

Summary of the 2010 “Roadmap for the future” for the Society of Mining Professors (SOMP)

(an update of the original Sydney 2009 SOMP Roadmap, based on workshop discussions held during the June 2010 SOMP Annual Meeting in Tallinn)

1. Background

The constitution of the Society defines our objectives as follows:

The Society of Mining Professors/Societät der Bergbaukunde is designed to be a vibrant global Society, representing the majority of minerals academics. The purpose of the Society is to:

- *promote Mining Engineering as an engineering discipline,*
- *to facilitate information exchange, research and teaching collaboration and joint action among its members.*

More specific functions and objectives are listed as:

- *Ensuring that university based education at the highest level in those disciplines concerned with the provision of mineral products from the crust of the earth continues to be available to those who wish to avail themselves of it.*
- *Ensuring that advancement, through research, of the scientific and engineering knowledge and processes in the areas of relevance to the provision of mineral products continues.*
- *Establishing a network of academics involved in achieving the above goals.*
- *Enhancing the image of the minerals-producing industries, promoting development of educational courses within these disciplines and fostering pride in the disciplines.*
- *Establishing and maintaining ongoing contacts with the global mineral industry players.*
- *Promoting co-operation in educational and research programmes and identifying co-operative research opportunities.*

2. The Future

In order for the Society to maintain and expand its relevance and purpose, the 2009 meeting agreed that:

- We need to become an active, and truly international network of mining academics
- Just as the minerals industry is made up of global companies and partnerships; so too, the education sector must go global, and SOMP is the ideal vehicle to achieve this, by
 - More than just an informal network that meets once/year
 - We must make strategic, global initiatives in our education sector.

3. Sydney Roadmap

– a summary of conclusions and actions arising from SOMP 2009 in Sydney.

(2010 meeting review/update points shown in red italics, after each relevant point)

3.1 Introduction Session

- a) Continue to collect annual statistics on international mining engineering intake and graduate numbers *(Action: Education C'tee)*.
 - i. *All future surveys to be conducted on-line as soon as appropriate web-based survey system can be established (may need Secretariat assistance to help design and fund some low-level IT support to set up initial survey system).*
 - ii. *Attempt to gain more reliable student/staff ratio data using total student numbers across entire Mining Programs (currently not collected).*
 - iii. *Future surveys to include postgraduate student numbers as well.*
 - iv. *SOMP membership to advise Education C'tee (B Hebblewhite) of any other appropriate metrics which may be worth including in future surveys – by start of 2011.*
 - v. *It would be useful to incorporate a broader representation of Mining Programs in survey data, from countries not currently reported, eg across Asia, Turkey, India etc. In order to assist with this, SOMP needs to assemble a broader, up to date list of current Mining Programs. This had been done some years ago by SOMP. Tim Shaw agreed to re-visit the database and co-ordinate an update, including documentation of website records. It was agreed that others would assist, covering different regions of the world, as follows:*
 - *Africa – Ronnie Webber-Youngman*
 - *North America – Pierre Mousset-Jones*
 - *Asia/Australasia – David Laurence/Duncan Chalmers*
 - *Europe – Tim Shaw*

- b) Desirable to supplement above statistics with a review of “graduate attributes” from different institutions – what do our graduates look like, and how do they differ, across the world? *(Action: Education C’tee).*
 - i. *Tim Shaw agreed to collate published “graduate attributes” from available websites, as a result of survey in 3.1 (a (v)), above.*
- c) Mapping of our SOMP graduates would be a useful exercise, although extremely difficult to do on a broad scale (where they work, what type of roles are they in after x years from graduation, etc). *(Action: SOMP Council).*
 - i. *Meeting agreed to pursue the development and implementation of a “graduate survey”. Mike Nelson agreed to provide a template used in US as basis to conduct this survey (which ideally should also be done on-line – to be initiated in 2011 if possible).*
 - ii. *In all of above 3.1 statistics/surveys/databases, it was reinforced that our focus should be restricted to Mining Engineers only.*
- d) Endorsement of the above background objectives for SOMP in the future (see section 2) *(endorsed by Tallinn meeting membership)*

