Discussion Document: International Slope Stability in Open Pit Mining and Civil Engineering Symposia

Industry meeting: 11.30am, Monday 15 June 2020 (AWST)

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Australian Centre for Geomechanics

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1 Background to this discussion document

The Australian Centre for Geomechanics (ACG) is a not-for-profit mining research centre based at The University of Western Australia (UWA), Perth, and was formally established in 1992. The ACG undertakes research, education and training activities in mining geomechanics to provide industry with the necessary tools and knowledge to continually improve safety and productivity.

The ACG is an unincorporated joint venture involving CSIRO Minerals and UWA, and is governed by a Board of Management, with representation from the mining industry.

The ACG serves the industry in several different areas within the broader mining geomechanics field and provides technical conferences within these areas. These include paste and thickened tailings, mine closure, underground mining and open pit mining.

Our aim is to expand our activity in the area of open pit mining and slope stability as we firmly believe this will be to the benefit of the global open pit mining community. This expansion sees the ACG becoming more active in the slope stability in mining international event arena, along with developing its research capability in this area.

The ACG’s activity with respect to slope stability in mining international events to date includes:

- 2013, International Symposium on Slope Stability in Open Pit Mining and Civil Engineering, Perth.
- 2016, First Asia Pacific Slope Stability in Mining Conference, Brisbane.
- 2020, International Symposium on Slope Stability in Open Pit Mining and Civil Engineering, Online Event.
- 2021, Second International Slope Stability in Mining Conference, Perth - presently being planned.

Currently, two opposing paths are presenting to the ACG:

1. The ACG focusses on expanding its International Slope Stability in Mining Conference to be held every second year, leapfrogging with the International Slope Stability in Open Pit Mining and Civil Engineering Symposia. The ACG will no longer be involved in the International Slope Stability in Open Pit Mining and Civil Engineering Symposia; ACG involvement ceases at the conclusion of the Slope Stability 2020 Online Event.
2. The ACG fully supports the Slope Stability in Open Pit Mining and Civil Engineering Symposia, and actively work towards expanding and improving it in collaboration with local organising bodies. The ACG will use its established and proven systems to ensure consistency, quality, continuity, industry promotion and engagement. Under this scenario, the ACG will not pursue the further development of the International Slope Stability in Mining Conference series.

This discussion document presents the industry with a proposal for the second scenario. The ACG seeks industry discussion and feedback regarding this proposal. As mentioned in the following section, there is no formal and established structure governing the Slope Stability in Open Pit Mining and Civil Engineering Symposia. This document was initially presented and discussed at the 2020 International Symposium on Slope Stability in Open Pit Mining and Civil Engineering conclusion meeting with the current local advisory committee.

The meeting agreed on the following motions:

1. The meeting agreed, in principle, with the recommendation of an International Steering Committee for the International Slope Stability in Open Pit Mining and Civil Engineering Symposia.

2. The meeting agreed, in principle, with the ACG’s proposed future involvement as the coordinating symposia organiser, as outlined in the discussion document.

3. The meeting agreed on the following process to obtain an industry mandate for the above-mentioned motions and tasked the ACG to execute this process:
   a. Convene an industry meeting to form the International Steering Committee.
   b. Invitations to the meeting are to be done according to criteria set out in Section 6.
   c. ACG to present the proposal for its future involvement with the Slope Stability Symposia at the meeting.
   d. International Steering Committee to invite further discussion on the matter to be submitted in writing.
   e. International Steering Committee to decide on the matter and inform the ACG on the outcome.

As such, the ACG shall host an industry meeting to address the above items on Monday, 15 June 2020. Industry representatives invited to the meeting are listed in Appendix A.

Note: The ACG has taken great care to ensure the accuracy of this discussion document. Please contact the authors if there are errors or omissions.
# International Slope Stability in Open Pit Mining and Civil Engineering Symposia (SLOPE)

The Slope Stability in Open Pit Mining and Civil Engineering Symposia (SLOPE) was initiated by Emeritus Professor Dick Stacey and was first held in 2006 in South Africa, hosted by The Southern African Institute of Mining and Metallurgy (SAIMM). It has since been held eight times in over 14 years in five countries by five different organisations (Table 1). The SLOPE symposia are well-established, strong and viable, and provide valuable vehicles for the exchange of technical content, as well as the provision of excellent networking opportunities.

