

Safety, health and environmental management

The review period was characterised by commendable progress in SHE issues. Whilst celebrating achievements, Kumba Iron Ore is always mindful of its goals of an injury free working environment and zero tolerance for non-compliance or unsafe behaviour. The environmental management focus is to ensure the rights of stakeholders – present and future – to an environment that is not harmful to their safety and well-being.

Kumba Iron Ore aims to improve on SHE performance and management systems on a continued basis in all its operations as an integral part of its commitment to sustainable development. An important element of its compliance with all relevant SHE legislation and international obligations is its commitment to consult with all stakeholders, achieve high standards on environmental performance, and implement internationally accepted standards for occupational health and safety.

The Kumba Iron Ore board bears overall responsibility for SHE monitoring and performance, as exercised through the safety and sustainable development committee of the board and consulting forums at corporate and business unit level. Policies and standards cover all operational aspects and activities that could affect the safety and health of people and the environment. A duty of care that covers the life cycle of each mine, from exploration and planning to operation, closure and decommissioning, remediation and rehabilitation, and post-closure care focuses mainly on ensuring that environmental sustainability is achieved.

Developed in consultation with relevant stakeholders and mandatory for all Kumba Iron Ore operations, the objectives of the SHE policy and management standards are to:

- Provide a risk-based SHE management system framework, consistent with national legislation, the Kumba Iron Ore SHE policy, ISO 14001, OHSAS 18001, and other internationally recognised standards that support the implementation of SHE best practice across all Kumba Iron Ore's operations.
- Provide a Kumba Iron Ore framework to effect SHE legal compliance.
- Ensure the progressive development and implementation of more specific and detailed SHE management systems at all levels of the group's operations.
- Provide performance criteria against which SHE management systems throughout Kumba Iron Ore can be measured.
- Provide a basis from which to drive continuous improvement in SHE.
- Integrate SHE elements into all relevant existing Kumba Iron Ore policies and practices.

The SHE management process is largely driven by well-established risk management principles. Processes and working areas are broken down into units and, assessed for baseline risks and issue based risks. All operational teams are trained to apply risk assessment on new projects and tasks. Control measures to reduce risks are implemented systematically according to the following risk parameters:

- Engineering design
- Engineering control and SHE systems
- Early warning systems
- Administrative control such as procedures, training and inspections
- General protective mechanisms and processes

OHSAS 18001 and ISO 14001

All Kumba Iron Ore operating business units retained their certification for ISO/OHSAS management systems (to OHSAS 18001 and ISO 14001 standards) as at 31 December 2006.

Health and safety

The focus on health and safety management is on minimising major occupational risks in the work environment and include:

- Mobile machinery
- Lifting and materials handling
- Conveyors
- Electricity and other sources of energy
- Human behaviour
- Noise exposure
- Working in confined spaces

In line with the *International Labour Organisation* (ILO) code of practice, South African legislation and selected industry parameters, occupational safety and health incidents and trends are reported to relevant stakeholders. Monthly and biannual incident analysis helps determine contributing factors, whilst lessons learned and proactive measures implemented are shared throughout the group to prevent repeats.

As part of the ISO/OSHAS certification process, all business units are subject to legal assessment and have a legal register. No legal action for non-compliance occurred during the review period.

Safety

Safety is a top priority in Kumba Iron Ore. The focus of all operating business units is to ensure that minor injuries are prevented. A major initiative during the year was the successful launch of the *I Care Rules* to improve hazard identification and risk awareness of employees at all sites. In line with the group's aspiration to achieve an injury-free working environment and to exceed legal compliance standards, the *I Care Rules* are non-negotiable and focus on safety in confined spaces and working at heights, energy and machine isolation, vehicle safety, materials lifting and handling and site specific rules. The *I Care Rules* augment other safety rules by spotlighting hazards in specific high risk areas. During 2007 the mines will launch the Safety "ONE" campaign, which places strong emphasis on the theme "One injury is one too many". The leading indicators will be the revamped *I Care Rules*. Sishen Mine also launched a pro-zero initiative aiming at promoting, measuring and monitoring progress towards achieving safety maturity.

As part of the drive to measure safety awareness throughout the group, a proactive index is being developed which considers positive and negative safety performance to develop leading indicators that will ultimately guide future behaviour. The first concrete example of this approach is a guide to manage operator fatigue, developed with input from all business units. This guide is available on the Kumba Iron Ore intranet. Management visibility to embody clearly defined visible felt leadership (VFL) is also ongoing and has been entrenched in the group's leading indicators. The Du Pont Safety training programme was successfully completed by the executive committee, management and line supervisors.

