4.3	0.122	0.5
	Probable	3.8	4.05	15.3	4.2	0.118	0.5
	<b>Total</b>	<b>7.6</b>	<b>4.11</b>	<b>31.4</b>	<b>8.4</b>	<b>0.12</b>	<b>1.0</b>
Vaal River Surface	Proved	-	-	-	-	-	-
	Probable	115.1	0.61	70.3	126.9	0.018	2.3
	<b>Total</b>	<b>115.1</b>	<b>0.61</b>	<b>70.3</b>	<b>126.9</b>	<b>0.018</b>	<b>2.3</b>

## Economic performance

### Government remittances

AngloGold Ashanti's operations in South Africa paid an amount of US\$42 million (R267.5 million) in corporate taxes in the 2005 financial year.

### New order mining rights

In August 2005, AngloGold Ashanti was informed that it had become the first mining company to be granted new order mining rights by the Department of Minerals and Energy (DME) for all its mining operations in terms of the Mineral and Petroleum Resources Development Act (MPRDA). The company lodged its applications for these rights in July 2004, shortly after the new act became operational in May the previous year.

In terms of the MPRDA, mineral rights vest in the state, with the state holding the right to issue prospecting, mining and other rights to applicants. A five-year transitional arrangement gives current operators the right to apply for the conversion of old order rights into the so-called new order mining and prospecting rights.

The act required the company to submit in its applications, among other things, mining works plans for the company's seven South African mining operations for the rest of their lives, including environmental management plans, social and labour plans for each of the two geographical areas covered by the mines, and details of

previous and planned future black economic empowerment transactions. The two last-mentioned sets of documents are designed to satisfy the department that the company has plans to comply with the Broad-Based Socio-Economic Charter, and has the capacity and intent to implement these plans.

The charter is an adjunct to the MPRDA and was published by the DME to provide more specific guidelines for socio-economic transformation of the mining industry.

A key component of AngloGold Ashanti's submission was that, in addition to recognition of sales of assets made by the company to the black-owned Armgold between 1988 and 2002, the company committed itself to the development of an Employee Share Ownership Plan (ESOP) with a value equivalent to approximately 6% of its South African assets. As of January 2006, the company started consultations with representative trade unions at its South African operations on the development of the ESOP.

AngloGold Ashanti considers the new mineral rights regime in South Africa to be a proper and appropriate method of dealing with the country's mineral resources and political legacy. The company believes the new regime is likely to play a significant part in enhancing socio-economic stability and progress by encouraging equitable participation in the economy and thereby improving the lives of those citizens previously disadvantaged by apartheid. A failure on the part of government to have implemented such measures would have endangered prospects for political and economic stability.



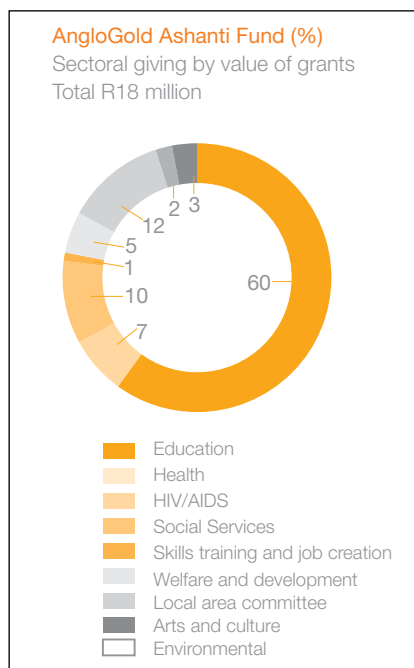
## Community

A fundamental philosophy of the company is that its operations and activities should contribute towards long-term sustainable development and that communities should be better off for AngloGold Ashanti having been there. Total corporate social investment expenditure in 2005 was \$8,752,407, of this amount \$4,150,254 was spent in South Africa.

In South Africa, the company's corporate social investment programme is overseen by the AngloGold Ashanti Fund and Trust. The fund is managed by Tshikululu Social Investments, a non-profit management company which is a specialist corporate donor support agency. The AngloGold Ashanti Fund is directed by a Board of Trustees which, in turn, is supported by local area committees at the operations which are closer to and can be more responsive to the more immediate needs of the community.

The trustees of the fund consider many proposals each year. Certain criteria are used to assist in making decisions: key among these are the sector into which a particular project falls, the location of the beneficiaries and the sustainability of the venture. The fund focuses on funding education, health, and arts and culture projects. In 2005 more than R18 million was distributed to a wide range of projects.

Since its establishment more than seven years ago, the fund has concentrated on education, believing that support given here has the



most potential to make a real difference to the lives of individuals and their communities. In 2005, 60% of the funding available went to education. Other fields to which the fund gives priority are those of welfare and development, HIV/AIDS, health and skills training/job creation, and last year's spending reflects this (see accompanying chart).

Another guiding principle is to focus on the areas where the company has operations and the regions from which it draws large numbers of employees (and where the families of many of those employees live). With three mines near Carletonville and four near Klerksdorp, projects in the provinces of Gauteng (49%) and North West (19%) were significant beneficiaries. Employees who do not reside near AngloGold Ashanti operations come primarily from the Eastern Cape and northern KwaZulu-Natal in South Africa, and from Lesotho and Mozambique beyond the borders of the country, and so most of the remaining funding

(32%) was distributed in these areas.

Regarding the issue of sustainability, the trustees have to be convinced that the project will be sustainable and benefit the recipients in the long term. The level of community participation and ownership is a crucial factor in ensuring this (as is the degree of involvement by the relevant public sector bodies).

A major project of the past year in Kanana near Klerksdorp – the

Inyatelo Public School – serves to illustrate the points above.

### Inyatelo Public School

AngloGold Ashanti has a long association with the Inyatelo Public School which was established in 1983 by a group of mineworkers who wanted to ensure that Xhosa-speaking children in the Kanana area had access to education in their mother tongue. What was then the company's Vaal Reefs mine (now known as the Vaal River operations) made premises available and gave assistance when the primary school (from Grades 0 to 7) moved to a larger and better equipped building in 1990.

The building can accommodate 840 children but in the past decade there had been a significant increase in enrolments and Inyatelo now has 1,400 learners. This left the school's governing body with no option but to implement a system of platooning which splits the children into two groups with the first attending classes until late morning and the second starting at midday. Platooning is never a satisfactory arrangement since it obviously has an effect on the spirit and unity of a school.