## Table 1  Past and planned SLOPE symposia

<table>
<thead>
<tr>
<th>Year (year since previous symposium)</th>
<th>City</th>
<th>Organiser</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>Cape Town</td>
<td>SAIMM</td>
</tr>
<tr>
<td>2007 (1)</td>
<td>Perth</td>
<td>ACG</td>
</tr>
<tr>
<td>2009 (2)</td>
<td>Santiago</td>
<td>Universidad de Los Andes</td>
</tr>
<tr>
<td>2011 (2)</td>
<td>Vancouver</td>
<td>Canadian Rock Mechanics Association</td>
</tr>
<tr>
<td>2013 (2)</td>
<td>Perth</td>
<td>ACG</td>
</tr>
<tr>
<td>2015 (2)</td>
<td>Cape Town</td>
<td>SAIMM</td>
</tr>
<tr>
<td>2018 (3)</td>
<td>Spain</td>
<td>The Spanish Mining Council</td>
</tr>
<tr>
<td>2020 (2)</td>
<td>Perth (online)</td>
<td>ACG</td>
</tr>
<tr>
<td>2022 (2)</td>
<td>Tuscon</td>
<td>The University of Arizona</td>
</tr>
</tbody>
</table>

The ACG was privileged to host the symposia in 2007, 2013 and 2020; with the last symposium being held as an online event due to COVID-19 restrictions. Table 2 summarises some of the industry participation in the events hosted by the ACG.

## Table 2  Statistics related to the ACG hosted SLOPE symposia

<table>
<thead>
<tr>
<th>Category</th>
<th>2007</th>
<th>2013</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendees</td>
<td>214</td>
<td>402</td>
<td>255</td>
</tr>
<tr>
<td>Presenters</td>
<td>37</td>
<td>67</td>
<td>105</td>
</tr>
<tr>
<td>Papers in programme</td>
<td>39</td>
<td>103</td>
<td>90</td>
</tr>
<tr>
<td>Papers in proceedings</td>
<td>40</td>
<td>103</td>
<td>112</td>
</tr>
<tr>
<td>Posters</td>
<td>5</td>
<td>35</td>
<td>0</td>
</tr>
<tr>
<td>Technical reviewers</td>
<td>18</td>
<td>83</td>
<td>111</td>
</tr>
</tbody>
</table>

The technically peer-reviewed papers for these three symposia are freely available on the ACG Online Repository of Conference Proceedings (Online Repository), for papers where author permission was obtained (https://papers.acg.uwa.edu.au/cs/slopeability). This is, sadly, not the case for papers from the other five symposia in this series. It is also noted that not all these proceedings were peer-reviewed.
3 Some observations regarding SLOPE

The ACG has more than 20 years’ experience in international mining event organisation and proceedings preparation. Based on this experience, we would like to share the following observations.

3.1 Formal structure

It is noted the SLOPE symposia series has no formal steering committee. Currently, each symposium has its own Local Organising Committee giving guidance and support to the local organisers. At the conclusion of each event, the Local Organising Committee is disbanded and a new Local Organising Committee established for the next symposium.

The absence of an ongoing symposia international steering committee results in the loss of clear symposia continuity and longer term strategic planning. At the conclusion of each symposium, the future symposium location is decided. However, there are no formal, structured guidelines for event bid preparation, submission, review and allocation. This has resulted in the symposia being fractured and inconsistent.

The ACG believes that it is necessary to establish an International Steering Committee to maximise the benefit to the industry of symposia of this nature.

We recommend an International Steering Committee be established to oversee and guide future SLOPE symposia.

The purpose of the International Steering Committee would be to:

- Provide guidance and direction for future event organisers.
- Provide a focal point for industry to contact.
- Ensure the improvement and maintenance of symposia standard, with respect to both the technical and networking aspects of the symposia.
- Appraise and evaluate bids received from countries and organisations seeking to host the symposia, and award the event destination.