3.2 Staff Development – attracting and retaining new/young academics *(Actions: Membership Committee)*

- a) Establishment of a network of young/new academics within the SOMP framework – this should be led by a young academic, not left to the SOMP Secretary or other officials to run. The network should be a database set up possibly within the SOMP website to enable new and young staff to be identified to each other; and to be able to be in regular informal/social contact with each other, for support, establishment of collaboration opportunities; exchange of ideas etc. (This network may also be a set up using something like “Facebook”, or “Linked In”, although some concerns about privacy/control issues).
- b) Desirable for new/young academics to have mentor assigned to them – preferably within their own universities and/or countries, rather than a SOMP role. Cross-disciplinary mentoring also considered valuable. Suggestion that each country assigns a senior SOMP member as mentor to develop such a program for younger academics pursuing research interests in each country; but with links back to SOMP for any common interest issues.
- c) There may be a role for some older SOMP members to be assigned as mentors to academic leaders in developing countries, or where new mining programs are being established – may be specific to particular specialisations.

At the Tallinn meeting, members discussed issues related to research funding and refereed journal publications that are used as major factors for promotion and advancement in academic career. These issues are of particular importance for younger members of the Society. It was brought to the attention of the SOMP members that some universities, particularly in Europe, don't count refereed journal

publications that are not under SCI (Scientific Citation Index) list. Faculty members can't advise PhD students without certain number of journal papers from SCI list. Even the mining engineering is limited by the number of refereed journals, it is of particular concern that leading mining refereed journals are not listed under the SCI including SME Transactions, SME Mining Engineering Journal, CIM Bulletin, AusIMM Mining Technology, International Journal of Mining, Reclamation and Environment, and Mineral Resources Engineering. Some members pointed out that at one university the administration expects research productivity of 40 refereed journal publications and \$1 million in research funding in order to advance to the next academic level. It was also of concern that industry funds are considered as "dirty money" at one university and that only federal or state funded research is considered to be appropriate.

The SCI list plays no role whatsoever at some parts of the world, where promotion and advancement in career is not possible without publishing in highly regarded refereed journal publications mentioned above. Industry research is considered to be equally important as federally or state funded research. However, SOMP membership development committee recognizes the diversity and different requirements imposed by the university administrations around the world. Therefore, the SOMP membership development committee believes that SOMP should write a white paper on standards related to refereed journal publications and research funding. This paper would be no excuse on productivity or standards set by universities, but rather explanation of uniqueness of mining engineering discipline, research funding and importance of publishing in refereed journal publications that are crucial for advancement of mineral and energy resources around the world. The paper would be signed by the Secretary General or be made as a petition and signed by all society members and sent to appropriate university administrators where above issues exist.

The Membership Development Committee also discussed issues around capacity building in developing countries. It was suggested that SOMP members should help in this effort by teaching a short courses in these countries (three weeks), advising and mentoring graduate students. On-line courses would also be helpful in this effort. To that extent, it is recommended creating the database of teaching and research expertise of SOMP members. This knowledge database would help in establishing better exchange of research and teaching expertise among SOMP members, and direct communication among the members who are willing to participate in capacity building.

Summary Actions (Membership Ctee)

- *White Paper on mining engineering publication opportunities and limitations.*
- *In conjunction with White Paper, a summary of relevant mining engineering publications should be assembled, with input from all membership. Membership Committee to develop a template for gathering such information.*
- *Encouragement to offer collaborative teaching of short courses/modules in developing countries/new programs; plus mentoring of graduate students*
- *Establishment of database of teaching and research expertise across all SOMP members.*

3.3 General Issues

- a) Important role for SOMP to offer commentary and be a discussion forum on broader issues affecting minerals industry, such as climate change, CO₂ sequestration etc.

(Action: SOMP Council)

This role of SOMP should focus on the overall image of the mining industry and mining professionals in the community; the importance of long-term sustainable mining practices and what this really means; and the long-term role and importance of mining education in such issues. It should also include profiling of individual and collective SOMP expertise to government, with a view to attracting further research funding.

Vehicles to achieve this role could be publications in industry and professional journals; website articles and resource material available for download by SOMP members; and facilitated discussions/workshops at major conferences and general industry forums.

- b) Establishment of a database of SOMP membership teaching and research interests would be very beneficial, with some form of analysis to identify common areas, gaps etc.