At Inyatelo it has placed a considerable burden on the 40 teachers who have to do double duty. More seriously, it has made the youngsters who start their schooling in the afternoon vulnerable since they are left on their own at home when their parents leave for work.

The school turned to the AngloGold Ashanti Fund for assistance and a grant of R2.5 million was made for an upgrading that includes

the construction of 11 classrooms, office space and an ablution block. The contractors moved on site in August 2005 and the project was scheduled for completion by February 2006.

The chairperson of the governing body, Anderson Mogadla, now retired from AngloGold Ashanti, left the Eastern Cape 40 years ago and made Kanana his home. He was involved in the establishment of Inyatelo – the first Xhosa-medium school to be built in the area – and sums up its importance to his family by saying it made it possible for all his children and grandchildren to receive their education in their mother tongue.

Although the North West Education Department is not providing any financial assistance for the expansion of Inyatelo, representatives sit on the steering committee and there has been ongoing consultation. For the project to be successful, however, it is important that there is a substantial increase in the number of teachers and discussions are being held with the department in this regard.

The manager of the AngloGold Ashanti Fund, Siphon Mahlangu, explains that the fund is changing its focus from supporting many small projects (some with amounts around the R50,000 mark) to concentrating on larger ventures that will have a more significant impact on the regions in which they are located. Inyatelo illustrates this trend as well as the increasing importance being attached to initiatives that are located in areas close to AngloGold Ashanti operations where many employees and their families live. Finally, it illustrates the fund's concern to work with government to secure the long-term future of projects.



## Occupational safety and health

In 2005 the lost-time injury frequency rate (LTIFR) per million man-hours for the Vaal River operations was as follows:

Great Noligwa:	12.13
Kopanang:	11.58
Moab Khotsong:	12.98
Tau Lekoa:	14.58

While AngloGold Ashanti is committed to eliminating accidents in the workplace, regrettably 17 employees died at the South African region. Of those ten were from the Vaal River operations (four at Great Noligwa, one at Kopanang, one at Moab Khotsong and four at Tau Lekoa).

### Managing safety and health

The primary causes of fatalities in the South Africa region remain falls of ground (88%), with seismically induced falls of ground accounting for 41% of all fatalities. Falls of ground workshops are held every quarter in the South African region.

### Monitoring safety performance

AngloGold Ashanti operations use both 'leading' and 'lagging' indicators in monitoring safety performance. The lagging indicators are those that have traditionally been used to measure actual performance. These include: LTIFR, serious injury frequency rate (only in South Africa), fatal injury frequency rate (FIFR) and severity frequency rate. All these rates are expressed as per million hours worked. Through the enterprise-wide risk management programme that has been implemented within the region, it is now possible to identify at operational level most of the significant risks and then to establish the related leading indicators – those that indicate a predisposition to an event or situation that could precipitate or be conducive to an accident or incident. These include, for example, the amount of overtime worked in a section and the disciplinary process.

### Occupational health threats

The most significant occupational health threats to AngloGold Ashanti are noise-induced hearing loss (NIHL) and occupational lung disease (OLD). In South Africa, TB in silica-exposed employees is also considered to be an occupational disease.



#### Awards

- Kopanang mine was awarded the third Dick Fisher Award for 2005. It also achieved 1 million fatality-free shifts in November 2005.
- Great Noligwa achieved 1 million fatality-free shifts on 2 July 2005.
- Moab Khotsong: was awarded a Special Recognition Award for Outstanding Safety Performance by the Mine Health and Safety Council.

- 175 new cases of NIHL were identified in South Africa during 2005, which is a rate of four per 1,000 employees. This is a decrease of 41% on the previous year's rate of seven per 1,000 employees.
- 316 cases of OLD were identified in South Africa during 2005, which is a rate of seven per 1,000 employees, a 1% decrease from the figure reported in 2004.
- 1,043 new cases of TB were detected and treated during the year, which is a rate of 25 per 1,000 employees, down from a rate of 35 detected the previous year.
- Dust (silica) control on the South African mines continued to improve, although the agreed industry target, for which 95% of all individual samples must be below the legal limit of 0.1mg/m<sup>3</sup> by 2008, has not yet been achieved. In 2005 the average silica dust concentration was 0.04mg/m<sup>3</sup>, with the 95th percentile at 0.13mg/m<sup>3</sup>.

#### Medical surveillance

Medical surveillance is an integral part of the management of occupational safety and health. Two occupational health centres are in place, one at Vaal River and one at West Wits. Each has two doctors qualified in occupational health and 25 supporting staff. In addition, each mine has an on-site occupational nurse. A total of 57,015 occupational medical surveillance examinations (initial, periodical, transfer and exit) were performed in the South Africa region during 2005 in accordance with the requirements of the Mine Health and Safety Act. Medical surveillance and health care are handled by AngloGold Health Service (AHS), which provides health care services to the group's employees and their dependants. Each AHS hospital has medical, surgical and maternity wards, an intensive care unit, operating theatres, casualty and outpatient facilities, as well as radiography, occupational therapy and physiotherapy services.

#### Pioneering TB research programme launched in gold mining industry

A pioneering research programme to identify appropriate strategies to reduce the incidence of TB in the gold mining industry in South Africa was launched nationally at the end of October 2005, followed by regional launches on 1 November 2005. The local programme is part of a global research programme to find a solution, in the face of escalating TB infection, to reduce the incidence of the disease. The programme is based on the premise that administering TB preventive therapy to an entire community, and not just affected individuals, may result in a significant reduction in the incidence of the disease.

It has become increasingly apparent in the last 15 years that, despite meeting World Health Organization (WHO) targets for the detection and cure of TB, the incidence of TB in the South African

gold mining industry is rising. This is largely attributable to silicosis together with the escalating HIV/AIDS epidemic, which compounds the incidence of TB. The objective of the research is to compare the efficacy of nine months of TB preventive therapy using the TB drug Isoniazid offered on a community-wide basis in addition to the standard TB control programme, with that of the standard TB control programme currently practised in the gold mining industry.

Around 68,000 miners will participate in the study. Participating mines were allocated by public lottery to be either control sites or sites which would receive community-wide preventive treatment. The process of enrolling participating mines and individuals and the administration of therapy began in January 2006 and should last 15 months.



