



13615364 MHSC Barring Project

# **SOCIAL RESEARCH STUDY**

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MHSC





# Introduction: Social Research

- The main objective of the study was to investigate perceptions which underground mine workers have regarding barring practices.
- Practical mining experience also confirms that the influence of human behaviour in barring accidents should be explored in more detail. By attaining a greater understanding about the attitudes that influence human behaviour, we can begin to explore how to better manage the health and safety of underground mine employees.
- The results of the qualitative data collection completed at the champion mines allow a better understanding of the dominant perceptions mine employees have about barring.
- The social component will focus on the following areas:
  - Skills,
  - Training,
  - Leadership,
  - Human behaviour and
  - Communication.





# Fieldwork Component

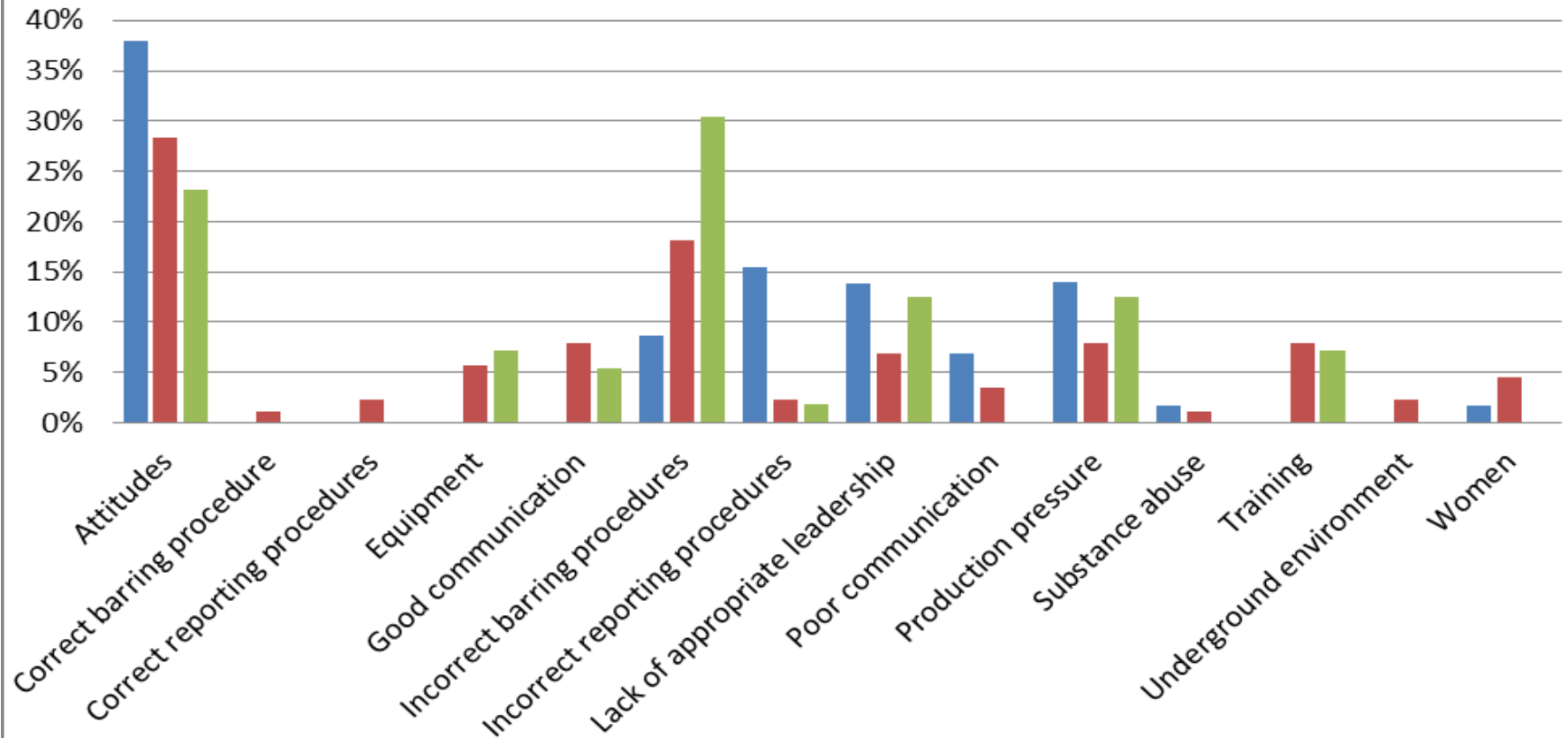
- Social research was undertaken at seven champion mines across the platinum, gold and coal sectors.
- Data collection was done on the surface using social assessment tools in order to obtain qualitative data. These tools are:
  - Focus Group Discussions consisting of mine crews and team leaders; and
  - Key Informant Interviews (Miners, Shift Supervisors, Technical Discipline Engineers, Strata Control Officers, Training Officers, Relevant Head of Departments (HODs) and Operations Managers)
- Development of these tools was done in cognisance of appropriate ethical research standards from leading social research universities which has been applied throughout the project.
- Data was assessed using thematic content analysis which entails grouping responses into key salient themes and assessing the frequency of these themes.
- Presenting results and reporting.