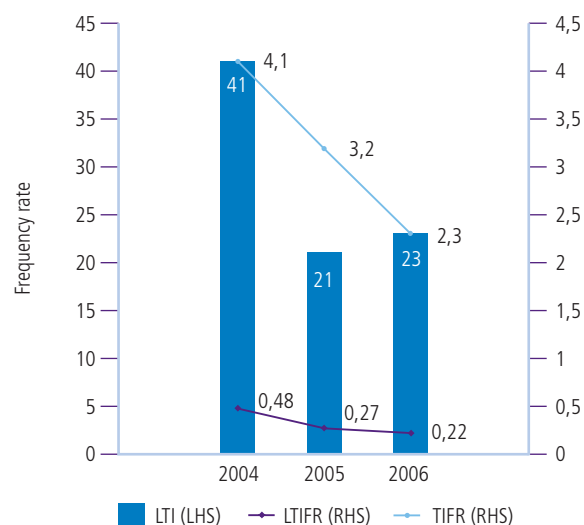
Safety performance

Kumba Iron Ore regrets to report one fatality (Charel Haasbroek) in April 2006. Whilst disappointed not to have achieved all the LTIFR and fatality targets for the year, exceptional performance was achieved on several fronts:

- Thabazimbi Mine achieved one million LTI free man hours on 2 March 2006.
- Thabazimbi Mine reached four and a half years without a fatality by the end of December 2006. The last fatality was reported on 24 July 2002.
- Sishen Mine also achieved the best ever record of 5,23 million man hours without an LTI during the first quarter of 2006. This milestone resulted in the best ever LTIFR of 0,12 during March 2006.
- In December 2006 Sishen Mine worked three million man hours without an LTI.
- OHSAS 18001 re-certifications were achieved at both mines.

The average LTIFR for Kumba Iron Ore for the twelve months ending 31 December 2006 was 0,22 against the target of 0,25 for the former Kumba Resources.

Safety performance Jan 2004 to Dec 2006 (LTI, LTIFR, TIFR)



There has been a major improvement in the TIFR and LTIFR since 2004. The LTIFR performance was better than the targets set by the erstwhile Kumba Resources in the last three years.

Independent safety audits and peer reviews are conducted at all sites to continuously identify areas of improvement. Focusing on corporate requirements, the primary objective is to analyse the application and effectiveness of selected corporate imperatives at operational level. SHE managers have been trained as internal integrated auditors and are registered with the *South African Auditor and Training Certification Association (SAATCA)*.

2007 safety targets and objectives

The following safety targets and objectives have been set:

- Aspire to achieve zero fatality and an injury free workplace
- Drive the *I Care Rules* as non-negotiable
- Zero repeats through sharing and learning
- Focus on the leading indicators
- Heavy vehicle safety
- Contractor management and establishing best practice
- Revisit the risk management approach

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Health

In line with the sectoral targets, the focus during the review period was on risk reduction and implementing proactive indicators to support the elimination of two key occupational health risks – noise induced hearing loss and silicosis.

Health performance

Medical surveillance for dust, noise and lead exposure is conducted annually. There were three suspected cases of Pneumoconiosis reported during 2006, all of which were reported to the Mine Medical Bureau for Occupational Diseases.

As a proactive measure, investigations of all occupational health incidents (specifically noise) are conducted on variance deviations of 5 percent from the baseline, which is a more exacting measure than the 10 percent deviations which are required to be reported to Rand Mutual as NIHL. Noise and dust exposure campaigns will be rolled out in 2007 at the mines to increase awareness.

All occupational health targets are regularly reviewed against legislation and other industrial commitments to meet the following targets for future reporting periods:

- Air quality index of <1 for 80 percent of exposed employees by 2006;
- 95 percent of all exposure measurement results below the occupational exposure limit for respirable crystalline silica of 0,1 mg/m³ by December 2008;
- After December 2013, using present diagnostic techniques, no new cases of silicosis will occur amongst previously unexposed employees;
- After December 2008, hearing conservation programmes implemented by industry must ensure there is no deterioration in hearing greater than 10 percent among occupationally exposed employees;
- By December 2013, total noise emitted by all equipment installed in any workplace must not exceed a sound pressure level of 110 decibels at any location in that workplace.

Occupational hygiene is an integral part of our occupational health management programme to ensure that the work environment supports high health standards. All mandatory codes of practice in terms of the *Mine Health and Safety Act (29 of 1996)* are in place.

Kumba Iron Ore has formal health committees in place at all operations with equal management and employee representation. Care is taken to

ensure that all employees are represented. Bi-monthly meetings with the corporate SHE team provide a platform for sharing lessons and successful interventions.

Health achievements

The mines succeeded in retaining their OHSAS 18001 certificates.

Health objectives and targets

- No new cases of occupational disease reported.
- Refining the strategy to meet sector targets by 2013, primarily noise induced hearing loss, silicosis and incidents.
- Evaluation and further improvement of the noise induced hearing loss programme (key risks).