## Integrated Seismic Systems International

AngloGold Ashanti uses seismic systems developed by Integrated Seismic Systems International Ltd (ISSI) to assess 'ground behaviour', in an effort to reduce fall of ground (FOG) incidents and accidents at its mines. The seismic systems are a network of seismic stations that detect and record energy releases in the ground. This information is then transferred to the surface where it is processed, entered into a database, analysed and interpreted. All ground movement is measured with sophisticated sensors, the number of which varies according to the mine's seismicity, the intensity of monitoring and size of the lease area. Tau Lekoa mine, for example has six sensors, while Great Noligwa has up to 60.

Two types of seismic event are measured – earthquakes, where ground moves typically along faults or other geological-type structures; and rock bursts where mining-induced stress exceeds the rock's strength causing it to explode. ISSI's seismologists work closely with AngloGold Ashanti's rock engineers in linking seismic data with mine design. Mine design and layout is implemented in such a way that predicted large events are either mitigated or eliminated. Support systems are then installed to withstand these

large events. The success of the mine design layout and support has been proven at Great Noligwa mine where there have been several seismic events of 3.5 magnitude with zero injuries. The location, or epicentre, is an important aspect; this refers to the point on the earth's surface directly above where an earthquake has occurred, whereas the hypocentre measures the depth at which it occurred. A seismic event which took place on 12 October 2005 at Great Noligwa measured 4.9 on the Richter scale, but took place 5.5 kilometres below surface – which was about 2 kilometres below operations – and did not affect mining operations. Where monitoring shows that seismic activity is building up in a certain area, the mining methodology and strategy is revised. A case in point was when six crews were moved from an area of Great Noligwa as a precautionary measure in July 2005. This decision was reported to the market as one of the causes of a drop in the mine's production but it was vindicated when, following a 4.7 magnitude earthquake at the mine, no serious injuries were reported.

## Employee participation

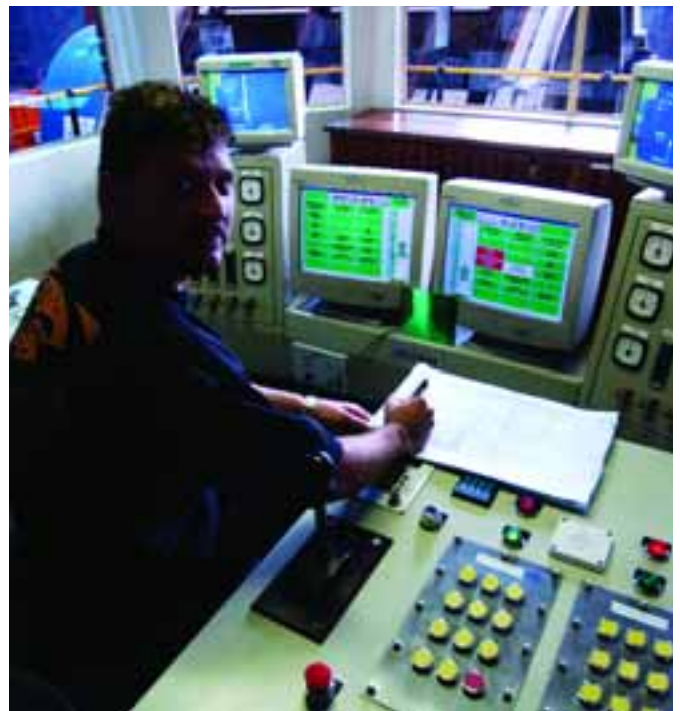
Each operation has its own agreement with the union representative of the majority of employees, the National Union of Mineworkers (NUM), but these agreements are normally extended to all the unions represented in the company. Joint health and safety committees are in place at every operation, in line with the Mine Health and Safety Act, and all working places are covered by such agreements. A total of 2,030 workplace and 24 full-time safety and health representatives have been trained, designated and appointed.

## Taking TB control a step closer to employees

Digital diagnostic radiology (DDR) has revolutionised the application of TB examinations in recent years, facilitating earlier detection of the disease. The fixed digital radiology units at each of AngloGold Ashanti's two occupational health centres (at Vaal River and West Wits) can handle up to 450 X-ray images per day. Although the capital costs associated with these systems are high, running costs are significantly cheaper and, most important, their technological benefits are proving to be significant.

In a move to take this sophisticated technology to the rock face, a mobile DDR unit was commissioned in August 2005 to serve the four mines in the Vaal River area. The benefits of DDR, compared to standard X-ray technology, are that the radiation dose that was present in the mass-miniature X-rays previously used is virtually eliminated; only one image is taken and then digitally manipulated; no developing of film is required as images are stored digitally; and this in turn saves the cost of potentially hazardous chemicals used in the developing process, as well as the cost and space involved in storing conventional X-ray films over time.

Symptom screening is done on site and the X-ray can be read immediately, speeding up the diagnosis of TB patients who need to be hospitalised. Future benefits are envisaged in being able to individually risk-rate employees for TB. Variables such as age, past medical history, occupation, and years underground would be combined in a risk matrix to determine the frequency of TB screening. Low risk employees would only need to be screened every three years, whilst those at high risk would be screened by DDR every six months.



## Significant improvements in safety at Kopanang

Kopanang mine has implemented a broad safety strategy following an increase in the number of deaths and injuries at the mine. Employees, together with the unions and associations, all took part in a one-day workshop where pertinent issues were addressed and action plans for each section drawn up. These can be grouped under three broad headings: improving the infrastructure/working environment, behaviour, and risk management.

- **Improving infrastructure:** high temperatures were addressed by improving the circulation of cold air at the deepest levels of the mine (2,850 metres). As a result the average stope face wet bulb temperature decreased to 27.7°C in December 2005, compared with 29.5°C in December 2002. Steps were also taken to eliminate

## Emergency management

Emergency preparedness plans, both in respect of employees and community members, are in place in the South Africa region. The approach to identifying and preparing for emergency situations is governed by the risk management process and OHSAS 18001.

Emergency preparedness plans include preparation for fires, hazardous material accidents, biological threats, high angle rescues and bomb threats. Different emergencies are treated by different response teams. Each of these is trained to be effective within its area of activity. Among others, there are teams for asset protection services, fire and emergency services (both surface and underground), ambulance services, mine-based rescue teams and the Mines Rescue Service (MRS).

All employees receive a level of basic training and paramedics

are available at the operations to ensure a quick response. Refresher training is held at prescribed intervals, as are emergency drills and review processes.

