

# INTERNATIONAL SOCIETY FOR SOIL MECHANICS AND GEOTECHNICAL ENGINEERING

## MINUTES OF THE COUNCIL MEETING

Held at International Convention Centre Sydney, Australia, in hybrid mode

Sunday, 1st May 2022

### PRESENT

Charles Ng	- ISSMGE President
Roger Frank+	- Immediate Past President ISSMGE
Eun Chul Shin	- ISSMGE Vice President Asia
Philip Robins	- ISSMGE Vice President Australasia
Mario Manassero	- ISSMGE Vice President Europe
Timothy Newson	- ISSMGE Vice-President North America
Alejo Sfriso	- ISSMGE Vice President South America
Mounir Bouassida +	- Appointed Board Member
Kok Kwang Phoon +	- Appointed Board Member
Pedro Sêco e Pinto +	- Appointed Board Member
R Neil Taylor	- Secretary General
C Paloma Peers +	- ISSMGE Secretariat
Peter Day	- Chair, Corporate Associates Presidential Group
Sukumar Pathmanandavel	- Vice-Chair, Corporate Associates Presidential Group
Lucy Wu+	- Chair, Young Member Presidential Group
Pierre Delage	- Chair, Technical Oversight Committee
Professor William Van Impe +	- ISSMGE Past President
Professor Jean-Louis Briaud	- ISSMGE, Past President
Professor Matthew Coop +	- Chair, TC Laboratory Testing
Dr Jason DeJong	- Chair, TC In-situ Testing
Professor Akira Murakami +	- Chair, TC Numerical Methods
Professor Ahmed Chraibi +	- Chair, TC Tropical Residual Soils
Professor Erol Tutumluer	- Chair, TC Transportation Geotechnics
Professor Philip Watson	- Chair, TC Offshore Geotechnics
Professor Alessandro Mandolini +	- Chair, TC Deep Foundations
Professor Marina Pantazidou +	- Chair, TC Geo-Engineering Education
Professor Zhongquiang Liu +	- Chair, TC Machine Learning
Dr Roger Estephan	- Dar Al Handasah Corp
Dr Ang Koh An +	- GDS Instruments
Mr Karel Allaert +	- Jan de Nul NV
Dr Yuli Doulala- Rigby	- Tensar International Ltd
Dr Marc Ballouz	- ISSMGE Presidential Candidate
Professor Malek Bouazza	- ISSMGE Presidential Candidate
Professor Michael Davies	- ISSMGE Presidential Candidate

### Member Society

### Voting Member

### Non-Voting Member

Albania	--	
Algeria	Professor Bahar Ramdane +	Professor Abdelmalek Bekkouche +
Argentina	Diego Manzanal +	
Australia	Dr David Lacey	Mr Graham Scholey
Austria	Professor Helmut F. Schweiger	Professor Dietmar Adam +
Bangladesh	Dr Sarwad Yasin +	
Belarus	Ms Tatiana Tronda	
Belgium	--	
Bolivia	Mario Terceros	
Bosnia & Herzegovina	Sabid Zekan +	

Member Society	Voting Member	Non-Voting Member
Brazil	Professor Fernando Schnaid +	
Bulgaria	---	
Canada	Dr Ian Moore +	
Chile	Ms Daniela Pollak	
China	Professor Jianhong Zang +	
Chinese Taipei	Professor Tai-Tien Wang +	Professor Benson Hsiung +
Colombia	Dr Miguel Cabrera +	
Costa Rica	Adrián Fernandez Castro +	
Croatia	Igor Sokolić	
CTGA		Dr Billang Nyogog Serge Aurelien+
Cuba	---	
Cyprus	Dimitrios Loukidis +	
Czech & Slovak Republics	Dr Jana Frankovska +	
Denmark	Dr Varvara Zania	
Egypt	Dr Marawan Shahin +	
Estonia	Lehar Leetsaar +	
Finland	Assoc. Prof. Wojtek Sołowski +	
France	Nicolas Utter +	
Georgia	--	
Germany	Dr Ing. Wolfgang Sondermann +	
Ghana	Dr Frederick Owusu-Nimo +	
Greece	Dr Michael Bardanis +	
Guatemala	José Alberto Perez Zarco +	
Hong Kong	Dr Andy Leung +	
Hungary	Dr Andras Mahler +	Dr. Edina Koch +
Iceland	Mr Haraldur Sigursteinsson +	
India	Prof Narendra Kumar Samadhiya +	
Indonesia	Prof. Widjoyo Prakoso +	
Iran	Prof Fardin Jafarzadeh	
Iraq	--	
Ireland	Dr Carl Bragan +	
Israel	Professor Mario Manassero*	
Italy	Dr Daniele Cazzuffi	
Japan	Professor Toshifumi Mukunoki +	Dr Takeshi Katsumi
Kazakhstan	Professor Askar Zhussupbekov	Dr Assel Sarsaembayeva
Korea R	Dr Moonkyung Chung	Professor Jong-Sub Lee
Kyrgyzstan	Gulzat Kadyralieva	
Latvia	Kaspars Bondars +	
Lebanon	Salah Sadek +	Dr Grace Abou-Jaoude
Lithuania	---	
Malaysia	Dr Dominic Ong +	
Mexico	Walter Paniagua	
Mongolia	Nyamdorj Setev +	
Morocco	---	
Mozambique	Hans Dete +	
Nepal	--	
Netherlands	--	
New Zealand	Mr Philip Robins *	
Nigeria	Mr Will Ibim Beresibo +	
North Macedonia	Assoc. Prof Igor Peshevski +	
Norway	--	
Pakistan	Sohail Kibria	
Paraguay	Nicolas Zabrodiec	Roberto Andrada +
Peru	--	
Philippines	Dr Mark Albert Zarco	Engr. Roy Anthony Luna
Poland	Professor Katarzyna Zabielska- Adamska+	
Portugal	Professor Alexandre Pinto +	Dr Isabel Fernandes +
Romania	Professor Loretta Batali +	
Russia	Professor Vyacheslav Ilyichev +	Elena Bragar
Serbia	--	
Singapore	Professor Colin Chun Fai Leung	Assoc Prof Darren Siau Chen Chian
Slovenia	Ms Suzana Svetlicic +	
South Africa	Dr John Pavlakis	Dr André Archer
South East Asia GS (SEAGS)	Dr. Suttisak Soralump +	Dr. Geoff Chao +
Spain	Professor Fernando Pardo de Santayana +	
Sri Lanka	Professor Athula Kulathilaka	
Sudan	---	

Member Society	Voting Member	Non-Voting Member
Sweden	Mr Håkan Garin	Dr Gunilla Franzén
Switzerland	Professor Lyesse Laloui +	
Syria	Dr Talal Awwad +	
Tajikistan	Professor Pulod Aminzoda +	
Thailand	Dr Suttisak Sorulump +	
Tunisia	---	
Turkey	Professor S. Feyza Cinicioglu +	
Ukraine		Professor Yuriy Kirichek +
U K	Professor David Toll +	Dr Andrew Ridley +
U S A	Professor James Hanson	Professor Anand Puppala
Uzbekistan	Professor Askar Khasanov	Dr Zokhir Khasanov
Venezuela	Professor Wagdi Naime +	
Vietnam	Professor Duc Long Phung +	

+ Denotes Virtual attendance

\* Denotes Proxy vote

#### Apologies:

Etienne-Marcelin Kana	- ISSMGE Vice President Africa
Dimitrios Zekkos	- Chair, Innovations and Development Committee
Ikuo Towhata	- Chair, Professional Image Committee
Roberto Terzariol	- Chair, Awards Committee

#### 1 OPENING REMARKS BY PRESIDENT AND AGREEMENT OF THE AGENDA

The President welcomed delegates to the meeting and explained that the Council Meeting would be very different to the normal format and procedure and would be held as a hybrid event with in-person and online delegates. Similarly, the global pandemic had led to the 20ICSMGE being postponed by over 7 months and would also be held as a hybrid event. With some delegates attending in-person but many more from around the world, the start time of 20:30 AEST was chosen and the meeting would need to finish in about 3.5 hours. The agenda includes three items requiring anonymous voting. An online voting system (ElectionBuddy.com) was chosen and to minimise the risk of poor internet connections, voting opened 48 hours before the Council Meeting started. Voting would close at midnight, i.e. the scheduled end of this meeting and results declared as soon as possible thereafter.

#### 2 LIST OF DELEGATES AND OTHER PERSONS PRESENT - APOLOGIES FOR ABSENCE

The Secretary General conducted a roll call to confirm that the voting delegates above were present either in-person or online.

#### 3 CONFIRMATION OF QUORUM (STAUTE 12K)

The Secretary General confirmed that with 71 votes available from 85 Member Societies entitled to the benefits of membership, the meeting was quorate for all business declared on the agenda.

#### 4 CONFIRMATION OF MINUTES OF CAPE TOWN COUNCIL MEETING

The minutes of the Council Meeting in Cape Town, October 2019 were confirmed as an accurate representation of the meeting.

#### 5 MEMBERSHIP

The Secretary General delivered his report, which is included as Appendix 1. It was noted that there had been some changes in membership of individual Member Societies and there were now 20,800 members from 90 Member Societies. Of these societies, 5 were in financial arrears. In addition, there were now 41 Corporate Associates.

#### 6 ELECTION OF REGIONAL VICE-PRESIDENTS

It was noted that the elected Vice-Presidents for the period 2022 to 2026 were:

- Africa – Professor Marawan Shahien (Egypt)
- Asia – Professor Keh-Jian Shou (Chinese Taipei)
- Australasia – Mr Graham Scholey (Australia)
- Europe – Professor Lyesse Laloui (Switzerland)
- North America – Professor Walter Paniagua (Mexico)
- South America – Professor André Assis (Brazil)

#### Section B – Items requiring a vote

#### 7 ELECTION OF PRESIDENT FOR THE PERIOD 2022-2026

The President reiterated that the votes needed to be submitted using the electronic system that had been circulated to all nominated voting delegates 48 hours before the Council Meeting. There were five candidates for President and each would be given the opportunity to make a 5-minute pitch. The candidates were:

- Marc Ballouz
- Mounir Bouassida
- Malek Bouazza
- Michael Davies
- Askar Zhussupbekov

The online voting system closed at midnight and the following results declared:

<b>First round:</b>	<b>Votes</b>
Marc Ballouz	19
Mounir Bouassida	7
Malek Bouazza	12
Michael Davies	21
Askar Zhussupbekov	21

Mounir Bouassida, having received the fewest votes was eliminated and his ballots reallocated using the single transferable vote system.

<b>Second round:</b>	<b>Votes</b>
Marc Ballouz	22
Malek Bouazza	13
Michael Davies	21
Askar Zhussupbekov	24

Malek Bouazza, having received the fewest votes was eliminated and his ballots reallocated.

<b>Third round:</b>	<b>Votes</b>
Marc Ballouz	27
Michael Davies	27
Askar Zhussupbekov	25

Askar Zhussupbekov, having received the fewest votes was eliminated and his ballots reallocated.

<b>Fourth round:</b>	<b>Votes</b>
Marc Ballouz	40
Michael Davies	39

Marc Ballouz, having received a majority of the votes cast, was duly elected President of ISSMGE for the period 2022 – 2026.

#### 8 VENUE FOR 2023/24 BOARD AND COUNCIL MEETINGS.

The Secretary General reported that in accordance with the statutes, he had written to organisers of regional conferences in 2023/4 in Asia, Australasia and South America. Only one offer to host the Council Meeting had been received from Asia as follows:

- 17th Asian Regional Geotechnical Engineering Conference, Nur-Sultan, Kazakhstan. 14-18 August 2023

Professor Zhussupbekov gave a brief presentation about the conference and the venue. Member Societies were asked to vote on accepting this offer to host the next Council Meeting. The results of the anonymous online ballot were as follows:

For	48 votes
Against	7 votes
Abstentions	25 votes

With the majority vote, it was confirmed that the next Council Meeting will be held on Sunday 13 August 2023 on the occasion of the 17th Asian Regional Geotechnical Engineering Conference, Nur-Sultan, Kazakhstan.

#### 9 PRESENTATIONS OF INVITATIONS TO HOST XXI ICSMGE 2026.

Two proposals for hosting the next international conference had been received from the geotechnical societies in Austria and USA. Representatives from these societies were invited to make a short presentation to Council giving details of their bids. The result of the anonymous online vote was as follows:

Austria	60 votes
USA	20 votes

The 21ICSMGE will therefore be held in Vienna, Austria in June/July 2026.

#### 10 PRESENTATION OF ACCOUNTS 2019 AND 2020 AND DRAFT ACCOUNTS FOR 2021

The inspected accounts for 2019 and 2020 are given in Appendix 2, along with a financial statement for 2021 that compares the draft accounts with the budget for 2021. In general terms, income was a little greater than forecast in the budget. Travel expenditure in 2020 and 2021 was much lower than predicted due to the pandemic. Initiatives was largely focussed on improving functionality of the virtual university which now includes 143 videos. The conference income for the 20ICSMGE had been budgeted for 2021 but postponement of the event means that the income would be received in 2022.

Delegates were asked if there were any comment or questions on the accounts; there were none. Philip Robins proposed the motion to accept the accounts, which was seconded by Alejo Sfriso. Voting by a show of hands indicated 57 in favour with none against and no abstentions, confirming acceptance of the accounts.

#### 11. BUDGET 2022 – 2024 AND FORECAST BUDGET TO 2026

Philip Robins, Chair of the Finance Sub-Committee, presented the budget proposals for 2022 – 2024 with forecast budget to 2026 (see Appendix 3).

The budget income for 2022 to 2026 remains consistent with previous years and again, it is proposed that there is no increase in the basic annual subscription fee per member. Interest rates are forecast to remain low. The main Regional and International Conferences should generate income with a return to significant in-person participation.

The present Secretary General comes to the end of his term of office at the next Council Meeting, and he has advised the ISSMGE Board that he will not seek another appointment. Consequently, the proposed budget includes provision for anticipated costs involved in the search, hand-over and embedding of the new Secretary General.

Budget expenditure on travel allows for small inflationary increases plus an allowance for the Young Members Presidential Group to hold a biennial meeting in-person. Expenditure on IT and related activities is anticipated to remain at current levels though an allowance has been made to support the Internal Journal on Geoenvironmental Case Histories.

At the Council Meeting in Paris, 2013, it was proposed to maintain the ISSMGE reserves at about GBP500,000 with any surplus transferred to the ISSMGE Foundation. The new budget proposes to return to that policy.

In discussion, David Toll (UK) queried the large travel expenditure and wondered if there would be moves to reduce the carbon footprint of Board meetings by holding more of these online. The Secretary General replied that the Board had held all its meetings online during the pandemic. While these had

been adequate, he felt that in-person meetings were generally more successful. So, although online meetings would no doubt continue, allowing for some in-person meetings was, in his opinion, a good idea.

There were no further questions and the motion to accept the budget was proposed by Walter Paniagua (Mexico) and seconded by Mario Manassero. Voting by a show of hands indicated 63 in favour with none against and 4 abstentions, confirming acceptance of the budget.

### Section C: Activities and Achievements

## 12 PRESENTATION BY THE PRESIDENT SUMMARISING ACTIVITIES AND ACHIEVEMENTS

The President summarised his report (Appendix 4), which gave an overview of his presidential term in office. The key theme of this period was to improve the ISSMGE commitment to education, innovation and diversity. The online ISSMGE Virtual University had been created with the collation of existing and new webinars into a number of Postgraduate-level teaching courses. A conference paper review platform had been created as a benefit to conference organisers and as a means to easily transfer papers to the ISSMGE online library. The increased activity in big data and machine learning had led to new Technical Committees being created. Engagement with Member Societies had increased and the Corporate Associates Presidential Group had organised special sessions at the 2019 Regional Conferences that were aimed at narrowing the gap between academics and practitioners. The creation of Bright-Spark lectures has promoted younger members to deliver keynotes in plenary sessions in conferences and symposia.

The President then continued with summary presentations from other Board members and Chairs of the Board level Committees.

*12.1 Regional Reports By Vice-Presidents Etienne-Marcelin Kana, Eun Chul Shin, Philip Robins, Mario Manassero, Timothy Newson, Alejo Sfriso On Regional Activities (See Appendix 5)*

**Asia (Eun Chul Shin):** All 9 Asian Regional Technical Committees were very active and had organised several events. Other major events had been the Asian Regional Conference in Taipei and the 9th Asian Young Geotechnical Engineers Conference in Lahore.

**Australasia (Philip Robins):** All past proceedings of the Australia New Zealand Geotechnical Conferences had been digitised and uploaded to the ISSMGE online library. Successful and well-attended events had been organised and the Young Geotechnical Professional events continued to be popular.

**Europe (Mario Manassero):** With 38 Member Societies, the region continues to be very active with many events organised and with significant contribution to Technical Committee activity and output.

**North America (Timothy Newson):** Despite the pandemic, many successful events had been organised and there continued to be important contributions by members of Technical Committees.

**South America (Alejo Sfriso):** Over 300 events had been organized in the past 4 years. A new TC on Mine Waste was hosted by the Chilean Geotechnical Society and there were 3 new Corporate Associate from the region.

*12.2 ISSMGE Virtual University (Mounir Bouassida, see Appendix 6)*

Existing and new webinars have been used to create 13 identifiable Master's level courses.

*12.3 Innovation and Development Committee (Dimitrios Zekkos, see Appendix 7)*

The IDC continues to oversee developments of the ISSMGE website which provides a central location for news and technical resources and sub-websites to support Technical and Board Level Committees. The online library supports the Virtual University with well over 16,000 technical papers. The library can now issue DOIs for papers and ISSMGE reports. The conference review platform can support new events and can facilitate direct publishing in the online library. Developing the ISSMGE Virtual University has allowed the various webinars and other videos to be categorised and arranged in courses with individual themes. GeoWorld is a professional network connecting geotechnical engineers and is also used to promote ISSMGE content.

*12.4 Technical Oversight Committee (Pierre Delage, see Appendix 8)*

There are 38 Technical Committees providing forums for knowledge in geotechnical engineering. They develop and disseminate knowledge and geotechnical practice, establish guidelines and technical recommendations, assist with technical programs of international and regional conferences organised by the ISSMGE and interact with industry and overlapping groups working in specialist areas. TC activity is assessed at least biennially and action taken if reactivation is needed. New TCs are create in response to developments in geotechnical engineering.

*12.5 Young Members' Presidential Group (Lucy Wu, see Appendix 9)*

The key aims of the YMPG are enabling the sharing of knowledge, connecting groups with each other and facilitating communications between younger members and the ISSMGE leadership. During the past 4 years, there has been a steady growth in corresponding members of YMPG. Major accomplishments have been participation in the Regional Conferences, delivering Bright Spark Lectures, holding joint meetings with the CAPG and participating in the design challenge, hosting an in-person meeting and organising the Future of Geotechnics event in October 2021.

*12.6 Corporate Associates' Presidential Group (Peter Day, see Appendix 10)*

The CAPG organised a major session at each of the Regional Conferences and will present their findings on their "Are we overdesigning?" initiative.

*12.7 Award Committee (Roberto Terzariol, see Appendix 11)*

It should be noted that nominations were received for awards in all categories, i.e. Outstanding Technical Committee, Geotechnical Project, Innovator, Member Society, Paper Published in the International Journal of Geo-Engineering Case Histories, Public Relations and Young Geotechnical Engineer. The awardees will be announced during a special session of the 20ICSMGE, Sydney.

12.8 *Professional Image Committee (Ikuro Towhata, see Appendix 12)*

A major report has been prepared showing the contribution of geotechnical engineering to human society. Geotechnical engineering activity is often invisible and geotechnical engineers often do not command high salaries which can lead to poor respect. Subsurface investigation is essential to avoid or at least minimise risks that can lead to damage, death and financial loss.

12.9 *International Journal of Geo-Engineering Case Histories (Dimitrios Zekkos, see Appendix 13)*

The IJGCH is an ISSMGE journal and the only diamond open access journal in the geotechnical engineering field. The journal focuses on geotechnical practice though the careful documentation of case histories. In 2021, the 124 papers published in the journal were downloaded 84,000+ times. Efforts are underway to better integrate the journal with the International Society by establishing Technical Committee Liaisons. Special Issues organised by Technical Committees have now been published.

12.10 *The ISSMGE Foundation (Chair of the Trustees, Michael Davies, see Appendix 14)*

The ISSMGE Foundation was established as an independent charity in 2013 and has been supported by several private donations and substantial donations from ISSMGE. The Trustees hope to eventually establish it as an endowment fund to secure the future of the Foundation. The Foundation provides financial support to individuals participating in technical and professional activities such as conferences and training courses. To date, about 180 awards have been made totalling over £150,000.

12.11 *Time Capsule Project (Sukumar Pathmanandavel, see Appendix 15)*

The Time Capsule Project (TCP) is an initiative designed to bring the ISSMGE individual members closer together, remember the past and look to the future. Contributions have been made by Past-Presidents, geotechnics champions, Member Societies and Technical Committees and access to these is via the ISSMGE website.

12.12 *The ISSMGE Bulletin (Anthony Leung, Editor-in-Chief, see Appendix 16)*

The Bulletin continues to be published bimonthly with major articles being research highlights, TC Corner, major projects, the president's messages, reports from member societies, Board Level Committee activity, Time Capsule Project Blogs, conference reports, and the event diary.

*Section D: Other business*

13 MOTION PROPOSED BY UKRANIAN SOCIETY FOR SOIL MECHANICS, GEOTECHNICS AND FOUNDATION ENGINEERING

In response to the attack by Russia against Ukraine, the Ukrainian Geotechnical Society had written to the Russian Geotechnical Society seeking solidarity and asking Russian scientists to oppose the war. No response had been received and consequently, the Ukrainian Society for Soil Mechanics, Geotechnics and Foundation Engineering proposed the motion that the Russian Society for Soil Mechanics, Geotechnics and Foundation Engineering should be excluded from ISSMGE. The Russian Geotechnical Society had responded to the ISSMGE

Secretariat with the view that the motion by the Ukrainian Society was inconsistent with the aim of the International Society, which is the promotion of international cooperation amongst engineers and scientists for the advancement of knowledge in the field of geotechnics and its engineering applications.

Professor Shin stated that other military events had occurred in the past without proposals to exclude Member Societies. The Secretary General stated that while that was the case, this is the first time the ISSMGE had received such a proposal and that it should therefore be brought to Council. Mario Manassero seconded the motion, which then allowed it to be discussed.

In the discussion that followed, Professor Kirichek (Ukraine) reiterated the first motion that had been submitted and Professor Ilyichev (Russia) voiced their counter argument. A number of views were expressed by delegates including Duc Long Phung (Vietnam) essentially arguing that political issues were not the business of ISSMGE. Mr Garin (Sweden) thought it would be wrong to terminate the membership of the Russian Geotechnical Society and proposed an alternative motion that their membership should be suspended. This second motion was seconded by Dr Cazzuffi (Italy). It was followed by a third motion proposed by Mr Pardo De Santayana (Spain), that the first two motions be abandoned. This was seconded by Mr Robins (New Zealand).

The President noted that several views had been expressed but since there were no new arguments, the motions could be voted upon. Noting that many Societies might feel uncomfortable with voting by a show of hands, the President proposed that voting should be by email to the Secretary General with copy to the President. The Secretary General undertook to organise this postal ballot in which the voting delegates would be given 24 hours to cast their vote.

Following normal practice, the motions are considered in reverse order and after the 24hr period, the ballot for Motion 3 had 40 votes for the motion, 16 against and 3 abstentions. The motion is therefore carried and the other motions concerning suspension or termination of the Russian Society for Soil Mechanics, Geotechnics and Foundation Engineering are abandoned.

14 ANY OTHER BUSINESS

The President asked if there was any other business, and there was none.

15 DATE AND VENUE OF NEXT MEETING

The next Council Meeting will be on Sunday 13 August 2023 in Nur-Sultan, Kazakhstan.

16 THANKS AND CLOSURE

The President thanked all those attending the meeting, either in-person or online, for their considered deliberation of the various discussion items. Thanks were also expressed to the Sydney conference organising teams and to the staff of ICC Sydney for their help and support in making the meeting possible. The meeting closed at 00:30.

## Appendix 1: Membership

### Neil Taylor

Secretary General, ISSMGE

#### 1 MEMBER SOCIETIES

The accompanying Table indicates that the present ISSMGE membership is just over 20,800 in 90 Member Societies, (information correct as of 29th April 2022). The membership of the majority of the societies has remained static during the pandemic, though a few have reported some changes compared to the report produced for the Cape Town Council Meeting: Canada (down to 624 from 751), Germany down to 432 from 492), Indonesia (up to 200 from 140), Iraq (down to 50 from 114), Korea (down to 450 from 519), Philippines (up to 79 from 34), Romania (down to 119 from 158), Singapore (up to 64 from 46), South Africa (down to 532 from 659), South East Asia (down to 95 from 124), USA (down to 2607 from 2975), and Vietnam (up to 70 from 50).

The application for membership from the Mongolian Association of Soil Mechanics and Geotechnics was approved by the Board since the last report to Council.

#### 2 CORPORATE ASSOCIATES

AECOM Asia Company Ltd  
AOSA SA  
S.N. Apageo S.A.S.  
Ove Arup & Partners Ltd  
Aurecon  
Bentley Systems (UK) Limited  
Dar Al Handasah Corp  
Deltares  
EPB SA

CCC Fourth Harbor Engineering Company  
Fugro Australia Marine Pty Ltd  
Gamuda (Australia) Branch  
GDS instruments  
Geomil BV  
GHD Pty, Ltd.  
Giken Ltd  
Ground Investigation Ltd  
Huesker Synthetic GMBH  
Inora sp. z.o.o.  
Jan De Nul N.V.  
Keller Group plc  
KGS Ltd  
Naue GmbH & Co KG  
Norwegian Geotechnical Institute  
Pagani Geotechnical Equipment  
RCF Ltd  
Rocscience Inc  
Shanghai Geoharbour Construction Group  
Siemens Energy Global GmbH & Co. KG;  
SMC AUSTRALIA PTY LTD  
SRK Consulting Argentina S.A.  
Teclab Limited  
Tencate Geosynthetics France SAS  
Tensor International Ltd  
Terrasol  
Terre Armée (Soletanche Freyssinet Group)  
Tetra Tech Coffey Pty Ltd  
Transport Research Centre  
A.P. van den Berg  
Wagstaff Piling  
WSP - Golder Associates Inc

#### MEMBERSHIP INFORMATION AS AT 29th APRIL 2022

MEMBER SOCIETY	Membership	Africa	Asia	Australasia	Europe	North America	South America
ALBANIA	30				30		
ALGERIA	30	30					
ARGENTINA	106						106
AUSTRALIA	1218			1218			
AUSTRIA	108				108		
BANGLADESH	33		33				
BELARUS	30				30		
BELGIUM	319				319		
BOLIVIA	42						42
BOSNIA & HERZEGOVINA	16				16		
BRAZIL	779						779

<b>MEMBER SOCIETY</b>	<b>Membership</b>	<b>Africa</b>	<b>Asia</b>	<b>Australasia</b>	<b>Europe</b>	<b>North America</b>	<b>South America</b>
BULGARIA	32				32		
CANADA	624					624	
CHILE	100						100
CHINA	511		511				
CHINESE TAIPEI	68		68				
COLOMBIA	22						22
COSTA RICA	31						31
CROATIA	102				102		
CTGA	100	100					
CUBA	30						30
CYPRUS	30				30		
CZECH & SLOVAK REPS.	45				45		
DENMARK	594				594		
EGYPT	30	30					
ESTONIA	30				30		
FINLAND	45				45		
FRANCE	636				636		
GEORGIA	30				30		
GERMANY	432				432		
GHANA	21	21					
GREECE	69				69		
GUATEMALA	32						32
HONG KONG	138		138				
HUNGARY	65				65		
ICELAND	32				32		
INDIA	141		141				
INDONESIA	200		200				
IRAN	802		802				
IRAQ	50		50				
IRELAND	24				24		
ISRAEL	32				32		
ITALY	292				292		
JAPAN	1066		1066				
KAZAKHSTAN	40		40				
KOREA	450		450				
KYRGYZSTAN	30		30				
LATVIA	44				44		
LEBANON	30		30				
LITHUANIA	40				40		
MALAYSIA	108		108				
MEXICO	260					260	
MONGOLIA	47		47				
MOROCCO	28	28					
MOZAMBIQUE	37	37					



<b>MEMBER SOCIETY</b>	<b>Membership</b>	<b>Africa</b>	<b>Asia</b>	<b>Australasia</b>	<b>Europe</b>	<b>North America</b>	<b>South America</b>
NEPAL	22		22				
NETHERLANDS	731				731		
NEW ZEALAND	762			762			
NIGERIA	40	40					
NORTH MACEDONIA	35				35		
NORWAY	580				580		
PAKISTAN	85		85				
PARAGUAY	38						38
PERU	27						27
PHILIPPINES	79		79				
POLAND	354				354		
PORTUGAL	150				150		
ROMANIA	119				119		
RUSSIA	165				165		
SERBIA	43				43		
SINGAPORE	64		64				
SLOVENIA	75				75		
SOUTH AFRICA	532	532					
SOUTH EAST ASIA	95		95				
SPAIN	394				394		
SRI LANKA	36		36				
SUDAN	37	37					
SWEDEN	1605				1605		
SWITZERLAND	169				169		
SYRIA	17		17				
TAJIKISTAN	23		23				
THAILAND	32		32				
TUNISIA	40	40					
TURKEY	250				250		
UKRAINE	33				33		
UK	1155				1155		
USA	2607					2607	
UZBEKISTAN	33		33				
VENEZUELA	32						32
VIETNAM	70		70				

## Appendix 2: Presentation of Audited Accounts 2019, 2020

**Neil Taylor,**  
Secretary General, ISSMGE

FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 DECEMBER 2019

### INDEPENDENT EXAMINERS' REPORT TO THE COUNCIL MEMBERS OF THE INTERNATIONAL SOCIETY FOR SOIL MECHANICS AND GEOTECHNICAL ENGINEERING

I report to the society's Secretary General and society council members on my examination of the receipts and payments accounts of the society for the year ended 31 December 2019 which are set out on pages 2 to 6.

#### **Responsibilities and basis of Report**

The society's Secretary General is responsible for the preparation of the receipts and payments account, which has been prepared under the Society's statutes and By-Laws.

My responsibility is to examine the receipts and payments account and related information in accordance with the society's Statutes and By-Laws.

I report in respect of my examination of the society's receipts and payments account.

#### **Independent Examiners Statement**

I have completed my examination. I confirm that no material matters have come to my attention in connection with the examination giving me cause to believe that in any material respect:

1. accounting records were not kept in respect of the society as required under the society's Statutes and By-Laws; or
2. the accounts do not accord with those records.

I have no concerns and have come across no other matters in connection with the examination to which attention should be drawn in this report in order to enable a proper understanding of the accounts to be reached.



