

SAFETY IN MINING

Fact sheet

January 2020



MINERALS COUNCIL
SOUTH AFRICA



Anglo American - New Vaal Colliery

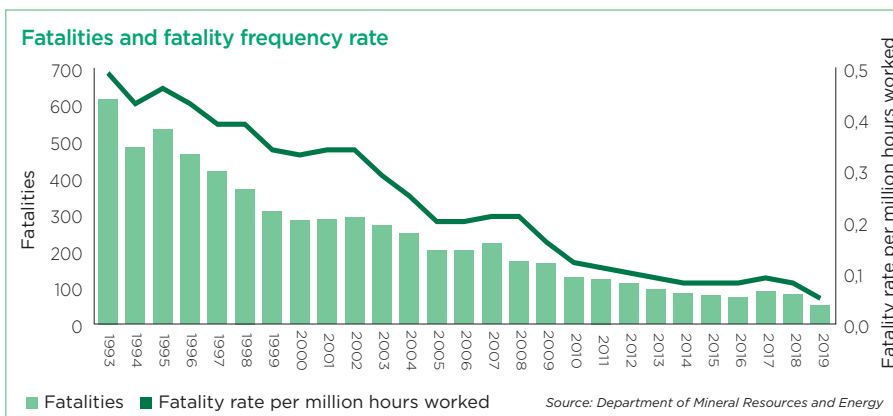
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SAFETY IN SOUTH AFRICA SINCE DEMOCRACY

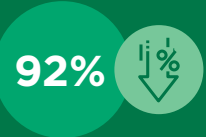
In the years since democracy, South Africa's mining industry and its partners have implemented numerous health and safety initiatives that have paid off in dramatic and literally life-saving ways. Between 1993 and 2019, the industry experienced a 92% overall decline in the number of fatalities, and a 93% decline in fatalities that occurred as a result of falls of ground. Injuries decreased by 72% over the same time period.

These improvements have been the result of major strides in research and technology, as well as close collaboration between mining companies, employees, unions, the Department of Mineral Resources and Energy (DMRE), and other stakeholders.

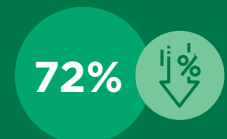
Although encouraging, this positive trajectory has not always been consistent, and there have been moments when it has deteriorated sharply. In 2017, the industry experienced a total of 90 fatalities - the first regression in 10 years and an increase of 17% on 2016. These alarming figures shook the industry and galvanised it into action.



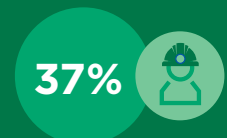
QUICK FACTS



DECLINE IN FATALITIES SINCE 1993



DECREASE IN INJURIES SINCE 1993

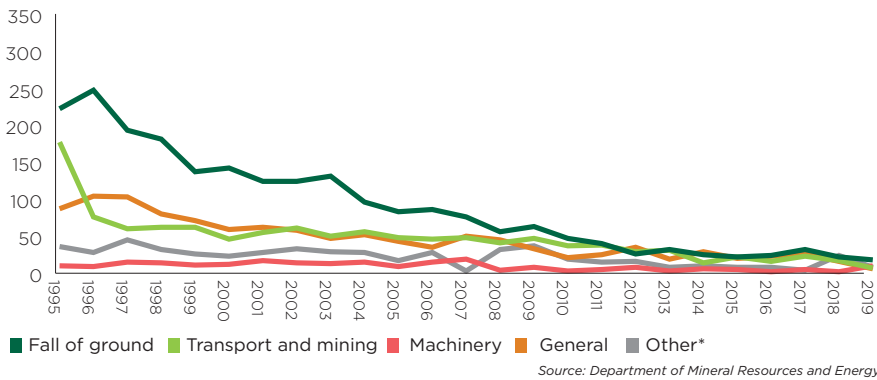


REDUCTION IN FATALITIES BETWEEN 2018 AND 2019



IMPROVEMENT IN FATALITY FREQUENCY RATE BETWEEN 2018 AND 2019

Causes of fatalities (1995-2019)



* Other includes diamonds, chrome, copper, iron ore and all others not specified

Injuries per commodity (2018 - 2019)

Commodity	2018	2019	% change
Gold	905	732	(19)
Platinum	1,049	1,151	10
Coal	169	224	33
Other*	324	299	(8)
Total	2,447	2,406	(2)

Source: Department of Mineral Resources and Energy

* Other includes diamonds, chrome, copper, iron ore and all others not specified

EFFORTS BETWEEN 2017 AND 2019

To combat the 2017 regression in safety, the Minerals Council Board implemented a number of new health and safety measures. These were primarily run through the CEO Zero Harm Forum, which, since 2012, has worked to drive changes in health and safety performance by emphasising the importance of industry CEOs leading by example.