# Platinum Sector

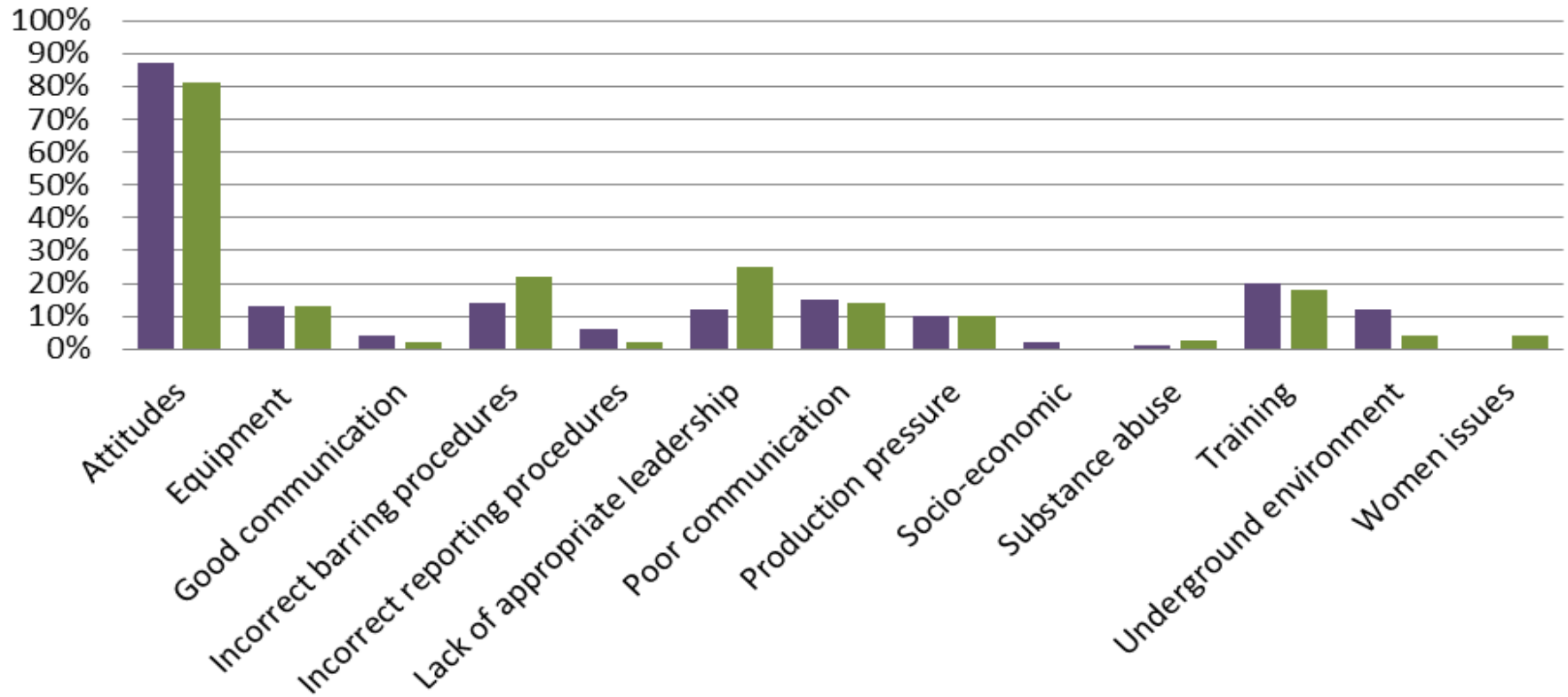
## Key Issues in the Platinum Sector





# Gold Sector

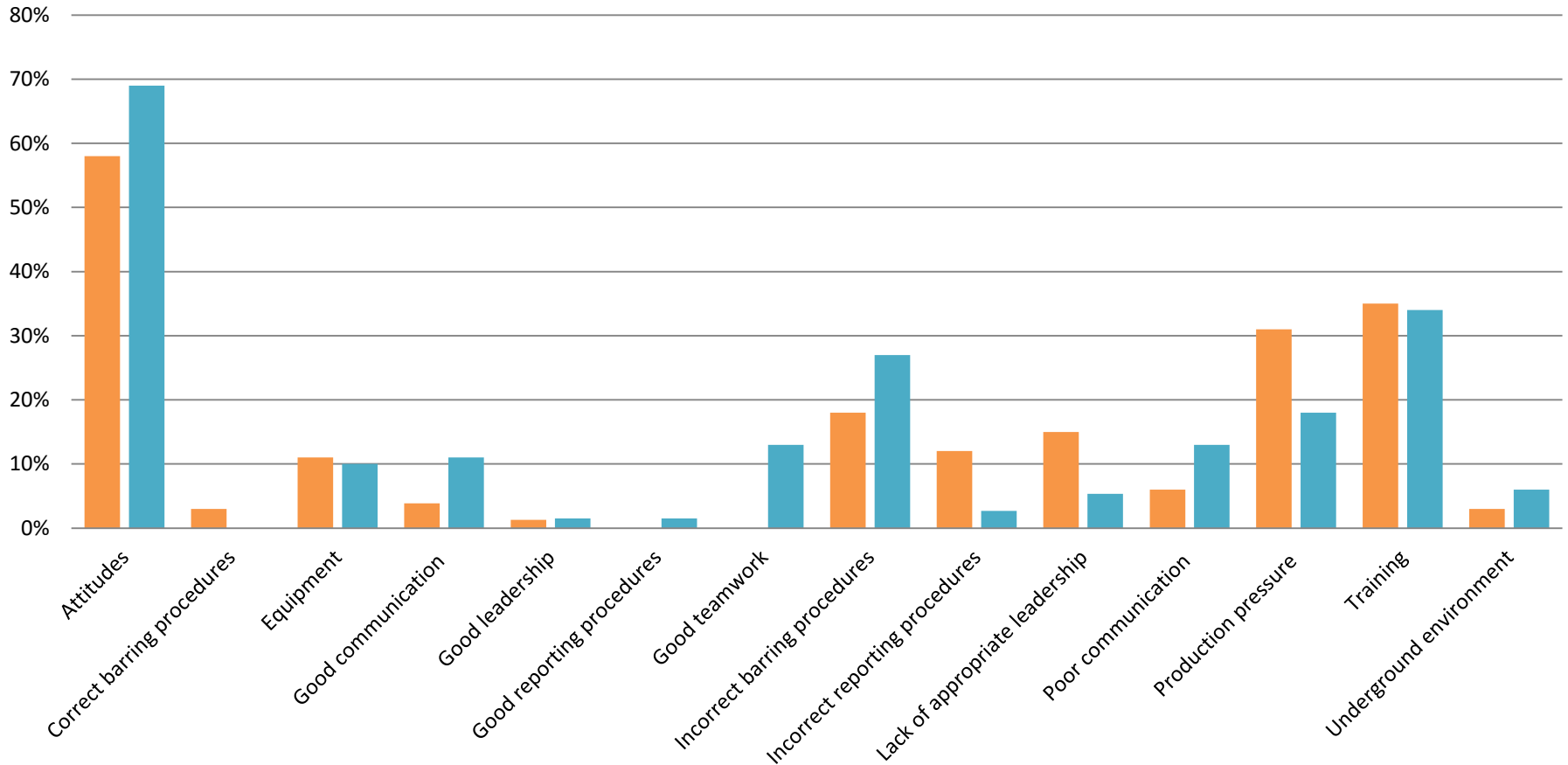
## Key Issues in the Gold Sector





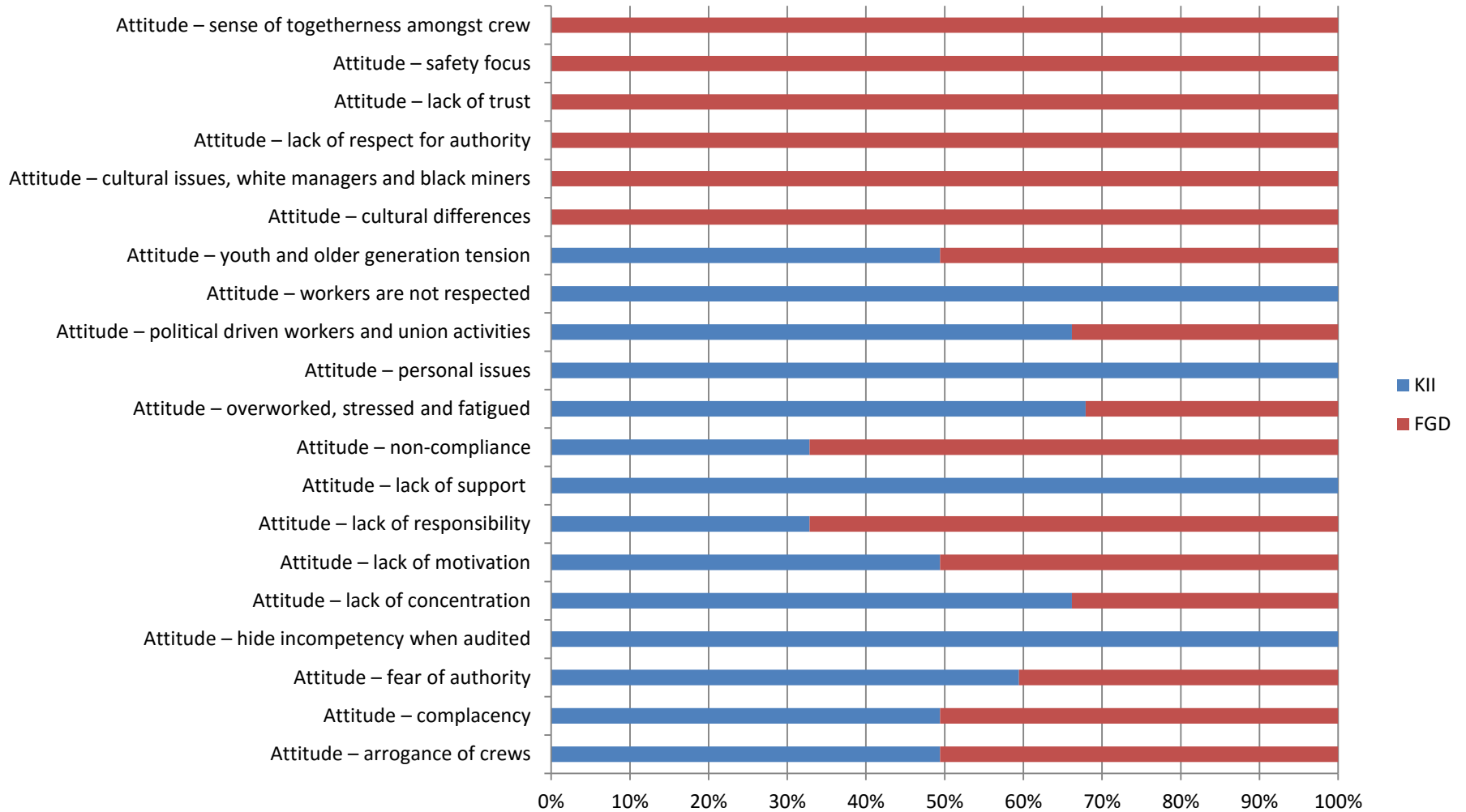
# Coal Sector Key Issues

## Key Issues in the Coal Sector





# Distribution of Worker Attitudes





## Comments on Key Issues

- Incorrect Barring (Equipment and Environment)
  - ❑ Redesign gasket to better fit pinch bar. Some workers operate without gaskets
  - ❑ Longer pinch bars are heavier and workers become too tired to hold them for long periods.
  - ❑ Wrong size pinch bar in wrong size excavation area.
  - ❑ Heat in certain shaft areas causes fatigue, exhaustion and lack of concentration.
  - ❑ Bolted and netted areas creates a false sense of security so workers feel they don't need to barr.
  - ❑ No responsibility for barring, it is seen as only the responsibility of the team leader and the assistant miner.
  - ❑ Underground injuries can be due to complacency from barring, distance to work areas makes workers tired and they have a lapse in concentration.
  - ❑ Carelessness of workers due to fatigue and being overworked also leads to injury.
  - ❑ Barring is done at the beginning of the shift and no continuous barring or mid shift barring which is a cause of incidents.