Alison Sargent FCA  
Sargent & Co  
Chartered Accountants and Registered Auditors  
219 Croydon Road  
Caterham  
Surrey CR3 6PH

Date:  September 2020

**INTERNATIONAL SOCIETY FOR SOIL MECHANICS  
AND GEOTECHNICAL ENGINEERING  
RECEIPTS AND PAYMENTS ACCOUNT  
FOR THE YEAR ENDED 31 DECEMBER 2019**

	<u>Barclays Bank Plc</u> SFr	<u>Barclays Bank Plc</u> £	<u>Investment Accounts</u> £	<u>City University</u> £
<b>RECEIPTS</b>				
Member Society Subscriptions	-	239,208	-	-
Corporate Member Subscriptions	-	44,176	-	-
Donations and Other Income	-	-	-	=
Interest	-	1,142	1,175	-
Conference Income	-	<u>22,755</u>	-	-
	-	<b><u>307,281</u></b>	<b><u>1,175</u></b>	-
<b>EXPENDITURE</b>				
<b>Secretariat</b>				
President part time support		21,000	-	-
Secretary general support	-	-	-	56,227
Office Expenses - President	-	5,600	-	-
Office Expenses Secretariat	-	1,375	-	297
Secretary General	-	25,800	-	-
Conference support	-	1,500	-	-
Kevin Nash Gold Medal	-	-	-	-
Prizes/Awards	-	-	-	-
	-	<b><u>55,275</u></b>	-	<b><u>56,524</u></b>
<b>Travel, accommodation etc</b>				
President	-	17,000	-	-
Secretary General	-	6,132	-	-
Board	-	44,557	-	-
Board Level Chairs	-	18,569	-	-
Other (YPMG, Bulletin editor)	-	<u>5,563</u>	-	-
	-	<b><u>91,821</u></b>	-	-
<b>Independent Examiners Fees &amp; Bank Charges</b>				
	-	4,082	-	-
<b>Corporation Tax</b>	-	<u>373</u>	-	-
	-	<b><u>4,455</u></b>	-	-
<b>Information Technology (website)</b>				
Licensing Fee	-	10,576	-	-
Future Developments	-	-	-	-
	-	<b><u>10,576</u></b>	-	-
<b>Other Initiatives</b>				
International Seminars (e.g. travel)	-	-	-	-
Travel of ISSMGE Officers to FedIGS Meetings	-	2,206	-	-
Webinars	-	5,071	-	-
Initiatives	-	16,634	-	-
Contingency	-	-	-	-
	-	<b><u>23,911</u></b>	-	-
<b>Total Expenditure</b>	-	<b><u>186,038</u></b>	-	<b><u>56,524</u></b>
<b>SURPLUS/(DEFICIT)</b>				
	-	<b><u>121,243</u></b>	<b><u>1,175</u></b>	<b><u>(56,524)</u></b>
Transfer to the ISSMGE Foundation	-	(41,000)	-	-
Transfers from other accounts	-	(56,570)	-	56,570
Cash balance at 1 January 2019	<b><u>106,467</u></b>	<b><u>374,404</u></b>	<b><u>146,864</u></b>	<b><u>(50)</u></b>
<b>Cash balance at 31 December 2019</b>	<b><u>106,467</u></b>	<b><u>398,077</u></b>	<b><u>148,039</u></b>	<b><u>(4)</u></b>

Information December 2019 - £1 = SFr 1.29

Secretary General Prof. R N Taylor  Date 1 September 2020

**INTERNATIONAL SOCIETY FOR SOIL MECHANICS  
AND GEOTECHNICAL ENGINEERING  
SUBSCRIPTIONS RECEIVED  
IN THE YEAR ENDED 31 DECEMBER 2019**

<b>Member Society</b>	<b>Number of members</b>	<b>Barclays Bank £</b>
Albania	40	524
Algeria*	43	-
Argentina	106	1,986
Australia	1133	12,043
Austria	108	2,158
Bangladesh*	33	-
Belarus	30	519
Belgium	319	4,623
Bolivia	42	419
Bosnia & Herzegovina	18	412
Brazil	806	7,222
Bulgaria*	31	-
Canada	751	8,997
Chile	101	2,018
China	472	5,617
Chinese Taipei	68	1,369
Colombia	20	438
Costa Rica	32	493
Croatia	104	2,078
CTGA	100	-
Cuba*	30	-
Cyprus	30	599
Czech & Slovak Republics	45	899
Denmark	345	5,755
Egypt*	103	-
Estonia	30	599
Finland	45	899
France	636	8,489
Georgia	38	804
Germany	492	6,927
Ghana	21	323
Greece	69	4,062
Guatemala*	32	-
Hong Kong	120	2,383
Hungary	65	1,299
Iceland	32	639
India	224	1,505
Indonesia	140	1,830
Iran*	802	-
Iraq	114	1,859
Ireland	24	599
Israel*	32	-
Italy	269	5,146
Japan	1,124	11,982
Kazakhstan	40	784
Korea	519	7,147
Kyrgyzstan	30	639
Latvia*	44	-
Lebanon	85	1272
Lithuania*	40	-

**INTERNATIONAL SOCIETY FOR SOIL MECHANICS  
AND GEOTECHNICAL ENGINEERING  
SUBSCRIPTIONS RECEIVED (cont.)  
IN THE YEAR ENDED 31 DECEMBER 2019**

<b>Member Society</b>	<b>Number of members</b>	<b>Barclays Bank £</b>
Macedonia, FYR	35	521
Malaysia	82	1,638
Mexico*	260	-
Mongolia	47	778
Morocco*	28	-
Mozambique	37	206
Nepal*	22	-
Netherlands	719	-
New Zealand	775	9,192
Nigeria*	40	-
Norway	530	7,235
Pakistan	85	1,442
Paraguay	38	410
Peru	27	397
Philippines	34	401
Poland	378	6,018
Portugal	156	3,117
Romania	158	5,635
Russia	180	3,596
Serbia	40	581
Singapore	46	919
Slovenia	77	1,465
South Africa	659	5,740
South East Asia	125	1,087
Spain	388	6,099
Sri Lanka	36	932
Sudan*	37	-
Sweden	1,301	13,400
Switzerland	173	3,455
Syria*	17	-
Tajikistan*	23	-
Thailand	32	531
Tunisia	40	476
Turkey	267	5,132
Ukraine	30	942
UK	1,173	12,375
USA	2,975	26,763
Uzbekistan	33	903
Venezuela*	32	-
Vietnam	50	466
<b>Total</b>	<b><u>21,162</u></b>	<b><u>239,208</u></b>

\* Membership number is from the last payment received

**INTERNATIONAL SOCIETY FOR SOIL MECHANICS  
AND GEOTECHNICAL ENGINEERING  
SUBSCRIPTIONS RECEIVED (cont.)  
IN THE YEAR ENDED 31 DECEMBER 2019**

<b>Corporate Member</b>	<u>Bank Account £</u>
AECOM Asia Company Ltd	-
Ove Arup & Partners Ltd	1,158
AOSA SA	1,089
Aurecon	1,156
AP van den Berg Ingenieursburo	1,115
CGRE (UNIV WOLLONGONG)	1,212
Coffey Geotechnics	1,130
Dar Al Handasah	2,246
Deltares	1,120
EBP SA	1,098
Fugro GmbH	1,124
Gamuda	1,162
GDS Instruments	1,118
Geomil	1,194
GHD Pty Ltd	1,104
Giken Ltf	1,156
Golder Associates	1,191
Ground Investigation	1,174
Huesker Synthetic GmbH	1,128
INDRA	1,123
International I.G.M. S.A.R.L.	1,161
Jan de Nul NV	1,159
KellerGround Engineering	1,096
KGS Ltd	1,178
Maccaferri Innovation Centre SRL	1,099
Naue	1,135
Norwegian Geotechnical Institute	1,111
Pagani Geotechnical Equipment	1,113
RCF Ltd	1,126
Shanghai Geoharbour Construction Group	-
Siemens Energy	1,179
SMEC Australia	1,091
Soletanche Bachy SA	-
S N Apageo S.A.S., France	1,097
SRK Consulting	1,092
Tencate Geosynthetics France SAS	1,109
Tensor International Ltd	1,140
Terrasol	1,112
Terre Armee Internationale	1,140
Wagstaff Piling	1,111
Zetas Zemin Teknolojisi AS	<u>1,125</u>
	<b>44.176</b>

**INTERNATIONAL SOCIETY FOR SOIL MECHANICS  
AND GEOTECHNICAL ENGINEERING  
NOTES TO THE FINANCIAL STATEMENTS  
YEAR ENDED 31 DECEMBER 2019**

**ACCOUNTING POLICIES**

- (a) **Income**  
Income has been taken to the credit of the revenue account on a cash received basis.
- (b) **Expenditure**  
Expenditure, inclusive of VAT, has been charged to the revenue account on a cash paid basis.

**RELATED PARTIES**

Included in expenditure are certain governance costs incurred by The ISSMGE Foundation which the Society has agreed to pay on behalf of the Foundation to ensure that as much as possible of the income of the Foundation is used for awards. The total amount paid on behalf of the Foundation in 2019 was £2,032 (2018 - £1,964). The payments in 2019 related to the Independent Examination costs for the 2018 accounts of the ISSMGE Foundation, the ISSMGE Foundation Trustees Insurance and the subscription for the American Fund for Charities.

FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 DECEMBER 2020

**INDEPENDENT EXAMINERS' REPORT TO THE COUNCIL MEMBERS OF THE  
INTERNATIONAL SOCIETY FOR SOIL MECHANICS  
AND GEOTECHNICAL ENGINEERING**

I report to the society's Secretary General and society council members on my examination of the receipts and payments accounts of the society for the year ended 31 December 2020 which are set out on pages 2 to 6.

**Responsibilities and basis of Report**

The society's Secretary General is responsible for the preparation of the receipts and payments account, which has been prepared under the Society's statutes and By-Laws.

My responsibility is to examine the receipts and payments account and related information in accordance with the society's Statutes and By-Laws.

I report in respect of my examination of the society's receipts and payments account.

**Independent Examiners Statement**

I have completed my examination. I confirm that no material matters have come to my attention in connection with the examination giving me cause to believe that in any material respect:

1. accounting records were not kept in respect of the society as required under the society's Statutes and By-Laws; or
2. the accounts do not accord with those records.

I have no concerns and have come across no other matters in connection with the examination to which attention should be drawn in this report in order to enable a proper understanding of the accounts to be reached.



Alison Sargent FCA  
Sargent & Co  
Chartered Accountants and Registered Auditors  
219 Croydon Road  
Caterham  
Surrey CR3 6PH

| Date: 19 May 2021

**INTERNATIONAL SOCIETY FOR SOIL MECHANICS  
AND GEOTECHNICAL ENGINEERING  
RECEIPTS AND PAYMENTS ACCOUNT  
FOR THE YEAR ENDED 31 DECEMBER 2020**

	<u>Barclays Bank Plc</u> SFr	<u>Barclays Bank Plc</u> £	<u>Investment Accounts</u> £	<u>City University</u> £
<b>RECEIPTS</b>				
Member Society Subscriptions	-	237,594	-	-
Corporate Member Subscriptions	-	40,764	-	-
Donations and Other Income	-	-	-	=
Interest	-	516	1,066	-
Conference Income	-	<u>5,000</u>	-	-
	<u>-</u>	<b><u>283,874</u></b>	<b><u>1,066</u></b>	<u>-</u>
<b>EXPENDITURE</b>				
<b>Secretariat</b>				
President part time support	-	21,000	-	-
Secretary general support	-	-	-	57,444
Office Expenses - President	-	5,700	-	-
Office Expenses Secretariat	-	962	-	-
Secretary General	-	26,300	-	-
Conference support	-	-	-	-
Kevin Nash Gold Medal	-	-	-	-
Prizes/Awards	-	-	-	-
	<u>-</u>	<b><u>53,962</u></b>	<u>-</u>	<b><u>57,444</u></b>
<b>Travel, accommodation etc</b>				
President	-	17,000	-	-
Secretary General	-	3,587	-	-
Board	-	3,334	-	-
Board Level Chairs	-	<u>3,632</u>	-	-
	<u>-</u>	<b><u>27,553</u></b>	<u>-</u>	<u>-</u>
<b>Audit Fees &amp; Bank Charges</b>				
Corporation Tax	-	3,791	-	-
	<u>-</u>	<u>440</u>	<u>-</u>	<u>-</u>
	<u>-</u>	<b><u>4,231</u></b>	<u>-</u>	<u>-</u>
<b>Information Technology (website)</b>				
Licensing Fee	-	12,988	-	-
Future Developments	-	<u>15,281</u>	-	-
	<u>-</u>	<b><u>28,269</u></b>	<u>-</u>	<u>-</u>
<b>Other Initiatives</b>				
International Seminars (e.g. travel)	-	-	-	-
Travel of ISSMGE Officers to	-	-	-	-
FedIGS Meetings	-	-	-	-
Initiatives	-	11,772	-	-
Webinars	-	7,777	-	-
Contingency	-	-	-	-
	<u>-</u>	<b><u>19,549</u></b>	<u>-</u>	<u>-</u>
<b>Total Expenditure</b>	<u>-</u>	<b><u>133,564</u></b>	<u>-</u>	<b><u>57,444</u></b>
<b>SURPLUS/(DEFICIT)</b>				
Transfers from other accounts	-	(57,276)	-	57,276
Cash balance at 1 January 2020	<b><u>106,467</u></b>	<b><u>398,077</u></b>	<b><u>148,039</u></b>	<b><u>(4)</u></b>
<b>Cash balance at 31 December 2020</b>	<b><u>106,467</u></b>	<b><u>491,111</u></b>	<b><u>149,105</u></b>	<b><u>(172)</u></b>

Information December 2020 - £1 = SFr 1.22

  
Secretary General Prof. R N Taylor Date 18 May 2021



**INTERNATIONAL SOCIETY FOR SOIL MECHANICS  
AND GEOTECHNICAL ENGINEERING  
SUBSCRIPTIONS RECEIVED  
IN THE YEAR ENDED 31 DECEMBER 2020**

<b>Member Society</b>	<b>Number of members</b>	<b>Barclays Bank £</b>
Albania	43	556
Algeria*	43	-
Argentina	106	3,629
Australia	1,175	12,020
Austria	108	2,096
Bangladesh*	33	-
Belarus*	30	-
Belgium	319	829
Bolivia*	42	-
Bosnia & Herzegovina	18	412
Brazil	864	7,284
Bulgaria*	32	-
Canada	719	8,491
Chile*	101	-
China	531	5,695
Chinese Taipei	68	1,320
Colombia	21	416
Costa Rica*	31	-
Croatia	101	1,960
CTGA	100	1,140
Cuba*	30	-
Cyprus*	30	-
Czech & Slovak Republics*	45	-
Denmark	345	5,589
Egypt*	50	-
Estonia	30	582
Finland	45	874
France	636	7,848
Georgia*	32	-
Germany	463	6,505
Ghana*	21	-
Greece*	69	-
Guatemala	32	965
Hong Kong	126	2,431
Hungary*	65	-
Iceland	32	621
India	241	2,620
Indonesia	200	2,546
Iran*	802	-
Iraq	90	1,381
Ireland	24	582
Israel*	32	-
Italy	289	5,156
Japan	1,121	11,614
Kazakhstan*	40	-
Korea	450	6,404
Kyrgyzstan*	30	-
Latvia*	44	-
Lebanon*	85	-
Lithuania	40	1,304

**INTERNATIONAL SOCIETY FOR SOIL MECHANICS  
AND GEOTECHNICAL ENGINEERING  
SUBSCRIPTIONS RECEIVED (cont.)  
IN THE YEAR ENDED 31 DECEMBER 2020**

<b>Member Society</b>	<b>Number of members</b>	<b>Barclays Bank £</b>
Malaysia	91	1,766
Mexico	260	12,735
Mongolia*	47	-
Morocco*	28	-
Mozambique	37	200
Nepal*	22	-
Netherlands	704	17,121
New Zealand	784	8,996
Nigeria*	40	-
North Macedonia	35	511
Norway	550	7,235
Pakistan*	85	-
Paraguay*	38	-
Peru	27	404
Philippines	34	392
Poland	377	5,840
Portugal	151	2,931
Romania*	119	-
Russia	98	1,902
Serbia	40	605
Singapore*	46	-
Slovenia	75	1,440
South Africa	703	5,645
South East Asia	107	920
Spain	395	5,976
Sri Lanka*	36	-
Sudan*	37	-
Sweden	1,403	13,806
Switzerland	172	3,337
Syria*	17	-
Tajikistan*	23	-
Thailand*	32	-
Tunisia*	40	-
Turkey	285	5,112
Ukraine*	33	-
UK	1,158	11,784
USA	2,577	22,897
Uzbekistan	33	297
Venezuela	32	2,383
Vietnam	53	489
<b>Total</b>	<b><u>20,848</u></b>	<b><u>237,594</u></b>

\* Membership number is from the last payment received

**INTERNATIONAL SOCIETY FOR SOIL MECHANICS  
AND GEOTECHNICAL ENGINEERING  
SUBSCRIPTIONS RECEIVED (cont.)  
IN THE YEAR ENDED 31 DECEMBER 2020**

<b>Corporate Member</b>	<b>Bank Account £</b>
AECOM Asia Company Ltd	2,231
Ove Arup & Partners Ltd	1,120
AOSA SA	-
Aurecon	1,133
AP van den Berg Ingenieursburo	1,136
CCCC Fourth Harbor Engineering Institute Co.Ltd	1,191
TRU/UTS	1,104
Coffey Geotechnics	1,199
Dar Al Handasah	-
Deltares	1,140
EBP SA	-
Fugro GmbH	-
Gamuda	1,140
GDS Instruments	1,097
Geomil	1,196
GHD Pty Ltd	1,108
Giken Ltf	1,142
Golder Associates	1,102
Ground Investigation	1,136
Huesker Synthetic GmbH	1,107
INORA	-
International I.G.M. S.A.R.L.	-
Jan de Nul NV	1,119
KellerGround Engineering	1,125
KGS Ltd	1,164
Naue	1,130
Norwegian Geotechnical Institute	1,124
Pagani Geotechnical Equipment	1,126
RCF Ltd	1,138
Shanghai Geoharbour Construction Group	1,108
Siemens Energy	1,140
SMEC Australia	1,135
Soletanche Bachy SA	1,119
S N Apageo S.A.S., France	1,121
SRK Consulting	1,119
Techfab India Industries Ltd	1,131
Tencate Geosynthetics France SAS	1,133
Tensar International Ltd	1,139
Terrasol	1,166
Terre Armee Internationale	1,128
Wagstaff Piling	1,117
	<b><u>40,764</u></b>

**INTERNATIONAL SOCIETY FOR SOIL MECHANICS  
AND GEOTECHNICAL ENGINEERING  
NOTES TO THE FINANCIAL STATEMENTS  
YEAR ENDED 31 DECEMBER 2020**

**ACCOUNTING POLICIES**

- (a) **Income**  
Income has been taken to the credit of the revenue account on a cash received basis.
- (b) **Expenditure**  
Expenditure, inclusive of VAT, has been charged to the revenue account on a cash paid basis.

**RELATED PARTIES**

Included in expenditure are certain governance costs incurred by The ISSMGE Foundation which the Society has agreed to pay on behalf of the Foundation to ensure that as much as possible of the income of the Foundation is used for awards. The total amount paid on behalf of the Foundation in 2020 was £2,161 (2019 - £2,032). The payments in 2020 related to the Independent Examination costs for the 2019 accounts of the ISSMGE Foundation and the ISSMGE Foundation Trustees Insurance.

## Appendix 3: Proposed ISSMGE Budget for 2022–2026

Budget proposé de l'ISSMGE pour 2022–2026

### Philip Robins

*Vice President for Australasia*

**SUMMARY:** This paper outlines the proposed budget for the next Council period (i.e. 2022–2024) and provides budget forecasts to the next ICSMGE in 2026. The 2022–2026 budget is informed by the audited accounts for 2019, 2020 and 2021 included with the meeting papers. The budget again proposes no increase in Member Society Annual Subscriptions.

#### 1 GENERAL

The ISSMGE Budget 2019 - 2021 (with Forecasts to 2023) is presented in the attached table and is based on the budget approved at the Cape Town (mid-term) Council Meeting in October 2019.

The actual amounts for 2017 and 2018 from the audited accounts were presented and approved at the Cape Town meeting. This paper includes the proposed budgets for the presidential next term (2022 to 2026). To maintain consistency with previous budgets and with the independent auditor's reports, UK pounds (£) are used.

As with previous budgets, the overriding rationale for the budget is to permit the Society to function, both effectively and professionally. Therefore, the budget should facilitate the strategies developed by the President and the Board, together with the operational activities proposed by the board level and presidential committees.

Table 1 summarizes the ISSMGE Budget with forecasts to 2023 as approved at the Cape Town Council Meeting in October 2019. The table includes actual values for the years 2019 – 2021.

Table 2 includes the proposed budget for the period 2022 to 2026.

#### 2 RECEIPTS (INCOME)

##### 2.1 Member Society Annual Subscriptions (MSAs):

Since 2007 the fee structure has been based on a Basic Fee per Capita, discounted to allow for low Purchasing Power Parity (PPP) and for large Member Societies. At the 2015 Edinburgh Council meeting annual subscriptions were budgeted to increase modestly, however, the Council voted not to increase MSAs.

The subscriptions in the 2019–2023 period was also budgeted and approved by the Council to remain static. At the mid-term Cape Town Council Meeting. The forecast amounts for the 2022 to 2026 budget is once again not to increase MSAs and keep the income amounts static.

##### 2.2 Corporate Associate Subscriptions:

In 2011 the fee for corporate membership of the Society was set at US\$1,500. The 2022 to 2026 budget assumes that this fee level will not increase. The forecast subscription income was adjusted modestly at the mid-term Cape Town Council Meeting in October 2019 to account for an increase in Corporate Associates, for which the CAPG is thanked. For the 2022 to 2026 budget, Corporate Associate Subscriptions have been forecast to be kept static.

##### 2.3 Interest:

The predicted revenue from interest remains modest.

##### 2.4 Conference Income:

This item accounts for revenues from registration fees from conferences organised under the auspices of the ISSMGE. Because of a Board decision in 2012, the ISSMGE mandates that the Member Society organising the International Conference (ICSMGE) transfer 5% of the registration fee income to the ISSMGE and 3% of the Regional Conference registration fee income. Conference income is, therefore, only expected in the years when the International and Regional Conferences take place.

Conference income for the 20th International Conference for Soil Mechanics and Geotechnical Engineering (20ICSMGE) in Sydney was budgeted for year 2021. As this conference was delayed to May 2022, any income will be reflected in the actuals for 2022.

#### 3 EXPENDITURE

##### 3.1 Secretariat:

###### 3.1.1 Secretary General:

Support for the Secretary General is based on the May 2010 and April 2018 proposals from the British Geotechnical Association to host the secretariat. A modest increase is forecast.

The Secretary General has advised the ISSMGE Board that they will be stepping down from this role at the next mid-term Council Meeting in 2024.

As such, the proposed budget forecast for the 2022 to 2026 period includes a single modest increase in year 2024 to allow for costs anticipated as part of the search, hand-over and embedding of the new Secretary General.

###### 3.1.2 President:

Administrative support and associated expenses are allocated to the President. Please note that this budget does not include the costs of additional support that might be provided to the President by their host Member Society or from other sources.

###### 3.1.3 Conference support:

Includes support to Regional Young Geotechnical engineering conferences. Additional funding to support the 8th International Young Geotechnical Engineers' Conference in 2024 has been included in the 2022 to 2026 forecast budget.

###### 3.1.4 List of members:

The compilation of an annual list of members has proved to be problematic and it has been decided that the list will no longer be produced. In the proposed budget, this entry has been removed.

###### 3.1.5 Kevin Nash Gold Medal and Prizes:

Provision is made for the award of the Society's Gold Medal and Prizes at the 21<sup>st</sup> International Conference for Soil Mechanics and Geotechnical Engineering (Sydney) in 2026.

ISSMGE Council Meeting 1<sup>st</sup> May 2022, at the occasion of the 20ICSMGE Sydney

Table 1. ISSMGE Budget 2019 - 2021 (with Forecasts to 2023) as approved at Cape Town Council Meeting

	2019		2020		2021		2022	2023
	Budget £	Actual £	Budget £	Actual £	Budget £	Actual £	Budget £	Budget £
<b>RECEIPTS (INCOME)</b>								
Member Society Subscriptions	240,000	239,208	230,000	237,594	230,000	261,901	230,000	230,000
Corporate Associate Subscriptions	32,000	44,176	35,000	40,764	35,000	40,099	35,000	35,000
Interest	2,500	2,313	2,000	1,582	2,000	50*	2,000	2,000
Conference Income	10,000	22,755	-	5,000	20,000	-	-	10,000
Donations and other income	-	-	-	-	-	-	-	-
<b>TOTAL INCOME</b>	<b>284,500</b>	<b>308,452</b>	<b>267,000</b>	<b>284,940</b>	<b>287,000</b>	<b>302,050</b>	<b>267,000</b>	<b>277,000</b>
<b>EXPENDITURE</b>								
<b>Secretariat</b>								
President part time support	21,000	21,000	21,000	21,000	21,000	19,000	21,000	21,000
Secretary General support	54,000	56,227	55,000	57,444	56,000	57,849	57,000	58,000
Office expenses - President	5,600	5,600	5,700	5,700	5,800	-	5,800	5,800
Office expenses - Secretariat	3,000	3,112	3,000	962	5,000	1,088	3,000	3,000
Secretary General	25,800	25,800	26,300	26,300	26,800	26,800	27,300	27,800
Conference support	6,000	1,500	6,000	-	20,000	-	6,000	6,000
Kevin Nash Gold Medal	-	-	-	-	4,000	3,906	-	-
Prizes	-	-	-	-	5,000	-	-	-
<b>Sub total</b>	<b>115,400</b>	<b>113,239</b>	<b>117,000</b>	<b>111,406</b>	<b>143,600</b>	<b>108,643</b>	<b>120,100</b>	<b>121,600</b>
<b>Travel Expenses</b>								
President	17,000	17,000	17,000	17,000	17,000	-	17,000	17,000
Secretary General	13,000	6,132	13,000	3,587	13,000	-	13,000	13,000
Board members	40,000	44,557	42,000	3,334	44,000	-	44,000	44,000
Board Level Chairs	18,000	18,568	18,000	3,632	18,000	-	18,000	18,000
Other (YMPG, Bulletin Editor)	12,000	5,563	-	-	12,000	-	-	12,000
<b>Sub total</b>	<b>100,000</b>	<b>91,820</b>	<b>90,000</b>	<b>27,553</b>	<b>104,000</b>	<b>-</b>	<b>92,000</b>	<b>104,000</b>
<b>Audit Fees &amp; Bank Charges</b>	<b>3,000</b>	<b>2,642</b>	<b>4,000</b>	<b>3,791</b>	<b>4,000</b>	<b>3,053</b>	<b>4,000</b>	<b>4,000</b>
<b>Corporation Tax</b>	<b>1,000</b>	<b>373</b>	<b>1,000</b>	<b>440</b>	<b>1,000</b>	<b>301</b>	<b>1,000</b>	<b>1,000</b>
<b>Information Technology (web site)</b>								
Licensing fee/web maintenance	13,500	10,576	14,000	12,988	15,000	13,635	15,000	15,000
Future developments	3,000	-	5,000	15,281	5,000	-	5,000	5,000
<b>Sub total</b>	<b>20,500</b>	<b>13,591</b>	<b>24,000</b>	<b>32,500</b>	<b>25,000</b>	<b>16,989</b>	<b>25,000</b>	<b>25,000</b>
<b>Other Activities</b>								
International Seminars (e.g. travel)	-	-	2,000	-	2,000	-	2,000	2,000
Travel of ISSMGE officers to FedIGS	3,000	2,206	3,000	-	3,000	-	3,000	3,000
Initiatives	8,000	5,071	8,000	11,772	8,000	3,086	8,000	8,000
Webinars	6,000	16,634	7,000	7,777	7,000	6,488	7,000	7,000
Contingency	3,000	-	3,000	-	3,000	-	5,000	5,000
<b>Sub total</b>	<b>20,000</b>	<b>23,911</b>	<b>23,000</b>	<b>19,549</b>	<b>23,000</b>	<b>9,574</b>	<b>25,000</b>	<b>25,000</b>
<b>Donation to ISSMGE Foundation</b>					<b>40,000</b>	<b>40,000</b>		
<b>TOTAL EXPENDITURE</b>	<b>255,900</b>	<b>242,561</b>	<b>254,000</b>	<b>191,008</b>	<b>335,600</b>	<b>175,206</b>	<b>262,100</b>	<b>275,600</b>
<b>SURPLUS/(DEFICIT)</b>	<b>28,600</b>	<b>65,891</b>	<b>13,000</b>	<b>93,932</b>	<b>48,600</b>	<b>126,844</b>	<b>4,900</b>	<b>1,400</b>
<b>TRANSFER TO ISSMGE FOUNDATION</b>								
	41,000	41,000	-	-			-	-
<b>CASH BALANCE</b>								
Cash balance at 1 January	606,073	606,072	593,673	630,963	606,673	724,895	853,289	858,189
Cash balance at 31 December	593,673	630,963	606,673	724,895	558,073	851,739	858,189	859,589

\* estimated

### 3.2 Travel Expenses:

Provision is made for a modest annual increase in the normal budget for Board travel to account for inflation. Expenses are allocated to the Chairs of Board level committees (i.e. AC, CAPG, TOC, IDC, PIC, YMPG) to assist them to defray some of their travel expenses.

The Board agreed, at the meeting in Singapore, in March 2019, to provide a 50% travel subsidy for the Editor of the Bulletin to attend Council meetings to report on that publication. The Board also agreed to contribute to the cost of biennial face-to-face meetings of key representatives of the YMPG, to be held in conjunction with Board meetings to facilitate interaction between the two groups. Allowance for these items has been included for the budget forecast period 2022 to 2026.

### 3.3. Information Technology (web site)

#### 3.3.1 Licensing fee/web maintenance:

In 2012 hosting of the website was transferred to Geoengineer.org from Webforum. Provision for the maintenance fee payable to Geoengineer.org is included in the budget.

#### 3.3.2 Future developments:

Provision for upgrades to the website (or other IT developments) is made to fund initiatives proposed by the Chair - Innovations and Development Committee and as agreed by the Board.

It was agreed at the March 2019 Singapore Board Meeting, to fund the initial development of a structured education platform to host the ISSMGE Virtual University. The ISSMGE Virtual University now includes a collection of 143 videos in total! This initiative is included in the 2022 to 2026 Budget at the similar level of funding.

Similarly, allowance for the Conference Paper Review Platform which was developed by the IDC and which is currently being used for several events has been included in the 2022 to 2026 Budget.

### 3.4 Other Activities

#### 3.4.1 International Seminars:

An amount is provided to contribute to the travel for ISSMGE Board members and speakers participating in these outreach activities.

#### 3.4.2 FedIGS meeting travel:

Provision is made to support travel expenses for the President, Past President and Secretary General to attend meetings of the FedIGS Board.

#### 3.4.3 Initiatives:

Provision is made for unspecified initiatives that may be developed by the Board. This has included, for example, a modest financial contribution in 2019 towards the cost of migrating a physical exhibition on geotechnical engineering held in Paris from 2013 to 2018 to a virtual exhibition.

#### 3.4.4 Webinars:

An annual fee for the WISTIA video conferencing service and webinar preparation is included. The previous Board decided that these costs should be absorbed by the Society rather than passed on to members. Therefore, the 2022 to 2026 budget provides an allowance to host these Webinars.

#### 3.4.5 Contingency:

Provision is made for a modest contingency to account for unforeseen circumstances.

## 4 CASH BALANCES

The global pandemic over the past two years and meant that most conferences and meeting have either been cancelled (or postponed) or gone online.

As a result, allowances for international travel have not been realized and the Society's reserves (i.e.: Cash Balance) on December 2021, were about £850,000.

Consistent with the practice of the previous Board, it is considered prudent to maintain the Society's reserves (i.e. Cash Balance) at about £500,000.

## 5 ISSMGE FOUNDATION

Consistent with previous budgets and to maximize benefit to ISSMGE members, annual surpluses more than the adjusted £500,000 are proposed to be transferred to the ISSMGE Foundation.

At the Council Meeting in Cape Town, October 2019, it was agreed to suspend the "automatic" transfer to the Foundation and distribute £40,000 in 2021 in part to encourage and support students from Member Societies to travel internationally to attend the 20ICSMGE in Sydney.

Typically, the amount transferred to the Foundation in any given year is contingent on the financial outcome of the Society in that year and adjusted annually for inflation.

In previous years sums in the order of £130,000 (in 2015) to £70,000 (in 2017) were transferred to the Foundation. A sum of £110,000 was transferred to the Foundation in 2018 while maintaining the Society's reserves (i.e.: Cash Balance) above about £500,000

The 2022 to 2026 budget includes the transfers to the Foundation, as previously, that is before the Council Meeting in Cape Town.

Further transfers are expected in subsequent years, and these arrangements will need to be considered by the Board and the Foundation in 2024 and any revised proposal put to the 2024 Council meeting.