The emergency Asset Protection Emergency Control Centre and the Mponeng Control Centre are the bases from which fire and emergency services are dispatched to the Vaal River and West Wits operations. For employees, each of the two South African geographical regions has contracted International SOS (ISOS) to run their ambulance services. These are based at the two hospitals and manned round the clock by advanced life support paramedics. This service is available to the public in the event of a major disaster in the area, as is the use of the two hospitals which have trauma facilities, theatres and ICU.



congestion of locomotives in the haulages which could lead to accidents. A new orepass system was constructed to allow all the ore to be transported to the station on one level. The new system was also constructed at a greater distance from the shaft.

- **Behaviour:** all supervisors, safety representatives and underground teams attended behaviour-based safety observation training between 2003 and 2005. All crews at Kopanang go through a three-week intensive orientation, of which mindset change is a major part. SMAT (safety management audit techniques) principles are explained and reinforced annually on an employee's return from leave. New employees receive the training as part of their induction.
- **Risk management:** all workplace risks at Kopanang are grouped into 'perils'. For example, falls of ground, horizontal and vertical transport, fire, flooding and flammable gas are all now classified as perils. A committee comprising workers/safety representatives and line management has been established for each 'peril' and meets monthly to review, assess and revise the systems and procedures connected with the respective perils. Action plans are drawn up to reduce the risks identified. A major shift in approach has been the change in emphasis from 'lagging' to 'leading' indicators. This means that the focus has moved from determining the causes of incidents after the event to preventing them before they arise through identifying at-risk circumstances or behaviour.

### Fall of ground management in South Africa

The majority of injuries and fatalities are attributed to falls of ground. Of the 17 fatalities recorded at AngloGold Ashanti for 2005, 15 (or

almost 90%) were fall of ground related.

In 2002 the company initiated a holistic five-point fall of ground management strategy to address the incidence of fall of ground-related accidents and fatalities. This strategy focuses on:

- mine design;
- mine support standards;
- mindset;
- monitoring; and
- research.

The focus in 2002 was on the prevention of adverse rock conditions by looking at mine design and mine layout. In 2003, focus was placed on the stage at which one controls the conditions that have been created in the mine design and layout phase. Stringent auditing systems were introduced during 2004, including the concept of 'Rock Stars' – whose job is to complete regular audits so that information is immediately fed into a database, prior to analysis and implementation of remediation strategies. The third stage, which is about changing and managing 'mindset', was the key focus in 2005 and emphasises performance standards, education, training, knowledge, attitude and level of compliance. World-renowned safety training organisation DuPont was tasked with implementing a peer-on-peer safety management and auditing technique (SMAT), which is being implemented top-down at all mines. Research, development and technology, which make up the fifth stage, are ongoing elements of the whole strategy and are an essential precursor to mine design and layout, the starting point for actual operations. AngloGold Ashanti interacts with a number of industry bodies which deal with developing systems, methodologies and technologies – for example, the Council for Scientific and Industrial Research (CSIR), the Safety in Mines Research Advisory Council (Simrac) and ISSI.

Having reinforced the four operational fall of ground management pillars, AngloGold Ashanti's focus for 2006 is the revitalisation and integration of those components.

## HIV/AIDS

HIV/AIDS remains a challenge at the South African operations where AngloGold Ashanti estimates a 2005 HIV prevalence rate of 30% among its workforce. The company has played an active role in developing programmes to combat the spread of HIV/AIDS and to deal humanely with its consequences, while at the same time minimising the economic cost to the company. Although the company's programme is primarily aimed at employees, in many instances voluntary counselling and testing (VCT) and home-based care have been extended to communities surrounding operations or from which employees have been drawn.

### Engaging with unions

AngloGold Ashanti has in place an HIV/AIDS policy which is supported by an agreement signed with all recognised trade unions in July 2002. Both the policy and agreement provide for:

- the creation of a conducive environment in the workplace to eliminate the stigma associated with the disease and unfair discrimination, and to uphold the dignity and rights of affected employees;
- education and training related to the infection;
- the distribution of condoms and the treatment of sexually transmitted infections (STIs);
- VCT and the Wellness Programmes, including the provision of anti-retroviral therapy (ART); and
- care for employees while they are working for the company and after they retire.

### The AngloGold Ashanti HIV/AIDS Programme

The company's HIV/AIDS Programme has as its aim the reduction of new infections, and the efficient management of those already infected. To achieve these objectives, the programme is based on three fundamental pillars: prevention, treatment and support.

**Prevention:** the primary aim of this segment of the programme is the reduction of the rate of new infections amongst the workforce by effecting behavioural change. A key element of the programme is to encourage employees to know their HIV status. During 2005, 10,219 visits were recorded at AngloGold Ashanti's VCT centres, an increase of 150% on those recorded in 2004. By the end of December 2005, 32.4% of the workforce had undergone VCT, 22% of whom tested positive for HIV while 78% were HIV-negative. Importantly, 77% of those who underwent VCT in 2005 had the test taken for the first time. Greater emphasis was placed on the training of peer educators during the year.

**Treatment:** central to the campaign is the effective management of those already infected with the HI virus. The programme includes early identification of the disease, prophylactic treatment for opportunistic infections and ART where appropriate. The company has provided wellness clinics for HIV-infected individuals since 1999, with the provision of ART having been introduced in November 2002. During 2005, 1,267 employees were registered for the first time on AngloGold Ashanti's Wellness Programme, an increase of 35.5%. The cumulative number of employees remaining registered with the Wellness Programme by the end of 2005 was 3,254. A total of 653 employees were enrolled in the ART programme in 2005, bringing the cumulative total of employees currently on ART to 934. Importantly, 63% of those who started ART remain on treatment.

**Support:** this starts with the appropriate placement of personnel through objective assessment and early retirement on the grounds of ill-health for individuals unable to continue working. This is followed by palliative care where possible. In 2005, 274 employees in West Wits applied for and received ill-health retirement benefits from the company although not all of these applications can be ascribed to



### New impetus for peer education to combat HIV/AIDS

AngloGold Ashanti is aiming to increase its number of peer educators in an effort to encourage early diagnosis of the disease and responsible management of treatment in those infected. Formal accredited in-house training is now being established, using the bridging services of an external provider Education Training and Counselling (ETC) which has South African Qualifications Authority (SAQA) accreditation. The effectiveness of peer educators, in encouraging people to undergo VCT, is also being measured. Although the majority of VCT referrals in 2005 were as a result of promotions and campaigns, AngloGold Ashanti

believes that peer education is ultimately one of the most sustainable prevention programmes. As such it is aiming for a much higher percentage of peer education referrals in 2006 by increasing its ratio to 1:60 peer educators from its current 1:110 ratio. Between April (when the 2005 courses started) and November 2005, 265 peer educators completed training. ETC has also developed a 36-week programme for peer educators to take into the workplace after training. There is also a move to integrate HIV/AIDS into health and safety programmes, so that peer education is recognised and supported by workplace supervisors.



