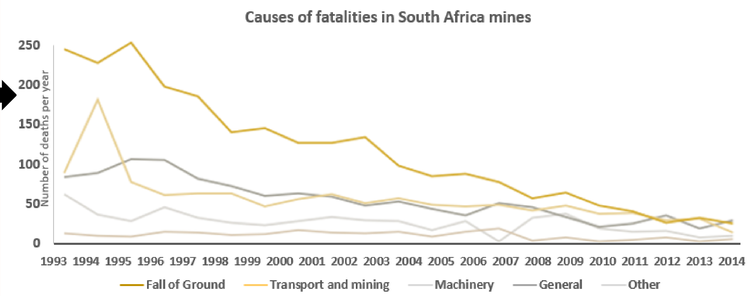
Student: Retsepile Sello, B.A.Sc Candidate
Supervisors: Andrea Arduini, P.Eng and Allan Moss, P.Eng

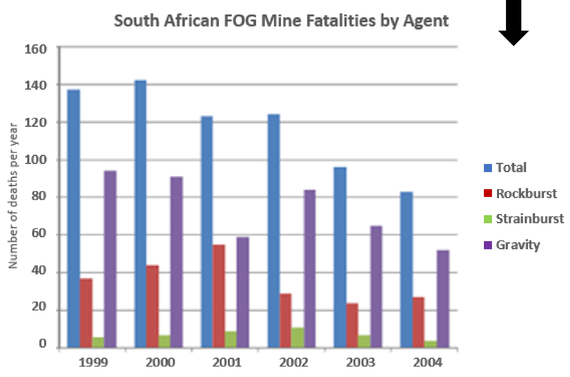
REDUCING ROCK-FALL FATALITIES IN HARD-ROCK UNDERGROUND MINES

Introduction

- Fall of Ground accidents (FOGs) are the leading cause of mine fatalities in South Africa.
- In addition to the emotional toll, FOGs incidents cost mining companies over $5 million per fatality. [4]
- **This project uses Mine Fieldwork and Library Research to investigate reasons for FOGs' prevalence and suggests ways to minimize them.**



[2]



[5]

Proposed Solutions

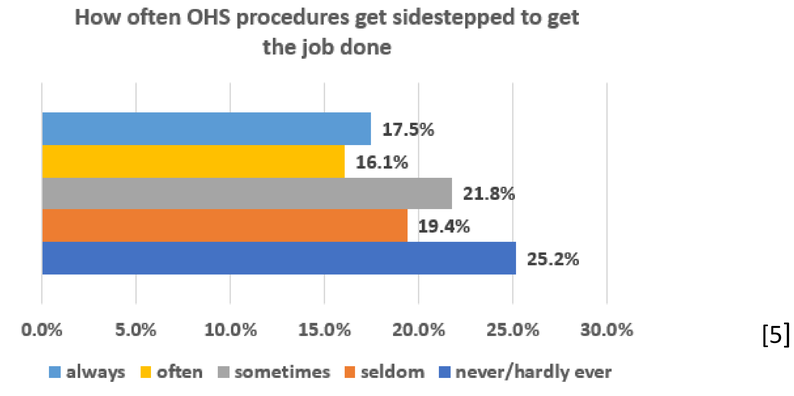
Intergrate Organizational Behaviour (OB) concepts into safety programs by:

- Instructing workers in a language that they understand.
- Prioritizing intrinsic motivation rather than monetary incentives.
- Organizing engaging refresher training sessions on FOGs for all underground workers.
- Developing the Iron Bracelet Program that ingrains safety principles in workers' minds.

46

FOG fatalities in 2017 in South Africa alone

[1]



[5]

Foreseen Outcomes

- Decrease in financial costs
- Increased confidence in the mining industry
- General improvement in safety and productivity
- **Resilient culture**

Potential Causes

- Inadequate rock support designs
- Under-resourced emergency response facilities
- Poor physical or mental health of workers
- Alcohol and Drug use
- **Language, power dynamics & the bonus program**
- **Compliance Culture**



[3]

Conclusion

- Organizational Behaviour's relation to FOGs is becoming increasingly important as underground mines become deeper and workplaces more diverse. Integrating OB into training programs is therefore paramount.
- **Future studies to understand the prevalence of compliance culture need to focus on getting direct feedback from miners to understand how their values and beliefs influence the prevailing culture.**

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2. http://www.mosh.co.za/falls-of-ground/leading-practices/reasons
3. https://archive.industry.gov.au/resource/Programs/LPSD/Risk-management
4. https://www.irsst.qc.ca/media/documents/PubIRSST/R-774.pdf
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