ISSMGE Council Meeting 1<sup>st</sup> May 2022, at the occasion of the 20ICSMGE Sydney

Table 2. ISSMGE Proposed Budget 2022 -2026

	<b>2022 Budget (£)</b>	<b>2023 Budget (£)</b>	<b>2024 Budget (£)</b>	<b>2025 Budget (£)</b>	<b>2026 Budget (£)</b>
<b>RECEIPTS (INCOME)</b>					
Member Society Subscriptions	230,000	230,000	230,000	230,000	230,000
Corporate Associate Subscriptions	35,000	35,000	35,000	35,000	35,000
Interest	1,000	1,000	1,000	1,000	1,000
Conference Income	10,000	5,000	5,000	-	20,000
Donations and other income	-	-	-	-	-
<b>TOTAL INCOME</b>	<b>276,000</b>	<b>271,000</b>	<b>271,000</b>	<b>266,000</b>	<b>286,000</b>
<b>EXPENDITURE</b>					
<b>Secretariat</b>					
President part time support	21,000	21,000	21,000	21,000	21,000
Secretary General support	57,000	58,000	70,000	58,000	58,000
Office expenses - President	5,800	5,800	6,000	6,000	6,000
Office expenses - Secretariat	5,000	3,000	5,000	3,000	5,000
Secretary General	27,300	27,800	31,000	28,000	28,000
Conference support	6,000	6,000	20,000	6,000	6,000
Kevin Nash Gold Medal	-	-	-	-	4,000
Prizes	5,000	-	-	-	5,000
<b>Sub total</b>	<b>127,100</b>	<b>121,600</b>	<b>153,000</b>	<b>122,000</b>	<b>133,000</b>
<b>Travel Expenses</b>					
President	17,000	17,000	17,000	17,000	17,000
Secretary General	13,000	13,000	13,000	13,000	13,000
Board members	44,000	44,000	44,000	44,000	44,000
Board Level Chairs	18,000	18,000	18,000	18,000	18,000
Other (YMPG, Bulletin Editor)	-	-	12,000	-	12,000
<b>Sub total</b>	<b>92,000</b>	<b>92,000</b>	<b>104,000</b>	<b>92,000</b>	<b>104,000</b>
<b>Audit Fees &amp; Bank Charges</b>					
	4,000	4,000	4,000	4,000	4,000
<b>Corporation Tax</b>					
	1,000	1,000	1,000	1,000	1,000
<b>Information Technology (web site)</b>					
Licensing fee/web maintenance	15,000	15,000	15,000	15,000	15,000
Future developments	5,000	5,000	5,000	5,000	5,000
<b>Sub total</b>	<b>25,000</b>	<b>25,000</b>	<b>25,000</b>	<b>25,000</b>	<b>25,000</b>
<b>Other Activities</b>					
International Seminars (e.g. travel)	2,000	2,000	2,000	2,000	2,000
Travel of ISSMGE officers to FedIGS meetings	3,000	3,000	3,000	3,000	3,000
Initiatives	5,000	6,000	7,000	8,000	8,000
Webinars + Virtual University	9,000	9,000	9,000	9,000	9,000
Int'l Journal on Geoengineering Case Histories	8,000	8,000	8,000	8,000	8,000
Contingency	3,000	3,000	3,000	3,000	3,000
<b>Sub total</b>	<b>30,000</b>	<b>31,000</b>	<b>32,000</b>	<b>33,000</b>	<b>33,000</b>
<b>Donation to ISSMGE Foundation</b>					
	100,000	100,000	75,000	75,000	50,000
<b>TOTAL EXPENDITURE</b>	<b>374,100</b>	<b>369,600</b>	<b>389,000</b>	<b>347,000</b>	<b>345,000</b>
<b>SURPLUS/(DEFICIT)</b>	<b>(98,100)</b>	<b>(98,600)</b>	<b>(118,000)</b>	<b>(81,000)</b>	<b>(59,000)</b>
<b>CASH BALANCE</b>					
Cash balance at 1 January	853,000	754,900	656,300	538,300	457,300
Cash balance at 31 December	754,900	656,300	538,300	457,300	398,300

## Appendix 4: Presidential Report (2017-2022)

**Charles W. W. Ng**

ISSMGE President 2017-2022, [cecwwng@ust.hk](mailto:cecwwng@ust.hk)

### 1 INTRODUCTION AND VISION

It was my great honour to be elected as the 17th President of the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE) for a four-year term at the Council meeting convened on 17th September 2017, prior to the 19th International Conference on Soil Mechanics and Geotechnical Engineering (ICSMGE) held between 18th and 22nd September 2017 in Seoul, Korea (see Plates 1 and 2). The names of all the ISSMGE presidents since the establishment of the professional body in 1936 are shown in Table 1. Due to the COVID-19 pandemic, my term of office has been extended to 1st May 2022 when the 18th President will be elected in Sydney, Australia.



Plate 1: Former UN Secretary General Ban Ki-moon delivering the opening address at the 19th ICSMGE held on 18th September 2017 in Seoul



Plate 2: Prof. Roger Frank (France), immediate past President, introducing the incoming President of ISSMGE at the closing ceremony of the 19th ICSMGE held on 21st September 2017

During my presidential address at the closing ceremony of the 19th ICSMGE (see Plate 3), I shared my vision and plan to enhance “Education, Innovation and Diversity” at ISSMGE. In implementing this vision and plan, I am delighted to have received the full support of an outstanding Board, consisting of 11 board members (see Table 2) and 7 Board-Level Committee (BLC) chairs/co-chairs (see Table 3). I am very pleased to report to you that we have made significant progress.



Plate 3: Introduction of all Board members and some of the Board-level Committee (BLC) chairs at the closing ceremony of the 19th ICSMGE (from right to left: Neil Taylor, Pedro Pinto, Kok Kwang Phoon, Mounir Bouassida, Alejo Sfriso, Timothy Newson, Mario Manassero, Gavin Alexander, Eun Chul Shin, Marcelin Kana, Roger Frank, Pierre Delage, Lucy Wu, Sukumar Pathmanandavel, Peter Day and Ikuo Towhata).

Table 1. ISSMGE Presidents since the Establishment of the Professional Body in 1936

	Year of Service	Name	Member Society
1	1936–1957	K. Terzaghi	USA
2	1957–1961	A. W. Skempton	UK
3	1961–1965	A. Casagrande	USA
4	1965–1969	L. Bjerrum	Norway
5	1969–1973	R. B. Peck	USA
6	1973–1977	J. Kerisel	France
7	1977–1981	M. Fukuoka	Japan
8	1981–1985	V. F. B. de Mello	Brazil
9	1985–1989	B. B. Broms	Sweden
10	1989–1994	N. R. Morgenstern	Canada
11	1994–1997	M. Jamiolkowski	Italy
12	1997–2001	K. Ishihara	Japan
13	2001–2005	W. Van Impe	Belgium
14	2005–2009	P.S. Sêco e Pinto	Portugal
15	2009–2013	J.L. Briaud	USA
16	2013–2017	R. Frank	France
17	2017–2022	C.W.W. Ng	Hong Kong SAR, China



Table 2. ISSMGE Board (2017–2022)

Position	Name
President	Charles W.W. Ng (Hong Kong SAR, China)
Immediate Past President	Roger Frank (France)
Vice President for Africa	Marcelin Kana (Cameroon)
Vice President for Asia	Eun Chul Shin (South Korea)
Vice President for Australasia	Gavin Alexander* / Philip Robins (New Zealand)
Vice President for Europe	Mario Manassero (Italy)
Vice President for North America	Timothy Newson (Canada)
Vice President for South America	Alejo Sfriso (Argentina)
Appointed Board Member	Pedro Sêco E Pinto (Portugal)
Appointed Board Member	Kok Kwang Phoon (Singapore)
Appointed Board Member	Mounir Bouassida (Tunisia)
Secretary General	Neil Taylor (United Kingdom)

\*deceased and subsequently replaced by Philip Robins

Table 3. Board Level Committee Chairs/Co-Chairs

Board-Level Committee	Chair/Co-chair
Innovation and Development Committee	Dimitris Zekkos (USA)
Technical Oversight Committee	Pierre Delage (France)
Young Members' Presidential Group	Lucy Wu (USA)
Corporate Associates' Presidential Group	Sukumar Pathmanandavel (Australia) / Peter Day (South Africa)
Award Committee	Roberto Terzariol (Argentina)
Professional Image Committee	Ikuo Towhata (Japan)

## 2 EDUCATION AND INNOVATION

### 2.1 ISSMGE Virtual University (VU)

To enhance “Education” and to promote soil mechanics and geotechnical engineering freely, effectively and efficiently to every corner of the globe, I outlined my plan at the opening address of the presidential term starting from September 2017 to establish the Virtual University (VU) of ISSMGE (see Fig. 1), which consists of three major components all offered for free: (i) online postgraduate (PG) courses, (ii) online library and (iii) online publisher. The VU was officially launched in March 2020.

#### (i) ISSMGE Post-graduate (PG) Courses

With the team work by Professor Mounir Bouassida, and Professors Dimitris Zekkos and Kok Kwang Phoon, who are the chair and co-chair of the Innovation and Development Committee, my proposed ISSMGE Virtual University has been taking shape. As of today, a total of 13 courses have been developed as follows:

- Course 1: Risk Mitigation, Monitoring & Observational Methods
- Course 2: In Situ Testing

- Course 3: Earthquake Engineering
- Course 4: Foundations
- Course 5: Soil Characterization
- Course 6: Geo-Engineering Education
- Course 7: Unsaturated Soil Mechanics
- Course 8: Geosynthetics I
- Course 9: Landslides and Mitigations
- Course 10: Soil Behaviour
- Course 11: Probability Analysis in Civil Engineering
- Course 12: Numerical Modelling in Geomechanics
- Course 13: Risk Analysis and Machine Learning

Each PG course is comprised of three or more webinars giving students and engineers a total of no less than five hours of viewing. I would like to thank all the lecturers, who delivered the courses, for their significant contributions to the VU and ISSMGE. More courses are being developed. Please visit <http://virtualuniversity.issmge.org/> for more details.

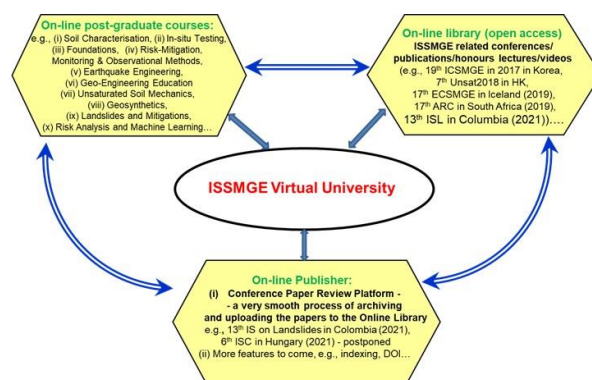


Fig. 1: ISSMGE Virtual University’s three major components: (i) online postgraduate (PG) courses, (ii) online library and (iii) online publisher

Due to the serious and continuous threat of COVID-19, many universities and training centres worldwide have remained closed, disrupting the necessary training and education of a large number of students and engineers. The VU offers a timely and free alternative for those staying at home or undergoing quarantine. Looking ahead, I would recommend that we should further explore and develop the VU to include some, if not all, of the following features to cater to the training needs under the new normal:

- Homework functionality
- Examination functionality
- Credit functionality
- Degree functionality

#### (ii) ISSMGE Online Library

The open access policy initiated by the immediate past President, Professor Roger Frank, has been continued and expanded rapidly in terms of contents and capabilities. Naturally, the open access materials form the ISSMGE online library of the VU. Various conference proceedings are now available in the online library, such as the 19th ICSMGE, the 7th International Conference on Unsaturated Soils and the 13th International Symposium on Landslides (JCT1). Moreover, many ISSMGE reports, honour lectures and videos have been uploaded to the online library. At the end of 2021, the VU held a collection of 143 videos with a total of 114,000+ views since the launch of the VU in March 2020.

About 80% of the papers in the online library has now been classified. A digital object identifier (DOI) can now be allocated to reports (e.g. from TCs, CAs, etc.) published in the online library, giving them permanent publication status. For more information about the online library, please visit <https://www.issmge.org/publications/online-library>.

(iii) *ISSMGE Online Publisher*

Under the leadership of Professors Dimitrios Zekkos and Kok Kwang Phoon, the Innovation and Development Committee (IDC) has been developing the VU’s own publisher—the ISSMGE online publisher—with the intention of providing any organiser of a conference or symposium with a publishing platform. To date, the platform has been implemented and successfully adopted by three conferences and symposia such as the 13th International Symposium on Landslides held in 2021. This publishing platform enables accepted papers to be uploaded to our online library smoothly. Using the conference paper review platform and the online library, and by taking advantage of the ability to create DOIs, we are now in a position to push towards ISSMGE publications.

2.2 *Issmge Time Capsule Project (TCP)*

Under the initiative and outstanding leadership of Mr Sukumar Pathmanandavel, a co-chair of the Corporate Associates Presidential Group (CAPG) (<https://www.issmge.org/corporate-associates/listing>), the ISSMGE Time Capsule Project (TCP) is taking shape. The ISSMGE TCP has been developed with the central aim of creating and sustaining a strong level of conversation about the past, present and future of geotechnical engineering amongst, and for the benefit of, our 20,000 individual members. There is also the additional benefit of a legacy that could be added to and modified in the coming years and even decades. Some 90 Member Societies, 36 Technical Committees, the Young Members Presidential Group (YMPG) and ISSMGE Corporate Associates have been invited to contribute to the TCP. The leadership of the Member Societies and Technical Committees has been extensively briefed by the TCP Design Team between May and August 2021. A simple contents listing has been created with links to the following pages:

- Past Presidents’ contributions
- Regional contributions—Africa, Asia, Australasia, Europe, North America & South America
- Technical Committees’ contributions
- YMPG contributions
- Corporate Associates’ contributions
- IDC contributions

A variety of new and existing materials from the contributors will be held and promoted on an online platform named ISSMGE Time Capsule 2022, which will be formally launched at the 20th ICSMGE. Information about the TCP and how to contact the TCP Design Team is available on the ISSMGE website: <https://www.issmge.org/the-society/time-capsule>.

2.3 *Technical Committees (TCs)*

I am grateful to the chair of the Technical Oversight Committee, Professor Pierre Delage, and his committee for reviewing new TCs and monitoring the performance of all existing TCs. Pierre has given regular reports to the Board for comments and approval. I am very pleased to inform you that five new and state-of-the-art TCs have been established since September 2017 as follows:

- TC219: System Performance of Geotechnical Structures
- TC220: Field Monitoring in Geomechanics
- TC221: Tailing and Mine Wastes
- TC222: Geotechnical BIM and Digital Twins
- TC309: Machine Learning and Big Data

On the contrary, TC207: Soil Structure Interaction and Retaining Structures was suspended due to its unsatisfactory performance. To learn more about all the TCs, please visit <https://www.issmge.org/committees/technical-committees>.

3 DIVERSITY (UNDER-REPRESENTED INCLUDING AGE, GEOGRAPHY AND ETHNICITY)

3.1 *Creation of The Bright Spark Lecture Series*

As our young members (less than 36 years of age) have been under-represented at major international keynote lectures for many years, I created the ISSMGE Bright Spark Lecture series to enable young members to take the main stage at plenary sessions at major conferences and symposia. I would like to thank the YMPG under the leadership of Lucy Wu for coming up with this wonderful title of the young members’ lecture series. Guidelines on organising these lectures can be found at <https://www.issmge.org/the-society/issmge-awards>.

The first Bright Spark Lecture was delivered by Dr Lin Dong at the 7th Technical Conference in Eastern Asia on Geo-Natural Disasters held in Chengdu, China (see Plate 4). The conference was organised by Asian Technical Committee 3. I was very pleased to attend that lecture and to present a certificate to the lecturer. Since then, other Bright Spark Lectures have been organized and presented at various conferences and symposia (see also Plates 5 to 13 for examples).



Plate 4: Dr Lin Dong from the Lanzhou Institute of Seismology of China Earthquake Administration receives the first “ISSMGE Bright Spark Lecturer” certificate



Plate 5: Dr Amin Askarnejad from TU Delft, the Netherlands, receives the certificate at the 7th International Conference on Unsaturated Soils held in 2018 in Hong Kong.



Plate 6: Dr Annan Zhou from RMIT University, Australia, receives the certificate at the 7th International Conference on Unsaturated Soils held in 2018 in Hong Kong.



Plate 7: Dr Chao Zhou from the Hong Kong University of Science and Technology, HKSAR, receives the certificate at the 7th International Conference on Unsaturated Soils held in 2018 in Hong Kong.



Plate 11: Dr Tugce Baser, Canada/US, receives her certificate at the 16th Pan-American Conference on Soil Mechanics and Geotechnical Engineering held in November 2019 in Cancun.



Plate 8: Dr Majid Ghayoomi from the University of New Hampshire, US, receives the certificate at the 7th International Conference on Unsaturated Soils held in 2018 in Hong Kong.



Plate 12: Dr Carlos Omar Vargas Moreno, Mexico, receives his certificate at the 16th Pan-American Conference on Soil Mechanics and Geotechnical Engineering held in November 2019 in Cancun.



Plate 9: Dr Federico Pisano and Dr Mateo Ciantia from TU Delft and University of Dundee, UK, receive their certificates at the 17th ECSMGE held in September 2019 in Reykjavik, Iceland.



Plate 13: Dr Marlisio Oliveira Cecilio Junior, Brazil, receives her certificate at the 16th Pan-American Conference on Soil Mechanics and Geotechnical Engineering held in November 2019 in Cancun, Mexico.



Plate 10: Dr Charles John MacRobert from the University of the Witwatersrand, South Africa, receives his certificate at the 17th African Conference on Soil Mechanics and Geotechnical Engineering held in October 2019 in Cape Town, South Africa.

To date, over 28 young members have been given a chance to deliver 20-minute keynote lectures each at plenary sessions at conferences and symposia. Dr Ashani Ranathunga from Sri Lanka and Dr Brendon Bradley from New Zealand will deliver their Bright Spark Lectures at the 20th ICSMGE, Sydney, to be held between 2nd and 5th May 2022. More details are available on the ISSMGE website: <https://www.issmge.org/the-society/issmge-awards>.

### 3.2 Organization of workshops and forums to narrow the gap between academics and practitioners.

Under the excellent leadership of Messrs Sukumar Pathmanandavel and Peter Day, co-chairs of the CAPG, many workshops and forums have been organized at major regional conferences. The goal is to narrow the gap between academics and practitioners so that they may find a common understanding

and take collective action. The major regional conferences included the 17th African Regional Conference on Soil Mechanics and Geotechnical Engineering (SMGE) held in Cape Town, the 16th Pan-American Conference on SMGE held in Cancun, the 16th Asian Regional Conference on SMGE held in Taipei and the 17th European Conference on SMGE held in Reykjavik. Another forum will be organized at the 20th ICSMGE to be held in Sydney between 2nd and 5th May 2022.

### 3.3 Engagement with the Forgotten societies and Exploration of New Ones

Promoting soil mechanics and geotechnical engineering to different parts of the world, engaging with our existing members and reaching out to new ones are central to my presidential plan. One way to achieve these goals is through ISSMGE international seminars. Under the outstanding leadership of Professor Pedro Seco e Pinto (Portugal), one ISSMGE International Seminar was held in Brest in Belarus, and another four in Asunción in Paraguay, Buenos Aires in Argentina, Mexico City in Mexico and León in Mexico in 2018. I would like to thank Pedro Seco e Pinto, Roger Frank (France), Liudas Furmanovich (Lithuania), Nikitenko Mikhail (Belarus), Sernov Vyacheslav (Belarus), Roberto Terzariol (Argentina), Alejo Sfriso (Argentina), Tim Newson (Canada), Sukumar Pathmanandavel (Australia), Eun, C. Shin (South Korea) and Gabriel Auvinet (Mexico) for their outstanding contributions to these seminars. However, the international seminars were interrupted due to the outbreak of the pandemic since December 2019.

## 4 DUTY VISITS

During the first half of my presidential term (i.e., from September 2017 to February 2020) before the severe outbreak of the COVID-19 pandemic in December 2019, I travelled to over 40 cities on six continents (Africa, Asia, Australasia, Europe, North and South America) to attend and chair Board meetings and a Council meeting. I also made it a priority to visit Member Societies and attend their national, specialty TC conferences and regional conferences such as the 17th African Regional Conference on Soil Mechanics and Geotechnical Engineering (SMGE) held in Cape Town of South Africa, the 16th Pan-American Conference on SMGE held in Cancun of Mexico, the 16th Asian Regional Conference on SMGE held in Taipei and the 17th European Conference on SMGE held in Reykjavik, Iceland. Some examples of my activities are shown from Plates 14 to 35.



Plate 14: Attending the 1st International Conference on Press-in Engineering and meeting with key members of the Japanese Geotechnical Society on 19th September 2018 in Kochi, Japan



Plate 15: Attending the Federation of the International Geo-Engineering Societies (FedIGS) meeting held on 24th September 2018 in San Francisco, US



Plate 16: Delivering a keynote lecture at the 17th National Conference on Soil Mechanics and Geotechnical Engineering held on 26–28 September 2018 in Istanbul, Turkey



Plate 17: Delivering a keynote lecture at GeoMEast International Congress and Exhibition held on 24–28 November 2018 in Cairo, Egypt



Plate 18: Attending, on behalf of ISSMGE, the 1st joint conference organised by the Malaysian Geotechnical Society and the Geotechnical Society of Singapore held on 24–June 2019 in Kuala Lumpur, Malaysia



Plate 19: Delivering a keynote lecture at 1st joint conference organised by the Malaysian Geotechnical Society and the Geotechnical Society of Singapore held on 24–June 2019 in Kuala Lumpur, Malaysia.



Plate 23: Attending and chairing the Board meeting held on 5 October 2019 in Cape Town, South Africa.



Plate 20: Attending, on behalf of ISSMGE, the opening ceremony of the 13th National Conference held on 18–21 July 2019 in Tianjin, China



Plate 24: Chairing the Council meeting held on 6 October 2019 in Cape Town, South Africa



Plate 21: Delivering a special invited lecture at the 13th National Conference held on 18 July 2019 in Tianjin, China.



Plate 25: Delivering the President's report at the Council meeting held on 6 October 2019 in Cape Town, South Africa.



Plate 22: Delivering a keynote lecture at the 4th Regional Symposium on Landslides in the Adriatic-Balkan Region held on 23–25 October 2019 in Sarajevo, Bosnia and Herzegovina.



Plate 26: Delivering an opening address at the 17th African Regional Conference held on 7 October 2019 in Cape Town.

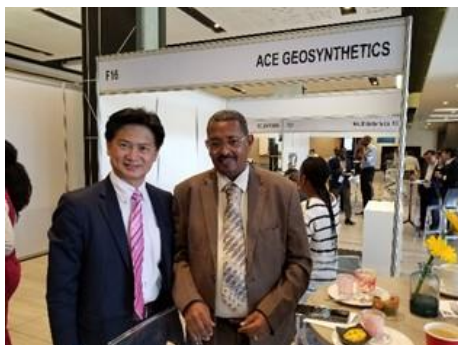


Plate 27: Visiting the exhibition booths during the 17th African Regional Conference held in Cape Town.



Plate 31: Delivering the ISSMGE Presidential Lecture at the 16th PanAmerican Conference held in Cancun.



Plate 28: Delivering a keynote lecture at the 16th Asian Regional Conference (ARC) held on 14–18 October 2019 in Taipei.



Plate 32: Presenting an ISSMGE tie to Professor William Van Impe (former President of ISSMGE) and Professor Gabriel Auvinet (former VP for North America) for their outstanding contributions to ISSMGE

Since March 2020, I have not been able to travel due to pandemic control. I could only attend meetings and conferences online.

As of today, I have delivered over 30 keynote/special invited lectures and more than 40 opening addresses on behalf of the ISSMGE either face to face or online.



Plate 29: Meeting with some of the key leaders in the Far East during the 16th ARC held in Taipei.

## 5 PUBLIC AND PROFESSIONAL IMAGE OF ISSMGE

### 5.1 *Congratulations to Professor Heinz Brandl*

I would like to congratulate Professor Heinz Brandl for receiving the Medal of Merit for Macedonia and for promoting the public and professional image of ISSMGE to the highest state level. The Board was invited by the then President of the former Republic of Macedonia, Dr Gjorge Ivanov, to join the award ceremony held at his Presidential Palace (see Plates 33 and 34). The Board was also invited by Professor Milorad Jovanovski, the President of Macedonian Association for Geotechnics, to attend the XVI Danube-European Conference on Geotechnical Engineering held between 6th and 8th June 2018 in Skopje and to convene our Board meeting there. To promote our professional body, I presented an ISSMGE tie to Dr Gjorge Ivanov at the opening ceremony of the XVI Danube-European Conference (see Plate 35).



Plate 30: Delivering an opening address at the 16th PanAmerican Conference held on 17–20 November 2019 in Cancun, Mexico



Plate 33: Professor Heinz Brandl receives the Medal of Merit for Macedonia at the Presidential Palace in Skopje



Plate 34: A group photograph (from the left the President of ISSMGE, Professor Heinz Brandl (middle) and Dr Gjorge Ivanov (on the right)) taken at the Presidential Palace in Skopje



Plate 35: The President of ISSMGE presents an ISSMGE tie to Dr Gjorge Ivanov at the opening ceremony of the XVI Danube-European Conference.



Plate 36: Dr Suzanne Lacasse is honoured with the Knight of the First Class, Order of the Falcon, Iceland, by Mr Ólafur Ragnar Grímsson.

## 5.2 Congratulations to Dr Suzanne Lacasse

I would like to congratulate Dr Suzanne Lacasse for receiving the Knight of the First Class, Order of the Falcon, Iceland, from Mr Ólafur Ragnar Grímsson, Iceland's President from 1996 to 2016, at the 17th European Conference on Soil Mechanics and Geotechnical Engineering held on 2nd September 2019 in Reykjavik, Iceland (see Plate 36). Previously on 27th December 2018, Dr Lacasse was awarded the Officer of the Order of Queen Elizabeth II. The award is Canada's highest civilian honour.

## 6 CONCLUDING REMARKS

It has been my tremendous honour and pleasure to have served you for more than four years. As of today, I am the 2nd longest serving president since our professional body was established in 1936. I believe I have delivered on my promise of improving education, innovation and diversity at ISSMGE. Obviously, I alone could not have achieved this. As Helen Keller, who was an American author, political activist and lecturer, once said: "Alone we can do so little; together we can do so much." I would like to thank all Board members, Board-Level Committees, Member Societies and member individuals for their immense contributions to ISSMGE.

Looking ahead, we should develop an ISSMGE app to facilitate more effective and reliable communication with individual members in different corners of the world. Also, we should continue to modernize our Society and start thinking about how to integrate ISSMGE into the Metaverse in the future.

Finally, I would like to end my report with a quote from Albert Einstein: "The value of a man should be seen in what he gives and not in what he is able to receive". I believe we should all give as much as we can both at work and in life.

## Appendix 5: Report on the regional activities of ISSMGE in Africa

### Etienne Marcelin KANA

ISSMGE Vice-President for Africa

**SUMMARY:** This report contains an overview of the state of the ISSMGE in Africa, and a summary of the highlights of its activities in this region, since the Council meeting held in Seoul, September 2017. It ends by general remarks and outlooks.

#### 1 MEMBER SOCIETIES AND MEMBERSHIP

Currently, we have ten active national or transnational member societies of ISSMGE in the Africa region. They are namely: Association Algérienne de Géotechnique (ALGEOS), Association Tunisienne de Mécanique des Sols (ATMS), Comité Marocain de la Mécanique des sols et des roches (CMMSR), Comité Transnational des Géotechniciens d'Afrique (CTGA), Egyptian Geotechnical Society (EGS), Ghanaian Geotechnical Society (GGS), Sociedade Moçambicana de Geotecnia (SMG), Nigerian Geotechnical Association (NGA), South African Institute for Civil Engineer-Geotechnical Division (SAICE), and Sudanese Society for Soil Mechanics and Geotechnical Engineering (SSSMGE).

CTGA above mentioned, is a transnational geotechnical community gathering together at the moment, fifteen (15) African French speaking countries: Benin, Burundi, Cameroon, Congo, Djibouti, Comoro's Islands, Ivory Coast, Gabon, Mali, RD Congo, Chad, Centrafrique, Niger, Senegal and Mauritania.

Several attempts have been made, and are still going on, to form new national societies in Africa, some faded out, due to political unrest in these countries or other reasons (e.g., Angola, Libya, Tanzania and Uganda). Other attempts has been also made towards the revival of some dormant societies that existed previously, e.g., Zimbabwe and Kenya, Ethiopia.

Twenty seven (27) countries over forty (40), are therefore in this region, directly or indirectly affiliated to ISSMGE.

Communications with interesting geotechnical engineers in these countries, are established and plans are ongoing to help these societies to resolve their internal challenges.

The desired and expected level of activity would have been better achieved, if the current COVID-19's pandemic did not occurred. The implementation of the African member society's plan of actions, adopted in Seoul and reviewed during their meeting in Cape Town, was of course, brutally stopped by this pandemic. One way among others, to overcome this unexpected challenge is an increase of the use of news tolls offered by NTIC for virtual meeting. This is strongly encouraged.

Nevertheless, the total number of individual members of the African member societies has drastically pulled up. It is currently 1005, up from 791 members at the time of the Seoul Council Meeting on September 2017. That means **27% of growth**, which is non-negligible at all.

From the African perspective, there is a healthy membership outlook in terms of individual's members. The number of Corporate Associates is, however, still disappointing taking into consideration the low membership fee.

The categorization of the individual membership is giving in figure1 as bellow.

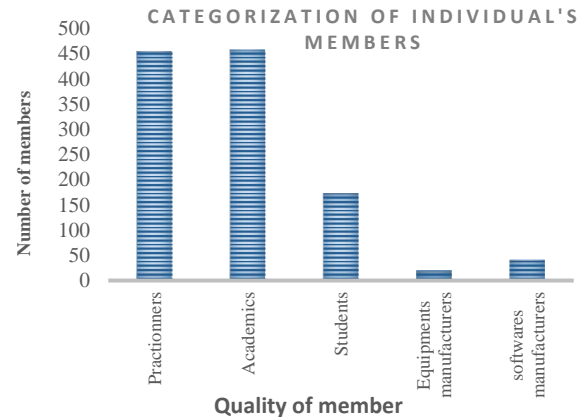


Figure 1: Categorization of individual's members in Africa

#### 2 AFRICAN REGIONAL CONFERENCES

##### 2.1 African Young Geotechnical Engineer Conference (AYGEC)

In order to increase the participation of younger geotechnical engineers in the ISSMGE's activities in Africa, a decision was taken at the Board Meeting of the African National Societies in Hammamet, April 2015. It stipulated to hold three African Young Geotechnical Engineers' Conferences (AYGEC) between successive Young International Geotechnical Engineers' Conferences (YIGEC). We got one in 2018, one in 2019, and the last one of this term was scheduled in 2020.

##### 2.1.1 6<sup>TH</sup> African Young Geotechnical Engineer Conference (6<sup>th</sup>AYGEC)

The Sixth Young African Geotechnical Engineers Conference (6<sup>th</sup>AYGEC) was successfully organized, from 25<sup>th</sup> to 26<sup>th</sup> November 2018, in Khartoum (Sudan), by the Sudanese Society for Soil Mechanics and Geotechnical Engineering (SSSMGE), in collaboration with the Building and Road Research Institute (BRRI), the University of Khartoum and the ISSMGE's Board.

This conference was preceded by a workshop on "Problematic Soils" held at BRRI.

This event was honored by the attendance of many young researchers and engineers from various African countries, and the presence of distinguished geotechnical experts lead by the ISSMGE V.P. for Africa, and composed by Prof. Ikuo Towhata, Prof. Mounir Bouassida, and Prof. Fatma Baligh. The contribution of some universities staff members from Egypt and Sudan, and geotechnical engineers from the SSSMGE enriched the discussions. The number of overall participants tot up were seventy five (75).



### 2.1 2 7<sup>TH</sup> African Young Geotechnical Engineer Conference (7<sup>th</sup>AYGEC)

This event was brightly held on 5<sup>th</sup> October 2019, in Cape Town (RSA), at the Century City Conference Centre. It was, beyond the usual scheme of these conferences, an occasion to test the African Bright Spark Lecture awards nominees. This was done in relation with the YMPG who advertised and vetted applications.

The Bright Spark Lecture award has been initiated to foster geotechnical talent and accomplishment within the geotechnical community. The purpose of the Bright Spark Lecture award is to promote young and promising geotechnical engineers/academics by giving them a platform to deliver keynote and invited lectures at these conferences. It was done during the 17<sup>th</sup> ARC and the price was given to Dr Charles John MacRobert.