It is envisaged each symposium has its own committees; generally an International Advisory Committee and a Local Organising Committee.

We propose that an interim International Steering Committee be established at an industry meeting, a chair is chosen at this meeting, and the committee is given the mandate to recruit further members
if required. We recommend that the Steering Committee should aim to fulfil the following requirements:

A minimum of eight member representatives of the international slope stability community. The membership of the committee should maximise representation with respect to:

- Industry – mining house and civil engineering interest groups.
- The academic and research community.
- Suppliers and consultants.
- Representation of younger professionals and female members of the community should also be encouraged.

The ACG makes itself available to provide administrative support to the first International Steering Committee until a decision is reached regarding the ACG proposal set out in this document. In the event that the International Steering Committee does not accept the ACG proposal, administrative support from the ACG will not be continued.

### 3.2 Continuity and legacy

The absence of a central and easily accessible medium to house the excellent technical content of the symposia impacts on the symposia’s relevance and benefit to the global industry. This is evident from a quick internet search revealing that the only symposia papers that are catalogued, indexed and easily available are those hosted on the ACG’s Online Repository and are from events hosted by the ACG.

The quality of the proceedings’ typesetting, proofing and citation management, the quality of the event programme, and the overall event experience vary with different event organisers and event management teams.

It is arduous, expensive and time-consuming to re-establish event guidelines, templates and processes for each symposium. A central hosting medium and clear and consistent symposia event management tools and guidelines would enable markedly easier event preparation and execution. Additionally, all global stakeholders and symposia attendees would have ongoing transparency, consistency and expectation.

The ACG has been, and continues to be, asked to provide and share our established events and paper templates, processes and guidelines to other event organisers tasked to undertake the symposia.
3.3 Continuity of promotion

It is important for a research, academic or mining/civil engineering education organisation to be the local body to ensure the symposia retains its core values of impartiality and independence. However, many of these groups do not have the experience to efficiently host such events. Often these organising bodies do not have a well-established industry database of authors, reviewers, delegates, sponsors and other stakeholders.

4 Proposed symposia structure for the future

For future SLOPE symposia, the ACG proposes the following model, based on the proven model used for the very successful series of international conferences managed by the ACG.

Under this model, the International Steering Committee will identify and approve local organising bodies, in conjunction with the ACG, tasked to:

- Create, establish, and protect a unified SLOPE symposia brand.
- Provide event management support to local event organisers. The ACG would liaise with the local bodies to develop the symposium programme, assist in the establishment of the local committees, source sponsorship and actively engage the local market.
- Provide proceedings management support to local event organisers, making available the ACG’s standard symposia guidelines, templates and processes.
- Catalogue, index, host and provide citation management support for papers.
- Provide administrative support to the International Steering Committee.
- Ensure inclusion in search engines and other technical literature databases.
- Host the symposia elsewhere, as needed.

5 Benefits to the industry under the proposed model

5.1 Quality control and quality assurance

The ACG has a credible track record for organising international events and producing high-quality proceedings and has been instrumental in initiating well-established and sustainable series of international mining conferences held regularly throughout the world. This includes the following event series where the ACG is either the founding organisation or main body providing event direction:

- International Conferences on Paste, Thickened and Filtered Tailings.
- International Conferences on Mine Closure.
- International Conferences on Deep and High Stress Mining.
- International Conferences on Underground Mining Technology.
- International Conferences on Slope Stability in Mining.
- International Symposia on Block and Sublevel Caving.

The ACG has more than 20 years’ experience in hosting international mining events throughout Australia and overseas. The ACG publications team produces technical, peer-reviewed event proceedings. This work is undertaken in-house where we can ensure that the high standard of the publication is maintained. Our team works in close collaboration with the proceedings’ editors, organising committees, paper authors and reviewers, and printers.

### 5.2 Online Repository

The ACG Online Repository is an online open access paper hosting platform that enables ACG published peer-reviewed papers to be available to the industry. The platform provides versatile search functions which includes full text search on the paper content. Citation export to citation managers or citation copy-and-paste is also provided. The ACG is a member of Crossref with each paper being assigned a unique DOI. This ensures each paper is reachable through the DOI link, even if the web address changes in future. This also ensures other publishers, e.g. Elsevier, Springer, Taylor and Francis, provide direct links to the papers when it is cited in any of their journal papers.