AIDS. Also during 2005, 225 employees were known to have died in hospital from AIDS.

AngloGold Ashanti is involved in numerous home-based care programmes for employees who are AIDS-ill, including The Employment Bureau of Africa (TEBA) Home-based Care, Carletonville Home- and Community-based Care, North West Hospice, Bambasinani Home-based Care and Rudo Home-based Care. The company was instrumental in establishing the Lusikisiki Village Clinic, which now provides both primary health care and ART to a broad range of community members in the Eastern Cape. The clinic was run by AngloGold Health Service (AHS) until December 2004, when it was handed over to the Eastern Cape's Department of Health for use as a community clinic. This move is in alignment with AHS's own revised strategy – while AHS will provide health care only in areas in which the company operates, AngloGold Ashanti will continue to fulfil its social responsibility obligations by forming partnerships with host communities, including those from labour-sending areas.

#### HIV/AIDS research projects

AngloGold Ashanti, together with the Aurum Institute for Health Research, has been involved in a wide range of research projects aimed at improving understanding of the disease and, in particular, the use of ART specifically in the mining environment. In 2005, six research projects related to ART were undertaken by Aurum.

These include:

- **Resistance Study** – analysis of viral load specimens for patients who have failed the first-line regimen; and ensuring the appropriate second-line regimen is being followed;
- **Efavirenz/Rifampic Interaction Study** – project undertaken in

collaboration with the University of the Western Cape and involves an analysis of blood drug level testing to determine the interaction between the two drugs used as part of the ART regimens;

- **Efavirenz Early Side-Effects Study** – to examine the early neuro-psychiatric effects of the drug at Western Deep Levels Hospital;
- **Directly Observed Therapy (DOT)-Highly Active ART (HAART) Trial** – this involves the use of DOT using peer-nominated supporters. The trial is funded by the National Institute of Health of the United States and is being undertaken in collaboration with the Johns Hopkins University and the University of Cape Town;
- **Functional Work Capacity Study** – to assess the fitness for work of patients on ART; and
- **Adherence study** – to look at factors that have an impact on adherence to the ART Programme.

#### Delivering ART at AngloGold Ashanti

A concerted campaign to encourage attendance at VCT, which started at the beginning of 2005, has resulted in an increase in the number of people presenting for ART. New patients embarking on ART increased steadily during the year, averaging 53 new patients per month in 2005, compared with a monthly average of 26 in 2004. Although the numbers taking up ART are still less than ideal, they are still encouraging. As at 31 December 2005, a total of 3,254 patients were enrolled in the Wellness Programme, 934 (29%) of whom are currently on ART. The use of ART has led to significant improvements in the immune status of HIV-infected individuals. At the Vaal River operations, 80% of patients on ART have been declared fit for work by their attending doctor.



## Labour practices

There were 14,231 employees and 2,760 contractors at the Vaal River operations during 2005. Approximately 95% of all South African employees are either represented by unions or catered for by the agency shop agreement. The four unions that are recognised are the National Union of Mineworkers (NUM), the United Association of South Africa (UASA), Solidarity and the South African Equity Workers' Association (SAEWA).

One industrial dispute took place in South Africa during the period, the first industry-wide strike since 1987. A four-day wage strike affecting all gold mine companies that are members of the Chamber of Mines of South Africa was launched on the evening of Sunday, 7 August 2005, by the NUM and Solidarity. At issue was a wage dispute, in which unions demanded 12% against the industry's offer of increases of between 4.5 and 5%. The strike ended on 11 August 2005, with three full production shifts having been lost.

### Employee participation

Emphasis is placed on employee participation at the South African operations, besides the normal meetings and management briefing sessions for regulating the interaction with the unions and associations. The NUM Steering Committee is the body that interacts with management at corporate level on general company level issues. Company level interaction with the other unions and associations also takes place in the form of bilateral meetings on a regular basis, as and when the need arises. Other forums include: the HIV/AIDS Committee, the Accommodation Forum and the Skills/Equity Committee. Interaction at operational/business unit level largely takes place through the Vaal River NUM Branch Committee and NUM Shaft Committees for each of the mines at the Vaal River operations.

### Training

#### Five broad areas of training can be identified:

- **ABET:** In 2005, 3,892 employees participated in ABET training in South Africa at a cost to the company of R7 million. The company estimates that 72% of its South African employees have a qualification at ABET Level I and higher. Full-time and part-time courses are held at the ABET centres and at the mines.
- **Vocational training:** The provision of vocational training is an important part of the company's Social and Labour Plan. AngloGold Ashanti is registered with the Mining and Minerals Sector Education and Training Authority (Seta), and the Mining Qualifications Authority (MQA). The region's centralised training venue provides accredited technical training in mining, mining services, engineering, metallurgy, and the management of the occupational environment, safety and health.

- **Management training:** The Talent Management Programme identifies and develops management for the future. The programme has three areas of intervention, namely: development, retention, and monitoring of talent.
- **Graduate training:** The South Africa region supports students in full-time studies at university and technikon. The bursary scheme is open to employees (in-service bursary scheme) as well as to the general public. The company currently supports 91 students towards tertiary qualifications.

### Reporting in line with the Mining Charter in South Africa

The Broad-Based Socio-Economic Charter for the Mining Industry and its accompanying scorecard requires that the company reports on an annual basis against targets set in its Social and Labour Plans once the conversion of mineral rights is finalised. With this process near completion in the first quarter of 2006, the first formal report will likely be due in 2007.

The employment of Historically Disadvantaged South Africans (HDSAs) remains a particular priority and AngloGold Ashanti has an employment equity and equal opportunity programme in place. Employment equity and/or equal opportunity targets are set and their achievement is monitored by a board sub-committee, the Employment Equity and Skills Development Committee. Employment targets and achievements are reported to the South African Department of Labour on an annual basis, and reporting will also be provided in terms of the charter from 2007.