### 2.1 3 8<sup>TH</sup> African Young Geotechnical Engineer Conference (8<sup>th</sup>AYGEC)

Because of COVID-19 pandemic, this even, previously scheduled in 2020 was postponed. It needed to be rescheduled after the forthcoming ICSMGE in Sydney.

### 2.2 African Regional Conference for Soil Mechanics and Geotechnical Engineering (ARCSMGE)

It is the main regional event and a quadrennial conference, organized and hosted by one of the member societies of the region. The one of this term, the 17<sup>th</sup> ARCSMGE, was hosted by SAICE in RSA.

### 2.2 1 17<sup>TH</sup> African Regional Conference on Soil Mechanics and Geotechnical Engineering (17<sup>th</sup>ARCSMGE)

It was successfully held in Cape Town from 6<sup>th</sup> to 9<sup>th</sup> October 2019, under the main theme “*Innovation and sustainability in geotechnics for developing Africa*”, at the Century City Conference Centre.

There were participants from 43 countries, including 23 countries from Africa: Algeria, Cameroon, Congo, Democratic Republic of Congo (DRC), Egypt, Ghana, Guinea, Kenya, Mali, Mauritania, Malawi, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, South Africa, Sudan, Tanzania, Togo, and Uganda. All the other region were well represented also.

The 17<sup>th</sup> ARCSMGE was supported by more than 30 sponsors, and 24 stands in the exhibition. The conference program included:

- **2 Keynote lectures** on “*Recent advances in the application of quasi mechanistic approach for comprehensive design of geo-structures in Eastern Africa*”(Dr John Mukabi) and “*Advances in ground improvement and principles of Track Geomechanics for future railways*”(Prof Budhima Indraratna).

- **Jennings lecture** on “*Determination of unsaturated soil property functions for engineering practice*” (Prof Delwyn Fredlund)

- **Mercer lecture** on “*Geosynthetics for construction on soft foundation soils*” ( Prof Kerry Rowe)

- **Bright Spark Lecture** on “Challenge to Judgment” (Dr Charles John MacRobert )

- **4 parallel sessions:**

- Laboratory testing/soil characterization
- Tailings dams and landfills
- Lateral support, slopes, piled foundation and design
- Mechanically stabilised ground

On Monday 7<sup>th</sup> October 2019, a special course was organized on the theme: “*Unsaturated Soils mechanics*” delivered by Prof David Toll, Prof Antonio Gens, Prof Charles Ng, and Prof Samuel Ampadu.

The Vice President for Africa held a special meeting with the African Geotechnical members Societies, on 7<sup>th</sup> October 2019. 17 African countries, and the African corporate members were represented. The meeting was also attended by the ISSMGE President, Prof Charles Ng, Its Secretary General, Prof Neil Taylor, and the Co-Chair of the Board level committee in charge of ISSMGE’s corporate members (CAPG). During this meeting, a review of ways to fight against the major challenges to the growth of the geotechnical engineering within our region were tackled, and a framework adopted.



Figure 2: Representatives of African member societies in Cape Town, Oct 2019

On Tuesday 8<sup>th</sup> October 2019, a **workshop dedicated to corporate members initiated by the CAPG**, took place under the theme: “*Innovation in engineering practice*”. 8 papers were proposed by corporate members for discussions.

The admirable organisation of Technical visits and other social events were very well appreciated.

The **18<sup>th</sup> ARC MSGE** will be held in Alger (Algeria) in 2024.

## 3 AFRICAN SUB-REGIONAL CONFERENCES

### 3.1 African Days for Geotechnical Engineering (JAG)

These very interesting conferences are, since 2010, organized every year by the CTGA, in collaboration with the African Association of civil engineering laboratories (ALBTP).

The **9<sup>th</sup> African Days** for Geotechnical Engineering (10<sup>ème</sup> édition des **JAG**), was held in Lomé (Togo), from 14<sup>th</sup> to 17<sup>th</sup> November, 2017, on the main theme: “*Relevance of innovative geotechnical engineering practices on the growth strategies of African countries*”.

A workshop on the project of the revision of civil engineering codes and guidelines (P2RT project) was carried out and widely appreciated.

Under the patronage of the Togolese Minister of Public Works, this colloquium was attended by almost 225 delegates from 16 African countries. Three main lectures were given in plenary sessions. There are:

- *Growth of concrete pavement construction in the intertropical region of Africa*, by Engineer Jean PONDY
- *Prevention and attenuation of the risk of hydric erosion of soils occurrence for civil engineering constructions*, by Prof. Etienne-Marcelin KANA
- *Tropical soils specificities in road constructions in African intertropical regions*, by Prof. CAMAPUM DE CARVALHO and Prof. Etienne Marcelin KANA

During this colloquium, four workshops were also organized. And, in conformity with the ISSMGE’s open access policy, the

various presentation done can be downloaded on the website of CTGA: [www.ctgaafrique.org](http://www.ctgaafrique.org). A parallel session also took place, with some courses given under the theme: *Constructions on problematic soils in Africa*.

The **10<sup>th</sup> African Days** for Geotechnical Engineering (10<sup>ème</sup> édition des **JAG**), took place from 22<sup>nd</sup> to 25<sup>th</sup> October 2018 in Abidjan (Ivory Coast), under the main theme: *“Geotechnical engineering innovative practices in African tropical countries”*.

About 250 delegates attended this colloquium from 18 countries namely: Benin, Burundi, Burkina Faso, Cameroon, Ivory Coast, Congo, Democratic Republic of Congo, Gabon, Niger, Mali, Senegal, Togo, Mauritania, Cape Verde, Comoro’s islands, Madagascar, France and Germany.

Four technical workshop were organised on: Codes of Practice in African Countries; Soils in Africa: Lateritic Soils; Innovations in Geotechnical Engineering; Studies and Survey in Geotechnical Engineering. 8 Keynotes lectures were noted, and 56 papers accepted and published. 44 registration for the geotechnical engineering training workshop organized at once.

The **11<sup>th</sup> African Days** for Geotechnical Engineering (11<sup>ème</sup> édition des **JAG**), was held in the Conference Hall of Niamey (Niger), from 21<sup>st</sup> to 24<sup>th</sup> October 2019. The main theme was: *“Geotechnical Engineering and efficiency of sustainable development strategies in African tropical countries”*.

About 300 delegates were count up, from 20 countries namely: Benin, Burundi, Burkina Faso, Cameroon, Ivory Coast, Congo, Democratic Republic of Congo, Gabon, Ghana, Niger, Mali, Senegal, Togo, Mauritania, Cape Verde, Comoro’s islands, Madagascar, Egypt, France and Germany.

Four technical workshop were organised on: Codes of Practice in African Countries; Soils in Africa: Lateritic Soils; Innovations in Geotechnical Engineering; Studies and Survey in Geotechnical Engineering. 5 Keynotes lectures were noted, and 126 papers accepted and published.

To enable somehow, a fair participation of French or English speaking members, who were very excited to take part to the event, **the availability of translation services, English to French and vice versa, was assured.**

The **12<sup>th</sup> African Days** for Geotechnical Engineering (12<sup>ème</sup> édition des **JAG**), supposed to be hold in Dakar (Senegal) from 21<sup>st</sup> to 24<sup>th</sup> October 2020, has been postponed in 2023, due to the COVID-19 pandemic.

### 3.2 International Conference on Advances in Structural and Geotechnical Engineering (ICASGE)

**The 4<sup>th</sup> International Conference on Advances in Structural and Geotechnical Engineering (ICASGE'19)**, organized by the *Egyptian Geotechnical Engineering Society (EGS)*, in collaboration with the Structural Engineering Department of

Tanta University, was held in Hurgada, Egypt from 25<sup>th</sup> to 27<sup>th</sup> March 2019, under the main theme : *“Together we can construct promising future”*.

There were 54 papers accepted by the Geotechnical Division. 10 Keynotes lectures noted, among them, 2 done by Prof Mohamed Elsharief (Sudan), and Prof E.M. KANA (Cameroon), 2 parallel sessions.

At the end of this event, a meeting was initiated and held between the EGS members and the ISSMGE VP for Africa, in order to search for solutions to the problems encountered by EGS. Among the main solutions taken was the **enhancement of the communication** between African individual members and the Board of ISSMGE, via at least, the regional VP or the SG of ISSMGE.

The **5<sup>th</sup> International Conference on Advances in Structural and Geotechnical Engineering (ICASGE'20)**, has been postponed to 2023, due to COVID-19 pandemic.

### 3.3 2<sup>nd</sup> International Seminar on geotechnical engineering (II Seminario internacional de engenharia geotecnica)

This geotechnical seminar, is organized by Mozambican geotechnical Society (SMG). It was held in Maputo (Mozambique), from 1<sup>st</sup> to 3<sup>rd</sup> October 2019,

The aim of this excellent seminar, was to bring together the “Community of geotechnical experts using the Portuguese Language ”: (Mozambique, Angola, Equatorial Guinea, Guinea-Bissau and Cape Verde). Some core members of the ISSMGE’s Board graced with their presence the seminar, and presented lectures or courses.

Were noted, 8 keynote lectures, 4 courses, and 10 papers. Around 54 persons attended the seminar that had been opened by the Mayor of Maputo.

### 3.4 International Congress & exhibition (GeoMEast)

The Egyptian Geotechnical Society (EGS), in collaboration with Egyptian government, the Housing and Building Research Center (HBRC), and the Soil-Structure Interaction Group in Egypt (SSIGE), organized annually, the International Congress & Exhibition (GeoMEast).

**GeoMEast2018** was held, under the main theme: *“Sustainable Civil Infrastructures”*, It took place from November 24th to 28th, 2018 in Giza, Egypt at Marriott Mena House hotel, in front of the Great Pyramids.

Over 900 experts from 71 countries representing the globe attended the conference. Thirty (30) companies from 20 countries took part to the exhibition. 570 full-papers were received, and 300 accepted and published in 16 Edited Volumes with Springer in SUCI book series.

During the GeoMEast2018, five official lectures was delivered by the current Presidents of ASCE, CSCE and ISSMGE, the former President of IGS, and the General Manager of GMA-IFAI. Twelve (12) Workshops/Courses and over 250 presentations were delivered.

**GeoMEast2019** was held from 10<sup>th</sup> to 14<sup>th</sup> November 2019, under the leadership of Dr Eng HANY Farouk SHEHATA, CEO of SSIGE (Soil-Structure Interaction Group in Egypt). The main theme was : *“Sustainable civil infrastructures: Beyond the horizon”*. 600 experts from 50 countries attended this event. It were noted: 2 Official lectures (ASCE lecture and IABSE official lecture), 6 Honors lectures, Courses and 3 workshops (DFI Workshop, Introduction to tunneling engineering, Geosynthetics Engineering)



Figure 3: Participants to the ICASGE, HURGADA- MARCH 2019

**GeoMEast2020** was held from 8<sup>th</sup> to 12<sup>th</sup> November 2019. It were noted: 2 Official lectures (ASCE lecture and IABSE official lecture), 4 Honors lectures, Courses and 3 workshops

#### 4 ACTIVITIES OF SOME MEMBERS SOCIETIES

##### **GGG (Ghana) :**

An annual general meeting (AGM) involving both Ghana Geosynthetic Society and the Ghana Geotechnical Society (GGG) was organized on 24<sup>th</sup> February 2018. Ms. Samuella Denise Boadu was selected as the coordinator for the student chapters of the two societies. Due to a constitutional difficulty, the election of new officers could not come on as scheduled.

Being part of the Civil Engineering technical group of the Ghana Institution of Engineering (GhIE), the Ghana Geotechnical Society also sponsors activities under the GhIE Evening lecture series. Some of the events organized under the evening lecture series include

- Presentation on Geotechnical Design and Construction held on 25<sup>th</sup> October 2018 at the Engineers Center in Accra and it involved engineering experiences on geotechnical designs and construction and lessons learnt. It involved on how multidisciplinary engineers work together to deliver successful projects. The presentation was given by Monica Ansah-Osam, a senior geotechnical and tailings engineer with an Oil and Gas company.
- Presentations and discussions on recent earthquakes in Ghana was held on 25<sup>th</sup> April 2019 at the Kumasi National University of Technology (KNUST). There were four short presentations which were then followed by a discussion. The presentations and discussions were streamed online and were followed simultaneously by the northern group based in KNUST

Following the strategies at the AGM, GGS started a presentation series known as the Y-GeoPresentation which is given by the young geotechnical engineers. The first presentation was made on 27<sup>th</sup> April 2019 on the theme. “Expansive Soils of Ghana”. Two presentations were made. The first presentation on “*stabilizing expansive soils using geogrid*” was presented by Ms Samuella Denise Boadu while Mrs Rosemary Kweisi made a presentation on the “*expansive soils of Pomadze*”. The presentations were based on the MSc thesis research of the presenters. The presentations were followed by discussions of the topic. This was attended by 15 members and was chaired by Prof. S.I.K. Ampadu.

##### **SAICE (South Africa):**

The Geotechnical Division of the South Africa Institute of Civil Engineers (SAICE) is the largest member society in Africa. They held an AGM on 02 November 2017. In that AGM, discussions were held on the establishment of the South African Geotechnical Design code, Lateral Support Code, & Piling Code. It was agreed that the Geotechnical Society will adopt a Eurocode but have with South African annexures.

Table 1. Events organized by SAICE, Geotechnical Division in 2018.

Date	Nature of event & Comments
15 February 2018	Geotechnical Investigation course for non-geotechnical engineers at Central University of Technology presented by Peter Day
06, 12, & 14 March 2018	16 <sup>th</sup> Memorial Jennings Lecture by Mike Jefferies in Pretoria, Durban and Cape Town
07, 08, & 09 March 2018	Critical Soil Mechanics workshop presented by Prof. Mike Jefferies and Dr Dawn Shuttle
16-18 July 2018	3 Days Plaxis Numerical Modeling course by Denis Waterman
28 August 2018	1 Day Finite Element Modelling Geosynthetics
28 February 2019	The Latest Development in Soil Improvement presented by Prof. Dr.-Ing. M.Sc, Wolfgang Jimmy Wehr

Table 2. Events organized by SAICE, Geotechnical Division in 2019.

Date	Nature of event & Comments
30 May 2019	Evening Lecture: Terzaghi Oration Lecture by Peter Day, Focus Rooms in Sunninghill
06 October 2019	African Young Geotechnical Engineering Conference (AYGEC) at the University of Cape Town
07-09 October 2019	African Regional Conference (ARC) of the ISSMGE Conference in Cape Town
07/11/2019	Three awards will be awarded during our AGM 2019 <ul style="list-style-type: none"> <li>• Barry van Wyk Award for the best final undergraduate thesis in Geotechnical engineering</li> <li>• Jennings Award- best technical paper published in Southern Africa during the 2018 year</li> <li>• Gold Medal his outstanding work in Geotechnical industry</li> </ul>

The division has presented a course “Geotechnical Investigation course for non-geotechnical engineers“ at the Central University of Technology in Free State aimed at educating students about the importance of conducting geotechnical investigation for all civil engineering projects

For the *student outreach program*, the division presented two courses aimed at educating students about the importance of conducting geotechnical investigation for all civil engineering projects on the respective themes

- “The importance of Geotechnics in Civil Engineering “at the University of the Witwatersrand;
- “Geotechnical Investigation course for non-geotechnical engineers“ at the Central University of Technology in Free State

## EGS (Egypt)

The EGS has particularly organized on 28<sup>th</sup> July 2017, a workshop entitled: A *Geotechnical Day*, hosted by the College of Engineering and Technology, Arab Academy for Science, Technology and Maritime Transport (AAST) in Abo Qir, Alexandria. A lecture on **Collapsible Soils: Great Challenge** was delivered by Prof. Dr. Tarek Mostafa, Egypt. During this event *Prof. Fathi AbdRabbo* of Alexandria University was honored for his contribution to Geotechnical Engineering in Egypt, and Eng. *Mohamed Salah Morsy* was nominated for the **Outstanding Young Geotechnical Engineer Award**.

## ATMS (TUNISIA)

Under the auspices of ATMS, the Research Laboratory in Geotechnical Engineering of Tunisia organized in Hammamet, from 8<sup>th</sup> to 11<sup>th</sup> March 2020, the 4<sup>th</sup> International Conference on Geotechnical Engineering (4<sup>th</sup> ICGE'20). During this conference, chaired by Prof Mounir Bouassida, 8 keynote lectures were presented either in Visio conference or in live.

- Effects of horizontal and vertical stress relief on the capacity and deformation of frictionpiles (Prof Charles Ng)
- Data-driven decision making in geotechnics-Myth or relaty? (Prof Kok Kwang Phoon)
- Geometric aspects of Hazards monitoring (Dr Michel Kasser)
- Geotechnical hazards-lessons learned from case histories (Prof Pedro Sêco e Pinto)
- Geotechnical challenges and solutions to container port construction (Prof Fai Leung Chun)
- The thermo-hydro-mechanical behavior of clays and claystones (Prof Pierre Delage)
- Ultimate bearing capacity of soils, using pressure-deformation relationship of a plate test (Prof E.M. KANA)
- Integrated satellite, UAV and ground assessment of landslides in Lefkada, Greece, following the November 17, 2015 Mw 6.5 earthquake (Prof Dimitrios Zekkos)

05 parallel sessions were also organized on the themes:

- Geotechnical engineering: Foundations
- Geomatics, Georisk and environment
- Rock mechanics
- Geotechnical engineering: miscellaneous
- Geotechnical engineering: soils characterization

Due to the COVID-19 pandemic, the international attendance was very little. A Board meeting of ISSMGE organized also during this event was forced to be a virtual one.

## 5 TECHNICALS COMMITTEES (TC 107)

*This TC107 was previously entitled "lateritic soils". It is since 2020 known as TC on "Tropical Residual Soils".* It is the only international committee hosted by the African region. It is hosted, by the national ISSMGE member society of Morocco (CMMSG), and chair by Dr M. Ahmed Chraibi, with as the Secretary General, Prof Antony Leung. This Tc held a symposium on laterites and lateritic soils on 20<sup>th</sup> 21<sup>th</sup> September 2019- GOA, India.

## 6 GENERAL REMARKS AND OUTLOOKS

From the African perspective, there is a healthy membership outlook in terms of individuals. The number of Corporate Associates is, however, still disappointing taking into consideration the low membership fee.

But, the ISSMGE in Africa faced however, various defies which constituted stumbling blocks to efforts made to uphold the profession in that region. We have to go beyond for meaningful progress to be made. These challenges are:

✓ *Very low communication within the region*, hampered by lack of adequate roads and air travel links. This hikes **the cost of transportation** to a level that, is almost unaffordable by private individuals. *The use of new tools of NTIC could probably help to seek solutions for this matter;*

✓ **Communication barrier** imposed by linguistic dichotomy in the Region. The translation in each of the two official ISSMGE languages seems to be one of the best way to courageously solve the problem;

✓ The poor involvement of local corporate societies. **The lack in general of corporate sponsorship** for members in Africa Region, excepted for one or two national member societies;

✓ *Poor involvement of academics and local experts* in the design and the construction of major projects in the region

Finally, we totally take as ours in Africa, the view of Prof. Antonio Gens (ISSMGE VP for Europe 2013-2017) concerning the state of ISSMGE, indicated in his council report for Europe region in September 2017, I quote: "There are also general problems... that probably demand a global response from the International Society:

- the gap between academia and practice,
- the need to raise the public profile and general perception of geotechnical engineering and geotechnical engineers,
- and the importance of attracting and engaging younger professionals in our field."

Quite a large number of initiatives are already being implemented, addressing those issues but it is likely that a constant and permanent effort with always be required at all levels of our International Society.

## 10 ACKNOWLEDGEMENTS

I would like to thank the African Geotechnical Societies for their very much appreciated support and encouragement to me, my colleagues on the ISSMGE Board for their continuous help and support. For all them, I am forever grateful.

I extend my heartfelt wishes to the incoming ISSMGE Vice President for Africa, Professor MARAWAN SHAHIEN from Egypt. I can already anticipate that he will perform a great task in this role. I am sure that he will enjoy the support and encouragement from the entire African geotechnical community that I have personally felt throughout my period of office. Thank you all, so much.

## Appendix 5: The ACTIVITES OF ISSMGE FOR ASIAN REGION (2017- 2022)

**Eun Chul Shin**

*Vice President of ISSMGE for Asia*

**SUMMARY:** The Asian Region of ISSMGE has 26 Member societies which are situated in geotechnical conditions that consist of good ground condition or difficult ground conditions like soft ground, and earthquake prone area. The Asian Member societies represent the following nations and areas: Bangladesh, China, Chinese Taipei, Hong Kong, India, Indonesia, Iran, Iraq, Japan, Kazakhstan, South Korea, Kyrgyzstan, Lebanon, Malaysia, Mongolia, Nepal, Pakistan, Philippines, Singapore, Southeast Asia, Sri Lanka, Syria, Tajikistan, Thailand, Uzbekistan and Vietnam. The Philippines became a new member of ISSMGE in 2018. Mongolian Association of Soil Mechanics and Geotechnical Engineering was joined ISSMGE in 2020. This report describes about the geological and geotechnical problems of Asian continental, policy of low-cost conference, Asian Council Meeting, 19<sup>th</sup> ICSMGE, Asian Regional Conference on Soil Mechanics and Geotechnical Engineering, Asian Young Geotechnical Engineers Conference, Asian Regional Technical Committees, the types of selection for Time Capsule Project has been surveyed in Asian region and reported. The last part of this report is summarized the activities of vice president of ISSMGE for Asia.

### 1 INTRODUCTION

The political and mutual collaboration between societies has been described with the out-reach geotechnical engineering program. The geological situation and natural disasters around Asian region are briefly elaborated. The policy of Low Cost Conference (LCC) is emphasized to bring attention and thus applied for up-coming conference. In the past 50 years, many geotechnical related the social infrastructures such as highway, airport, port and harbor, subway, industrial complex have been constructed in the Asian region. The new technology and construction methodology are being developed for solving difficult problems in various ground conditions. Some of these findings are presented in the event of international conference and symposium as well as workshops.

#### 1.1 *General scope*

The construction practice is related the political situation in the region. Instability of government in the western part of Asia is caused problem to the development of the country. Therefore, the countries in the region has constrained their ISSMGE activity.

The ISSMGE member societies in Asian region demonstrate a good collaboration model to the other part of member society throughout the joint conference and symposium as well as workshop together, because many societies are involved collaboration agreement between societies, particularly Southeast Asia, far eastern counties and central part of Asian countries, or neighboring countries. For example, the GeoSS and Malaysian Geotechnical Society could help to promote ISSMGE in neighboring countries in the region such as Cambodia, Laos, and Myanmar by organizing international seminars. In this respect, the ISSMGE could support the outreach program to establish their own member society.

#### 1.2 *Climate change and natural disaster*

The two-thirds of entire population on the earth are lived in the Asian region. The large population can contribute to the emission of carbon dioxide due to the land cultivation and also the shortage of useful land in the urban area. Therefore, the living environmental of people are getting worse.

The great amount emission of carbon dioxide is contributed the temperature rise around the living space of earth. The coverage land of glacier in the cold region is dwindling and hence the sea level is rising. We should prepare the certain countermeasure against the inundation of low-land area. The irregular heavy rainfalls are caused of the landslides and debris flow in the mountain area.

The earthquake, heavy rainfall, and tsunami are the common natural disasters in the countries which situated along the circum-Pacific earthquake belt. Recently earthquakes were occurred in Palu and Sulawesi (Sept. 2018), Katabu and Rankasbitung (Jan., 2022) in Indonesia, Sichuan (May, 2008), Gansu (Jan., 2022) in China, Kobe (Jan., 1995), Fukushima (April, 2011), Kumamoto Haganada (Jan., 2022) in Japan. The liquefaction of ground, tsunami of sea-water as well as mud landslides are the deadly force to the human life and the property of government and private. Several earthquakes were occurred in India (April, 2019), Pakistan (Sept., 2013), Nepal (April, 2015) at the Himalayan Mountains range. The monitoring of volcanic eruption and natural disasters are another challenge to cope with it. The ISSMGE would support to dispatch the geotechnical expert to the place where needs a help and mitigation of problem.

#### 1.3 *Low cost conference*

The registration fee of the international conference is relatively high these days. The people from low income countries have a problem to attend he international conference. The former Vice President for Asia, Ikuo Towhata initiated the Low Cost Conference (LCC). He actively involved the LCC policy to the Asian Regional Conference in Fukuoka, Japan in November, 2015 (USD 407). This LCC program is also adopted for the 16<sup>th</sup> ARC in Taiwan, Taipei, October 2019 (USD 450 for member of ISSMGE). This policy draws an attraction to bring as many participants as to the conference up to 1000 people in the 16<sup>th</sup> ARC. The members of Advisory Committee Meeting for the 16<sup>th</sup> ARC on 14<sup>th</sup> of October in Taipei suggested the LCC and the session topics related to sustainable development in geotechnical engineering. The registration fee for the Southeast Asian Geotechnical Conference which was held in Jakarta, November 2018 was about USD 400 for the ISSMGE member. I would like to emphasize the LCC policy for the forth coming international conference and symposium in Asian region. The epidemic of COVID-19 since March 2020 makes a difficult to travel, most of TC workshop and conference under the ISSMGE becomes webinar in the form of on-line and hence contributes as Low Cost Conference.

### 2 ASIAN COUNCIL MEETING

The Asian Council Meeting of ISSMGE was held two times, one was on September 20, 2017, during the 19<sup>th</sup> ICSMGE, Seoul, South Korea (participated 17 societies, non-participated 7 societies) and the other one was held during the 16<sup>th</sup> Asian Regional Conference in Taipei, Taiwan. Welcoming address made by new VP (EC Shin) and reported about Education,

Innovation, Diversity from the ISSMGE Ad-hoc Board Meeting which was held on the 19<sup>th</sup> of September in Seoul, 2017. Each Asian Membership Society was introduced with new president and secretary of society. The presentation for the program of the 16<sup>th</sup> ARC in 2019 was made by Prof. Keh-Jian Shou. The matter of Eastern Asian and Western Asian Geotechnical Societies are discussed by the Immediate Past VP, Prof. Ikuo Towhata. He suggested that the 17<sup>th</sup> ARC could be held in the Western part of Asia. The Past VP for Asia, Prof. Askar Zhussupbekov discussed about the promotion activities for geotechnical societies in developing Asian countries including new membership as well as the venue of 9<sup>th</sup> AYGEC. Mr. Sohail Kibra, VP of Pakistan Geotechnical Engineering Society and Prof. S. Babu, President of Indian Geotechnical Society were reported on the activities of their societies, regional VP election, and venue of ARC.

The other Asian Council Meeting was held on October 15, 2019 during the 16<sup>th</sup> Asian Regional Conference in Taipei, Taiwan by the support of CTGS. Total 22 societies were attended and only 2 societies were absent. This meeting was opened by the introduction of each society and subsequently VP of ISSMGE for Asia, EC Shin reported about the recent activities of ISSMGE. Prof. Der-Wen Chang, Secretary General of 16<sup>th</sup> ARC presented about on-going program of 16<sup>th</sup> ARC. Dr. M.K. Chung from South Korea proposed new Asian Regional Technical Committee entitled "Smart Observation Method", with the Secretary of Dr. C.H. Choi and agreed with the title of AsRTC-14.

The venue of 17<sup>th</sup> Asian Regional Conference in the year of 2023 was decided by the ballot voting during the Asian Council Meeting. The Kazakhstan Geotechnical Society had a competition with the Thai Geotechnical Society (the Bangkok city). The result of ballot voting selected the Nur-Sultan city, the capital city of Kazakhstan becomes the venue of the 17<sup>th</sup> ARC on August 14-18, 2023. Prof. Keh-Jian Shou, National Chung-Hsing University in Taiwan is elected as the Vice President of ISSMGE for Asia in the period of 2022-2026.

### 3 19<sup>TH</sup> ICSMGE, 16<sup>TH</sup> ARC AND 8-9<sup>TH</sup> AYGEC

The 19<sup>th</sup> International Conference on Soil Mechanics and Geotechnical Engineering (Chairman, Prof. Dong-Soo Kim) was hosted by Korean Geotechnical Society at the Coex Convention Center in Seoul, Korea on September 17-22 in 2017. Total 1952 peoples were participated from 82 countries, and 65% of participants were from Asian region. The 19<sup>th</sup> ICSMGE were consisted of 17 Plenary sessions and 53 Discussion sessions, 32 Workshops and published 751 papers in the conference proceedings. The keynote lectures were recorded as ISSMGE Virtual University (Webinar).

The 16<sup>th</sup> Asian Regional Conference on Soil Mechanics and Geotechnical Engineering was successfully held in Taipei, Taiwan from October 14-18, 2019. There were 17 Plenary lectures including 4 keynote lectures, 1 mentoring, 6 invited lectures, 4 theme lectures, and 2 special lectures. 7 Asian Regional Technical Committee sessions and 7 ISSMGE TC sessions, 2 CTGS sessions were also executed. Total 32 theme sessions and 2 Bright Spark lectures in YMGG/YGE sessions on October 13 were conducted. CAPG session; Are we over-designing? was offered along with 5 pre-conference courses. The quality of presented paper and execution of the conference were outstanding with participating 1000 people from 38 countries (Chinese Taipei 351, Japan 152, South Korea 83, China 58, India 40, Singapore 29, Vietnam 20, Kazakhstan 19, Malaysia, Philippines, Thailand, 18, Hongkong 16).

The Asian Young Geotechnical Engineers Conference (AYGEC) is holding a conference in every 4 years for geotechnical engineers and researchers below the age of 35 years from Asian countries. The AYGEC took place in Bangkok, 1991;

Singapore, 1994 and 1997; Seoul, 2001; Taipei, 2004; Bangalore, 2008; Tokushima, 2012. The Kazakhstan Geotechnical Society hosted the 8<sup>th</sup> Asian Young Geotechnical Engineer Conference (8<sup>th</sup> AYGEC) in the capital city of Astana in August 5-7, 2016. Approximately 100 participants from 21 countries had an opportunity to exchange innovative ideas and development with 5 invited lectures and 59 paper presentations in the field of geotechnics during their time at the conference. The final day of the conference was dedicated to a technical trip to Baiterek monument and EXPO 2017 construction site. The international event was continued in Almaty as a satellite geotechnical workshop called "Joint Kazakhstan and Korea Geotechnical Workshop" at the Kazakhstan Highway Research Institute (President of KazDorNII, Dr. Bagdat Teltayev) on the 8<sup>th</sup> of August.

The 9<sup>th</sup> AYGEC was held at the city of Lahore on December 5-7, 2019 hosted by the Pakistan Geotechnical Engineering Society (established 1973) at the University of Engineering and Technology Lahore (UET Lahore). The 15<sup>th</sup> International Conference on Geotechnical Engineering was also taken place at the same period of time. Total number of participants was 500 people from 22 different countries and 6 keynote lectures as well as 84 papers in the field of advanced geotechnical testing, applied geomechanics, foundation & instrumented geotechnics, slope stability, dam engineering were presented. The 3<sup>rd</sup> day of conference made a field trip to the construction site of Lahore Orange Line Metro Train Project which has a 27 km long with 26 stations. Most of metro line is elevated above ground with the help of pile foundation which has a diameter of 1.2 m with the embedded depth of 12-25 m. Pakistan Lahore Ring Road is being operated now with the distance of 30.4 km and the technology of reinforced earth walls are also used in the overpass way along the highway. The site visits to Wall City and Fort of Lahore including Sheesh Mahal, Alamgiri Gate, Navlakha Pavilion, Moti Masjid are very much impressed.

### 4 ASIAN REGIONAL TECHNICAL COMMITTEES

(1) AsRTC-1: Geotechnical Mitigation and Adaption to Climate Change-induced Geo-disaster in Asia-Pacific Regions, Chair: Prof. Bergado, Dennes T. (Formerly AIT, Thailand) and Prof. Kazuya Yasuhara, Secretary Prof. Hazarika Hemanta (Japan). The 1<sup>st</sup> International Symposium on Construction Resources for Environmentally Sustainable Technologies (CREST 2020) was held on March 9-11, 2021. The CREST 2020 was executed by Zoom Links for Webinar, 2 Plenary & 11 Keynote lectures, 75 papers were presented (Organizing Chair, Hazarika Hemanta).

(2) AsRTC-3: Geotechnical for natural hazards Chair: Prof. Kazama Mokito (Japan). Secretary Prof. Hazarika, Hemanta (Japan).

