

International Mining Education Planning Session

SME2005 – Salt Lake City, USA

**Tuesday 1st March, 2005: 9.00am – 1.00pm Room 252 (A/B),
Salt Palace Convention Center**

Session Agenda & Workbook

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WORKSHOP AGENDA

(Workshop Facilitator: Professor Bruce Hebblewhite – UNSW, Australia)

- 9.00am Welcome and delegate introductions
- 9.10am Workshop objectives and agenda
- 9.15am Background
- 9.30am Session 1: Identification of common problems and issues.
Commitment to explore collaborative opportunities.
- 10.15am Session 2: Session 2: Resource sharing
- 10.45am *Coffee break*
- 11.00am Session 3: Student exchange/alternative entry
- 11.45am Session 4: Collaborative degrees/web-based options
- 12.30pm Session 5: Wrap-up and agreement on the way forward.
- 1.00pm *Close*

The following are a series of summary points for discussion in the form of a workbook, with provision for taking notes to record discussion and any conclusions/actions.

Anticipated delegates to this Planning Session: Any mining engineering educators and interested industry personnel who are willing to become actively involved in fostering greater international collaboration.

List of Participants

Name Institution Country Email address

Workshop Objectives

. To gather interested international mining engineering educators and supporting industry personnel together to discuss current problems and issues facing them; and to explore opportunities for a greater degree of international collaboration through some form of educational network – such as the “International Mining Education Network” (IMEN) – amongst English-speaking educational providers.

. Subject to consensus on the needs and benefits from some form of increased international collaboration, and the commitment of various parties to pursue this initiative:

- to identify and review a range of collaboration options and the opportunities that they present;
- to determine the practicalities and limitations of the various options;
- to determine which parties/institutions might be interested in each option – assemble a project team;
- to commence developing strategies and action plans for each option (both during workshop and plans for actions beyond today);
- to discuss the levels and types of resources required for each collaborative option – both between institutions and amongst the mining industry;
- to agree on an overall way forward in developing a business plan for these new initiatives, including development of a collaborative approach to industry for strategic support.

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Background

The industry

- . □ The mining industry has historically faced cyclic periods of boom and downturn – but is currently in a period of almost unprecedented growth and prosperity in many countries, for many commodities.
- . □ The supply of mining engineering graduates from educational institutions has typically followed the industry cycles, but with a lag of several years.
- . □ At the present time and for the foreseeable future, there is a significant shortage of mining graduates, with supply at least 33% below demand in Australia (100 graduates per year, for a demand of 150).
- . □ The international mining industry continues to become dominated by larger, but fewer multi-national mining companies who are quite prepared to look beyond national boundaries to meet their recruitment needs (and to offer targeted support).
- . □ Industry is starting to look to non-traditional supply options to fill traditional graduate mining engineering jobs (including greater use of civil engineers, importing graduates from other countries etc).

Student recruitment

- . □ It is becoming increasingly difficult to attract school leavers to study mining engineering at university.
- . □ Mining is perceived by many to be a “sunset industry”; low technology, dirty; unsafe; environmentally unfriendly etc.
- . □ A number of educational providers are offering or developing alternative pathway programs to train mining engineers (both undergraduate and postgraduate), but these are not well developed or widely recognised/accepted at this point in time.

Educational providers

- . □ Mining Schools/Departments are being closed down in many countries due to uneconomic student numbers.
- . □ Many of those remaining open are continuing to struggle for economic viability, and hence face an uncertain future.
- . □ There are difficulties around the world in recruiting suitable academic staff across the range of mining subject areas – due both to economic factors (uncompetitive salaries), and also lack of mining graduates pursuing specialist research degrees, suitable for academic careers.
- . □ There are some initial developments occurring in collaboration

between educational providers, nationally or regionally (eg the European Mining Program, and MTEC in Australia). These are still in early stages, but may offer models for a wider range of international collaboration.

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Against the above background, the future of mining education internationally is under severe threat, unless some major changes are made.

Can your institution afford to continue to operate in isolation?

Do any or all of the above issues apply to your region and institution?

“Do nothing” is unlikely to be an option, if you want a sustainable future.