(Action: Education Committee)

- i. Some concern expressed that such a database may be abused for “poaching” of staff between universities. It was agreed that this would not be pursued at this stage, but that the database referred to in 3.1(a(v)) should at least include the names and contact details for the Head of School/Department, to enable easier contact across institutions.*
- ii. Note: This view is in conflict with that developed by the Membership Ctee – see 3.2 above. This issue should be further discussed amongst SOMP membership (Action: SOMP Council).*

- c) Workshops held at the Sydney meeting were judged to be very useful and effective, even though they need some extra meeting time assigned to accommodate them in the Program. Future SOMP meetings should continue the practice of holding focussed workshop sessions to continue to pursue particular initiatives, following Sydney workshop themes (Innovations in teaching & learning; international collaboration in education; early career researchers; research partnerships), but not restricted to these.

(Action: SOMP Council, plus future meeting hosts)

3.4 Teaching – Use of new technologies

(Actions: Education Committee)

- a) SOMP members could share podcasts or similar recordings of particular keynote lectures (by subject-matter academic experts, or key industry presentations – SOMP could be a

clearing-house, or storage for such presentations (subject to appropriate approvals, copyright etc).

SOMP could play a role in providing a list of what “public lecture” materials are currently available and how to access them via individual university websites. The notion of SOMP acting as a clearing house of such resources was rejected for now, but by having a list of website addresses (see 3.1(a(v)) and 3.3(b(i)) above) this objective could still be achieved.

Universities wishing to make available electronic teaching module resources to other parties under commercial licence arrangements could make such availability known, possibly through an expanded SOMP website.

- b) All SOMP members who already have classrooms equipped for interactive lecture delivery/receival to exchange information on the technology protocols/specifications – to assist with future linkages of lectures around the world; and assist those establishing new facilities.

Agreed to develop and circulate a document summarising which universities have such facilities for interactive teaching; and what are the technical protocols/specifications for each facility, in terms of being able to both deliver and receive. Agreed that A/Prof Andrew Jarosz (Curtin University, W Australia) would develop a template to be used for this purpose.

3.5 International Collaboration

(Actions: SOMP Council)

- a) SOMP should play a role in facilitating the development/implementation of new mining education programs in developing regions of the world. Recommendation that SOMP could actually form a “Capacity Building” Sub-Committee. This should comprise a cross section of members from developing regions, plus members with experience in supporting new programs and/or good contacts/access to international aid agencies. Particular regions of interest might include parts of Asia, Mongolia, western Africa, etc.

It was agreed at Tallinn to establish the SOMP Capacity Building Sub-Committee, to be chaired by A/Prof David Laurence, from University of New South Wales, Australia.

- b) Consistent with 3.5(a) above, SOMP should consider a future meeting to be held in the Asian region in the near future.

It was agreed that a proposal from either the Asian region, or from southern Africa, for the 2014 annual meeting.

- c) SOMP to consider potential for international collaboration, especially in postgraduate coursework and research. Options may include: joint international research supervisors; capacity building teaching programs; establishment of international postgrad degree

programs (and collaborative research projects), possibly based around cross-disciplinary themes, rather than disciplines, eg carbon capture/sequestration.

Agreed that SOMP member institutions which offer postgraduate coursework programs and would be interested in collaborative international programs should be asked to indicate their interest, and the potential program subject matter. There would be a need to have a single person to champion and co-ordinate the development of shared programs in each subject matter area, but there would be benefits, both in terms of quality and international content of subject matter, and cost-effectiveness of reduced development requirements by individual parties.

Initial interest was expressed in the following areas:

- *Mine Design (initially, just sharing case studies/databases – both for undergraduate and postgraduate sharing). Mike Nelson agreed to co-ordinate, possibly through setting up a “Mine Design Wiki”. There would be a need for a technical Review Committee to co-ordinate activity, with at least one SOMP representative to have an overview role. Interested persons to contact SOMP Secretariat.*
- *Sustainable Mining Practices*

3.6 Research

(Actions: Research Committee)

- a) SOMP members to develop database of which universities and people are active in which research fields, and a database of major research projects. This should include which areas graduate students are working in, and providing a link for these researchers to communicate informally (through website or Facebook or similar).
- b) Important through 3.6(a) to identify areas of critical mass, in terms of people and infrastructure; and through this, to also identify where collaborative links across membership can convert a small group into a critical mass when linked with others – the concept being SOMP international research networks in particular fields.
- c) Establishment of collaborative projects, as per 3.5(c) above.
- d) Database of new/young research staff and research interests, as per 3.3(b) above; with informal networking opportunities available, as described in 3.2(a) above.
- e) SOMP to develop a study on various collaborative research models around the world – case studies of what works well, and also what has not worked so well.