HIV/Aids

The group has a comprehensive strategy in place, built on preventing more employees from becoming infected with HIV/Aids, extending for as long as possible the lives of those infected and ensuring that the impact of the pandemic on the group is managed to enable it to grow and contribute to South Africa's growing economy.

Altogether 96 percent of employees at Thabazimbi Mine and 64 percent of employees at Sishen Mine participated in a voluntary counselling and testing programme. The group-wide prevalence study revealed an infection rate of just under 10 percent.

Comprehensive antiretroviral drugs and employee wellness programmes are working well and have been outsourced to Calibre Clinical Consultants. The antiretroviral treatments are provided free of charge.

Environment

Kumba Iron Ore has an integrated enterprise-wide risk management programme in place to evaluate environmental management risks. All operating business units have approved environmental management plans and systems in place.

Kumba Iron Ore is effectively using its electronic environmental management system mainly as an incident management tool, and to consolidate environmental data and statistics. This system is considered to be the best of its type in South Africa. It contains all the elements of ISO 14001 and enables Kumba Iron Ore to make stakeholder reporting more meaningful and comparable. These benefits will help to achieve ISO 14001 certification. The most important ones being improved risk profiling and managing significant risks in a standardised system.

Environmental performance

Energy and diesel consumption

Kumba Iron Ore is committed to reducing its energy use on an annual basis. There has been an improvement in electrical energy consumption at the mines since 2004. Diesel consumption increased at both mines, specifically at Sishen Mine mainly due to an increase in waste material tonnages, longer travelling distances, and the construction of the SEP plant. The mines are continuously striving to conserve energy by investigating new alternatives of reducing energy consumption.

The SEP is an example of Sishen Mine's commitment to energy conservation. The design of the SEP plant made provision from the outset for energy efficient equipment such as electrical pumps and motors. An energy consumption task team will be established in 2007 to evaluate critically the existing infrastructure and processes with a view to identifying areas where energy efficiency can be improved.

Water consumption

During 2006, the mines experienced an increase in water consumption per tonne of product compared to 2004/2005 performances, mainly due to the current expansion projects.

Thabazimbi Mine is in the process of reducing its clean water consumption by minimising losses and maximising recycling. The water balance for the site was developed during 2006 and handed over to major water users on the mine in order to minimise losses. The focus for 2007 will be to ensure that the water maintenance plan is developed to manage, amongst other things, storm water. Some of the focus areas for 2007 will include:

- Water use awareness campaigns;
- Preventing leaks and wasteful practices; and
- Improving water re-use and recycling practices.

Sishen Mine established a water task team in 2006 to evaluate the mine's existing water use and to identify water saving opportunities especially in the light of the imminent commissioning of the SEP Project and the resulting increase in total water consumption at the mine.

A detailed water use balance plan was developed to guide the planning and was updated in 2006 to include the SEP Project. The processing plant, specifically the thickener and sludge dams, were identified as priority areas for improved water usage. Investigations are currently in progress to determine possible modifications to the design and operational processes to improve the *status quo*. Water usage per tonne of saleable product will be closely monitored during 2007 to determine the success of the proposed modifications.

Water pollution prevention receives attention on an ongoing basis. Projects undertaken during 2006 included an upgrade of the storm-water management system (clean water diversion system) and the construction of a new centralised wash bay. The new washing facility incorporates a comprehensive dirty water management system and will be able to deal with large numbers of vehicles and equipment on a daily basis. This facility will replace some of the smaller wash bays on the mine, thereby making possible better management of potential pollution.

Waste management

Waste volume baselines have been established for all categories of waste. A system to centralise and report all waste figures is in progress.

Owing to space limitations at the disposal sites, locally and nationally, the principles of sustainable development, conforming with environmental legislative requirements and recycling waste have become strategically important for the mines. Effective waste separation and waste re-use play an important role in this regard. Waste is sorted, as far as possible, into recyclable fractions such as paper, cardboard, wood and metal. Hazardous waste is also separated from general waste and stored in a formalised area before removal from the operating sites.

Land management

In line with the new GRI reporting indicators for mining companies, Kumba's land for production activities or extractive use is as follows:

- Total land disturbed – 17 002 ha.
- Total land rehabilitated in period versus agreed end use – 10 ha.

In 2007, the focus will be on initiatives to optimise land holding costs and develop a rehabilitation strategy to cover inactive sites. The ecology expertise available through Anglo American plc's technical division will be used to drive the biodiversity baseline studies needed to comply with new legislation.

