

# ELIMINATION OF FOG FATALITIES ACTION PLAN

In 2020 the South African mining industry observed a regression in safety performance. An investigation into the leading causes of fatalities found that fall of ground (FoG) related incidents accounted for 22 of the 60 overall fatalities. To address this key challenge, the Minerals Council's CEO Zero Harm Forum mandated the Rock Engineering Technical Committee (RETC) of the Minerals Council, with the support of the South African National Institute of Rock Engineering (SANIRE), to present an action plan to eliminate FoG fatalities



**of fatalities in 2020 were a result on FoG related incidents**

## CHALLENGES CONSIDERED:

- Little to no progress on execution of rock-related projects currently in Mine Health and Safety Council (MHSC) research programme and projects
- Exodus of experienced rock engineers from South Africa and most experienced reaching retirement age
- Behavioural challenges related to accidents – not deliberate or malicious, rather as a result of “getting the job done”

Consultative process involved Minerals Council members; RETC; SANIRE; Association of Mine Managers of South Africa (AMMSA); and South African Collieries Managers Association (SACMA)

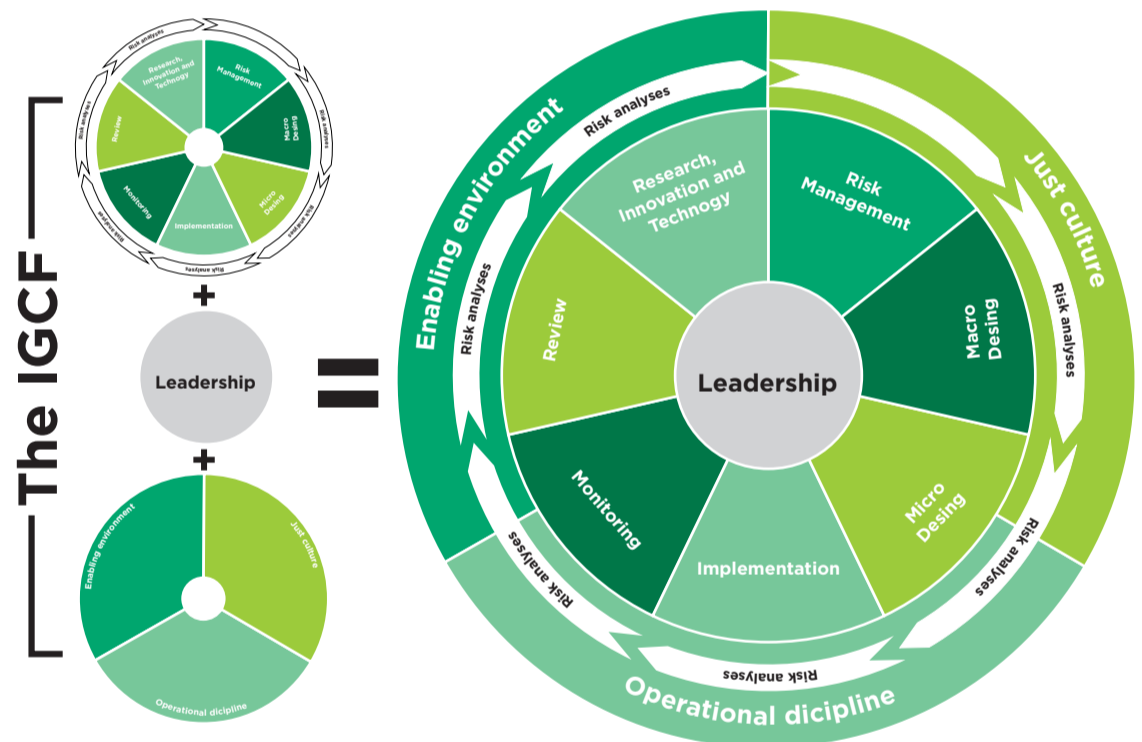


## ANALYSIS SHOWED:

- Steep decline in FoG fatalities between 2003 and 2011, followed by plateauing period from 2012 to 2020
- Barring practice identified as one of the high-risk activities, accounting for almost 60% of FoG incidents



FoG workshops identified various issues to be considered, which were allocated into the various components of the Industry Ground Control Framework (IGCF)



## RECOMMENDATIONS

Following an extensive consultative process, six recommendations were developed with the aim of accelerating the industry's journey to zero harm

**1 ADOPT LEADING PRACTICES**

**Minimise rockmass damage:**  
Monitoring drilling quality with technology **S-M**  
Use appropriate blast round designs and explosives e.g. emulsion-type **S**

**Eliminate risk of working under unsupported rock:**  
Review and revise netting with bolting using MHSC audit tool **S**  
Permanent area coverage in stoping widths < 1.2m **S-M**

**Improve underground visibility to an appropriate standard** **S**

**2 R&D**

**Invest R40m in 5 years on eg.:**  
Barring technology **S-M**  
Seismic hazard rating **M**  
Real-time monitoring of instability **S-M**  
Support designs **M**  
Use jigs/rigs for drilling accuracy **M**  
Challenges with implementation of this plan **S-M**

**3 SKILLS DEVELOPMENT**

**Invest R6m in 3 years on:**  
Updating rock engineering learning material **S-M**  
Short courses **S-M**  
Support by mentors, etc. **S**  
Learning programmes for mining production leadership (e.g. front-line supervisors) on FoG **S-M**

**4 POLICY**

**Engage Department of Mineral Resources and Energy to:**  
Fast-track guide for code of practice on geotechnical risk **S**  
Finalise regulations on responsibilities, etc. **S**

**Adopt revised South African Mines Reportable Accidents Statistics System forms on FoG incidents** **S**

**5 BEHAVIOUR, CULTURE, OPERATIONAL DISCIPLINE**

**Implement measures to reduce mining cycle time and enable zero harm production behaviours (from Mandela Mining Precinct and others) e.g.:**  
Faster rock-drills **M**

**6 IMPLEMENTATION AND MONITORING**

**Measures of progress:**  
Consecutive FoG fatal-free hours worked, and FoG leading indicators need to be developed **S-M**

**Leading implementation:**  
Annual AMMSA-SACMA led Days of Learning with RETC/SANIRE and others, supplemented with regular sharing of leading practices in all meetings **S**

**Reporting:**  
Quarterly reporting on implementation by members and Minerals Council **S**

**Key**  
**S** Short = 0-2 years  
**M** Medium = 2-5 years  
**S-M** Short to Medium = 0-5 years