(3) AsRTC-6: Urban Geoengineering, Chair Prof. OU Chang-Yu (Chinese Taipei), Secretary Bin-Chen Benson Hsiung (Chinese Taipei). 43 members from 13 member societies in Asia, 2<sup>nd</sup> ATC6 symposium in Changsha, Hunan Province in China, 24<sup>th</sup> and 25<sup>th</sup> of November, 2017 and 100 researchers participate, more than 50 papers. The 3<sup>rd</sup> ATC6 symposium was held in 14<sup>th</sup> to 18<sup>th</sup> of October, 2019 in Taipei, Taiwan, during the 16<sup>th</sup> Asian Regional Conference.

(4) AsRTC-7: Thick Deltaic Deposits, Chair Prof. Jiman Kim (South Korea), Secretary Prof. Jaehun Ahn (South Korea). Workshop on Geotechnical Issues and Practices on Deltaic Deposits and Highly Compressible Soils, in the 19<sup>th</sup> ICSMGE, Seoul, Korea, September 17-22, 2017. Soft Clays in South-West Area was held at Mokpo National Maritime University, on November 8-9, 2018. Several ATC7 members have been invited to deliver their lectures in 17 different academic seminars, conferences. The workshop was held on 17<sup>th</sup> of October, 2019 in Taipei, Taiwan, during the 16<sup>th</sup> Asian Regional Conference.

(5) AsRTC-8 on Groundwater Environmental and Quality

Management is going to stop because of no activity.

(6) AsRTC-10: Urban Geo-informatics, Chair: Dr. Mimura, Mamoru (Japan), Secretary: Ms. Kitada, Naoko (Japan).

(7) AsRTC-18: Mega Foundation, Chair Prof. Sang-Seom Jeong (South Korea). ATC-18 workshop was held under Prof. Myoungmo Kim with Six presentation, 15<sup>th</sup> Asian Regional Conference in Fukuoka Japan. 2017 International Symposium on Design and Analysis of Piled Raft Foundations, 12-13 Sep. 2017 in Taipei, Taiwan. ATC-18 workshop was also held during the 16<sup>th</sup> ARC in Taipei, Taiwan.

(8) AsRTC-19: Geo-engineering for conservation of heritage monuments and historical sites Chair: Prof. Iwasaki, Yoshinori (Japan), Secretary: Prof. Mamoru Mimura (Japan). Special Workshop of ATC19 at Yunlin University, Taiwan, and also during the 16<sup>th</sup> ARC in Taipei, Taiwan in 2019.

(9) AsRTC-14: Smart Observation Method, Chair Dr. Moon-kyung Chung, Secretary Dr. Changho Choi (Korea), established in Oct. 2019 during the 16<sup>th</sup> ARC in Taipei, Taiwan.

## 5 TIME CAPSULE PROJECT

The types of selection for Time Capsule Project has been surveyed in Asian region. The Type A is involved with the significant content, interaction with individual members, and exploratory. The Type B is categorized with “off the shelf”, in general reflecting past achievements. The Type C would be minimal, a couple of slides or link to existing website. The results of survey from Asian membership societies are summarized. Type A (9 societies; China, Chinese Taipei, Hong Kong, India, Indonesia, Kyrgyzstan, SEAGS, Sri Lanka, Uzbekistan), Type B (8 societies; Japan, Kazakhstan, Malaysia, Pakistan, Philippines, Singapore, South Korea, Tajikistan). Type C (2 societies; Iraq, Mongolia), and no response (7 societies; Bangladesh, Lebanon, Nepal, Syria, Vietnam, Thailand, Iran), respectively.

So far 3 societies, China, India, and Korea are submitted the TCP. The CISMGE submitted 16 reports, in which the first 13 reports focus on progresses in geotechnical profession in China from 1990s to 2022 (National Science and Technology, Natural Science Awards). The other 3 reports are related to the future prospects of geotechnical engineering. Indian Geotechnical Society is submitted the 6 reports regarding on the topic of tunnels in Himalaya and underground space for mining, three decades of geosynthetics in India, some challenging geotechnical projects such as steep slope in Lower Himalayas and coastal erosion, and construction of Tehri Hydropower Project in Himalaya region prone to seismic activity. The Korean Geotechnical Society are submitted 10 reports under the theme of “Geotechnical Engineering Milestone for Past Half Century” in which related to the projects such as Gyeongbu Expressway, Saemangeum reclamation project, Seoul Metropolitan Metro System, and Incheon International Airport. Other 6 reports are focused on the constructions of subsea tunnel, mega-foundation for high rise building, national high-speed railway system, long-span bridge, offshore wind power plants, and underground radioactive waste repository.

## 6 ACTIVITY OF VP OF ISSMGE FOR ASIA

The term of Vice President of ISSMGE for Asia was began since the September 2017, the 19<sup>th</sup> ICSMGE, Seoul, Korea and terminated by the Sydney 20<sup>th</sup> ICSMGE in May 2022. I have been traveled extensively for participating ISSMGE Board Meeting, ISSMGE TC, ATC, and national conference of membership societies which were held in Asian region until February 2020. The pandemic of COVID-19 makes a difficult to travel overseas. Therefore, the most of international activities including the ISSMGE Board Meeting as well as international conferences have been executed by on-line format or called

Webinars.

The attending the international events and delivering lectures as the Vice President of ISSMGE for Asia during the period of September 2017 to May 2022 are total 50 times; 2017 (4), 2018(10), 2019(17), 2020(9), 2021(8), 2022(2), and summarized as follows.

### 2017

- Sept. 20 Organized ISSMGE Asian Council Meeting as the Vice President.
- Oct. 31 Keynote Lecture, Indonesia Geotechnical Engineering Conference in Jakarta.
- Nov. 20 Keynote lecture, Singapore Geotechnical Engineering Conference and attended GeoSS General Assembly Meeting, election new president of GeoSS.
- Dec. 5 Delivered lecture and attended Indian Geotechnical Engineering National Conference at IIT Delhi and attended IGS General Assembly Meeting, elected new President of IGS (Prof. S. Babu, IIS).

### 2018

- Jan. 23 Zurich Institute of Switzerland Geotechnical Laboratory (Prof. Anastasopoulos Ioannis), Switzerland.
- Jan. 26 Visiting Vienna Technical University Geotechnical Laboratory (Prof. H. Brandle), Austria.
- Feb. 5 Special invitation lecture for Singapore Geotechnical Society at NUS. Attended GeoSS Board Meeting.
- April 6 Invited speaker at the ISSMGE TC 202 Transportation Geotechnics at IIT Delhi, India.
- April 4 Keynote Lecture at International Disaster Management Conference at Padang, Indonesia.
- June 5 Attending ISSMGE Board Meeting at Skopje, Macedonia.
- July 3 Keynote Lecture at International Disaster Reduction and Mitigation Conference at Sakhalin, Russia, organized by Russian Geotechnical Society, and Far Eastern Transportation University.
- Nov. 5 Invited speaker, Southeast Geotechnical Engineering Conference at Jakarta, Indonesia.
- Nov. 16 Attending ISSMGE Board Meeting and delivering Touring Lecture at Mexico City, Mexico.
- Dec. 11 Attending ISSMGE TC 207, Soil-Structure Interaction and Retaining Walls and delivered invited lecture at Indian Geotechnical Engineering Conference at IIS, Bangalore, India. Attended IGS General Assembly Meeting and elected IGS president (Prof. S. Babu at IIS).

### 2019

- Jan. 28 Round Table Meeting with the Board Member of Vietnamese Geotechnical Engineering Society at Hanoi City. Discuss about Geotec Hanoi 2019 Conference in Nov. with Dr. Phung Duc Long (President of VSSMGE).
- Feb. 11 Delivering Special Invitation Lecture at IGS-Chennai Chapter IIT Madras, India (Coordinated by Prof. Buminantan). Discussion about ISSMGE TC 301 Preservation of Historic Sites Conference in September, Chennai, India.
- Feb. 15 Delivering Special Invitation Lecture at IGS-Cochin Chapter, Cochin, India (Coordinate by Dr. Anil Joseph)
- Feb. 23 Keynote Lecture, ISSMGE TC 305 Geotechnical Infrastructures for Mega Cities and New Capitals. Symposium at Astana, Kazakhstan, Kazakhstan Geotechnical Society (Prof. Askar Zhussupbekov).
- March 10 Attending ISSMGE Board Meeting and delivering

- Touring Lectures at Singapore. Round Table Board Meeting with GeoSS.
- May 18 Memorial Lecture, Silver Jubilee Celebration Conference, 25<sup>th</sup> Anniversary of Nepal Geotechnical Society, Kathmandu, Nepal.
- May 21 Invited Lecture, TRANSOILCOLD 2019 Conference, Transportation Soil Engineering in Cold Regions, Russian Geotechnical Society, St. Petersburg, Russia.
- June 17 Keynote Speaker at ISCORD 2019, Cold Region Development Association Oulu, Finland.
- June 26 Invited Lecture, ISSMGE TC 203 earthquake at Chania-Crete, Greece.
- Aug. 29 Attend Unsaturated Soil Symposium at Okayama, Japan.
- Sept. 17 Invited Lecture, ISSMGE TC 301 Preservation of Historic Sites, Chennai, India, IIT Madras.
- Sept. 20 Invited Lecture, ISSMGE TC 107 Laterites and Lateritic Soils, Goa, India.
- Oct. 5 Attending ISSMGE Council Meeting, Cape Town, South Africa.
- Oct. 14 Invited Lecture and Asian Council Meeting, ISSMGE, 16<sup>th</sup> ARC, Taipei, Taiwan.
- Nov. 28 Invited Lecture, 4<sup>th</sup> International Conference on Geotechnics, Geotec Hanoi, Vietnam.
- Dec. 5 Keynote Lecture, 9<sup>th</sup> Asian Young Geotechnical Engineering Conference, Lahore, Pakistan.
- Dec. 19 Invited Lecture, Indian Geotechnical Conference, SVNIT Surat, Gujarat, India.

## 2020

- Feb.6 Keynote Speaker, International Geotechnical Engineering Symposium at Manila Hotel, "Urban Geotechnics", Organized by Philippine Society for Soil Mechanics and Geotechnical Engineering (PSSMGE), 70 people attended.
- March 8 ISSMGE Board Meeting by Zoom (Supposed to be in Tunis, Africa).
- May 2 TC 305 Invited Speaker, International Webinar, Megacities and New Capital, Nur-Sultan City, hosted by Kazakhstan Geotechnical Society.
- Aug. 23 Invited Speaker, TC305, Geotechnical Challenges of Mega Projects, Hosting by University of Kerbala and Iraqi Scientific Society of Soil Mechanics and Foundation Engineering, Bagdad, Iraq.
- Sept. 7 ISSMGE Board Meeting, Participated by Zoom, London, England.
- Oct. 15 International Webinar, TC 305, Geotechnical Engineering for Megacities, Russian Geotechnical Engineering Society, Moscow, Russia.
- Dec. 12 Invited Speaker, International Webinar TC 302 Forensic Geotechnical Engineering, New Delhi, India (Prof. Sivakumar Babu).
- Dec. 16 TC 213 Invited Speaker, International Workshop by Zoom, Scour and Erosion, Andhra University, Visakhpatnam, India construction of social infra-structures.
- Dec. 16 Invited Speaker, Indian Geotechnical Society Annual Conference at Andhra University, Visakhpatnam, India.

## 2021

- Jan. 29 ISSMGE Board Meeting, participated by Zoom, London, England 20<sup>th</sup> ICSMGE is postponed from September, 2021 to May 1-6, 2022.
- May 19 ISSMGE Board Meeting, participated by Zoom, London, England.
- June 2 TC 216, Frost Geotechnics (Chair: Prof. Takashi Ono),

- TC305, Geotechnical Infrastructures for Megacities and New Capital, 2 Sessions, 12 Presentations, (Prof. Askar Zhussupbekov), Hosting Zoom by Kazakhstan Geotechnical Society, Nur-Sultan City, Kazakhstan.
- June 22 2nd International Conference on Geotech. Engineering-Iraq-2021, Hosting Zoom By the Iraqi Scientific Society of Soil Mechanics and Foundation Engineering (ISSSMFE), University of Baghdad, Duhok Polytechnic University, University of Technology-Iraq (Akre-Duhok-Iraq).
- Oct. 21 Invited Speaker, The 3<sup>rd</sup> International Scientific and Practical Conference "Russian Surveyor's Forum" was held in an off-line format in Moscow, Russia. EC Shin was awarded Gersevanov Medal by the Russian Society for Soil Mechanics, Geotechnics and Foundation Engineering (RSSMGE) for his professional as well as educational contribution to the Russia and other parts of the world.
- Oct. 26 Invited Speaker, The International Scientific and Technical Conference on Geotechnics was held in a mixed format, on-line (200 people) and off-line (200 people), in St. Petersburg State University of Architecture and Civil Engineering (SPBGASU). 150 papers were presented and speakers from 12 different countries were participated. EC Shin received the Honorary Doctorates Degree from SPBGASU.
- Dec. 6 Attended with Congratulatory Message, the 3rd International Conference on Geotechnical Engineering (Previous conferences, Years 2007 and 2015), ICGE Colombo, 2020 organized by Sri Lankan Geotechnical Society. 5 keynote lectures, 2 Bright Spark Lectures, 100 papers were presented under the theme "Geotechnics in a challenging Environment".
- Dec. 21 Attended ISSMGE Board Meeting by Zoom, London, England.

## 2022

- Jan. 24 Attended ISSMGE Board Meeting by Zoom, London, England.
- Jan. 25 Invited Lecturer, The 1<sup>st</sup> International Conference on ACE (Architecture, Civil and Environmental) Forensic Engineering by Zoom, Korea University (Chairman, Prof. Jong-Sub Lee) in Seoul, under the auspicious of Korean Geotechnical Society (President; Dr. Moon-kyung Chung).

## 7 CONCLUDING REMARKS

The continental of Asian region covers the largest area among 6 different continentals with the 65% of world population. In the past 50 years, numerous social infra-structures such as highway, railway, airport, port and harbor, subway, and dams have been designed and constructed on land and also along the coastal area in Asian countries. The innovative geotechnical engineering technology is being applied in those projects. With conjunction of these developments, the international activities under the ISSMGE is pretty active through the ICSMGE, ARC, and AYGEC. The collaboration between geotechnical societies in Asian region is promising to contribute in the goal of ISSMGE. This report can see the glance of past 4 years and half activities under the auspicious of ISSMGE by the vice president of ISSMGE for Asia. I deeply thanks to ISSMGE and Korean Geotechnical Society for financial supporting to make me to participate and play a key role of the international activities in Asian region.



## Appendix 5: Report on Activities in Australasia

### Rapport sur les activités en Australasie

#### Philip Robins

*Vice President - Australasia, Technical Director, Beca, New Zealand philip.robins@beca.com*

**SUMMARY:** This report contains an overview of the state of the ISSMGE in Australasia and summarises the activities that have taken place in the region since the Council meeting that was held in Cape Town in October 2019. The report also presents some general remarks on the state of the two member societies in the region and a view towards the future.

#### 1 MEMBER SOCIETIES AND MEMBERSHIP

##### 1.1 Introduction

The Australasian region of the ISSMGE, comprises two Member Societies, those of Australia and New Zealand. While it is the smallest ISSMGE region in terms of the number of Member Societies (2% of the total), its individual membership, at 1908, represents approximately 8% of the ISSMGE membership.

Australia and New Zealand are modestly populated countries and the current membership in the region represents 80 ISSMGE members per million inhabitants. This compares to an overall average of 3 ISSMGE members per million inhabitants for the Society as a whole. These statistics reflect both the high level of engagement with the ISSMGE by engineers in the region and the level of geotechnical engineering activity taking place in Australia and New Zealand.

##### 1.2 Australian Geotechnical Society

The AGS ([www.australiangeomechanics.org](http://www.australiangeomechanics.org)) is a joint technical society of the Institution of Engineers, Australia and the Australasian Institute of Mining and Metallurgy. The number of members has increased significantly over the last 4 years, and this is consistent with a general rebound in the infrastructure market in Australia during this period. At the time of writing this report the total AGS membership is 2,146. Of these, 1,200 (56%) are members of the ISSMGE.

##### 1.3 New Zealand Geotechnical Society

The NZGS ([www.nzgs.org](http://www.nzgs.org)) is a Collaborating Technical Society of Engineering New Zealand (previously the Institution of Professional Engineers NZ). It was recognised as the outstanding ISSMGE member society at the 2013 ICSMGE in Paris and remains extremely proud of this achievement.

At the time of writing this report, the NZGS has about 1,348 members. Of these, 824 (60%) are ISSMGE members. The NZGS works closely with the national structural engineering (SESOC) and earthquake engineering (NZSEE) societies to develop and deliver technical guidance and training. It also works closely with Engineering New Zealand and with Government in the development of policy and professional guidance.

##### 1.4 Gavin Alexander

This report would be incomplete without my sharing that our former ISSMGE Vice President for Australasia, Gavin Alexander, passed away on 19th November 2020 after a battle with cancer, surrounded by his family.

Gavin was a Life Member of NZGS and served on the management committee for a decade taking on the roles of Treasurer and then Chair. He enjoyed his role as VP – Australasia and was really looking forward to the Conference in Sydney.

#### 2 AUSTRALASIAN REGIONAL CONFERENCES

The conference series that serves the ISSMGE region is the Australia New Zealand (ANZ) Conference on Geomechanics, which is held once every 4 years and involves a rotation cycle, over a 12-year period, where two are held in Australia and one in New Zealand.

During the period 2017–2019, one ANZ Conference was held. The 13th Australia New Zealand Conference on Geomechanics, was held in Perth from 1 to 3 April 2019, and was hosted by the AGS. More than 450 registrants participated in the event. The conference was led by Michael Smith, Barry Lehane and Hugo Acosta and was very successful, both technically and socially. The next in the series of ANZ Conferences is to be held in 2023 in Cairns.

#### 3 AUSTRALASIAN SUB-REGIONAL CONFERENCES

The NZGS holds a symposium once every two years. The 20th NZGS Symposium was convened in Napier, November 2107. No national NZ conference was held in 2019, due to the 13th ANZ Conference on Geomechanics in Perth.

The 21st NZGS Symposium was to be held at the Dunedin Conference Centre in March 2021 and was titled “Good Grounds for the Future”. Total participation in the Symposium was 265 in person delegates and 46 virtual one-day passes.

The pre-Symposium event proved to be one of the most popular sessions and included a half-day workshop in Queenstown, followed by a one-day field study starting from Queenstown through Cromwell and Kawarau Gorges by bus, ending in Dunedin by train through the Taieri Gorge.

In the “Dunedin Centre” the 2-day Symposium included a packed technical programme; four international keynote presentations, special and plenary sessions. For the first time, and as part of the Symposium, the NZGS hosted a public talk “Natural Hazard Risk - Treatment Options for Resilience”.

There was a breakfast with YGP followed by four presentations by the best paper winners of the NZGS regional YGP mini-Symposia and a wonderful Gala Dinner.

After a six-month delay caused by the pandemic it was wonderful to finally meet up with friends from around the country. Convener Eleni Gkeli and her organizing committee created an event that was a great success with quality technical presentations, fantastic keynotes beamed in from around the world, and many opportunities to socialize.

The AGS does not hold national conferences, instead, most of the AGS chapters hold an annual or biennial seminar on a wide variety of geotechnical engineering related themes. The AGS has also taken advantage of the COVID pandemic and created a series of webinars. The webinars are presented by leading practitioners and details of these are available from the AGS website.



Figure 1. Opening Ceremony at the 21st NZGS Symposium in Dunedin, March 2021.

#### 4 20ICSMGE, SYDNEY, 2022

The Australian Geomechanics Society was delighted to have been unanimously awarded hosting rights for the 2021 ICSMGE. This conference is the highlight of the Presidential term, and Sydney is a truly stunning location for it.

The 20th ICSMGE will be held in Sydney from 1st to 5th of May 2022. The Local Organising Committee (LOC), led by Emeritus Professor John Carter with Graham Scholey (Conference Co-Chair) and Professor Mark Jaksa as Scientific Program Chair has put together an awesome programme of both technical sessions and other conference activities delivered on-site in Sydney and virtually in "hybrid mode".

The hybrid model ensures that all authors of accepted papers will have the opportunity to present, even if they are not able to travel to Sydney. Furthermore, for the very first time in the 85 years history of ISSMGE, all 21,000 individual members will have the opportunity to access the huge range of technical content presented on-line at ICSMGE 2022 - a remarkable opportunity for individuals to be part of this premier event!

As part of the Conference Advisory Committee (CAC), I had the chance to experience the hard work John's team has made towards ensuring the 20ICSMGE will be hugely successful. I have been amazed by the level of patience and tenacity the LOC has displayed while juggling everything the COVID pandemic has thrown at them. I am looking forward to attending the Conference in Sydney and encourage all those that can make it in-person, to join us there.

Darren Paul (YGP Convenor) and his team have also put together an amazing programme for the 7iYGEC. For the 7th time, young geotechnical practitioners will have the opportunity to participate in their own dedicated Conference on the days immediately prior to the 20ICSMGE in a relaxed, friendly and supportive environment to share their research, ideas and experience, build international networks and discuss the challenges facing young geotechnical engineers in a rapidly changing world.

The President, Secretary General and I had the opportunity to meet with the LOC in Sydney in February 2020. We were given a tour of the Sydney International Conference Centre (ICC). It is Australia's first fully integrated convention, events, exhibition, and entertainment centre. Featuring a striking contemporary design, leading technology and world-class meeting and exhibition spaces with wonderful views over Sydney's Darling Harbour.

#### 5 YOUNG GEOTECHNICAL PROFESSIONALS

The NZGS and AGS also share responsibility for organizing and hosting the biennial Young Geotechnical Professionals (YGP)

Conference series in the region. The conferences are intended for young professionals, 35 years old or younger, with a maximum of 10 years' experience. The number of attendees is generally capped at 50 delegates, to facilitate an intimate and nurturing conference experience.

Usually, 3 or 4 senior geotechnical engineers from industry and academia are actively involved in the conference and provide mentorship to the delegates. Unfortunately, the AGS organized the 13th YGP Conference planned for Cairns, Queensland, was cancelled due to travel restrictions imposed by the COVID-19 pandemic.



Figure 2. John, Neil and Philip at the Sydney ICC.

The level of over-subscription of these events has led to the introduction of local one-day events around New Zealand for young professionals who have not been able to attend the regional conferences. These local events provide similar opportunities to present to one's peers in a supportive environment, to develop professional networks, and to be mentored by more experienced practitioners.

#### 6 TECHNICAL COMMITTEES AND BOARD LEVEL COMMITTEES

Both the AGS and NZGS have strong participation in the ISSMGE's technical committees. The Region's membership of

the Technical Committees was comprehensively reviewed and refreshed through 2018 and 2019.

Sukumar Pathmanandavel of the AGS and Co-Chair of the Corporate Associates Presidential Group (CAPG), has been an extremely active and has worked tirelessly in this role to increase the CAPG. More recently, Sukumar has conceptualized and now now spear heads the Time Capsule Project (TCP).

A key focus of the TCP is the "process" by which there is connection and interaction with the individual members about the work of the contributors, an outcome of which is the "product" that is offered to the TCP for storage and display.

## 7 NZGS CLIMATE CHANGE SYMPOSIUM

At the beginning of November, NZGS delivered the 1st Geotechnical Symposium focused on Climate Change and Sustainable practices. This Symposium was organized by NZGS, in collaboration with MBIE and Engineering NZ, and attracted very interesting presentations showcasing that our industry is already preparing and adapting to the upcoming change. The discussions that followed the presentations highlighted the high potential and unique opportunities for our profession to thrive in this field, as there is a lot more yet to be done.

## 8 AUSTRALIAN GEOMECHANICS SPECIAL EDITION

Australian Geomechanics is the journal of the AGS. Published quarterly, it includes a selection of quality peer-reviewed papers with a particular focus on topics relevant to Australasia.

The AGS hosted several female speakers in 2020, including keynotes at local symposia, and Dr Jackie Skipper presenting her Glossop Lecture. To continue encouraging female professionals to contribute in this way and building on this increase in exposure for women in our industry, at end of 2021 the AGS produced a dedicated issue of the Australian Geomechanics. The special journal edition contained papers written by female geotechnical professionals (as the main author or a co-author).

## 9 INTERACTION WITH MEMBER SOCIETIES

The NZGS and AGS have a strong working relationship. They interact regularly, with the Chairs of both societies attending one another's committee meetings at least once each year. Moreover, the Vice Presidents of the 3 sister societies (ISSMGE, IAEG and ISRM) regularly attend both societies' committee meetings and work closely with local liaison officers from the other Society.

In addition, both societies collaborate on the development of joint codes of practice and guidelines, and the AGS and NZGS are in regular communication regarding visiting overseas speakers and visitors so that both societies can exploit opportunities for presentations in both countries.

An example of this is the Rankine Downunder series of presentations, where the Rankine Lecturer from the previous year is invited to tour both Australia and New Zealand in order to present their lecture to all chapters and regions of the AGS and NZGS.

## 10 YOUR NEW VP FOR AUSTRALASIA

For the next presidential term, and my successor, will be Graham Scholey from AGS, and he will represent the Australasian region on the ISSMGE Board.

Graham is a principal geotechnical engineer with over 30 years of experience providing geotechnical and applied geological consulting services, primarily for civil infrastructure projects such as ports, railways, roads, utilities and building developments.

I have known Graham personally for over 25 years and I am sure he will continue the energetic and engaged tradition of Vice Presidents from our region.

## 11 GENERAL REMARKS AND OUTLOOK

The Australasian region is vibrant, active and its members are engaged with the profession and the ISSMGE. It is exciting to see the leadership of our two societies lead by two women: Nina and Eleni. It has been awesome to see how well the Societies have adapted to the ever-changing COVID pandemic, always looking for different and creative ways to connect with their members, and other technical societies. I am confident that the The Australasian societies and the members they represent will continue to grow and keep engaged with the profession and the ISSMGE.

For the next ISSMGE Presidential term, I would like to see the AGS and NZGS continue to focus on a couple of things, namely climate change and diversity. The Pacific island nations are likely to be affected most, by climate change and I believe that as geotechnical engineers we have the potential and unique opportunity to creative solutions to help those places affected most by climate change.

I think that diversity of thought leads to diversity of action, and I encourage both the AGS and NZGS to encourage all of it members, especially female geotechnical engineering to challenge the status quo and join management committees, conference organizing committees and the like.

## 12 CLOSURE

I am extremely grateful and humbled to have been given the opportunity to serve both the AGS and NZGS, as Vice President for Australasia and Treasurer on the ISSMGE Board over these last two years.

Although I reluctantly took on the role from Gavin in 2019 when he stood down due to his health issues, I have thoroughly enjoyed this experience. I wish the ISSMGE and all its member societies every success for the future.



Table 1. Technical Committee Representation (\*corresponding member)

Technical Committee	AGS Representatives		NZGS Representatives
TC101 – Laboratory Testing	Mizanur Rahman*		Gabriele Chiaro
TC102 – In-Situ Testing	Richard Kelly	Adrian McCallum*	
TC103 – Numerical Methods	Ali Karrech Arman Khoshghalb	Ali Parsa Pajouh Ha Bui	Dr CY Chin Ioannis Antonopoulos
TC104 – Physical Modelling	Muhammad Shazzad Hossain	Christophe Gaudin Ali Karrech*	Philip Robins
TC105 – Geo-Mechanics from Micro to Macro	Itai Einav	J S Vinod	Rolando Orense
TC106 – Unsaturated Soils	Adrian Russell Hadi Khabbaz Arman Khoshghalb	Nasser Khalili Daichao Sheng	
TC202 – Transportation	Daichao Sheng* Shanyong Wang* Mahdi Miri Disfani	Mizanur Rahman Mohamed Shahin	
TC203 – Earthquake	Ahmad Dehghanpoor Sichani Behrooz Ghahremannejad	Ivan Gratchev Nihal Vitharana* Jay Lee Sanjay Nimbalkar*	<b>Misko Cubrinovski (Chair)</b> Ioannis Antonopoulos* Sjoerd Van Ballegooy Brendon Bradley
TC204 – Underground Construction	Jay Lee*		
TC205 – Safety and Serviceability	Nihal Vitharana		
TC206 – Interactive Design	David Zhang	Jinsong Huang	
TC207 – Soil-Structure	Ahmad Dehghanpoor Sichani* Chris Haberfield* Dino Sarac*	Chenhui Lee* Sanjay Nimbalkar* Ali Parsa Pajouh* Craig Butterworth	Ioannis Antonopoulos Jan Kupec
TC208 – Slope Stability	Ivan Gratchev* Allan Herse* Dino Sarac	Ali Karrech* Meysam Safavian	Ross Roberts
TC209 – Offshore	<b>Phil Watson (Chair)</b> Muhammad Shazzad Hossain*	Noel Boylan Christophe Gaudin James Doherty*	
TC210 – Embankment Dams	Behrooz Ghahremannejad	Meysam Safavian* Nihal Vitharana	James Burr
TC211 – Ground Improvement	Babak Hamidi Shanyong Wang* Bosco Poon Buddhima Indraratna	Ilhan Chang Hadi Khabbaz* Chenhui Lee	Martin Larisch
TC212 – Deep Foundations	Allan Herse Bosco Poon Hossein Ahmadi*	Barry Lehane* Dr. Bindumadhava*	Martin Larisch
TC213 – Scour and Erosion	Mahdi Miri Disfani* Ha Bui	Scott Draper	Bruce Melville
TC214 – Soft Soils	Shiao Huey Chow		
TC215 – Geo-Environmental	<b>Malek Bouazza (Chair)</b> Abbas El-Zein		
TC216 – Frost	Daichao Sheng	Adrian McCallum	
TC217 – Land Reclamation	David Zhang	Hadi Khabbaz	Anthony Fairclough
TC218 – Reinforced Fill Structures	Brett Gibbons Riccardo Musella*	Antonio Ramirez Martinez Gary Power*	
TC302 – Forensic	Dr. Bindumadhava Malek Bouazza	Sanjay Nimbalkar*	
TC303 – Floods	Buddhima Indraratna*	Hadi Khabbaz	
TC304 – Risk	Jinsong Huang Jianfeng Xue	Mark Jaksa	
TC305 – Megacities	Sanjay Nimbalkar		
TC306 – Geo Education	David Airey	Mark Jaksa	
TC307 – Sustainability	Mizanur Rahman	Abbas El-Zein	
TC308 – Energy Geotechnics	Malek Bouazza Asal Bidarmaghz*	Shanyong Wang Guillermo Narsilio	
TC309 – Machine Learning	Ali Karrech Jinsong Huang*	Sukumar Pathmanandavel Chongchong Qi*	Vic Kumaran

## Appendix 5: Council report for Europe

Rapport du Conseil pour l'Europe

### Mario Manassero

Department of Structural, Geotechnical and Building Engineering, Politecnico di Torino, Italy, [mario.manassero@polito.it](mailto:mario.manassero@polito.it)

**SUMMARY:** This report contains an overview of the state of ISSMGE in Europe and a summary of the main past and future activities in the region since the Council meeting held in Seoul in September 2017.

#### 1. MEMBER SOCIETIES AND MEMBERSHIP

Presently, there are 38 European Member Societies (out of a total of 90), from 39 countries, since the Czech and Slovak Republics joined as a single society. Moreover, it is worth remembering that in the membership list submitted to the Seoul Council in September 2017 by the President, Roger Frank, and the Vice-President (VP) for Europe, Antonio Gens, Cyprus became a new ISSMGE Member Society with the name Cypriot Society for Soil Mechanics and Geotechnical Engineering (CSSMGE). The total number of individual members of the European Member Societies is currently 8751, which is a 7.5% higher number than the 8142 European societies at the time of the Seoul Council Meeting. They represent about 40% of the total ISSMGE membership.

Moreover, it is also worth mentioning that an active group of Moldavian geo-technicians, with the help and support of the Romanian Geotechnical Society, had made good progress in establishing the Moldavia society of soil mechanics and geotechnical engineering until the onset of the COVID-19 pandemic. During the pandemic, the institutional collaboration between the two countries, which had consisted of joint seminars, workshops and conferences, has significantly slowed down. Nevertheless, in spite of the many limitations that have arisen as a result of the COVID-19 pandemic, the willingness to apply for ISSMGE membership is still alive as well and, in the desired case of success, it will hopefully take place in the near future, thus Moldavia would become the 40<sup>th</sup> European Country Member of ISSMGE.

