

# Safety In Mines Research Advisory Committee

## Project Summary: SIM 02 09 04

<b>Project Title:</b>	Investigation into slipping and falling accidents and materials handling in the South African mining industry (1 volume, 28 pages)		
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<b>Category:</b>	Health and Safety	<b>Applied Research</b>	Occupational Medicine and Occupational Hygiene

### Summary

The objective of the present study was to analyse information on slipping and falling accidents and materials handling activities in the South African mining industry. Accident data pertaining to slipping, falling and materials handling accidents were obtained from the South African Mines Reportable Accident Statistical System (SAMRASS). The information obtained was analysed to identify the causal factors and circumstances under which these accidents occurred.

A limited survey was conducted at a gold mine, a colliery and a quarry to establish current manual materials handling practices. This included walk-through observational surveys of the work facilities to observe obvious ergonomics-related risk factors.

The causes of slipping and falling, and manual material handling accidents are multifactorial and a complex interaction between workplace factors, work organisational factors, and personal factors related to the individual involved in the accident.

### Recommendations

Despite the complexity of the problems in slipping and falling accidents, some quite simple interventions could be made, such as proper housekeeping, sufficient lighting, and promotion of awareness of the problems. Standards and procedures should be implemented and adhered to, and they should be reviewed on an ongoing basis to ensure that they also take cognisance of safety risks.

More elaborate interventions could include a proper selection of footwear to meet the requirements of the environment where it will be used. In this regard, safety standards for footwear, such as task-related standards, should be developed and adequate selection guidelines for the users should be established.

Research is also needed to develop appropriate and functional safety devices for individuals working at box holes, ore passes and in shafts to prevent them from accidentally falling into these

excavations.

There is a need to address the work and individual factors that contribute to the occupational health and safety risks associated with the manual handling of material. The institution of risk control measures such as eliminating or minimising the manual handling component of materials handling and focussing on mechanical handling equipment are attractive options.

Good design of workplaces and tasks is one of the strategies for preventing musculoskeletal injuries. However, in view of the large variation in body dimensions and mechanical work capacity of the mine worker population, as well as technical and physical constraints in the mining environment, it is not always possible to accommodate all individuals, especially when manual material handling is involved. It is therefore recommended that the selection of workers on the basis of their functional biomechanical strength capabilities, as well as appropriate worker training, be considered as components of a comprehensive plan for preventing musculoskeletal injuries.

In view of the above, it is recommended that future research activities should focus on the following areas:

- ? The development of a material handling system to be used in stopes
- ? The evaluation of best practice guidelines on manual material handling to assist mines with the design of MMH tasks
- ? The development of a suitable physical capacity assessment matrix to match the special capabilities of each individual with specific MMH job requirements.