The forum closely scrutinised the major causes of accidents, prioritised the sharing of good practice protocols, and endorsed additional research through the Mine Health and Safety Council (MHSC). A National Day of Safety and Health in Mining was also launched in August 2018. This campaign involved member and non-member companies publicly and visibly reaffirming their commitments to health and safety. Over the course of the following months, health and safety days were hosted at 93 operations around the country.

THE CEO HEARTFELT CONVERSATIONS

Above all, the CEO Zero Harm Forum recognises that improvements in health and safety need to be an abiding priority - there is no room for complacency. In January 2019, the forum held a half-day facilitated health and safety event called the CEO Heartfelt Conversations. The Heartfelt Conversations aimed to encourage deep and intense introspection into and facilitate meaningful engagement on health and safety-related issues in the mining industry.

The event was attended by 34 industry CEOs and four Minerals Council office bearers. Discussions were open and frank, and centred on the importance of visible leadership (particularly in respect of CEOs and senior management), addressing risk culture and safety concerns, sharing best practice, and encouraging openness in reporting.

One of the event's key outcomes was the development of a CEO-led Strategy on Health and Safety. This strategy, the group agreed, had to be a rallying cry for the step-change the industry needs, a word or phrase that spoke clearly to the strategy's intent, and that was positive and action driven. In October 2019, the strategy, which the forum named Khumbul'ekhaya, was formally launched.

Khumbul'ekhaya

Khumbul'ekhaya is the Nguni word for "remember home" and is the CEO Zero Harm Forum's strategy to drive and sustain the mining industry's pursuit of zero harm. The emphasis on home directly acknowledges that fatalities have the greatest impact on loved ones at home, and encourages mine employees and their managers to bear these loved ones in mind as they go about their day-to-day tasks.

The objectives of the Khumbul'ekhaya strategy are to:

- Promote a holistic approach to the elimination of fatalities
- Develop a system of understanding occupational deaths in and beyond employment
- Adopt methods for more effective and competitive training, for example through centralisation and modernisation
- Adopt globally leading practice to learn better and faster from others

Khumbul'ekhaya has been rolled out at many operations across the country. It has also contributed to a reduction in the number of fatalities experienced by the industry during 2019. In 2018, there were 81 fatalities. By the end of 2019, this had dropped by 37% to 51 fatalities.



IDENTIFYING AND MITIGATING SAFETY RISKS

While the causes of fatalities, injuries and accidents vary, falls of ground, transport incidents and general accidents are the three main causes of injuries on mines. Since 2017, the industry has seen a rise in the number of disasters related to seismic activity, falls of ground and fire incidents.

The Mining Industry Occupational Safety and Health (MOSH) falls of ground task team, established to address these concerns, is collaborating with the MHSC and the Council for Geoscience to address the challenge of seismicity. Leading practices for rock bursts are also being developed and shared across the industry.

Through the MHSC, more than R250 million has been spent on research into the seismicity associated with deep-level mining. Another R40 million has been spent on fundamental and applied research as well as technology transfer. The improvements in mine design and underground support methods that have been implemented as a result of this research have resulted in fewer fall of ground-related fatalities. In 2019, this figure was 20, down from 22 in 2018 and from 131 in 2003.

REGULATORY STRUCTURES

The Mine Health and Safety Act

The Mine Health and Safety Inspectorate of the Department of Mineral Resources, established in terms of the Mine Health and Safety Act 29 of 1996 (MHSA), is responsible for the overall regulation and safeguarding of the health and safety of mine employees, as well as the residents of areas affected by mining operations. The Chief Inspector of Mines has extensive authority and may impose directives to prohibit work in certain areas. The stoppages may be extended to entire mines if the inspectorate has valid reason.