#### 2. EUROPEAN REGIONAL CONFERENCES

The main event concerning geotechnical engineering in Europe was the XVII European Conference on Soil Mechanics and Geotechnical Engineering, which was held in Reykjavik from the 1<sup>st</sup> to the 6<sup>th</sup> September 2019. The Conference was organised by the Icelandic Geotechnical Society and it was a great success, thanks, in great part, to the hard work of an efficient and dedicated Conference Organising Committee (COC) chaired by Mr. Haraldur Sigursteinsson.

The venue was the Harpa Conference Centre, situated in the Reykjavik harbour. The general theme of the Conference was *Geotechnical Engineering, foundation of the future*, a theme that was able to accommodate a wide variety of topics grouped under 6 different headlines: A: Modelling and experimental assessment of geomaterials; B: Geotechnical construction and soil improvement; C: Geohazards, earthquakes and mitigation; D: Environment, water and energy; E: Historical heritage preservation and F: Special and specific Issues.

The Conference was structured over four days and the technical programme included: 5 Keynote lectures, 9 Invited lectures (including Bright Spark lectures), 7 Main Sessions and 42 Discussion Sessions, which were anticipated by 7 Pre-

Conference Technical Committees Workshops on Sunday 1<sup>st</sup> September. In addition, a number of Meetings were organised by the Technical Committees (TC) and the European Regional Technical Committees (ERTC).

The five Keynote lecturers were Suzanne Lacasse, Sigurður Erlingsson, Antonio Gens, Jorge G. Zornberg and Lyesse Laloui, whereas the Invited lectures were delivered by Gioacchino Viggiani, Lidija Zdraykovic, Maurice Bottiau, Mike G. Winter, Sebastiano Foti, Ólafur G. Flóvenz and Sigurður Reynir Gíslason, and the two young geotechnical engineers, who were awarded with the Bright Spark Lecture, were Federico Pisanò and Matteo Ciantia.

No limits were set for the number of papers that each Member Society could submit. Out of the 1120 Abstracts initially proposed, 679 papers (from 34 European countries and from 22 countries outside the European Region) were finally accepted for publishing in the corresponding printed and digital Proceedings. As many as 410 papers were presented orally, and 192 were offered as poster presentations. It is worth noting that all the papers were available for downloading from the conference website at the very beginning of the conference in order to allow the audience to follow all the presentations on both the main screens and/or on their computers, tablets or smart phones. In addition, a series of Technical Tours and an extensive Social Programme completed the Conference activities.

A total of 852 participants from 60 countries attended the event and, moreover, 58 Technical Exhibition stands were occupied.

During the Conference, a meeting of the European Member Societies was held on the 3<sup>rd</sup> September. A number of issues of common interest were presented and discussed.

As had already occurred during the last edition of ECSMGE (Edinburgh 2015), an important topic was considered to deserve special attention during the meeting i.e. the National Registration of Ground Engineering Professionals viewed from an European perspective. Within his presentation, the coordinator of this initiative, Fitan Buggy, past chairman of the Geotechnical Society of Ireland, pointed out the very delicate and crucial theme of the level of educational qualification and the duration of post-academic experience, which should define a minimum professional competency for the Ground Engineering Professionals from European Countries. However, the convergence of views on this topic proved to be rather difficult, with a diverse range of opinions being expressed, and it was therefore preliminarily proposed to allow each National Standards Board to adopt its own requirements to reflect the definition of competency in their National Register. Obviously, the suitability of this provisional compromise will have to be monitored over time. At the end of the presentation and the related discussions, the fundamental role of ISSMGE in encouraging greater participation among European countries, as well as in integrating the European registration with world-wide systems, was stressed.

At the end of the meeting, the location of the subsequent European Conference was also decided on. There were three very

strong and well-prepared bids from the Belgian, Portuguese and Turkish Member Societies. After the vote of the Member Society representatives, Lisbon (Portugal) was chosen to be the next venue of the XVIII European Conference on Soil Mechanics and Geotechnical Engineering, which will take place from the 25th to the 30th August 2024. The venue will be the Conference Centre situated on the right side of the Tagus River, which offers a wonderful view of the Vasco da Gama Bridge, among others. The theme of the conference is “*Challenges of Geotechnical Engineering to meet current and emergency society needs*”, a theme that promotes a positive look towards the future in order to face it in a proactive way through Geotechnical Engineering contributions, among others, in terms of development, sustainability and capability to predict and avoid environmental disasters. More information is provided on the website: <http://www.spgeotecnia.pt>.

### 3. EUROPEAN SUB-REGIONAL CONFERENCES

In addition to the four-year ECSMGE series in the region, there are also a number of European Conferences involving sub-regional groups of Member Societies: the Danube - European Conference on Geotechnical Engineering, the Nordic Geotechnical Meeting and the Baltic Sea Geotechnical Conference.

The **16th Danube-European Conference on Geotechnical Engineering**, organised by the Macedonian Association for Geotechnics, was held at the Hotel Aleksandar Palace of Skopje on 7-9 June 2018. The Organising Committee was chaired by Professor Milorad Jovanovski and co-chaired by Professor Ljupčo Dimitrievski. The conference theme was: *Geotechnical Hazards and Risks: Experiences and Practices (Geotechnische Gefahren und Risiken: Erfahrungen und Praxis)*. Participants from 46 countries took part, and there were 10 invited lecturers and more than 150 papers. During this event, the President of the Republic of Macedonia awarded the Medal for Merit to Prof. Heinz Brandl for his outstanding contribution to the establishment and to the general increase of the Macedonian geotechnical community.

The next **17th Danube - European Conference on Geotechnical Engineering**, originally scheduled for September 2022, was postponed because of the persistence of the COVID-19 pandemic and is now scheduled to take place in Bucharest (Romania) on 7 - 9 June 2023. The event will be organised by the Romanian Society for Geotechnical and Foundation Engineering.

Moreover, again due to the COVID-19 pandemic, both the **14th Baltic Sea Geotechnical Conference and the 18th Nordic Geotechnical Meeting** were run parallelly in full online mode on 18-19 January 2021. The events were organised by the Finnish Geotechnical Society under the chairmanship of Ville Raasakka.

### 4. EUROPEAN YOUNG GEOTECHNICAL ENGINEERS' CONFERENCES

One of the yearly highlights of the European meeting calendar is the European Young Geotechnical Engineers' Conference (EYGEC). The **26th EYGEC** was held at Hotel Klugbauer in Reinischkogel near Graz in Austria from the 11th to the 14th September 2018 and was organised by the Austrian Member Society under the chairmanship of Prof. Helmut Schweiger. It was attended by 45 delegates, nominated by 26 different countries. Four keynote lectures were delivered by Janko Logar (University of Ljubljana, Slovenia), Clemens Kummerer (Keller Kolding, Germany), Dietmar Adam (Vienna University of Technology, Austria) and Helmut F. Schweiger (Graz University of Technology, Austria). Overall, the presentations were of a high level and were well prepared by the young geotechnical

engineers, and they covered a wide range of geotechnical problems. The participants represented a well-balanced group of academics and practitioners and, therefore, not only high-level research results were illustrated, but also interesting problems that arose from practice were discussed.

Just two weeks after the XVII ECSMGE, where great visibility had been given to young members through a joint main session, in cooperation with Corporate Members, which dealt with Bridging the Gap Between Academics and Practitioners, and through the Bright Spark Awards, the **27th EYGEC**, organised by the Turkish Geotechnical Society, under the chairmanship of Prof. Deniz Ülgen, took place in Bodrum, Muğla-Turkey, on the 26th and the 27th September 2019, in conjunction with another international event, planned in the same week and devoted to the young ISSMGE members, i.e. the **1st Mediterranean Young Geotechnical Engineers' Conference** organised in the same venue from the 23rd to the 24th September, 2019. In this way, a blended atmosphere, a bigger get together and a larger platform of collaboration were provided for the young attendees, together with “differently young” invited keynote speakers. Hopefully, this initiative should give rise, in the near future and possibly just after the pandemic limitation, to a new conference series that should be able to promote a lasting and profitable cooperation among all the participants for the common technical and scientific progress of the Mediterranean Regions within the Geotechnical Engineering discipline.

The EYGEC was attended by 36 young delegates, representing 23 Member Societies. The invited lectures were delivered by Pierre Delage, Andrea Dominijanni, İlknur Bozbey, Lyesse Laloui, George Gazetas and Wissem Frikha.

As a result of the limitations of the COVID-19 pandemic, the 28th EYGEC, which is going to be organised by the Russian Member Society and was originally planned to take place in Moscow, September 2020, has had to be rescheduled to take place in October 2023, also considering that, as is customary, there will be no EYGEC in 2022, due to the planned world-wide Young Geotechnical Engineers' Conferences which will be held in conjunction with the Sydney International Conference.

The 29<sup>th</sup> and 30<sup>th</sup> EYGEC have not been officialised yet, since the final choices and decisions will be in the hands of the next European VP, Lyesse Laloui. However, the Macedonian Association for Geotechnics and the Comité Français de la Mécanique des Sols et de Géotechnique have already expressed their willingness to organise the two aforementioned EYGEC editions, which at present are scheduled for the years 2024 and 2025, respectively.

### 5. OTHER INTERNATIONAL CONFERENCES IN EUROPE

In addition to the events mentioned in the previous sections, a large number of ISSMGE sponsored International Conferences have been held in Europe, often organised or supported by Technical Committees and/or by Member Societies:

- \* 2nd International Symposium on Coupled Phenomena in Environmental Geotechnics (CPEG2). Leeds, the UK, 06-08 September 2017. (University of Leeds and endorsed by TC215).
- 3rd International Soil-Structure Interaction Symposium. Izmir, Turkey, 18-20 October 2017. (Turkish Society for Soil Mechanics and Geotechnical Engineering).
- Geo-Expo 2017 Scientific and Expert Conference. Sarajevo, Bosnia and Herzegovina, 26-27 October 2017. (Geotechnical Society of Bosnia and Herzegovina).
- 2nd International Conference “Challenges in Geotechnical Engineering”. Kiev, Ukraine, 20-23

- November 2017. (Kyiv National University of Building and Architecture, the University of Zielona Góra, Ukrainian Society for Soil Mechanics, Geotechnics and Foundation Engineering).
  - Granular Matter Workshop - CEGD Workshop. Budapest, Hungary, 12-13 June 2018. (Óbuda University, Hungarian Academy of Sciences and BME Morphodynamics Research Group).
  - 4th International Symposium on Cone Penetration Testing (CPT'18). Delft, The Netherlands, 21-22 June 2018. (Delft University of Technology and endorsed by TC102).
  - 9th European Conference on Numerical Methods in Geotechnical Engineering. Porto, Portugal, 25-27 June 2018. (The University of Porto and endorsed by ERTC7).
  - 9th International Conference on Physical Modelling in Geotechnics. London, The UK, 17-20 July 2018. (City University of London and endorsed by TC104).
  - \* China – Europe Conference on Geotechnical Engineering. Vienna, Austria, 13-16 August 2018. (Institute of Geotechnical Engineering, the University of Natural Resources and Life Sciences Vienna (BOKU) and University of Leeds).
  - Urban Planning Below the Ground Level: Architecture and Geotechnics. Saint Petersburg, Russia, 19-21 September 2018. (St. Petersburg Council of Architects and endorsed by TC207).
  - \* International Symposium on Energy Geotechnics. Lausanne, Switzerland, 26-28 September 2018. (Swiss Federal Institute of Technology in Lausanne and endorsed by TC308).
  - Geo-Expo 2018 Scientific and Expert Conference. Neum, Bosnia and Herzegovina, 18-19 October 2018. (Geotechnical Society of Bosnia and Herzegovina).
  - International Scientific-Technical Conference "Geotechnics of Belarus: Science and Practice". Minsk, The Republic of Belarus, 23-26 October 2018. (Belarusian National Technical University and Belarusian Geotechnical Society).
  - Geotechnical Challenges in Karst. Omiš, Croatia. 11-13 April 2019 (Croatian Geotechnical Society).
  - Prague Geotechnical Days 2019. Prague, The Czech Republic. 13-14 May 2019 (Czech and Slovak Society for Soil Mechanics and Geotechnical Engineering, SG Geotechnika and Charles University).
  - 4th International Conference "Transportation Soil Engineering in Cold Regions". St. Petersburg, Russia. 20-23 May 2019 (Emperor Alexander I Petersburg State Transport University).
  - 14th International Conference on Underground Construction. Prague, The Czech Republic. 3-5 June 2019 (Czech Tunnelling Association and ITA-AITES).
  - Construction in Historical Cities: Problems and Solutions. St. Petersburg, Russia. 6-7 June 2019 (TC 207).
  - \* 7th International Conference on Earthquake Geotechnical Engineering. Rome, Italy. 17-20 June 2019 (TC 203).
  - 7th International Symposium on Deformation Characteristics of Geomaterials. Glasgow, The UK. 26-28 June 2019 (TC 101).
  - 3rd International Conference "Challenges in Geotechnical Engineering". Zielona Gora, Poland. 10-13 September 2019 (the University of Zielona Gora and Kyiv National University of Construction and Architecture).
  - \* 1st Mediterranean Young Geotechnical Engineers Conference. Bodrum, Turkey. 23-24 September 2019 (Turkish Society for ISSMGE).
  - 3rd International Conference on Information Technology in Geo-Engineering. Guimarães, Portugal. 29 September – 2 October 2019 (the University of Minho and Portuguese Geotechnical Society).
  - Energy Geotechnics Mechanics of the Energy Transition. Delft, The Netherlands. 3 October 2019 (CRUX Engineering BV, Cohere Consult, Delft University of Technology, Eindhoven University of Technology, TC308).
  - \* International Conference on Geotechnical Engineering Education. Online event. 23-25 June 2020 (TC 306).
  - 4th European Conference on Physical Modelling in Geotechnics. Luleå, Sweden (hybrid mode). 6-8 September 2020 (Luleå Technical University).
  - 4th European Conference on Unsaturated Soils. Online event. 19-21 October 2020 (Instituto Superior Técnico, Delft University of Technology and Universitat Politècnica de Catalunya).
  - \* Mediterranean Symposium on Landslides. Online event. 7-9 June 2021 (Università di Napoli Federico II, Università di Milano Bicocca and Università della Campania L. Vanvitelli).
  - 6th International Conference on Geotechnical and Geophysical Site Characterization. Budapest, Hungary. 26-29 September 2021 (Hungarian Geotechnical Society).
  - Second Generation of Eurocode 7 - Improvements and Challenges. Online event. 28-29 September 2021 (ERTC10).
- Besides the ISSMGE official International Conferences, several geo-engineering events have been held in Europe, under the endorsement of ISSMGE:
- Intensive Short-Course on "Energy Geostructures: Analysis and Design" - 2nd Edition. Lausanne, Switzerland. 6-8 March 2019 (Swiss Federal Institute of Technology in Lausanne).
  - 6th International Course on Geotechnical and Structural Monitoring. Rome, Italy. 27-31 May 2019 (Natural HAZards Control and Assessment).
  - 2nd International Conference on Natural Hazards and Infrastructure. Chania, Greece. 23-26 June 2019 (Innovation Center on Natural Hazards and Infrastructure).
  - EUROCLAY 2019 - Geotechnical characterisation of clayey geomaterials from micro to macroscale: the role of microstructure and anisotropy. Paris, France. 1-5 July 2019 (French Clay Group).
  - International Symposium on SPH and Other Particle-Based Continuum Methods and their Applications in Geomechanics. Vienna, Austria. 11-13 September 2019 (the University of Natural Resources and Life Sciences of Vienna).
  - ReSyLAB & GEO-EXPO 2019. Sarajevo, Bosnia and Herzegovina. 23-25 October 2019 (Geotechnical Society of Bosnia and Herzegovina).
  - 8th International Geotechnical Symposium. Istanbul, Turkey. 13-15 November 2019 (Turkish Chamber of Civil engineers and Turkish Society for ISSMGE).
  - 2nd International Symposium on Seismic Performance and Design of Slopes. Edinburgh, The UK. 18-22 January 2020 (University of Edinburgh).
  - DFI Deep Mixing 2021. Online event. 1-17 June 2021 (Deep Foundations Institute).

- 6th International Conference on Geotechnical Research and Engineering. Online event. 21-23 June 2021 (Hungarian Geotechnical Society).

The conferences with an asterisk were attended by the VP Europe.

The forthcoming Conferences in Europe in the period immediately following the 20th International Conference on Soil Mechanics and Geotechnical Engineering (Sydney, Australia) are planned as follows:

- 5th International Symposium on Cone Penetration Testing. Bologna, Italy. 8-10 June 2022 (Italian Geotechnical Society and University of Bologna).
- 3rd International Conference on Environmental Geotechnology, Recycled Waste Materials and Sustainable Engineering. Izmir, Turkey. 16-18 June 2022 (Dokuz Eylul University).
- 3rd International Symposium on Geotechnical Engineering for the Preservation of Monuments and Historic Sites. Naples, Italy. 22-24 June 2022 (TC 301 and Italian Geotechnical Society).
- 10th International Symposium on Geotechnical Aspects of Underground Construction in Soft Ground. Cambridge, The UK. 27-29 June 2022 (University of Cambridge).
- 5th International Conference on New Developments in Soil Mechanics and Geotechnical Engineering. Nicosia, Northern Cyprus. 30 June – 2 July 2022 (Turkish Society for ISSMGE and Near East University).
- 16th International Conference of the International Association for Computer Methods and Advances in Geomechanics. Turin, Italy. 30 August – 2 September 2022 (Politecnico di Torino).
- 11th International Symposium on Field Monitoring in Geomechanics. London, The UK. 4-7 September 2022 (TC220).
- 11th International Conference on Stress Wave Theory and Design and Testing Methods for Deep Foundations. Rotterdam, The Netherlands. 20-23 September 2022 (Royal Netherlands Society of Engineers).

## 6. TECHNICAL COMMITTEES

Fourteen (out of thirty-seven) ISSMGE Technical Committees (TCs) are currently hosted by European Member Societies:

- TC-101: Laboratory Stress Strain Strength Testing of Geomaterials. British Geotechnical Association, Chair: Matthew Richard Coop.
- TC-102: Ground Property Characterization from In-Situ Tests. Sociedade Portuguesa de Geotecnia, Chair: Antonio Viana da Fonseca.
- TC-106: Unsaturated Soils. British Geotechnical Association, Chair: David Toll.
- TC-201: Geotechnical Aspects of Dykes and Levees and Shore Protection. Netherlands Society for SMGE, Chair: Cor Zwanenburg.
- TC-204: Underground Construction in Soft Ground. Netherlands Society for SMGE, Chair: Adam Bezuijen.
- TC-206: Interactive Geotechnical Design. British Geotechnical Association, Chair: Duncan Nicholson.
- TC-211: Ground Improvement. Groupement Belge de la SIMSG, Chair: Noel Huybrechts.
- TC-212: Deep Foundations. Associazione Geotecnica Italiana, Chair: Alessandro Mandolini.

- TC-218: Reinforced Fill Structures. Associazione Geotecnica Italiana, Chair: Giulia Lugli.
- TC-220: Field Monitoring in Geomechanics. British Geotechnical Association, Chair: Andrew Ridley.
- TC-222: Geotechnical BIM and Digital Twins. Norwegian Geotechnical Society, Chair: Magnus Romoen.
- TC-301: Preservation of Historic Sites. Associazione Geotecnica Italiana, Chair: Renato Lancellotta.
- TC-306: Geo-engineering Education. Hellenic Society of SMGE, Chair: Marina Pantazidou.
- TC-309: Machine Learning and Big Data. Norwegian Geotechnical Society, Chair: Zhongqiang Liu.

The aforementioned TCs have undertaken a significant number of activities that have been reviewed in the Technical Oversight Committee (TOC) report.

In addition to the ISSMGE TCs, there are four European Regional Technical Committees (ERTC) focused on issues that are particularly relevant for European Geotechnics.

- *ERTC-3: Piles*. Chair: Maurice Bottiau (Belgium),

This is a very active Committee with a steadily expanding membership. The Committee has held a number of online and face-to-face meetings. In particular, a very successful meeting, hosted by the Belgian Member Society, was organised during the 19th ICSMGE in Seoul, on the 20th September 2017. Moreover, an information session about guidelines for a technical approval system of pile foundations was held in Brussels on the 22nd May 2018. One of the main aims of ERTC-3 is to promote an active interaction with the other two ERTCs, 10 and 12, within the pile design and construction standardisation framework established by the new generation of Eurocodes.

- *ERTC-7: Numerical Methods*. Chair: Helmut Schweiger (Austria)

The Committee organised a very successful 9th European Conference on Numerical Methods in Geotechnical Engineering (NUMGE) in Porto (Portugal) on 25-27 June 2018. The Committee has also organised a workshop in the XVII ECSMGE, Reykjavik, Iceland on Numerical Surveying, Compare and Discuss the Development and Applications of Numerical Methods in Geotechnical Engineering, on the 1st September 2019. The next event is planned for the 10th NUMGE, which will be held at Imperial College, London, June 26-28, 2023.

- *ERTC-10 Evaluation of Eurocode 7*. Chair: Trevor Orr (Ireland).

The main activity of ETC 10 was the planning and preparation of several workshops, together with TC205 and TC304, and face-to-face meetings. Following the resignation of Professor Trevor Orr, after a very long period of time and a really outstanding contributions to the implementation and application of Eurocode 7, the new chairman, Georgios Katsigiannis, was officially appointed at the XVII ECSMGE in Reykjavik, Iceland, in September 2019. The new Chair has already been able to organise an important and successful on-line event: 1st ERTC10 Seminar on "Second Generation of Eurocode 7 - Improvements and Challenges" on Tuesday 28th September 2021 with almost 600 registrations from all around the world. The success of this event highlighted the considerable international interest in the development of the next generation of European standards on geotechnical design.

- *ERTC-12: Evaluation of Eurocode 8*. Chair: Christos Vrettos (Germany)

The main purpose of ERTC-12 is to provide general, as well as specific comments on the EC8 code from the earthquake geotechnical engineering practice point of view, and in light of the latest research. Moreover, it intends to conduct comparisons with other national and/or international codes and to propose improvements and modifications to EC 8. The new chairman,



Professor Christos Vrettos, in the role of DIN delegate of Eurocode 7 and Eurocode 8 and as a member of several DIN Committees on calculation methods in geotechnics and the seismic design of buildings, is in the ideal position to re-assemble the committee and to start with a fruitful phase of activities. Presently, ETC12 concentrates on communicating these findings to the drafting teams working on the new version of EC8.

## 7. INTERACTION WITH MEMBER SOCIETIES

Most Member Societies organise National meetings (often with international participants), but they are too numerous to list here. Among those reported on the websites of the member societies, I personally attended the following ones:

- 16th National Congress of Geotechnics. Ponta Delgada, S. Miguel, Açores, 27th – 30th May 2018. *Geotecnia, Riscos Naturais e Geotécnicos e Sustentabilidade*. Sociedade Portuguesa de Geotecnia.
- 1st National Symposium on *Environmental Geotechnics*. Bucharest – Romania, 2nd July 2018. Romanian Society for SMGE.
- School of Architecture, Civil and Environmental Engineering. École Polytechnique Fédéral de Lausanne. *Civil Engineering Seminar Series*, Switzerland, 12th October 2018. Swiss Geotechnical Society.
- XXV Geotechnical Conference of Turin, (Italy), Turin 8th – 9th November 2018. *Analysis and Design of Geotechnical Works in Seismic Areas*. Associazione Geotecnica Italiana.
- XXIV Széchy Károly memorial session, 9th February 2019, Budapest, Hungary. Hungarian Geotechnical Society.

I took advantage of those National Meetings and the International Conferences that I attended to interact with officers and members of most of the European Member Societies. The following issues have often been raised for discussion: application and use of Eurocode in the different countries, the availability of ISSMGE publications via open access, how to raise the profile and visibility of our profession, the national registration of geotechnical professionals and the improvement of the recognition, appreciation and remuneration of the capabilities, skills and contributions of Geotechnical Engineers. The latter three objectives are in some way closely linked to each other.

Unfortunately, due to the COVID-19 pandemic, my contacts, in presence, with the representatives and members of national societies have basically stopped since the end of 2019. Nevertheless, I hope to be able to get back in touch shortly with most of European colleagues and friends in the forthcoming ISSMGE events.

As far as the other complementary activities of the national member societies are concerned, it is possible to observe an increasing number of named lectures in the last years, organised by the member societies. This is an excellent way of recognising the merits of outstanding individuals and, at the same time, of paying tribute to legendary past figures in our discipline. Some of the lectures have a long tradition, but several others have been added in recent times:

- Austria: Terzaghi Lecture
- Croatia: Nonveiller Lecture
- Czech and Slovak Society: Prague Geotechnical Lecture.
- France: Coulomb Lecture.
- Hungary: Széchy Memorial Lecture
- Ireland: Hanrahan Lecture.
- Italy: Arrigo Croce Lecture
- Norway: Bjerrum Lecture

- Portugal: Manuel Rocha Lecture, Victor de Mello Lecture (together with the Brazilian Society)
- Slovenia: Šuklje Lecture
- Spain: Jiménez Salas Lecture
- The UK: Rankine Lecture, BGA Touring Lecture

Another significant feature of European Geotechnics is that several Member Societies publish refereed Technical Journals in order to enhance the diffusion of geotechnical research and practice. Here are some examples:

- Albania: Geotechnics
- Belgium: Geotechniek
- Bosnia & Herzegovina: Geotecnika
- Czech and Slovak Society: Geotecnika.
- Denmark: Bulletin of the Danish Geotechnical Society
- France: Revue Française de Géotechnique
- Germany: Geotechnik
- Italy: Rivista Italiana di Geotecnica
- Portugal: Geotecnia (with the Brazilian and Spanish Member Societies) and Soils and Rocks (with the Brazilian Member Society)
- Romania: Romanian Journal of Soil Mechanics and Foundations
- Slovenia: Acta Geotechnica Slovenica
- Spain: Boletín de la Sociedad Española de Mecánica del Suelo e Ingeniería Geotécnica

## 8. TIME CAPSULE PROJECT

An illustration of the proposals, planning and first outcomes of the activities related to the Time Capsule Project (TCP) initiative can be found on the ISSMGE website.

However, just to briefly sum up, I can here report that the basic aim of TCP is that of improving the profile and visibility of ISSMGE through the enhancement of its communication capability, and the effective use of modern media and the related tools that are today available. All these aspects should also be considered to ensure a wide and long-lasting conservation of the memory of the history of ISSMGE, coupled with a modern and proactive vision of the future of the new generations, in particular considering that it is almost 100 years since ISSMGE was first founded.

After the presentation of the first ideas concerning TCP to the ISSMGE Board by Sukumar Pathmanadavel, the Chair of the Corporate Associate Presidential Group (CAPG), and the subsequent approval and setting up of the general framework and the related activities, I have been deeply involved, with the initialisation and steering of the European Member Societies, in planning and implementing their TCP contribution to the XX ICSMGE.

The European Region has played a fundamental role in this initial phase of the project through the organisation of a number of conference calls devoted to the presentation of some showcase examples by the European Societies which, at that time, were already well underway concerning the definition and preparation of their TCP contribution to the XX ICSMGE.

More details about the present status and the future developments of the TCP are available in the specific report prepared by the TCP Presidential Group and included in the proceedings of the XX ICSMGE.

Considering its natural links with the TCP, it is worth mentioning a much appreciated initiative that was promoted and headed by the French Committee of Soil Mechanics and Geotechnical Engineering (CFMS) in cooperation with a number of supporters and sponsors: the Virtual Geotechnical Museum, which was completed and presented, in website form, at the beginning of 2019. This initiative is based on the "Les dessous des grands travaux" exhibition hosted by the Museum of Arts and Crafts in Paris, which was first inaugurated at the 18th ICSMGE

held in 2013. A virtual visit is available, through the exhibition website, in French and English (<http://expo.geotechnique.org>). This installation is the first in France and abroad, and it illustrates the know-how of French engineering and construction companies in the geotechnical field.

This initiative, already in the present format, can be considered, to all intents and purposes, as a part of CFMS's contribution to TCP.

## 9. GENERAL REMARKS AND OUTLOOKS

The European Region has played, and should continue to play, a fundamental role within the ISSMGE since it is, by far, the most numerous ISSMGE Region, in terms of both individuals and member societies, although this is neither the only reason nor, probably, the most important one, as reported below in my closing remarks.

The general numbers and the related lists of events and activities shown in the previous sections appear to be more than satisfactory, but they are not always able to represent the whole geotechnical engineering status in Europe and, possibly also outside the European Region, which sometimes shows aspects that deserve further attention and possible corrective actions.

Let's try to ask ourselves what is really the most important problem at the worldwide scale today. In my opinion, the only possible answer is: the safeguarding and the preservation of the environment in order to keep our planet liveable and habitable for the next generations.

So, if we want to take care of our future, we must use the planet's resources in an extremely careful way in order to maintain the present quality of life and, at the same time, to preserve our natural resources, while taking into account the earth's fast growing population and the related needs.

In my opinion, the only way to overcome this possible contraposition is to further enhance research and activities in the science and technology fields.

Geotechnical engineering is one of the scientific and technical disciplines that can offer the most important contributions, for instance, to the adaptation and mitigation of climate change effects, in particular considering the European Region, where these kinds of problems first arose as early as two centuries ago due to its intensive industrial development and high population concentration. Since then, at least part of Europe has been characterised by very demanding life standards, in terms of generalised welfare and by the consequent need to intensely exploit environmental resources.

Therefore, as a direct consequence, it is now our duty to address our production and the related environmental activities in such a way that we achieve mitigation and sustainability, in order to cope with these problems, not just through a philosophical and purely theoretical approach, but rather in a very practical and realistic manner.

In this context, it is perhaps worth mentioning two of the reference terms that I proposed at the beginning of my mandate, in order to address the Geotechnical Engineering contribution of the European Region. Their main aims are addressed to shortening the present distance between professionals and researchers in the field of both geotechnical design and construction activities and to increasing and improving the relationships among the ISSMGE Member Societies within the Mediterranean area.

Moreover, referring to the aforementioned terms of reference, we should of course seek solutions, not only looking at the next few days, but rather at the next years and, from this perspective, I strongly believe in the potential of the new generations of geotechnical engineers.

The injection of young engineers with fresh minds and new ideas can effectively contribute, in my opinion, to bridging the

gap between the ISSMGE Members from the academia and those from practice and corporate groups.

For these reasons, I have tried to promote the organisation of the main plenary sessions in many European conferences by joining the efforts of the Young Member and Corporate Associate Groups. These sessions have been devoted, among others, to the presentation of the European "Bright Spark" Lectures for the best contributions of the Young Members of ISSMGE and to promoting the interaction between the two groups of participants.

Last but not least, through this cooperation, other relevant advantages can also arise for both young and corporate members, including, occupation facilitations and opportunities for new experiences, for the benefit of the new generations, and, on the other hand, original contributions from fresh minds for the benefit of companies and professional firms in order to try to establish effective synergies for a long-lasting innovation trend.

The increase and improvement of the interaction and cooperation among the countries of the Mediterranean area is a huge problem, even at the international political level. Nevertheless, I think that any contribution in this direction, given by any international scientific and technical institution or association of these countries is both necessary and important, in particular when considering the long-term scenario.

As engineers, we have to try to transform difficult situations into new opportunities and possibly into future progress. For these reasons, it has always been my intention to promote any form of technical and scientific cooperation among the Mediterranean countries through events and activities that involve the participation of all the regions facing onto the Mediterranean Sea.

The first example of this kind of cooperation was that of the MYGEC event, already mentioned in section 4 of this report, which involved African, Asian and European Regions.

The conference, with the participation of a large number of young geotechnical engineers, mainly from Africa and Europe, was particularly successful and, hopefully, will eventually result in a new conference series that will be able to promote a lasting and profitable technical and scientific cooperation of the Mediterranean countries within the Geotechnical Engineering discipline to overcome, among others, the present problems related to the emigration/immigration phenomenon.