Within South Africa, 33% of management comprises HDSAs (2004: 32%); while HDSAs make up 18% of the board (2004: 20%).

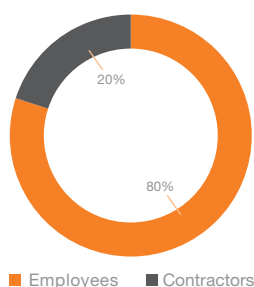
The advancement of women is a key focus area. Of all permanent employees in the country, 6.42% are women (2004: 6%); while 14% of employees at managerial level are women (same percentage as in 2004). Women make up 5.9% of the board. A Women in Mining Audit was undertaken during 2005 and the results of this are being used to shape the company's plans to recruit, advance and retain women in the South Africa region. Many of these recommendations were already in place and this research has simply supported them.

Foreign migrancy is reported at the South African operations in line with the spirit of the charter. The percentage of foreign migrant employees was 36% as at 31 December 2005 (2004: 37%).

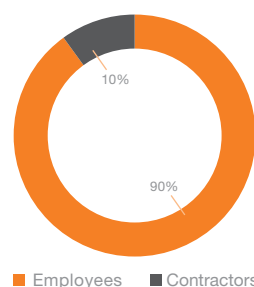
Social and Labour plans are in place for all the South African operations and have been accepted by the Department of Minerals and Energy (DME).



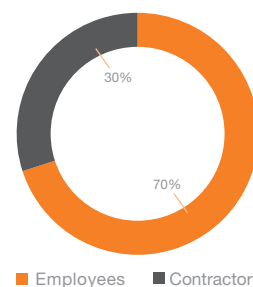
Great Noligwa workforce 2005



Kopanang workforce 2005



Tau Leko workforce 2005



- **Training for life:** Training for life equips employees or ex-employees with skills to ensure their continued employability or ability to be self-employed after employment by the company and in preparation for career endings, both as a result of ill health or as a result of mine closure. Employees who are retrenched are offered re-training in a skill that will assist them to remain economically active within their community.

## Housing and health care

While programmes are in place to encourage home ownership, many employees are housed in company accommodation. There are plans to renovate many of the hostels, to decrease room density and

provide residents with improved facilities and a greater degree of privacy. Meals are provided to all employees who reside in hostels. Menus are reviewed by committees made up of management and union representatives, and the nutritional value is regularly monitored by an independent nutritionist.

Access to health care is provided to all employees and, in certain circumstances, to their families. All employees not covered by formal medical scheme arrangements have access to health care at company facilities. AngloGold Health Service (AHS), a subsidiary of AngloGold Ashanti, operates in South Africa. The Vaal River and West Wits areas both have a central hospital providing secondary, and to some extent tertiary level care, surrounded by a network of peripheral primary health care and occupational health clinics.

## Taking training to the community

As the mines reach maturity and start preparing for closure, the focus is now shifting to building communities that will be sustainable after mining operations have ceased. One initiative has seen the extension of the ABET initiative from the company's employees to the surrounding communities in the Vaal River and West Wits areas. During 2005, 156 community members enrolled in the programme. Of these, 137 wrote the relevant exams and 106 passed. Starting in January 2006, full- and part-time classes for ABET Levels I, II and III (equivalent to grades 2, 5 and 7 respectively) are scheduled for both Vaal River and West Wits. With approximately 20 to 25 learners per class, some 400 students are expected to undergo training annually.

Another initiative involves AngloGold Ashanti's Training and Development Department (ATDS) which has been engaging with the human resources departments of the various business units, along with the Department of Labour and community leaders, to

explore ways of providing people with so-called 'portable' skills to enable them to make a living outside the mining industry. ATDS has developed this training for four target groups: those who have been retrenched; members of the community; employees who have retired through medical incapacitation; and existing AngloGold Ashanti employees. Plans are in hand to extend this initiative to the other South African operations.

Courses focus on basic skills such as bricklaying, welding and carpentry. ATDS is liaising with the Department of Labour with a view to arranging some form of joint funding mechanism. ATDS is in the process of putting together a prospectus for submission to the DME. The planned courses at Vaal River during February and March 2006 will be used as a pilot, which will provide a useful opportunity to monitor controls such as tests and proof of competence.

## Environment

All the South African operations have approved Environmental Management Programmes Reports (EMPs) in place as required in terms of South African environmental and mining legislation. All policy issues that can be addressed at a business unit level are included in the EMP management actions: radiation management, waste management, air quality management, land management, surface water management and groundwater management. The EMPs are updated every two years.

### Environmental training in South Africa

All business units have included environmental policy issues in their induction programmes. Management teams are made aware of their responsibilities through the implementation of a one-day awareness training course.

### ISO 14001

AngloGold Ashanti formally adopted ISO 14001 as the standard for the group's environmental management system during 2005 and has set itself the target of achieving certification of its operating mines by the end of 2006.

The South Africa region's environmental policy was modified during the year to comply with the requirements of ISO 14001, regarding such issues as pollution prevention, legal compliance, continual improvement and policy availability to the public.

### AngloGold Ashanti South Africa – environmental statistics 2005

Environmental liability	\$ million	145.3
Cyanide use	kg	7,182,330
Water usage	m <sup>3</sup>	27,086,783
Energy use	GJ	14,880,141

Implementation has been integrated into the region's Enterprise Wide Risk Management System, since environmental management is viewed as yet another risk that a business unit faces.

### Environmental incident reporting

AngloGold Ashanti's reporting protocol enables the company to identify and manage the risks and impacts of environmental incidents, as well as their associated costs. In line with this protocol, a major incident report must be made within 24 hours to the corporate office. For purposes of reporting, a major environmental incident is defined as 'an event, action or non-conformance with a procedure that results, or has the potential to result, in an adverse impact on the surrounding environment; or any event, action or occurrence which is contrary to the AngloGold Ashanti business principles'.

The most serious incident to occur at Vaal River during 2005 was the overflow of the Bokkamp Dam after 239 millimetres of rain had fallen in the catchment area between 26 December 2004 and

## About ISO 14001

The International Organization for Standardization (ISO) is a voluntary not-for-profit network of national standards institutes from 146 countries with a Central Secretariat in Geneva, Switzerland, that co-ordinates the system. ISO 14001 focuses specifically on environmental management systems, and was first published in 1996. It applies to those environmental

aspects over which the organisation has control and over which it can reasonably be expected to have an influence.