The ACG has developed the system for automatic inclusion of the data into Google Scholar and is currently in the process of having the paper metadata automatically included in the following databases:

- Scopus (subject to stringent requirements set by Scopus being met).
- BASE (Bielefeld Academic Search Engine).
- OpenAIRE.
- ResearchGate.

### 5.3 Continuity between successive symposia

Symposia continuity, consistency and transparency will be affected by the establishment of an International Steering Committee and the ACG being the coordinating event managing body.

The high quality of the technically peer-reviewed symposia papers will be maintained as all peer-reviewed papers would be processed by the ACG publications team.

Industry, including symposia attendees, authors, presenters and sponsors, will have one coordinating event organiser to liaise with.
5.4 Established general and social media platforms

The ACG has a well established and proven communication strategy to ensure effective and clear communication with all stakeholders. This includes the following:

- Regular electronic direct mails (eblasts) to the ACG database of more than 7,000 customers.
- Promotion via UWA and various networks, and associated university and mining research groups.
- ACG website and social media platforms (LinkedIn, Facebook, Twitter).
- Slope Stability Symposia LinkedIn Page – (currently with 2,425 followers).
- Professionally maintained conference websites.
- ACG Online Repository.
- ACG newsletter and event brochures.

5.5 Event management team

Our dedicated team of event organisers is skilled and trained to manage and coordinate all aspects of international events including delegate registration and communication, marketing and promotion, abstract and paper generation, venue coordination, audiovisual provision, sponsorship, committee development and liaison, programme development, site visit coordination, associated events provision, event evaluation and website management.

The depth of experience of the ACG team enabled them to adapt quickly to provide the 2020 symposium as an online and on demand event.

5.6 Publications management system

The ACG has a full-time publications team managing the process of the paper evolution from the abstract stage and reviewer coordination to published paper. This team has developed editorial management processes over the years. Their expertise and publications management processes will be effectively and consistently implemented for each symposium.

The ACG is in the process of developing an electronic editorial management system with a web-based interface which will enable a streamlined process for managing the publication process. This electronic system will, however, not be ready for use during the 2022 symposium.

6 Summary of ACG proposal

As the symposia coordinating body, the ACG undertakes an event coordinator role is the hosting of all Slope Stability Symposia. For this service, the ACG charges the Local Organising Body a fee. This fee is
currently in the order of US $30k. The ACG undertakes a similar role, for this fee, with the series of International Conferences on Mine Closure, and the International Paste, Thickened and Filtered Tailings Conferences.

1. Proceedings’ technical and editorial support from up to two ACG representatives.
2. The provision of previous proceedings reviewer names, if available and required, in accordance with Australian privacy laws.
3. ACG proceedings guidelines, templates and processes.
4. The symposium papers will be freely available from the ACG Online Repository, subject to ACG Online Repository proceedings guidelines and processes followed.
5. Marketing support, including:
   a. Mailouts (inclusion of printed event brochures in up to three cycles to our database of 7,000 customers).
   b. ACG newsletter articles or text boxes (the ACG newsletter has a circulation of over 10,000).
   c. Inclusion of registration brochure in delegate bags of other ACG events.
   d. Promotion of workshops and other activities associated with the symposia via ACG websites, including the Online Repository of Conference Proceedings and dedicated symposia website.
   e. Promotion via the ACG social media platform.
   f. Access to past symposia sponsors and sponsor templates and process.

7 Decision on the ACG proposal

Due to the current lack of an International Steering Committee, there is no official body who could decide on this ACG proposal. For this reason, we invite industry representatives to the Industry Meeting to discuss the proposal. The following groups of people are invited:

- 2020 Local Organising Committee.
- 2020 International Advisory Committee.
- All chairs of previous symposia.
- The chair and committee of the 2022 symposium.
- Large Open Pit Project Sponsors.
- Symposia Principal and Major Sponsors that have sponsored more than one symposium.