Apart from the aforementioned initiatives and the related organisation and management activities of the ISSMGE European Region, what is also important today, in my opinion, is to never forget the basic features of the Engineering professions and of Geotechnical Engineering in particular. These kinds of professions should operate on the basis of scientific and technical knowledge, which means being able to quantify, and not only to address in a qualitative way, the hydro-chemo-physical and mechanical phenomena, in order to frame them in an objective and rational manner, rather than through qualitative, biased and possibly misleading options, hidden behind empty words and/or just emotion-driven reactions, without knowing the most elementary scientific and technical concepts. Unfortunately, this communication trend is today widely spread by all kinds of media, thus allowing almost anyone to deal with any topic, without any specific competence or skill.

In order to maintain and protect our professional position, in my opinion, we need to strongly oppose this trend, in particular within our community, by maintaining and possibly improving the quality of education in our universities and professional companies.

For these reasons, it is important to not forget the importance of a broad-spectrum scientific and technical education for the young generations, founded on a solid theoretical basis, if we want to be excellent in our work and, then, to continue to substantially contribute to the sustainable development of the modern world.

In short, if we want to keep and eventually improve the authoritativeness and prestige of the Geotechnical Engineering community within modern society, this result mainly depends, in my opinion, on the real competences and skills that we are able to spend in our work.

On the other hand, as far as our visibility and attractiveness are concerned, they basically depend on our ability to communicate through the modern media. However, visibility and attractiveness should be considered as very useful features to strengthen our position, but they should always be regarded as accessory features, which, within our profession, do not have any meaning without the actual ability to guarantee excellent results in our work.

Quite a large number of initiatives are already in place in order to try to face these kinds of problems. Of course, it is a very difficult task to modify the current trends, but, with a constant and enduring effort at all levels, our International Society may effectively contribute towards changing this attitude, hopefully avoiding critical times in the future, when at that

moment, even for “the man in the street” in a state of need, it would become very easy to recognise the relevance and the role of such scientific and technological professions as Geotechnical Engineering, if it is not already too late for environmental health and human welfare.

Finally, I would like to take this opportunity to thank my predecessor, Antonio Gens, for the precious and generous suggestions and indications he gave me at the handover of the vice-presidency and also for a long time afterwards. Moreover, in turn, I want to warmly welcome my successor, Lyesse Laloui from Switzerland. I could not have asked for a better replacement and I can already anticipate that he will perform a great task in this role. I am sure that he will enjoy the support and encouragement of the entire European geotechnical community that I have personally felt throughout my period in office. I will forever be grateful to ISSMGE for this support and encouragement and in particular to the members from the European Region.

## Vice-President's Report – North America Region

### Timothy Newson

VP North America; Civil and Environmental Engineering, Western University, London, Ontario, Canada.  
tnewson@eng.uwo.ca

#### 1 INTRODUCTION.

The international geotechnical activities in North America are organized by three professional groups. These are the Mexican Geotechnical Society (SMIG), the Canadian Geotechnical Society (CGS) and the Geo-Institute (G-I) of the American Society of Civil Engineers (ASCE). A number of other prominent organizations also host and sponsor technical and professional activities, including the Deep Foundations Institute (DFI), Association of Drilled Shaft Contractors (ADSC), Pile Drivers Contractors Association (PDCA), and Geosynthetics Institute (GSI). A brief summary of the activities by the SMIG, CGS, and G-I during my term (Sept 2017- May 2022) are described in the following sections.

#### 2 THE NATIONAL SOCIETIES.

##### 2.1 Mexican Society of Geotechnical Engineering (SMIG)

The membership for the society during this term has been approximately 500. Activities for geotechnical engineering are held every two years by the Mexican Society of Geotechnical Engineering and are posted at: [www.smig.org.mx](http://www.smig.org.mx). Since the 19<sup>th</sup> ICSMGE in Seoul (Sept 2017), two national conferences have occurred:

- XXIX National Meeting of Geotechnical Engineering and XX National Meeting of Professors of Geotechnical Engineering was held from November 21<sup>st</sup> to 24<sup>th</sup>, 2018 in León, Guanajuato, Mexico.
- XXX National Meeting of Geotechnical Engineering and XXI National Meeting of Professors of Geotechnical Engineering (online) was held from 16<sup>th</sup> to 19<sup>th</sup> March 2021.

The SMIG has three invited lectures that are provided for the national events:

- The Nabor Carrillo Lecture;
- The Leonardo Zeevaert Lecture;
- The Raúl J. Marsal Lecture.

The SMIG has offered a number of technical courses, workshops and other events during the term. These include:

- 5<sup>th</sup> Colloquium of Young Geotechnicians and 2<sup>nd</sup> Meeting of Teachers: Challenges in the 60<sup>th</sup> Anniversary. October 27<sup>th</sup> - 28<sup>th</sup>, 2017.
- 6<sup>th</sup> Colloquium of Young Geotechnicians. October 25<sup>th</sup> – 26<sup>th</sup>, 2019.
- 7<sup>th</sup> Colloquium of Young Geotechnicians November 11<sup>th</sup> – 12<sup>th</sup>, 2021.
- 4<sup>th</sup> DFI-SMIG-GI-ISSMGE International Deep Foundations Symposium from November 15<sup>th</sup>-16<sup>th</sup>, 2017 in Mexico City.
- 5<sup>th</sup> International Symposium on Tunnels and Shafts in Soils and Rock. Held from August 16<sup>th</sup>-18<sup>th</sup>, 2018.
- 6<sup>th</sup> International Symposium on Tunnels and Shafts in Soils and Rocks, Mexico City from March 29<sup>th</sup> – 31<sup>st</sup> & April 5<sup>th</sup> – 7<sup>th</sup>, 2022.

An important event held in the North American region is our quadrennial regional conference that is alternately shared between North America and South America. The successful XVI Pan American Conference on Soil Mechanics & Geotechnical Engineering (PCSMGE) was held in Cancún from November 17<sup>th</sup>-20<sup>th</sup> 2019. There are a number of prestigious invited lectures associated with this conference; in particular the Casagrande Lecture was given by Professor Gabriel Auvinet and the Plenary Lecture was given by Professor Charles Ng. Seventeen keynote lectures were provided by global expert speakers. Three rising stars also gave the new Bright Spark Lectures. Seven hundred and fifty-five abstracts were submitted from forty-one countries.

As the pre-eminent conference in our discipline, these events provide a focus for the interests and activities of engineers, academics and contractors working in geotechnical engineering in the Americas. The next venue for the XVII PCSSMGE will be Concepción, Chile in October 2024.

##### 2.2 Canadian Geotechnical Society (CGS)

The membership for the society during this term has been approximately 1200. National activities on geotechnical engineering are held every year by the Canadian Geotechnical Society. The national CGS conferences generally alternate between the eastern and western sides of the country, with details found at: [www.cgs.ca](http://www.cgs.ca). Over this term, the national conferences have included:

- GeoOttawa 2017: *70 Years of Geotechnics & GeoSciences*.
- GeoEdmonton 2018: *Transportation Geotechnique - Moving Forward*.
- GeoSt.John's 2019: *Under Land and Sea*.
- GeoVirtual 2020 (purely online): *Resilience & Innovation*.
- GeoNiagara 2021: *Creating a Sustainable & Smart Future*.

The CGS has two invited lectures that are given at these national events:

- The R.M. Hardy Address;
- The CGS Colloquium.

Other major events and conferences were also held throughout this term.

The Cross Canada Lecture Tour (CCLT) of the Canadian Geotechnical Society has been delivered since 1965. The purpose of the lecture tour is to provide the CGS members & other geotechnical professionals an opportunity to attend high quality technical presentations by prominent Canadian and international geotechnical professionals. Typically, spring and fall tours are scheduled each year. The tour consists of presentations to 10 to 12 CGS local sections across Canada. Customarily one lecturer per year is a well-known Canadian CGS member and the other is a well-known international individual in the geotechnical field. The CCL

It has become nationally and internationally known and respected. Although there was some disruption to the 2020 schedule, these lectures have continued during this term & the following individuals have been recently involved.

- 2019 Fall I Moore, Queen's University, Kingston, ON.
- 2019 Spring C Shackelford, Colorado State Univ., USA.
- 2018 Fall A Sy, Klohn Crippen Berger Ltd., Vancouver.
- 2018 Spring T O'Rourke, Cornell University, USA.
- 2017 Fall J-M Konrad, Université Laval, QC.

In lieu of the Cross-Canada Lecture Tour (CCLT), the Canadian Geotechnical Society (CGS) conducted the First CGS National Geotechnical Lecture featuring Dr. Doug Stead, Professor Emeritus of Simon Fraser University. It is hoped that these important events can be commenced in the near future.

There has also been tremendous effort directed towards the preparation/production of the next version of Canadian Geotechnical Engineering Manual (CFEM 2021). The CFEM 2021 will include 25 chapters. Four new chapters have been added compared to the previous CFEM version. There are over 75 CGS members actively contributing to the various chapters, supported by a Senior Advisory Committee & external reviewers.

### 2.3 ASCE GeoInstitute

The membership for the society during this term has been approximately 3200. The ASCE Geo-Institute ([www.geoinstitute.org](http://www.geoinstitute.org)) holds a national congress once a year, and on occasion, additional specialty conferences are also held. Since the Seoul conference, the G-I congresses have included:

- IFCEE 2018, Orlando, Florida.
- GeoCongress 2019, Philadelphia, Pennsylvania.
- GeoCongress 2020, Minneapolis, Minnesota.
- IFCEE 2021, Dallas, Texas.
- GeoCongress 2022, Charlotte, North Carolina.

The ASCE G-I has a number of invited lectures that are given at these national events including:

- The Ralph B. Peck Medal Lecture;
- The H. Bolton Seed Medal Lecture;
- The Karl Terzaghi Lecture;
- The Mercer Award Lecture.

A number of other conferences and events have also occurred, including:

- PanAm UNSAT, November 12<sup>th</sup>-15<sup>th</sup>, 2017, Dallas, Texas.
- GEESD V, June 10<sup>th</sup>-13<sup>th</sup>, 2018, Austin, Texas.
- EMI/G-I joint conference, June 18<sup>th</sup>-21<sup>st</sup>, 2019, Pasadena, California.
- Strong participation has also occurred with the Transportation and Development Institute's Pavements Conferences:
  - August 27<sup>th</sup>-30<sup>th</sup>, 2017, Philadelphia, PA
  - July 21<sup>st</sup>-24<sup>th</sup>, 2019, Chicago, Illinois

The US has also hosted other international conferences, including the 4<sup>th</sup> International Conference on Transportation Geotechnics (under the auspices of TC202) and the 10<sup>th</sup> International Conference on Scour and Erosion (under the auspices of TC218). In addition, the US has published the proceedings of the 2<sup>nd</sup> joint technical workshops between the USA and Kazakhstan member societies.

One of the cycle of CAPG panel discussions was conducted

at 2021 IFCEE Dallas (*Knowledge gaps in geotechnical engineering design and construction and the role that the USA could play in influencing global practice*). This has been the only session of this kind to occur within a national conference, rather than during a regional ISSMGE conference. Finally, the US has submitted a proposal to host the 21<sup>st</sup> ICSMGE in Washington, D.C. in 2026 (theme: Geotech on Earth and Beyond!).

### 3 TECHNICAL COMMITTEES.

The North American region of the ISSMGE is currently hosting (or has previously hosted – *shown in italic*) a number of technical committees (TC) during this term. The committees and their associated chairs are shown below.

- TC 105 - Geomechanics from Micro to Macro: Kenichi Soga (United States);
- TC 202 - Transportation Geotechnics: Erol Tutumluer (United States);
- *TC 203 - Geotechnical Earthquake Engineering & Associated Problems: Ross Boulanger (United States);*
- TC 205 - Safety & Serviceability: Rodrigo Salgado (United States);
- TC 208 - Slope Stability in Engineering Practice: Andy Take (Canada);
- *TC 218 - Reinforced Fill Structures: John Sankey (United States)*
- TC 307 - Sustainability in Geotechnics: *Dipanjana Basu (Canada)/ Anand J. Puppala (USA);*
- *TC 308 - Energy Geotechnics: Marcelo Sanchez (United States).*

These TCs have been very successful and have undertaken a significant number of activities in the period that is reviewed in the final report of the Technical Oversight Committee (TOC). In addition, the Young Member Presidential Group (YMPG) has been expertly led by the chair by Lucy Wu (United States).

### 4 GENERAL REMARKS.

Despite ongoing impacts from Covid-19, this term has been busy for the national societies. I have received ongoing responses from each member society and generally, they have all appeared to cope well with the situation, but have been required to reschedule or revise the modality of many events during this period. There have been some impacts of the pandemic on the regional economy, and therefore, the participation (assistance) of geotechnical engineers and students in the various activities has temporarily decreased. During the periods of the most significant lockdowns, face-to-face events were cancelled and this led to the implementation of virtual events, using different digital platforms. In some circumstances there appeared to be advantages of these virtual modalities and one positive aspect of the pandemic may be the retention of the enhanced aspects of this activity.

It is gratifying to see that good cooperation and shared activities have still occurred in the region, including workshops, symposia, and conferences between the various North American professional organizations. I have taken advantage of the National Meetings and the International Conferences that I have attended to interact with officers and members of the North American member societies. The following items have been raised for discussion: membership, links with neighbouring and other countries, participation in International Conferences and Technical Committees, North American code provisions, how to raise the profile and visibility of our profession and the relationships between the national societies and the ISSMGE.

I have also made efforts to try to expose members of the national societies to the research and professional practice occurring in the other countries of the region through the technical publications of the societies (i.e. GeoStrata, Geotechnia and Geotechnical News). Special issues of these publications expounding geotechnical projects from the other regions have been published. New policies have also been put in place by the national societies to encourage the participation of the different leaderships to attend each other's national events. I sincerely hope this cross-border cooperation continues. It has been an honour to represent the North American region on the ISSMGE board and I thank the societies for their support and ongoing excellence to place our geotechnical engineering at the forefront of world practice.

## Appendix 5: ISSMGE activities in South America and the Caribbean 2017 – 2022

### Alejo Oscar Sfriso

Vicepresident of ISSMGE for South America and the Caribbean

SUMMARY: The ISSMGE region of South America and the Caribbean has eleven member societies. This report contains a summary of the activities and interaction among the societies in the region and updates since the Council meeting held in Seoul in 2017. It closes out with an outlook of the future of ISSMGE in the region. Activities and interactions among the sister societies in the period 2017 – 2019 were omitted for brevity.

#### 1 INTRODUCTION

The ISSMGE region of South America and the Caribbean has eleven member societies, namely Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Guatemala, Paraguay, Perú and Venezuela.

This report summarizes the activities of these member societies, and of this VP, and presents some general remarks about the status of the region and its outlook in the immediate future. Activities and interactions among the sister societies in the period 2017-2019 can be found in the 2019 Council Meeting Report and were omitted from this report for brevity.

The COVID-19 pandemic has disrupted the life and plans of everybody in the world, and of course also in the region. Suddenly, all of the in-person meetings that used to be the opportunity to keep people in close contact were postponed or cancelled in March 2020, and they remained so until the end of the term of this VP. The pandemic has also impacted the work and plans of this VP. It found me in the ISSMGE Board Meeting in Tunisia, and I was lucky to be able to rush home shortly before all airports were closed and flights cancelled.

As a result, the planned visits to the three member societies that were still outstanding by the time the pandemic started, Guatemala, Costa Rica and Venezuela, had to be postponed and will not happen before this VP hands office to the next appointed VP, Prof. André Pacheco de Assis. This VP sincerely apologizes for this situation. Also, the efforts to resuscitate the National Society of Ecuador and Dominican Republic, terminated in 2017, while advancing, have not yet come to a successful conclusion.

It was fortunate that the pandemic also found our member societies led by young and enthusiastic groups who were able to soon put in place alternate methods of communication and sharing of knowledge. As a result, we have observed a swift increment, rather than a reduction, in the technical activities in the region: the 51 events that took place in the region before the Council Meeting in Cape Town – and were reported there – were followed by +250 online events (+150 just in Brazil) in the period late 2019 to 2021. For instance, this VP was invited by National Societies and universities in the region to deliver eight courses and forty-one invited lectures during his term 2017-2022, twenty-five of them after the pandemic started. In those events, and as relevant in each case, the mission, activities and services provided by ISSMGE were shared with participants.

During the period 2017-2022 there was a close, intense and continuous interaction among the National Societies in the region. Twelve online meetings of the Presidents and Secretaries were organized and chaired by this VP, and two in-person meetings were held in Seoul and Brazil, the latter one during the Brazilian Conference in 2018 as informed in the report to 2019 Council Meeting. This VP is grateful to ABMS for hosting that event and inviting the officers of all sister societies to it, as it proved to be the last time we were all able to meet face-to-face. In these meetings, this VP reported back to officers the outcome and decisions of the various ISSMGE board meetings and the ISSMGE initiatives, including updates to the Virtual University, the Online Library, and the Time Capsule Project.

Into the future, more collaboration is required, including active support from our larger societies to bring our smaller groups up to speed in the organization of technical activities. Also, regional collaboration and effort is required to promote succession and growth in some of the societies where officers have been serving for several years already. This VP wishes Prof. Assis success with these initiatives and the many he will introduce during his term.

#### 2 ACTIVITY OF THE MEMBER SOCIETIES

As mentioned, only events that happened since the Cape Town Council Meeting (2019) are listed below. Those already reported in 2019 are omitted for brevity.

##### 2.1 Argentina

Sociedad Argentina de Ingeniería Geotécnica (SAIG) was founded in 1948 and has 127 members. The activities held in the period are:

- 2020: Eight lectures on "Geotechnical Applications in Power Generation"; Seminar on Latin American Geotechnical Challenges; Seminar on Geotechnical Controls during Execution of Archaeological and Engineering Works.
- 2021: XXV Argentinean Conference on Soil Mechanics and Geotechnical Engineering; Workshop of Geotechnical Engineering Teachers of Argentina; Workshop CIRSOC 402: Argentinian Code of Foundations.

At the time of this report, the president is Diego Manzanal. Contact info: saig.org.ar.

##### 2.2 Bolivia

Asociación Boliviana de Ingeniería Geotécnica (ABIG) was founded in 1975. After being terminated in 2017, it rejoined ISSMGE in 2018, and has 42 members. The activities held in the period are:

- 2020: Twelve Bolivian Geotechnical Lectures on various topics of geotechnical engineering, foundations, numerical modelling and site characterization; Colloquium "From CBR to Resilient Modulus"; 4 International Courses on In Situ Testing.
- 2021: Seven Advanced Courses on Design and Supervision in Pavement Geotechnics.

At the time of this report, the president is Juan Carlos Rojas Vidovic. Contact info: www.facebook.com/ABIGNacional/.

##### 2.3 Brazil

Asociación Brasileira de Mecânica do Solos (ABMS) was founded in 1950 and has 1259 members. Being a very large society, ABMS has branches and regional committees that coordinate activities throughout the country. Their reaction to the pandemic was also swift and efficient, moving from in-person symposiums to webinars (146 in two years). The activities held in the period are:

- 2020: WebGeo, Digital Symposium on Geotechnics; ABMS 70th Anniversary; 1st Brazilian-Digital Congress on

Geotechnics and Environment; sixty Webinars covering most relevant topics in Soil Mechanics and Geotechnical Engineering.

- 2021: 5th Brazilian Tunnelling Congress; Indian-Brazilian Geotechnical Webinar; 10th Portugal/Brazil Geotechnical Congress; 3rd Panamerican Congress on Non-Saturated Soils; again, seventy six Webinars covering most relevant topics in Soil Mechanics and Geotechnical Engineering.

The list of webinars, too long to be included in this report, can be found at ABMS webpage and ABMS TV Channel, which also contains several interviews, educational material and recordings of many past technical events.

At the time of this report, the president is Fernando Schnaid. Contact info: [www.abms.com.br](http://www.abms.com.br).

#### 2.4 Chile

Sociedad Chilena de Geotecnia (SOCHIGE) was founded in 1968 and has 100 members. The activities held in the period are:

- 2019: Geotechnical Seminar in Curicó; Workshop on Tailings Dams (with AICE); Seminar on Design, Construction and Operation of Tailings Dams; International Course on Earthquake Geotechnical Engineering (with ACHISINA).
- 2020: Seminars on Critical State Soil Mechanics; two Seminars on Ground Improvement; Seismic Characterization of Soils; Soil Liquefaction; Deep Excavations; Site Effects; sixteen seminars on Local Soils; Updates in National Codes for Soil Mechanics and Geotechnics; Case Histories of Failure of Tailings Deposits; Pressuremeter and its new Applications.
- 2021: Downdrag of Piles; CSSM of Sands; Evolution of Mexico City Soils and its Impact in Earthquake Geotechnical Engineering; Impact of Geology in Engineering Projects; Low Enthalpy Geotechnics; First Meeting of Young Geotechnical Engineers; XI National Conference SOCHIGE.

At the time of this report, the president is Roberto Gesche Schüler. Contact info: [sochige.cl](http://sochige.cl).

#### 2.5 Colombia

Sociedad Colombiana de Geotecnia (SCG) was founded in 1971 and has 141 members. The activities held in the period are:

- 2019: III Course on Exploration and Ground Characterization; Course on Earthquake Geotechnical Engineering.
- 2020: VI Regional Conference of Geotechnics; XIII International Symposium on Landslides.
- 2021: IX International Symposium of Geomechanics (with ISRM); Webinar on Applied Geomechanics in Proactive Design; Seminar on Municipal Studies on Landslide Risk.

At the time of this report, the president is Ramiro Castellanos Jiménez. Contact info: [www.scg.org.co](http://www.scg.org.co).

#### 2.6 Costa Rica

Asociación Costarricense de Geotecnia (ACG) was founded in 1979 and has 108 members. The activities held in the period are:

- 2020: Seminar on Cross-hole Logging for Bored Piles; Liquefaction in subduction zones.
- 2021: Ground Improvement and Foundation Design; Development of the Geotechnical Code of Costa Rica.

At the time of this report, the president is Adrián Fernández Castro. Contact info: [geotecniacr.com](http://geotecniacr.com).

#### 2.7 Cuba

Comisión Técnica Nacional de Mecánica de Suelos e Ingeniería Geotécnica (CTNMSIG) was founded in 1983 and has 30 members. The activities held in the period are:

- 2020: Invescons 2020, Conference on Geotechnical Engineering.
- 2021: II International Convention of Engineering; Annual Meeting of the Technical Committee for Geotechnical Engineering.

At the time of this report, the president is Gilberto Quevedo Sotolongo. Contact info: [quevedo@uclv.edu.cu](mailto:quevedo@uclv.edu.cu).

#### 2.8 Guatemala

Asociación Guatemalteca de Mecánica de Suelos e Ingeniería Geotécnica (AMSIG) was founded in 2010 and has 38 members. The activities held in the period are:

- 2020: Lecture series on Geotechnical Engineering delivered to the Guatemala Chamber of Construction.
- 2021: II Conference on Earthquake and Geotechnical Engineering.

At the time of this report, the president is Alberto Pérez Zarco. Contact info: [www.amsig.org.gt](http://www.amsig.org.gt).

#### 2.9 Paraguay

Sociedad Paraguaya de Geotecnia (SPG) was founded in 1978 and has 30 members. The activities held in the period are:

- 2020: First Conference on Dispersive and Sulphate Soils; Latest Advances in Technologies for Deep Foundation Construction.
- 2021: Latin American Lecture Tour (with ISRM); Evaluation of Retention Structures using MEMS;
- 2022: Latin American Rock Mechanics Symposium; Advances in the Monitoring of Geotechnical Projects; First Mine Expo.

At the time of this report, the president is Roberto Andrada. Contact info: [www.spg.org.py](http://www.spg.org.py).

#### 2.10 Perú

Asociación Peruana de Ingeniería Geotécnica rejoined ISSMGE in 2017 and has 146 members. The activities held in the period are:

- 2020: Lectures on Strength Parameters for Slope Stability Analyses; Construction Processes in Urban Excavations; Geotechnical Risks in Slope Stability; Microtunnels; Response Spectrum from Peruvian Standards, Comparison with Predictive Models; Settlement and Tilt of Structures in Liquefying Soils; Multi-directional Dynamic Response of Sands; Numerical Modelling of Seismic Settlement in Sands; Analysis and Design of Stone Columns; Excavation Support in Peru and New Technologies; Sustainability of Earth Reinforced Works employing Geosynthetics; Workshop on Field Testing and Instrumentation.
- 2021: Workshops on Soil Properties; on Soil Exploration; on the Use of Geosynthetics in Transportation Problems; Current Practice in the Evaluation of Dam Break Risk; State of Practice of Earth and Rockfill Dam Construction; Geotechnical Reliability and Stabilization of Mining Slopes; Peruvian Geotechnical Engineering Conference (APGEO, COPEG, IGS).
- 2022: Seismic Site Amplification in Lima.

At the time of this report, the president is Alvaro Javier Pérez Zúñiga. Contact info: [apegeo.org.pe](http://apegeo.org.pe).



### 2.11 Venezuela

Sociedad Venezolana de Geotecnia (SVG) was founded in 1958 and has 32 members. The activities held in the period are:  
-2021: First Venezuelan Conference of Geotechnical Engineering.

This VP congratulates SVG for organizing their first national conference, which was 100% online and a regional success. This VP also thanks SVG for inviting him to participate in a technical session in the conference.

At the time of this report, the president is Heriberto Echezuria. Contact info: [civ.svdg@gmail.com](mailto:civ.svdg@gmail.com).

## 3 OTHER REGIONAL ACTIVITIES

### 3.1 Pan American Conference on Soil Mechanics and Geotechnical Engineering

PCSMGE was held in Cancún, Mexico, in CC-CC, 2019. It was attended by +800 professionals from 32 countries. Out of the 335 papers, 300 of them coming from the Americas, and it was a big success in terms both of participation and technical quality of the sessions. This VP congratulates Sociedad Mexicana de Ingeniería Geotécnica (SMIG) for the organization of the event.

The next PCSMGE is scheduled to happen in late 2023 in Chile. The National Society organizing the Conference, SOCHIGE, appointed Daniela Pollak ([dpollak@gmail.com](mailto:dpollak@gmail.com)) and Gonzalo Montalva ([gmontalva@gmail.com](mailto:gmontalva@gmail.com)) as contact persons.

This VP invites all members of the Geotechnical Engineering Family to support this Conference, submitting papers and attending in person when practical, and notes that SOCHIGE is making a huge effort to produce a successful event while facing headwind due to the ongoing pandemic.

### 3.2 Symposium on Landslides

Sociedad Colombiana de Geotecnia organized the JTC1 XIII International Symposium on Landslides, an event that was scheduled to happen in June 2020 in Cartagena de Indias, was forced into online mode due to the pandemic, and held in February 2021. The Symposium was a success, with 265 participants from 34 countries. It was also the first international use of the ISSMGE platform to handle papers and reviews. This VP congratulates SCG for the organization of the event.

### 3.3 PanAm UNSAT

The third Pan American Conference on Unsaturated Soils was organized by ABMS and held virtually in July 2021. 9 keynote and 5 state-of-the-art lectures were published in *Soils and Rocks*, the journal maintained by ABMS. All contributions are available open access in [www.matec-conferences.org/articles/mateconf/abs/2021/06/contents/contents.html](http://www.matec-conferences.org/articles/mateconf/abs/2021/06/contents/contents.html).

### 3.4 International Seminars

An ISSMGE International Seminar Series – former Touring Lectures – was held in Paraguay, Argentina and Mexico in September 2018, and was well attended. The subject selected for this Seminar was “Codes for Foundations”. Lectures were delivered by Roger Frank, Roberto Terzariol (also representing Pedro Seco e Pinto) and Alejo Sfriso.

### 3.5 Participation in Technical Committees

The region had a modest participation in the leadership of Technical Committees of ISSMGE, with only one vice-chair held by Bernardo Caicedo (Colombia) in TC2020 on Transportation Geotechnics.

Early in 2019, this VP proposed the creation of the new TC221 Committee on Tailings and Mine Waste which was incorporated by the ISSMGE Board in the meeting held in

Tunisia in March 2020 ([www.issmge.org/committees/technical-committees/applications/tailing-and-mine-wastes](http://www.issmge.org/committees/technical-committees/applications/tailing-and-mine-wastes)). The creation of this committee is a reaction by ISSMGE to the growing interest by the mining industry of a closer interaction between the industry-focused tailings groups and geo-professionals grouped in ISSMGE. TC221 is chaired by Ramón Verdugo, (Chile), and Fernando Schnaid (Brazil), thus increasing our presence significantly.

### 3.6 Young Geotechnical Engineers Conference

The Young Geotechnical Engineers Conference was planned to be held during COBRAMSEG 2020, the Brazilian National Conference. Unfortunately and due to the pandemic, COBRAMSEG 2020 and the regional YGEC were postponed and will be held in August 2022 in Campinas, Brazil.

### 3.7 Time Capsule Project

The Time Capsule Project ([www.issmge.org/the-society/time-capsule/time-capsule](http://www.issmge.org/the-society/time-capsule/time-capsule)) is an initiative of the ISSMGE Board that is fully explained elsewhere. TCP has been well received by the National Societies in the region, with 100% engagement and commitment to present content. Brazil, Colombia and Argentina had already created and shared fresh content in the form of interviews, articles and multimedia contributions. Other National Societies have already started their plans to contribute.

### 3.8 Corporate associates

Three CAPG members from South America – SRK Consulting, Expander Body Panama, and AOSA – were admitted into ISSMGE in the period.

## 4 OUTLOOK AND CLOSURE

One of the initiatives of this VP, announced in 2017, was a failure: the creation of a wiki-book, a source of knowledge and information in Spanish for the undergrad students of the universities in the region. The initiative was based on the fact that many universities still use written class-notes that have been around for many years and are therefore outdated in the light of the new technologies. After one year of planning and discussion, nothing real had happened, so this VP ditched the idea in 2018.

No failure comes without a lesson: we all learnt that contributors engage when they can share their personal experience and opinion, more than ghost-writing a reference that goes beyond their control – a feeling this VP also shares. Fortunately and during the period, ISSMGE Virtual University ([virtualuniversity.issmge.org](http://virtualuniversity.issmge.org)) expanded its contents to an extent that most of the modern knowledge is already there – now it's not creating content, it's just translation. This VP suggests that Spanish and Portuguese captions be added to Virtual University material and encourages the member Societies in the region to carry out this task, an initiative that is not difficult to accomplish with the aid of automated translation tools.

The future of ISSMGE and the National Societies in the region is bright. Practices that pandemic brought to stay have created a wealth of opportunities for our geo-professionals. More technical resources, made available by ISSMGE and other sources, have now been brought to attention to people that became suddenly isolated. “Working from home” also means “working worldwide” for all of us, and signs of South American geo-professionals taking advantage of this opportunity are ubiquitous. Finally, virtual technical events where worldwide experts share knowledge to local audiences have also created new avenues for recognition, collaboration and knowledge sharing. In this regard, the disruptive tragedy the pandemic was turned out to be also an opportunity, and our National Societies are working already into making this opportunity real for their individual members.

Being the Vice President for South America and the Caribbean of ISSMGE has been a fantastic experience, of which I will be always grateful to ISSMGE, to the National Societies that supported my nomination, and to the many officers that collaborated to bring this tenure to a successful completion. I was handed the torch of this Vice Presidency by Prof. Jarbas Milititsky and I hand it over to Prof. André Pacheco de Assis. André has long experience in leading large professional groups – he has been President of ABMS and President of the International Tunnel Association (ITA) – so I'm sure his contribution will bring our National Societies to a new, higher level of collaboration and growth. I wish him success and joy in the adventure he starts here.

## Appendix 6: ISSMGE Virtual University program: report of activities 2017-2022

Programme de l'université virtuelle de la SIMSG : rapport des activités 2017-2022.

### Mounir Bouassida

University of Tunis El Manar, National Engineering School of Tunis], [mounir.bouassida@enit.utm.tn](mailto:mounir.bouassida@enit.utm.tn)

**ABSTRACT:** This report summarizes the activities developed during the program launched since 2017 in the framework of the virtual university (VU) of the ISSMGE. The report focuses on the adopted working plan to form on-line courses from existing webinars. Then, the first formed courses from existing webinars and their classification following specific soil mechanics themes. Further, courses delivered by eminent specialists and dedicated to specific themes in geotechnical engineering enriched the content of the VU. The final list of formed courses during the first contribution covering the 2017-2022 period is presented as well as recommendations for the next step of the VU of the ISSMGE.