ISO 14001 certification is the only ISO 14000-series standard against which it is currently possible to be certified by an external certification authority. Based on regular auditing by an appropriately accredited external body, an organisation may state that it is ISO 14001 certified.



5 February 2005. The dam capacity proved to be insufficient to accommodate the run-off and operational return water. The estimated discharge was 90,000 cubic metres (m<sup>3</sup>) of water and 270 tonnes of salts which affected the land below the dam. A similar overflow was experienced between 16 March and 15 April. Measures taken include the upgrading of pumping capacity and investigations into the possibility of alternating water flow with the nearby West Tailings Storage Facility.

### Risk management

Risk management forms an integral part of AngloGold Ashanti's environmental management systems. Each operation undertakes its own risk assessment in respect of environmental issues and these risks are then managed at an operational level.

### The use and management of cyanide

The use of cyanide in the recovery of gold is a core concern for the gold mining industry and is critical to its viability. AngloGold Ashanti has been actively involved in the development of the International Cyanide Management Code and was one of the first signatories announced in November 2005. The code is a voluntary industry initiative developed under the auspices of the United Nations Environment Programme (UNEP) and the now International Council on Mining and Metals (ICMM).

The code has two major parts: a commitment by signatories to manage cyanide in a responsible manner; and the practices that must be followed to ensure this. AngloGold Ashanti is well on its way to compliance with the code and internal audits have been concluded at all operations in anticipation of external audits.

### Reclamational and environmental obligations.

In all the jurisdictions in which AngloGold Ashanti operates, the company is required to provide financial assurance, in a form prescribed by law, to cover some or all of the costs of the anticipated closure and rehabilitation for the operation. Rehabilitation refers to the

process of reclaiming or restoring mined land to that which existed prior to mining or to a predetermined, agreed use post-mining. The company devises closure plans prior to the start of operation and are updated regularly to take into account life-of-mine projections.

In South Africa, the newly enacted Mineral and Petroleum Resources and Development Act (MPRDA) has emphasised the need for companies to cover all decommissioning, closure and rehabilitation financial liabilities at all times during the operational phases of the mines. The shortfall between the presently declared environmental liabilities and the present balance in the Trust Fund, designed to cover these liabilities, is R305 million.

Negotiations have taken place over a period of time with the government over this issue, and it has recently been agreed with the Department of Minerals and Energy (DME) that a joint task team will address the issue by revisiting an original agreement formulated three years ago.

This agreement described certain environmental and financial criteria that must be achieved by a mining company if that company wants to use the Trust Fund mechanism solely for funding up to the closure date of the mine. The DME finalised a guideline document for the estimating of closure costs at the beginning of the year. The document was revised with input from the mining industry. The adoption of this guideline has not significantly increased the closure estimate.

The new act and regulations place particular emphasis on the design, construction, operation and closure of tailings storage facilities and waste rock dumps.

### Resource use and waste generation

AngloGold Ashanti is committed to reducing the use of, and improving the efficient use of, scarce environmental resources such as energy, water, timber and other materials. Apart from the environmental advantages of reducing the use of such raw materials, the group can also potentially achieve significant cost savings. Environmental targets are set by the individual operating mines or business units and information on resource use and waste generation is collected and recorded at site level.



## Water usage

Water management is of particular concern in South Africa where attention is currently focused on the Klerksdorp, Orkney, Stilfontein, Hartebeestfontein (KOSH) area. This is where AngloGold Ashanti's Vaal River operations are situated and where there are three other mining companies: Buffelsfontein gold mine, formerly owned by DRDGold, Harmony Gold Mining Company Limited and Stilfontein Gold Mining Company Limited.

All of these companies operate upstream from AngloGold Ashanti's mining operations and, in the past, these mines have been obliged to continue pumping underground water, even once their mining operations have ceased. Pumping is necessary to prevent the flow of underground water from mines at a higher location within the mining area to lower-lying mines and to keep the mines at the higher location dry for their own operating purposes.

When Buffelsfontein was placed into provisional liquidation on 22 March 2005, there was some uncertainty as to whether or not the pumping operations would continue at Stilfontein and Buffelsfontein. DRDGold has denied having any obligation regarding a contribution towards the pumping of underground water in the area.

As a result of this uncertainty, AngloGold Ashanti launched an urgent interdict on 12 April 2005 against DRDGold Limited, Buffelsfontein Gold Mines Limited, Stilfontein Gold Mining Company Limited, Harmony Gold Mining Company Limited, Hartebeestfontein Gold Mining Company Limited, the minister of minerals and energy, the minister of water affairs and forestry, and the minister of environmental affairs and tourism. AngloGold Ashanti applied to court for an order directing the mining companies to continue pumping and extracting underground water at their mine shafts and for the ministers to issue directives to the mining companies to continue with pumping at their mines, to take the necessary measures to prevent further pollution or degradation of the KOSH area, and to make the area safe.

As a result, the minister of water affairs and forestry issued directives that pumping should continue, and for AngloGold Ashanti, DRDGold, Harmony and Stilfontein to contribute equally to the costs. AngloGold Ashanti, DRDGold and Harmony have, under protest, complied with the directives but Stilfontein has refused to comply and is facing court action from the state in this regard.

The DME and the Department of Water Affairs and Forestry (DWAFF) have recommended that companies involved in mining areas such as Klerksdorp and Carletonville, collectively design a regional closure plan for these geographic areas, in addition to the normal mine closure plans.

## Energy usage

Energy is a major cost driver, particularly in underground mining. In its efforts to conserve energy, AngloGold Ashanti is focused on ensuring the efficient use of energy and on developing and implementing renewable energy sources.

## Biodiversity

The need for preserving biodiversity and the ongoing threats to habitat continue to be the subject of global debate. AngloGold Ashanti, through its participation in the Biodiversity Taskforce of the ICMM, is engaged with the IUCN (World Conservation Union) in a dialogue on mining and biodiversity.

In South Africa, a first-phase biodiversity assessment (desktop study) was completed for the Vaal River operations. No formally defined protected areas or sensitive areas were found to exist here.

However, the South African operations are all situated within the highveld grassland biome which is considered to be one of the most threatened regions in South Africa, with 60-80% irreversibly transformed, mainly by agriculture and residential development, and only 2% formally conserved. A number of preliminary Biodiversity Management Units (BMUs), which are areas with homogenous biodiversity (for vegetation, terrestrial and aquatic fauna), have been identified in the Vaal River area.