A list of all invited people is provided in Appendix A.
The ACG proposes the following staged approach to enable a decision on the proposal to be made:

1) An International Steering Committee is established according to the proposal in Section 3.1.
2) The International Steering Committee invites further submissions regarding this ACG proposal.
3) The International Steering Committee decision regarding this proposal is made by Monday, 29 June 2020.
Appendix A - Industry representatives invited to the meeting

### 2020 Local Organising Committee

<table>
<thead>
<tr>
<th>Name</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peter Andrews</td>
<td>Sanjive Narendranathan</td>
</tr>
<tr>
<td>Stephan Arndt</td>
<td>Marnie Pascoe</td>
</tr>
<tr>
<td>Michael Dunn</td>
<td>Erin Sweeney</td>
</tr>
<tr>
<td>Marc Elmountie</td>
<td>Julian Venter</td>
</tr>
<tr>
<td>David Gaudreau</td>
<td>Diane Walker</td>
</tr>
<tr>
<td>Jon Hall</td>
<td>Owen Watson</td>
</tr>
<tr>
<td>Christian Holland</td>
<td>Felicia Weir</td>
</tr>
<tr>
<td>Paul Maconochie</td>
<td></td>
</tr>
</tbody>
</table>

### 2020 International Advisory Committee

<table>
<thead>
<tr>
<th>Name</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max Brown</td>
<td>Phil Dight</td>
</tr>
<tr>
<td>Stephen Cooper</td>
<td>José-Miguel Galera</td>
</tr>
<tr>
<td>Ashley Creighton</td>
<td>Andy Fourie</td>
</tr>
<tr>
<td>Teofilo da Costa</td>
<td></td>
</tr>
</tbody>
</table>

### 2022 Committee (TBA)

<table>
<thead>
<tr>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brad Ross</td>
</tr>
</tbody>
</table>

### Previous SLOPE chairs and editors

<table>
<thead>
<tr>
<th>Name</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dick Stacey, 2006</td>
<td></td>
</tr>
<tr>
<td>Yves Potvin, 2007</td>
<td></td>
</tr>
<tr>
<td>John Read, 2007</td>
<td></td>
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<tr>
<td>Felipe Lobo Ruano, 2009</td>
<td></td>
</tr>
<tr>
<td>Erik Eberhardt, 2011</td>
<td></td>
</tr>
<tr>
<td>Doug Stead, 2011</td>
<td></td>
</tr>
<tr>
<td>Robert Armstrong, 2015</td>
<td></td>
</tr>
<tr>
<td>Phil Dight 2013, 2020</td>
<td></td>
</tr>
</tbody>
</table>
Large Open Pit Sponsor Representatives (years 2016 - 2019)

AngloGold Ashanti, Emrich Hamman
Barrick, Patrick Jenks
BHP, Christian Holland
De Beers, Phil de Graaf
Debswana Diamond, Michael Dunn

FMG, Justin Dixon
Newcrest, German Flores-Gonzalez
Rio Tinto, Marnie Pascoe
Vale, Teófilo da Costa

Large Open Pit Sponsor Representatives (years 2005 - 2014)

Anglo American, Phil de Graaf
AngloGold Ashanti, Emrich Hamman
Barrick, Patrick Jenks
BHP, Christian Holland
Codelco, Eduardo Rojas Valdivia
Collahuasi, Rodrigo Silva-Mandiola
De Beers, Phil de Graaf
Debswana, Abel Tunono
Newcrest, German Flores-Gonzalez
Newmont, John Lupo
Ok Tedi, Derrick Kelly
Rio Tinto, Marnie Pascoe
Teck, Greg Tucker
Vale, Teófilo da Costa

Symposia Principal and Major Sponsors that have sponsored more than one symposium
* as per available information

Barrick, Patrick Jenks
BHP, Rigo Rimmelin
GroundProbe, Albert Cabrejo
IDS GeoRadar, Niccolò Coli
Itasca, Jonny Sjoberg
Reutech Mining, Jan de Beer
Rio Tinto, Marnie Pascoe
SRK Consulting, Diane Walker