

International Fault Slip Control Program

Invitation to Participate

Background

Of the most common types of rockbursts in underground mines (fault slip, pillar burst and strain burst), fault slip (FS) is often the most disruptive. Despite an increasing number of incidents worldwide and the consequent huge economic impact on mines as well as the health & safety risk to workers- and despite significant advances in seismic data interpretation- relatively little focused research has been undertaken to address the problem of controlling FS-events in mining.

Fault slip incidents are thought to occur in part due to stress variations induced by mining activities. However, there are many unknowns, such as why some faults are more fault-slip prone than others and how the potential energy release associated with them can be controlled. It is thus imperative for the mining industry to adequately understand the cause(s) of fault slip and develop the tools to deal with and control them.

Vision

To develop an internationally-recognized underground research initiative to improve fault slip management techniques.

Objectives

1. Create a better understanding of the mechanisms causing fault slip in underground mines and produce recommendations on how to minimize the risk to the safety of miners and the economic future of deep mines.
2. Establish a fault slip test site(s), which will act as a “living laboratory” for researchers and technology developers to develop and carry out research projects designed to understand the causes of and control the energy release associated with underground fault slip events.

Potential Partners

The following companies have either already indicated an interest in this planned initiative or are known to be dealing with the effects of fault slip at their mines and thus will be approached to participate in this initiative:

- VALE INCO
- XSTRATA NICKEL
- XSTRATA COPPER
- AGNICO EAGLE
- LAKESHORE GOLD
- GOLDCORP
- CODELCO
- RIO TINTO
- AngloGold Ashanti
- Barrick Gold
- LKAB
- Freeport

Technology and service providers in related fields such as seismic monitoring and geophysical logging will also be approached.

Funding Framework

Due to the innovative, multi-disciplinary and globally-reaching nature of the project, it is anticipated that up to or in excess of \$20 million in funding will be required from industrial partners and research, development and human resource funding agencies at all levels of government. Such programs have funding windows/deadlines spanning 2009-10 and, as such, multiple large-scale proposals are planned for development and submission. This will require a cooperative effort to solicit the input and partnership of research institutions and private sector supporters alike.

Seed funding to support the development of this research initiative will be provided by CEMI.

Technical Framework

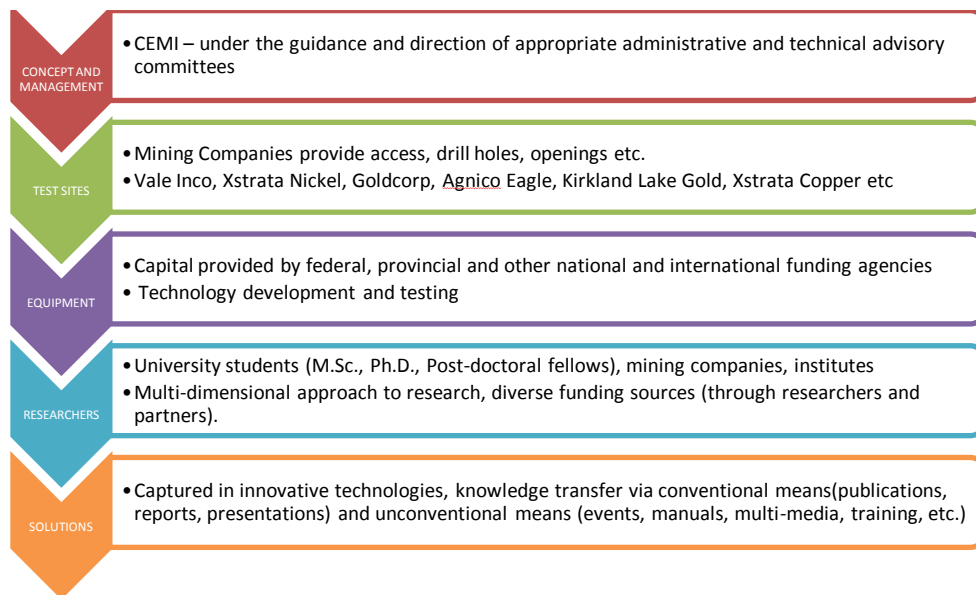
The contemplated program will involve undertaking large-scale research and demonstration projects, many at the direction of the participants themselves, and operating under an appropriate governance framework. International and collaborative research efforts will be key to tackling the major technical aspects of the problem, which fall into one or more of the following categories:

- Structural / engineering geology of complex ore bodies
- Geophysics and geophysical technology utilization for ground characterization
- Seismicity, seismic monitoring and data integration
- Numerical modeling and visualization
- Mine engineering for the control of energy release through appropriate mining methods and rates.

“*Experimental design*” workshops are to be held with recognized world-leaders in the respective categories to help identify and develop the most critical research opportunities in each. Since the categories are interdependent, and thus will likely involve cross-disciplinary research initiatives when the major funding proposals are developed, careful attention will be devoted to ensuring open communication among the respective groups.

Project Framework

The following schematic outlines the anticipated approach to achieving the stated objectives:



Next Steps

TASK	HOW?	SUGGESTED TIMEFRAME
1. The Cost of FS	Poll industry	Fall 2009
2. Corporate Support Network	CEMI next BOD Mtg. OMICC next Mtg.	Summer/Fall 2009
3. Technical Advisory Framework	Identify 5-6 key industry and academic advisors per contemplated research area	Fall-Winter 2009
4. Possible Funding Mechanisms/Sources	Solicit advice from key industry, academic and government sources	Fall/Winter 2009
5. Research Projects Preliminary design and Scope	Industry/Academia sub-committee-international call for research proposals?	Fall/Winter 2009
6. Commencement of initial research programs		Late Spring 2010

Opportunity to Participate

This project requires creative, motivated partners to help define research topics, identify stakeholders, provide appropriate test sites and contribute financially (in cash and in kind). If you would like to be part of this exciting international initiative, please contact info@miningexcellence.ca quoting “FS control” or phone 1-705-675-1151 x. 1210 or 1215.