For other background reference material see the following:

- . various papers presented at SME2005 session on Global Minerals Education.
- . “MTEC international initiative – international mining education network (IMEN)”, B Hebblewhite (UNSW), April, 2004 (unpublished)
- . “Mining engineers: Becoming a scarce resource?”, P Knights (Pontificia Universidad Catolica de Chile), 2004 (unpublished).

Session 1: Common problems and issues

What are the major issues facing your institution at present (any assignment

of priority)?

Which of these might possibly benefit from some form of collaborative activity or involvement?

Which issues are common to a number of different institutions? Can any relative collective priority be placed on these?

Is your institution prepared to commit to further evaluating and developing collaborative strategies to address some of the background issues identified above?

Possible opportunities

The following is a list of possible opportunities for collaboration. These are considered to have some potential for improving the situation with regard to one

or a number of the background issues identified above. This is by no means an exhaustive list and should be supplemented with further suggestions, as appropriate. It is also quite feasible that some of these possibilities will not prove to be viable, practical or achievable, once subjected to closer scrutiny. Some may have merit, but only on an individual basis, with no “added value” from collaboration.

This is one of the purposes of this workshop and any subsequent strategy development – to really **test any suggestions** and , if considered worthy of pursuit, to then proceed to **agree on potential participants**, establish **clear objectives** and **anticipated outcomes**, and then develop some **substantive strategies** around each suggestion.

. Resource sharing

- a. Staff resources
- b. Educational teaching/learning materials
- . Enhanced student exchange (incorporating greater cross-recognition of educational programs – undergrad. and postgrad.)

. Alternative entry programs

- a. Access to students from areas where there is no longer a Mining Program
- b. Non-standard Programs (eg Certificates/Diplomas)
- . Collaborative degrees – an international Mining degree or other qualification, with components completed at one or multiple institutions (a combination of the student exchange and alternative entry issues above)
- . Use of commercial internet providers to disseminate/manage resource material.

Session 2: Resource sharing

Options considered:

- . sharing of existing course teaching material (or modules within courses) via internet or other means, in fields where an institution is short of expertise or availability of resources/time

- . “specialist” staff available for international intensive block teaching sessions (co-ordinated between multiple institutions in a region, eg a 3 week trip with multiple 4 or 5 day block sessions to different institutions across a region by a subject matter expert could be cost effective to all parties)
- . extended staff exchange programs (eg 3 – 6 months)
- . secondment of experienced industry personnel to one or multiple institutions in a region for extended periods.

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For each of the above and any other identified options, develop responses to the following:

1. 1. *What would be the clear objectives of such an initiative?*
2. 2. *What are the anticipated benefits if the objective can be achieved (benefits to the institutions (individually and collectively), to the industry, to the students)?*
3. 3. *What are the major issues and obstacles that would have to be overcome (must be a win-win for both/all parties, on sound commercial basis)?*
4. 4. *Which institutions are interested to be a part of pursuing this collaborative option?*
5. 5. *What are the major strategies to be developed for taking this option forward?*

In relation to the option of sharing existing teaching resource material, list the current subject matter material available, offered by whom; in what form; and who has a need for such material?

In relation to sharing of teaching staff expertise, identify both areas of strength and weakness where you could provide or might take external expertise to teach a module or course?

Session 3: Student exchange/alternative entry

Options considered:

- . greater cross-recognition of educational programs (undergraduate)
- . formal exchange agreements
- . informal options
- . marketing of exchange opportunities
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- recruitment of students from regions where there is no mining program available
- a. into 1st year
- b. into later years
- . cross-over from other disciplines (eg civil)
- . non-standard programs (eg certificates/diplomas)
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Session 4: Collaborative degrees/web-based options

Options considered:

- . existing degree programs (undergraduate or postgraduate) which are already packaged in a portable form (eg web-based distance mode) that could be “code-shared” with other institutions
- . new degree program (u/grad or p/grad) that could be an international degree with either options or structured components available at different institutions around the world (eg European Mining Program, UBC Mining Certificate etc)
- . use of commercial internet providers to disseminate/manage resource material/possibly to provide/assess entry level prerequisites
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5. 5. *What are the major strategies to be developed for taking this option forward?*

Session 5: Wrap-up / a way forward

1. 1. Summary of agreed opportunities
2. 2. Interested parties (rel. to each opportunity)
3. 3. Next tasks to be pursued
4. 4. Project teams for each task
5. 5. Secretariat for pooling and disseminating progress
6. 6. Timetable?

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