# Comments on Key Issues

- Training
  - ❑ Literacy levels are low so workers rely on verbal communication and training through observing others and through videos.
  - ❑ Training should be a joint effort between surface technical lectures and underground practical methods.
  - ❑ More detailed training is needed to promote understanding of barring and rock mechanics.
  - ❑ Lack of career development is felt amongst the workers (better for women to get promotions over men).
  - ❑ Feedback on training was good in the platinum mines had theory and practical training modules.





# Comments on Key Issues

## ■ Leadership and Management

- ❑ Some leaders have the technical knowledge to do the work but they lack the ability to explain the job to other workers.
- ❑ Communication and teamwork with crews and their team leaders/supervisors are good and in some cases this is also good with the miners.
- ❑ Lack of complying to authority rules – workers are risk takers.
- ❑ It is felt that supervisors aren't taking responsibility for the crews and panels.
- ❑ Mentoring from miners/supervisors is lacking due to the availability of miners.
- ❑ Lack of discipline in crews can be attributed to the lack of leadership or felt absence of leadership and mentorship.
- ❑ There is poor communication within teams and managers (language differences).
- ❑ Pressure to not report incidents (FGD comments).
- ❑ Lack of leadership strength which can enforce correct procedures.
- ❑ Stricter leadership and supervision has more results with the workforce.



# Comments on Key Issues

- Production Target Pressure
  - ❑ Smaller workforce in relation to the work load per shift so people work longer shifts to meet production targets to get their bonuses.
  - ❑ Workers rush to complete tasks, feel overworked and fatigued.
  - ❑ Long working hours in order to meet targets also leads to fatigue
  - ❑ Lack of workers to complete work tasks means workers are over worked and stressed
  - ❑ Conflicting priorities – production targets versus safety procedures





# General Recommendations

## ■ Leadership and Management:

- Implementing situational leadership models. One example of this is by opening communication with employees by having informal one on one talks with employees in the leadership level directly below you.
- Visible felt leadership (VFL) for crews underground by increasing the presence of supervisors to the crews during a shift.
- Identifying specific areas of human behaviour that are problematic for successful barring that require change.
- Production incentive systems being amended to promote proper reporting of barring incidents and accidents. Safety personnel should be remunerated/ paid bonuses independent of production targets.



# General Recommendations

- Changing worker attitudes:
  - ❑ Training leaders to provide more adequate support for workers by improving ‘soft skills’.
  - ❑ Understanding perception and attitudes about barring through communication and conversations there-on. Rapport with the teams and influencing positive barring behaviours may be the result of open communication.
  - ❑ Creating more opportunities to influence employee behaviour through leading by example on barring, entry examination and other safety related tasks in the underground environment during early shifts.
  - ❑ Addressing behavioural change through awareness workshops with crew members.
  - ❑ Encouraging the use of coaches and mentors.
  - ❑ Advocating employee assistance programs.
  - ❑ Planning career paths with employees.





# General Recommendations

- Changing worker attitudes continued:
  - ❑ The use of Behaviour Based Safety Training programmes where trainers look for external factors to understand and improve behaviour.
  - ❑ In training, focus should be placed on positive consequences (not punishment) to motivate behaviour.
  - ❑ Designing interventions that consider the feelings and attitudes of workers within the organization.
  - ❑ Showing ideal barring standards in training material or in mock mine environments, as well as underground to influence the formation of positive barring behaviours.
  - ❑ Moving people between crews or mining areas periodically to expose people to new conditions. This may alleviate some complacency about barring.
  - ❑ Employee safety recognition rewards for acknowledgement and reporting of barring related non-compliances; or of personnel who excel in barring or entry examination. This suggestion might seem akin to ‘policing’ but the way in which rewards are awarded can positively change employee behaviours.