Better than before

In conjunction with the North-West University, Kumba Iron Ore is implementing and monitoring an extensive set of rehabilitation experiments at Sishen Mine. The outcome will form the framework for rehabilitation and mine closure plans. Sishen Mine has been mining iron ore in the Kathu region of the Northern Cape for over fifty years, committing itself to mining in a socially acceptable and ecologically sustainable manner.

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Acknowledging that current rehabilitation trials were not delivering the desired result of zero ecological impact because the material being used to encourage new vegetation lacked sufficient suitable organic matter, Sishen Mine started producing its own organic compost in 2003. Currently, all compost used during the trials is supplied by an organic plant constructed at the mine. The compost consists of a mixture of sewerage sludge, chipped invader plant species, horse manure and shredded paper. Earthworms are used to accelerate the biological breakdown process. For the experimental phase, over 700 m³ of compost was made.

Special attention is also being paid to aspects that could influence the success of rehabilitation, including different forms of surface water run-off control, alternative types and formulations of fertiliser and methods of seed application. Current trials are being repeated on slopes varying between 18 and 37 degrees. By removing exotic plant species which have to be eradicated by law, Sishen Mine is now fully conforming to environmental legislation for complete rehabilitation whilst clearing the area of unwanted alien vegetation.

Environmental risks

There were no significant or reportable (level 2 or 3) incidents during the year. Only one reportable incident, which occurred at Sishen Mine, was reported to the Department of Water Affairs and Forestry. This was a spillage of old oil into the storm water management system.

Major experiments to enhance rehabilitation were performed at Sishen Mine. All mining operations have updated estimated final closure liabilities as well as immediate closure liabilities (where applicable). Provision for the cost of closure and post-closure liabilities for all mines is managed through an independent rehabilitation trust fund and verified independently.

Environmental achievements

- The DME approved the amended environmental management plans (EMPs) at both Sishen Mine and Thabazimbi Mine to incorporate the expansion projects (SEP and Phoenix).
- Sishen Mine re-uses large volumes of old oil and tyres in emulsion explosives. In South Africa, the application of rubber in explosives was pioneered by Sishen Mine. The process involves stripping the rubber from tyres and granulating it to a small diameter. A final destination for old tyres, which are currently stockpiled on the site, remains a concern and needs to be investigated.
- A waste stream classification report was drawn up for Sishen Mine towards the end of 2005 by African EPA. This was done in an effort to improve the handling and classification of hazardous waste at the mine. The results of this study will be used to review the waste management system in 2007 with a view to identifying opportunities to improve waste minimisation, recycling and re-use.
- A significant milestone for Sishen Mine in terms of waste management is the SEP Project. This project can be linked to the commitments made in the approved EMPR in terms of reducing waste stream volumes by upgrading the mine's beneficiation process for optimally beneficiating the ore.

Environmental targets and objectives

- Improvement of water and energy consumption.
- Integrate biodiversity action plans into the mines' environmental management systems.
- Update mine closure plans.
- Recycle 10 percent of waste generated per annum.
- Zero incidents in levels 2 and 3.
- Continuously monitoring the implementation of environmental management programme.
- Maintain ISO 14001 certification.
- Develop rehabilitation strategy to cover inactive sites.
- Participate actively in Anglo American's practices focusing on water, air quality, waste and land management for sharing and learning.

Electricity, diesel consumption and water use per business unit: January 2006 to 31 December 2006

Business unit	Electricity (Gj)	Diesel (l)	Water (m ³)	Product (t)	Electricity/ tonne	Diesel/ tonne	Water/ tonne
Sishen Mine	1 032 386	59 306 154	6 117 291	29 228 254	0,035	2,03	0,21
Thabazimbi Mine	117 618	7 658 868	2 28 282	2 418 145	0,049	3,16	0,09

Environmental incidents

Business unit	Level 3 ³	Level 2 ²	Level 1 ¹	Total incidents
Sishen Mine	–	–	43	43
Thabazimbi Mine	–	–	21	21

¹ **Level 1 incidents:** Environmental incidents not covered in Level 2 and Level 3.

² **Level 2 incidents:** Incidents which resulted in any of the following:

- A moderate impact on the physical or biological environment (air, land, water or habitats) with limited impairment of ecosystem function or surface/ground water resource.
- An inconvenience/disturbance/disruption/annoyance (including odour, dust, noise, traffic problem, loss of water supply) of moderate duration and with medium impact.
- A minor impact on fauna or flora in a statutory designated area (eg national park).

³ **Level 3 incidents:** Incidents which resulted in any of the following:

- A significant impact on the physical or biological environment (air, land, water or habitats) with extensive or long-term impairment of ecosystem function or surface/ground water resource.
- An inconvenience/disturbance/disruption/annoyance (including odour, dust, noise, traffic problem, loss of water supply) of long duration and/or with a long-term effect on the environment and/or community.
- An impact on protected species or habitats.