According to the requirements of the MHSA, companies and mines have agreements in place that regulate health and safety in the workplace, and which provide planning, decision-making, training and auditing oversight.

The Mine Health and Safety Council

The MHSC was set up in 1996 to direct safety in the mining industry and to respond to safety-related challenges. This industry-funded body was built on the achievements of decades of fundamental research. The MHSC includes a tripartite board, which includes representatives from the state, employers and organised labour, and works under the chairmanship of the Chief Inspector of Mines.

The MHSC's primary tasks are to advise the Minister of Mineral Resources on occupational health and safety legislation, and research outcomes focused on improving and promoting occupational health and safety in South African mines. The MHSC is accountable to Parliament.

The Mining Qualifications Authority

The Mining Qualifications Authority (MQA) plays a critical role in addressing skills shortages in the mining industry through capacity development and process improvement. The MQA is mandated to ensure that the mining industry has sufficient numbers of competent people who have been trained to improve health and safety standards and processes. The MQA works closely with the MHSC.

The Tripartite Action Plan

The MOSH Learning Hub was established in 2009 by the Minerals Council to help companies learn from pockets of excellence in the industry. It is the largest programme initiated by the Minerals Council in the past decade. Through the MOSH system, mines have implemented and adopted leading practices to reduce health and safety risks.

One of the leading practices promoted by the MOSH Learning Hub is the use of nets with bolts to help prevent falls of ground. Similarly, proximity detection system (PDS) technology has helped prevent incidents by alerting mineworkers about safety risks. The Minerals Council encourages the industry to persistently explore and adopt new and innovative technologies that will make workplaces safer.

MODERNISING FOR SAFETY

The Minerals Council actively endorses the industry's move towards modernisation. One of the most critical reasons for this is the effect modernisation efforts have on ensuring work environments that are safer for the hundreds of thousands of mineworkers who work in them.

The Minerals Council's modernisation efforts are particularly focused on people-centric technologies. This means that modernisation is intended to empower people, not replace them. As mines deepen and economically viable ore bodies extend further and further from shafts, miners are required to travel great distances into ever-narrower reefs and steeper gradients before they can begin their work. Safety and health, productivity and production, and costs are all negatively impacted as a result.

In order to keep as many people safely employed in the mining industry as possible, and to keep mines open for as long as possible to support these livelihoods, modernisation is essential.

The Minerals Council has partnered with the Research Institute for Innovation and Sustainability (RIIS), an independent innovation firm, to design a new hand-held rock drill that is lighter, more ergonomic and precise. Other technologies include mechanised drilling and blasting as well as non-explosive rock breaking, which are aimed at reducing underground accidents and eliminating potential risks.

Additional initiatives have led to the development of early warning systems for seismic activity. And the Council for Scientific and Industrial Research (CSIR) has developed a pedestrian detection system that can determine the distance between people and whether a collision is likely to occur. The CSIR has also been exploring the development of a robot platform with safety inspection sensors that can enter mines when it is unsafe for people to do so.

Building a culture of safety

Research shows that an organisation's culture has a significant impact on health and safety protocol adherence and success. As a result, the Culture Transformation Framework (CTF) was developed by the MHSC and approved at the 2011 Health and Safety Summit. It seeks to transform health and safety in mining workplaces.

The Minerals Council is committed to the effective implementation of the CTF's 11 pillars by 2024:

01	Bonus and performance incentive pillar to prioritise safety ahead of production
02	Risk management pillar aimed at reducing risk at its source and investigating root causes
03	Leadership pillar encouraging leaders to lead by example and walk the talk of zero harm
04	Leading practice pillar providing a unified approach to identifying and facilitating the adoption of leading occupational health and safety practices and research outcomes
05	Diversity management pillar aimed at eliminating racism, genderism and any other forms of discrimination
06	Data management pillar to monitor and evaluate progress of CTF implementation and mine health and safety performance

Mining companies are also changing accident investigation methods to reduce baseless allegations among workers, modifying bonuses to enhance safe production and placing greater emphasis on visible felt leadership at operations.

The five remaining pillars of the CTF will be implemented after December 2020:

07	Integrated mining activity pillar
08	Technology pillar
09	Inspectorate pillar
10	Tripartism pillar
11	Regulatory framework pillar



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Harmony – Masimong

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