The next phase, which will start in 2006, will identify specific objectives, programmes and targets for the management of biodiversity.

## Hydrogeology

Hydrogeology – the study of the interaction of groundwater with surface water bodies, soil and rock formations and waste rock bodies – forms part of AngloGold Ashanti's integrated water management plan as prescribed by South African legislation.

Hydrogeology falls under the Water Management section of the South African Environmental Management Department.

The main objectives of hydrogeology in the South Africa region are to:

- identify pollution sources and potential pollution sources (e.g. tailings dams, dirty water separation dams, stormwater dams);
- carry out risk assessments and classification of pollution sources;
- mitigate the paths of pollution sources to prevent their ingress into unpolluted water;
- identify receivers of pollution (e.g. rivers and other natural water

- sources) and mitigation options; and
- establish the effect of mine dewatering.

Data obtained from the integrated ground and surface water monitoring network has enabled the compilation of a number of formal monitoring reports in the South Africa region. This has allowed for the construction of a detailed groundwater model and predictive simulations to identify potential groundwater risk. Groundwater contaminant flow transport models were constructed to quantify possible pollution impacts over a period of, for example, 20 years. The transport models were ranked according to their salt load allocation (the higher the salt load, the more polluted the water) and the distance over which the pollution travels.

From an identification of groundwater risk, AngloGold Ashanti has been able to pinpoint potential problem areas, and to implement mitigation strategies.

### AngloGold Ashanti active in water management strategy

AngloGold Ashanti has become active in developing a water management strategy following the dispute regarding the pumping of underground water in the KOSH area.

The debate served to highlight a crucial concern, namely, on whose shoulders the pumping responsibility should lie when one mine closes down before another. South African law, in the opinion of AngloGold Ashanti, is clear in this regard: the mine in which area the underground water occurs has the obligation to manage such water. It believes that in terms of legislation contained in the National Water Act, the National Environmental Act, the Mine Health and Safety Act and the Mineral and Petroleum Resources Development Act, each mining company is responsible for its own environmental impacts and safety and that it may not pass pollution and safety problems on to another company – in other words ‘the polluter pays’ principle. Mining companies, in any event, are compelled to make financial provision and fulfil certain environmental obligations before obtaining a closure certificate from the DME.

In response to DWAF’s directive to mining companies to formulate a proposal on how to handle the KOSH water issue, AngloGold Ashanti submitted a document suggesting a way forward. The proposal suggests that over the next 18 years (covering the life of

mines in the area), water should continue to be pumped to surface at Stilfontein’s Margaret shaft before being piped to the local water service provider, Midvaal Water Company or other water services provider where it is to be blended with Vaal River water, treated and used for domestic, industrial and mining purposes.

AngloGold Ashanti has also suggested that a water company (with the mining companies and government as members) be formed to manage the current crisis now and into the future. This should create a revenue stream to pay for pumping costs over the next 18 years and will make more widespread use of the water being pumped at Margaret shaft, now being discharged to the surface environmental and water resources. On the question of sustainability, as raised by government, the proposal further advises continued pumping for a ten-year period following mine closure, until voids fill up. It is also envisaged that, since the quality of water may not be accurately established at this time, a pre-treatment plant be erected at Margaret shaft before water is transferred to the Midvaal Water Company. With regard to water pollution, a monitoring measure is currently under investigation by DWAF, which is considering installing a Water Discharge Charge (WDC) system, whereby companies will be charged for volumes and contaminants discharged into the natural watercourse.

At a two-day workshop held in October 2005, all mining companies and stakeholders agreed on the establishment of a water company, which will ultimately benefit the community, mining companies and government. Foreseeable challenges, besides raising the R60 million needed to set up the company, are how DWAF and the DME will legally appropriate Margaret shaft from Stilfontein in view of the fact that the company has no directors – they resigned en masse earlier in the year when they faced contempt of court proceedings for failing to comply with the DWAF directives – and the speed with which DWAF will be able to furnish a water licence permit for the new company.

While AngloGold Ashanti is confident that the new water company will get off the ground in the foreseeable future, it would like to see government intervention in certain areas before a crisis on the scale of the KOSH area presents itself. Chief of these is ensuring that closure strategies are in place long before all mining operations cease, and that these strategies adopt a holistic view of the needs of affected areas.

### Complying with stringent new air quality legislation in South Africa

South Africa’s new National Environmental Management: Air Quality Act 39 of 2004, which repeals the Air Pollution Prevention Act of 1965, came into effect on 11 September 2005 with exclusions of certain sections such as the licensing of listed activities. (Until these sections are included, the relevant sections of the Air Pollution Prevention Act will remain in force.)

The new act introduces a system based on ambient air quality standards and corresponding emission limits to achieve them. The act prescribes air quality standards at national level for ozone, nitrogen dioxide, sulphur dioxide (SO<sub>2</sub>), lead (Pb), particulate matter and total suspended solids. Linked to the new Air Quality Bill are two standards set by the South African National Standards (SANS), namely SANS 69 which defines the basic principles of a strategy for ambient air quality management in South Africa, and SANS 1929 which gives limit values for common pollutants.

In order to ensure compliance with new legislation, AngloGold Ashanti drew up an Air Quality Impact Assessment and Development of Air Quality Management Plan Framework in August 2004. The starting point was the compilation by a task team of an emissions inventory at the Vaal River and West Wits operations to examine all air pollutants, including SO<sub>2</sub>, Pb, PM10 (particulate

matter smaller than ten microns which is a health risk), and total suspended solids. The task team, comprising the company’s South African environmental departments and business units, in conjunction with an external consultant, prioritised emissions after which management and monitoring plans were put in place.

Running almost concurrently with the above Air Quality Impact Assessment was an identification and compliance assessment by an external consultant, Airshed, of ‘scheduled processes’ – those which require permission to operate. Following application, provisional registration certificates were granted in 2005 for two new scheduled process at the Vaal River in terms of the new legislation – Vaal River’s East Gold Acid Float (EGAF) plant, for SO<sub>2</sub> emitted in the gold extraction process, and for the assay laboratories where lead is used in the analysis of gold samples. The provisional registration was granted for both scheduling processes, with the proviso that compliance is proven within a year. Unlike the previous legislation which imposed certain limits on emissions, the new act legislates in terms of ambient concentrations measured in ten-minute averages, hourly averages and yearly averages.

Management plans are in place to meet these stringent limits during the course of 2006.