**RÉSUMÉ :** Ce rapport résume les activités menées dans le cadre du programme de l'université virtuelle de la SIMSG nouvellement lancée depuis 2017. La démarche de travail adoptée pour la proposition de cours à distance à partir de webinars existants, la classification sous forme de cours spécifiques à des thèmes particuliers de la géotechnique constitue le point focal de cette nouvelle action. Les invitations faites à des spécialistes en géotechnique pour enrichir le contenu des thèmes choisis et de proposer des cours dédiés à une thématique choisie sont également commentés. La liste définitive des webinars proposés durant la première contribution de l'université virtuelle couvrant la période 2017-2022 est présentée, en outre quelques recommandations sont proposées pour le futur de ce nouveau programme.

**KEY WORDS:** webinar, course, credit, virtual university, on-line.

### 1 INTRODUCTION.

The President, Professor Charles Ng, announced his plan on Education, Innovation and Diversity in September 2017 at the ICSMGE in Seoul. The proposed "ISSMGE virtual university" has begun to take shape. It is the intention of the ISSMGE virtual university (VU) to provide free online structured postgraduate courses for anyone to use. There is neither assessment nor credit to deliver. The ISSMGE cannot be responsible for the use of any of the courses materials.

This report presents, first, the working plan. Second, it follows the contribution made that included the types of formed courses during the term 2017-2022, and recommendations for the next step of the VU program.

### 2 WORKING PLAN

As first stage, the existing ISSMGE webinars, before the launch of the VU program, have been reviewed and categorized into themed series of webinars or postgraduate courses. Each series comprises a minimum of three webinars giving students and engineers up to five hours of viewing. This viewing, by login to ISSMGE website, is equivalent to a fifteen hours course in a classroom.

The first five courses, approved by the ISSMGE board members, were identified from the delivered webinars before September 2017.

Themes of webinars and speakers are selected by the chairs of technical committees (TCs) and, at a final stage, approved by the ISSMGE board members.

### 3 CONTRIBUTION MADE

At mid-term, May 2019, the first six courses were publicly launched, i.e.:

- 1 Risk-Mitigation, Monitoring & Observational Methods
- 2 In situ Testing:

- 3 Earthquake Engineering
- 4 Foundations
- 5 Soil Characterization
- 6 Geo-Engineering Education.

The first course of the ISSMGE virtual university was experienced on February 06-09th 2018, at the National Engineering School of Tunis (University of Tunis El Manar), by 33 PhD candidates in civil engineering, mechanical engineering, electrical and industrial engineering. The viewed course was on "Risk Mitigation, Monitoring and Observational methods". Detailed report about this first experience including: organization of webinar sessions and evaluation of the synthesis of viewed webinars by the candidates was forwarded to the ISSMGE board members.

Then, followed courses of mixed content between available webinars and new ones recorded after September 2017. As examples, soil characterization, soil behavior, numerical modeling in geomechanics, and landslides-slope stability are among the formed courses of the ISSMGE virtual university program.

#### Full courses

This novel option provides more benefits for students and engineers to follow a complete course on a specific theme comprising five to six well linked lectures or webinars. Prof. Delwyn G. Fredlund (Canada) delivered the first full course on "Unsaturated soil Mechanics" that was been launched publicly on May 15th 2019. Seven PhD candidates, from the National Engineering School of Tunis, viewed the six lectures, at rate of two lectures per day, on May 15th, 16th and 17th 2019.

The second and third delivered full courses are "Probability analysis in civil engineering" and "Risk Analysis and Machine Learning in GE".

On 22<sup>nd</sup> March 2022, there were thirteen (13) available courses; appendix 1 of this report groups the titles of all

formatted courses that can be viewed on: <https://www.issmge.org/education/virtual-university>

Appendix 2 of this report, details the content of each course as appearing on the above link. One can note that a supplement of material is available for some courses; i.e. short educational videos; etc. This summarizing table shows a description, in brief, for some courses. In turn, other courses need a description to highlight the viewers of the ISSMGE VU about the course objectives’.

#### 4 CONCLUSION AND RECOMMENDATIONS

It was my great pleasure to contribute enthusiastically in the launch of the ISSMGE VU program and for being the first to experience its content.

For the next term (2022-2026), the development of the ISSMGE VU program requires the coverage of other GE themes, like physical modelling, soil-structure interaction, etc. and other targeted full courses.

It is then, concluded that the new ISSMGE virtual university program is quite valuable in providing postgraduate courses of great help to PhD and MSc candidates to fulfill required credits by their institutions. Also., it provides an enhanced learning tool to address quite challenging geotechnical engineering problems.

#### Acknowledgements

I am thankful to all board members of the ISSMGE, Dr K. Tsantilas (Elxis Group) and selected speakers of the delivered webinars-courses with whom I interacted to achieve the first step of the VU program of ISSMGE.

#### Appendix 1. Courses’ titles of the VU of ISSMGE (17th March 2022)

- Course 1: Risk-Mitigation, Monitoring & Observational methods (4)
- Course 2: In situ testing (4)
- Course 3: Earthquake Engineering (3)
- Course 4: Foundations (4)
- Course 5: Soil Characterization (5)
- Course 6: Geo-Engineering Education (5)
- Course 7: Unsaturated soil mechanics (Full course, 6 chapters).
- Course 8: Geosynthetics1 (5)
- Course 9: Landslides and Mitigations (3), open
- Course 10: Soil Behavior (3)
- Course 11: Probability Analysis in Civil Engineering (Full Course, 4 chapters)
- Course 12: Numerical Modelling in Geomechanics (4), open
- Course 13: Risk Analysis and Machine Learning (Full course, 3 chapters), open.

PS: The number between brackets, after the course title, corresponds to the number of webinars (or chapters) included in the course. Further, the mention “open” means that other webinars will be added to the course in question.

#### Appendix 2: Detailed content of formed courses

##### Course 1: Risk-Mitigation, Monitoring & Observational Methods

- Chap 1: Risk and Geotechnical Engineering (*Z. Medina-Cetina & M. Uzielli*)
- Chap 2: Bridge Scour Depth Prediction and Levee Topping Erosion (*J-L. Briaud*)
- Chap 3: Landslide Risk Mitigations with a Special Emphasis (*An-Bin Huangon*)
- Chap 4: Challenges in Shoring Deep Excavations in Urban Areas (*M. Ballouz*)

##### Course 2: In-situ Testing

- Chap 1: Geophysical Tests for Geotechnical Site Characterization (*S. Foti*)
- Chap 2: In-Situ Testing in Geomechanics: Questioning Current Engineering Practice (*F. Schnaid*)
- Chap 3: Introduction to Cone Penetration Testing (*P. Robertson*)
- Chap 4: The Increasing Role of Seismic Measurements in Geotechnical Engineering (*K H. Stokoe*)

##### Course 3: Earthquake Engineering

- Chap 1: Soil Dynamics and Seismic Geotechnical Engineering (*G. Gazetas*)
- Chap 2: Earthquake Geotechnical Engineering-Mitigation of Earthquake Problems with Emphasis on Subsoil Liquefaction (*I. Towhata*)
- Chap 3: Impacts of Liquefaction in the 2010-2011 Christchurch Earthquakes (*M. Cubrinovski*)

##### Course 4: Foundations

- Chap 1: Pile Driving Analysis (*F. Rausche*)
- Chap 2: Meeting the Challenges of Foundation Design for Tall Building (*H. Poulos*)
- Chap 3: Multi-physical Processes and Design of Thermo-Active Foundations (*L. Laloui*)
- Chap 4: Combined Loading of Offshore Foundations (*M. Cassidy*)

##### Course 5: Soil Characterization

- Chap 1: Geotechnical Aspects of Peats (*C. Zwanenburg*)
- Chap 2: Laterites and Lateritic Soil and the Potential Use of the Dynamic Cone Penetrometer (*S.I.K. Ampadu*)
- Chap 3: Geotechnical Challenges in Mexico City Clay (*G. Auvinet*)
- Chap 4: Compressibility and Consolidation of Clays: From Lab to Field Conditions (*S. Leroueil*)
- Chap 5: Advanced Laboratory Testing to Characterize Stiff, Geologically Aged Clays (*R. Jardine*)

##### Course 6: Geo-Engineering Education

- Chap 1: Eurocode-7 Past, Present, and Future (*A. Bond*)
- Chap 2: Basic Geotechnical Engineering Skills - What Can Graduates Do? (*J. Atkinson*)
- Chap 3: (What) to Teach or not to Teach - From Theory to Practice (*L.D. Wesley*)
- Chap 4: Case Study "Porto Tolle test embankment - A full scale experiment (*C. Viggiani*)
- Chap 5: What happens when soil compresses? (*M. Pantazidou*)

##### Course 7: Unsaturated Soil Mechanics (D.G. Fredlund)

Objective of the course is to introduce unsaturated soil mechanics within the framework of classical soil mechanics by incorporating soil suction.

- Chap 1: Introduction to Unsaturated Soil Mechanics  
Lecture 1 introduces unsaturated soils by illustrated practical problems. The link between field and laboratory conditions is established by the Soil-Water Characterization Curve (SWCC).

Chap 2: State variables and their Measurement

Lecture 2 presents the state variables by which the transition from the saturated soil condition to the unsaturated soil condition can be described, in particular the matric suction as the difference between pore-air and pore-water pressures.

Chap 3: The Soil-Water Characteristic Curve, SWCC.

Lecture 3 details the determination of SWCC in providing information about the amount of water and the energy state in water phase.

Chap 4: Seepage through Unsaturated Soils

Lecture 4 addresses the theory and solution dealing with water flow problems in unsaturated soil. Focus is made on the measurement of unsaturated coefficient of permeability function for design purposes.

Chap 5: Shear Strength of Unsaturated Soils.

Lecture 5 deals with the determination of shear strength of unsaturated soils. The latter is described by two independent state variables among which soil suction contributes to the cohesive component of soil.

Chap 6: Volume Change & Deformation of Unsaturated Soils

Lecture 6 investigates the theory with related solution of stress deformation problems. The main objective is to establish the relation between stress state and deformation strain variables for unsaturated soils. In this process, the use of SWCC enables the assessment of the behavior of unsaturated soil.

**Course 8: Geosynthetics 1**

Chap 1: An Overview of Geosynthetics and Their Major Applications (*R.M. Koerner*)

Chap 2: Geosynthetic Reinforced Walls: Overview, Failures and Items for Approval (*R.M. Koerner*)

Chap 3: Short and Long Term Leakage through Composite Liners. The 7th A. Casagrande Lecture (*K. Rowe*)

Chap 4: Geosynthetics-Reinforced Soil Structures - Developments from Walls to Bridges (*F. Tatsuoka*)

Chap 5: Geosynthetics in Roadway Applications (*J.G. Zornberg*)

**Course 9: Landslides and Mitigations**

Chap 1: Impact Mechanisms of Debris Flow on Barriers: Modelling, Analysis and Design (*C.W.W. Ng*)

Chap 2: The Classification of Landslides in Soils in a Mechanical Perspective (*L. Picarelli*)

Chap 3: Landslide Runout Analysis Current Practice and Challenges (*S. McDougall*)

**Course 10: Soil Behavior**

Chap 1: Unsaturated Soils: Basic Concepts and Applications: Parts 1 and 2 (*E. Alonso*)

Part 1 Hydromechanical behaviour of collapsible and expansive soils

The webinar provides a condensed and modern understanding of the hydro-mechanical behavior of unsaturated soils stressing the links among the relevant and unique features of the behavior of unsaturated soils: water retention, permeability, effect of suction on stiffness, volumetric response and strength.

Part 2: Computational tools and case histories. Embankment collapse, earth dam behaviour and foundation swelling

Geotechnical practice involving unsaturated soils, ranging from foundations on natural collapsible or expansive soils to compacted embankments and earth dams.

Chap 2: Thermal Issues in Clays and Claystones. Application to Radioactive Waste Disposal (*P. Delage*)

Chap 3: Stress-strain behavior of geomaterials (mainly granular materials) from elastic behaviour to shear banding. (*F. Tatsuoka*)

Chapter 3 introduces the major characteristic features of the stress-strain behaviour of geomaterials, mainly granular materials and also partially clays, cement-mixed soils and natural soft rocks.

Lecture 1 introduces the contents of the second to sixth lectures. It is explained that, in this course, it is attempted to bridge a gap in the stress-strain behaviour of geomaterials between the basic soil mechanics and the SOA geotechnical engineering practice.

Lecture 2 presents the stress-strain behaviour at very small strains. It is shown that the elastic properties from field shear wave velocities become the basis for non-linear FEM analysis in many geotechnical boundary value problems.

Lecture 3 presents the dilatancy characteristics in drained shear and their effects on undrained shear behaviour.

Lecture 4 presents the peak strength of granular materials

Lecture 5 addresses the shear banding, which starts immediately before the peak stress state and develops in the post-peak strain-softening regime.

Lecture 6, Two different time effects: i.e., rate-dependent stress-strain behavior and ageing effects, are explained based on results from series of stress-strain tests.

**Course 11: Probability Analysis in Civil Engineering (J. Zhang)**

Uncertainties are pervasive in geotechnical engineering. In the past decades, reliability methods have been developed as a powerful tool to model and quantify the effect of uncertainties in geotechnical engineering. The purpose of this course is to systematically introduce the reliability methods in the context of geotechnical engineering.

Chap 1: Analytical models for modeling uncertainties.

Chap 2: Reliability methods.

Chap 3: Reliability-based design.

Chap 4: Bayesian methods for uncertainty reduction.

**Course 12: Numerical Modelling in Geomechanics**

Chap 1: Introduction to Numerical modeling in GE (*H. Schweiger*):

Chap 2: Numerical Simulations on Energy Piles (*J.S. McCartney*):

This presentation focuses on numerical simulations of the thermal, thermo-mechanical, and thermo-hydro-mechanical response of energy piles and surrounding soils. Simulations include finite element analyses of heat transfer and coupled water flow in soils surrounding energy piles and load transfer analyses of thermo-mechanical soil-structure interaction in energy piles.

Chap 3: Discrete modeling of granular materials (*F. Nicot*)

Chap 4: Performance assessment of soils and structures by numerical analysis (*Toshihiro Noda*)

**Course 13: Risk Analysis and Machine Learning**

Chap 1: Machine Learning in Geotechnical Engineering (*P. Samui*)

Chap 2: Learning about a Site Using Sparse Site-Specific Data - Recent Advancements (*J. Ching & K.K. Phoon*)

Chap 3: Risk informed landslide Hazard mitigation in mountain highway design. (*LM Zhang*)

## Appendix 7: 2017-2022 Report of the Innovation and Development Committee (IDC)

### Dimitrios Zekkos

*Chair of Innovation and Development Committee (IDC), Associate Professor, Department of Civil and Environmental Engineering, University of California at Berkeley, zekkos@berkeley.edu*

**SUMMARY:** The Innovation and Development Committee (IDC) is a board level committee that was established in 2009 with the mission to develop innovations to better serve ISSMGE member societies, geoprofessionals and the profession as well as to increase the impact of ISSMGE. In this report the activities of the IDC during the 2017-2022 period are briefly presented. Through partnerships with several other board level committees, technical committees, and member societies, IDC has continued to push forward with efforts that can have a positive impact on the geotechnical engineering community at the global scale. These include: (a) the expansion in content and capabilities of the open-access online library that now has 16,000+ papers available; (b) the development of a conference paper review platform that is available at no cost and can support conference organizers in peer-review of conference proceedings; (c) the ability of ISSMGE to publish proceedings online, or even in print, and issue DOIs on conference papers or ISSMGE reports; (d) the development of ISSMGE's Virtual University that presently includes 149 recordings with original content; and (e) the continued growth of ISSMGE's online presence through its website, GeoWorld, its mobile application, and social media.

### 1 INTRODUCTION

The Innovation and Development Committee (IDC) of ISSMGE was established in 2009 as a Board Level Committee (BLC) by Past-President Jean-Louis Briaud. The first term of the committee was from 2009-2013. President Roger Frank renewed the IDC for 2013-2017 followed by a third renewal by President Ng for the 2017-2022 period. The following report outlines the activities of the IDC during the 2017-2022 period and provides some recommendations to ISSMGE and member societies for the future of IDC.

### 2 TERMS OF REFERENCE

The IDC charge was originally provided in 2009 by the ISSME President and Board and was summarized as "to think of ways to make ISSMGE progress in a manner which will increase its usefulness to the members and provide excitement for the future of geotechnical engineering in ISSMGE.". The original charge was followed up by a number of tasks many of which have been completed. After eight years, with consultation with the President, the IDC revised its tasks, which were approved by the Board in 2017. The revised charges are:

- "Feel the pulse" of the geotechnical community through a survey that will help set new priorities.
- Expand the use of information technology (IT) tools to continue to enhance the value of the ISSMGE web site as a technical resource worldwide.
- Expand the open-access of ISSMGE publications database and explore innovative schemes to promote open access publications at a global scale.
- Implement educational initiatives under "ISSMGE University" (which was later termed Virtual University).
- Promote next-generation communication among Geo-Professionals through GeoWorld.

### 3 MEMBERSHIP

For the 2017-2022, the membership of the IDC was reduced compared to previous terms, to allow for a flexible and easy-to-meet and act committee that consisted of the following:

Chair: Dimitrios Zekkos (USA & Greece) – Associate Professor, Civil and Environmental Engineering, University of California at Berkeley; zekkos@berkeley.edu  
Vice Chair: Kok-Kwang Phoon (Singapore) – Professor and Provost, Singapore University of Technology and Design

Jennifer Nicks (USA), Research Engineer, Federal Highway Administration  
Roger Estephan (Lebanon), Director at Dar Al-Handasah (Shair and Partners).

In addition, to ensure a smooth transition of leadership, the IDC has been planning for Dr. Nicks to take over as Chair of IDC.

### 4 ACTIVITIES

#### 4.1. Conduct IDC Survey

Since its establishment in 2009, IDC has been leading various initiatives. Major previous initiatives include the launch of a new ISSMGE website, the establishment of a webinar series, the launch of an open access library, the launch of GeoWorld, the development of an online Lexicon, as well as the development of a mobile app. It was, thus, deemed useful to "take stock" and assess past initiatives before setting new ones. Thus, the IDC conducted a survey with the objective to have the geo-community review previous IDC activities and their impact and solicit feedback on what should the priorities of the IDC be for the 2017-2021 period.

The survey was conducted from March 6<sup>th</sup> 2018 to May 1<sup>st</sup> 2018 with 701 participants and included 13 questions. The results of the survey have been analyzed and a public report on the survey can be found on the ISSMGE website.

Briefly, the survey indicated that all initiatives undertaken were generally valuable, but especially the ones that related to the ISSMGE website, open-access and educational resources (webinars, online lectures, etc.) were particularly appreciated. The survey respondents also provided feedback on proposed activities, and an outcome of this feedback are the six initiatives that IDC undertook in the 2017-2022 period and are listed in sections 4.2 to 4.7.

#### 4.2. Expand Content and Capabilities of ISSMGE's Open Access Library

During the 2013-2017 tenure, the IDC established the Online Library that is available through ISSMGE's website (URL: <https://www.issmge.org/publications/online-library>). The online library provides open access to papers published in conferences organized under the Auspices of ISSMGE, but also papers published in other conferences.

#### 4.2.1 Expansion of Online Library capabilities

In 2021, the IDC undertook a major upgrade of the Online Library. Specific new features of the library that have been incorporated are:

- Improved layout and indexing based on specific sub-disciplines/topics in geotechnical engineering. This allows for better indexing and collaboration between content available in the online library and virtual university.
- New conference proceedings added in the library have now a dedicated page for each conference. This supports ISSMGE's initiatives related to publishing.
- Each new publication/paper has its own URL allowing for the ability to issue DOI for new papers as well as reports published by ISSMGE.
- Each author is now an "entity" within the library that is also integrated with the individual's ISSMGE and/or GeoWorld profile (if desired). This allows for someone to search the library using the author name, and find an author's profile.
- Changes to the online library that support indexing of conference proceedings in databases such as Scopus.

#### 4.2.1 Increase in Online Library's content

The IDC continued to work with many member societies, Technical Committees, and other groups to expand the papers included in the database of the online library. As of February 2022, the online library has 16,387 papers from 68 conferences. From November 2017, when the platform was launched, to December 2021 there were 1,683,000 downloads of the papers included in the Open Access Library, with about 350,000 paper downloads just in 2021.

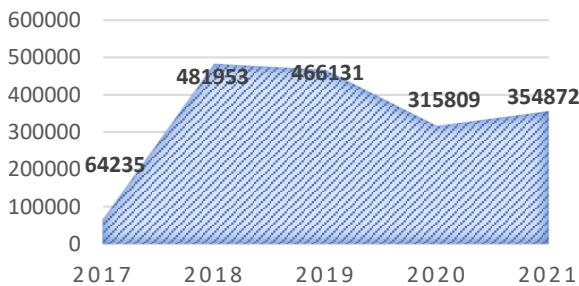


Figure 1: Paper downloads from the online library since its launch in 2017.

The following proceedings have been added to the online library since September 2017:

- 18th International Conference on Soil Mechanics and Geotechnical Engineering (Paris) (930 papers added)
- 19th International Conference on Soil Mechanics and Geotechnical Engineering (Seoul) (799 papers added)
- 5th International Conference on Forensic Geotechnical Engineering (42 papers added)
- 6th International Young Geotechnical Engineers' Conference (iYGEC6) (107 papers added)
- SFGE - 2016 (12 papers added)
- 14th Pan-American Conference on Soil Mechanics and Geotechnical Engineering 64th Canadian Geotechnical Conference, October 2-6, 2011, Toronto, Ontario, Canada (503 papers added)
- EUROFUGE 2016 (Nantes, France) (58 papers added)
- 3rd International Conference on Performance-based Design in Earthquake Geotechnical Engineering (Vancouver 2017) (238 papers added)

- 6th International Conference on Earthquake Geotechnical Engineering (Christchurch, New Zealand) (371 papers added)
- 7th International Conference on Unsaturated Soils 2018 (Hong Kong) (219 papers added)
- 17th Nordic Geotechnical Meeting (NGM-2016) (142 papers added)
- 5th International Conference on Earthquake Geotechnical Engineering (Santiago, Chile) (182 papers added)
- 26th European Young Geotechnical Engineers Conference (51 papers added)
- 13th Australia - New Zealand Conference on Geomechanics (Perth, 2019) (201 papers added)
- 1st Australia - New Zealand Conference on Geomechanics (Melbourne, 1971) (81 papers added)
- 17th European Conference on Soil Mechanics and Geotechnical Engineering (679 papers added)
- 2nd Australia - New Zealand Conference on Geomechanics (Brisbane, 1975) (62 papers added)
- 10th Australia - New Zealand Conference on Geomechanics (Brisbane, 2007) (203 papers added)
- 17th African Regional Conference on Soil Mechanics and Geotechnical Engineering (139 papers added)
- Field Measurements in Geomechanics 2018 (42 papers added)
- 11th Australia - New Zealand Conference on Geomechanics (Melbourne, 2012) (277 papers added)
- 7th Australia - New Zealand Conference on Geomechanics (Adelaide, 1996) (154 papers added)
- XVI Pan-American Conference on Soil Mechanics and Geotechnical Engineering (XVI PCSMGE) (356 papers added)
- IS SAO PAULO '17 (41 papers added)
- 5th Australia - New Zealand Conference on Geomechanics (Sydney, 1988) (114 papers added)
- 8th Australia - New Zealand Conference on Geomechanics (Hobart, 1999) (129 papers added)
- 4th Australia - New Zealand Conference on Geomechanics (Perth, 1984) (129 papers added)
- 25th European Young Geotechnical Engineers Conference (49 papers added)
- 7th International Symposium on Geotechnical Safety and Risk (ISGSR 2019) (145 papers added)
- 1st International Symposium on Geotechnical Safety and Risk (ISGSR 2007) (78 papers added)
- 6th Australia - New Zealand Conference on Geomechanics (Christchurch, 1992) (104 papers added)
- 12th Australia - New Zealand Conference on Geomechanics (Wellington, 2015) (159 papers added)
- 3rd Australia - New Zealand Conference on Geomechanics (Wellington, 1980) (110 papers added)
- International Conference On Geotechnical Engineering Education 2020 (GEE2020) (29 papers added)
- 9th Australia - New Zealand Conference on Geomechanics (Auckland, 2004) (128 papers added)
- 7th International Conference on Earthquake Geotechnical Engineering (Roma, Italy) (674 papers added)
- 13th International Symposium on Landslides (ISL2020) (125 papers added)
- 3rd International Symposium on Coupled Phenomena in Environmental Geotechnics (CEPG2020) (83 papers added)
- 10th International Conference on Scour and Erosion (ICSE-10) (142 papers added)

A complete listing of the conference proceedings available in the ISSMGE Online library is provided in Appendix A. The IDC remains committed to expand the content of the open access library and, as described subsequently, aims to support open-access publications through its Conference Paper Review Platform.

#### 4.3: Support open-Access Publication: Development of a Conference Paper Review Platform

The IDC has also been actively working towards supporting the geo-community in expanding open-access publication of papers for future events. As part of that initiative, the IDC has developed, following authorization by President Ng and the Board, a Conference Paper Review Platform (URL: <https://www.issmge.org/publications/review-platform/ongoing-conferences>).

The ISSMGE Conference Review Platform is part of ISSMGE's cyber-infrastructure and aims to support the review of abstracts and papers for Conferences organized by ISSMGE Member Societies, Technical Committees and other groups affiliated with ISSMGE.

This platform is provided at no cost with the only requirement that published papers become available in open access through the ISSMGE Online Library. The platform supports the management of conference papers for ISSMGE and ISSMGE-affiliated events and allows also for the seamless integration between this paper review platform and the ISSMGE Online Library. The platform can be used by conference organizers of the ICSMGE, ISSMGE sponsored events, ISSMGE regional conferences, or conferences organized or sponsored by Technical Committees. Member Societies can also request from the Board to use the platform as long as they commit to make available the conference proceedings in open-access.

The platform is presently operational and has already been used successfully to support the following conferences:

- 6<sup>th</sup> International Conference on Geotechnical and Geophysical Site Characterization (ICS6), "Toward synergy at site characterisation", held on 26-29 September 2021 in Budapest, Hungary.
- XIII International Symposium of Landslides (XII ISL) held on 22-26 February 2021 virtually.
- 3rd International Symposium on Coupled Phenomena in Environmental Geotechnics (CEPG2020), held on 20-21 October 2021 virtually.

The proceedings published from these conferences are already available through the online library. IDC sees this platform as a major step towards a more integrated approach to open access publication (from submission to publication) in the field of geotechnics.

#### 4.4. Towards ISSMGE Publishing

In the 2013-2017 period, IDC played an active role in setting the open access policy of ISSMGE. During this term, the IDC aimed to make open access in geotechnical engineering a reality. Through the conference paper review platform and the growth of the online library, ISSMGE provides the ability for papers to be submitted and published completely open access. Should ISSMGE make that decision, it can support not only the online, but also the printed publication of proceedings and other documents.

#### 4.5. Establishment of ISSMGE Virtual University

A major activity of the IDC, following the request by ISSMGE President, Charles Ng, was the development of open-access, educational material to professionals globally. The activity, titled "Virtual University" is a step beyond the webinars that ISSMGE has launched in the last decade.

The purpose of the Virtual University platform is to educate geoprofessionals at a global scale, and support Universities that may not have the resources to provide detailed educational material on specific topics. The platform was publicly launched in 2020 and is available at <http://virtualuniversity.issmge.org/> and through the main ISSMGE website. The platform has the capacity to deliver educational content such as educational videos, webinars, keynote lectures, or short courses freely to anyone. All content is archived based on sub-disciplines and topics that are also used in the online library. An ISSMGE account can be created to "save" content. The platform also bundles recordings in short courses and provide recommendations, based on previous videos watched.

The virtual university platform also has the following capabilities:

- Provides Video Analytics: Course instructors (who have an account as instructors) are able to review video analytics for each video uploaded within the platform. This allows them to better understand how users are interacting with their lectures. Statistics are provided for the number of enrolled users for each video, and what portion of the video recording is mostly watched.
- Exam Functionality: Virtual University can support simple or timed exams for each of the courses (or lectures). The exams are of "quiz" type and can be timed.
- Learner/Student Progress Functionality: This functionality allows the instructor to set homeworks for the learner that can also be inserted at any point during the recording.
- Certificate Functionality provides the ability to issue certificates, should ISSMGE decide to do that in the future;
- Incorporates Collaborative Learning through Discussion Forums: Discussion forums are available for registered members to ask questions on specific topics.

The more advanced capabilities of the Virtual University listed above are not yet used extensively, but pave a direction for the future of geotechnical education. Out of the numerous recordings available, it would be important to highlight one course developed by Prof. Marina Pantazidou and TC306 titled "What happens when soil compresses", which uses some of these advanced capabilities. The video is segmented in short-duration subsections, each with a descriptive title, allowing for smaller subsections (recommended 7-15 min) that are likely to be well attended. Subsections are accompanied with quizzes of multiple-choice questions. The video is accompanied with the presentation slides and transcript for download. The transcript also appears as text next and below the presentation slides.

The IDC would like to acknowledge Board Member Prof. M. Bouassida who worked closely with the IDC and was responsible to reach out to individuals to develop educational content. Presently the Virtual University has 149 videos, and 11 short courses that aggregate videos of similar content. Average visits/pageviews for 2021 was 6,500 per month. In total, since its launch in 2020, ISSMGE videos have been played 114,000 times.



#### 4.6. Upgrade ISSMGE website to increase its functionality, usage and impact

IDC has been continuously upgrading ISSMGE's online presence with the goal to provide relevant and valuable content to ISSMGE membership. The following major upgrades have been completed during the 2017-2022 period:

Visitors of the ISSMGE website have the capability to "sign-up" to receive updates from Technical Committees that fit their interests. Once content is posted by the TCs, it is automatically promoted through the website, but also, by integrating with GeoWorld, an e-mail is sent to the individuals who have opted-in to receive that content. This feature empowers technical committee to promote their work and allows ISSMGE to directly reach out to members and provide valuable content to those that need it.

Emphasis was also placed to further increase the use of ISSMGE website by TCs and easily assess level of activity. Towards this objective, the current website platform was expanded to allow TC Chairs to upload their progress reports online and make them accessible to TOC leadership.

#### 4.7: Continue to support networking opportunities, and expand ISSMGE's reach through GeoWorld

The opportunities for international networking that ISSMGE provides are valued by ISSMGE members. Beyond the ISSMGE website, IDC has been trying to positively affect the careers of geoprofessionals by expanding ISSMGE's messaging and reach, through the following means:

**GeoWorld:** Since its launch in 2011, with the support of ISSMGE, GeoWorld has become the largest global network of geoprofessionals. GeoWorld has exceeded 25,000 members from 145 countries in January 2022 and is supporting many aspects of ISSMGE activities. Through GeoWorld, ISSMGE delivers content and information posted on the ISSMGE website. GeoWorld and ISSMGE continue also to publish annually the Geotechnical Business Directory, the largest geotechnical business directory in the field that includes an online format, an e-book format and a printed format and included all GeoWorld members who have opted-in. In June 2022 the 8<sup>th</sup> directory will be published.

**Social Media Presence:** ISSMGE's social media presence has also been increasing. Currently, there are 5566, 1527, and 11782 members on ISSMGE's Facebook, Twitter and LinkedIn account respectively.

**Mobile Platform:** ISSMGE's mobile platform, launched in September 2017, is presently used by 559 iOS and 790 Android users. Individuals who download the ISSMGE app, can receive push notifications of ISSMGE news.

## 5 RECOMMENDATIONS FOR THE FUTURE

For its first three terms (2009-2013, 2013-2017, and 2017-2022), the IDC has been able to undertake some major initiatives that have had a positive impact to the profession. As the first chair of the IDC all these years, I would like to thank the members of the IDC for their continued support and work, as well as the ISSMGE Boards, Presidents, and Chairs of Board-level Committees of ISSMGE that I worked with. As I step down from my role as Chair of IDC and I pass on the baton to the new Chair, Jennifer Nick, I would like to provide some recommendations for the future of IDC:

- IDC should be renewed and continue its work. I do not believe that a forward-looking IDC will ever fully complete its Mission. There are always many additional initiatives and activities that the IDC can pursue that can make an impact to the Profession, the member societies and geotechnical engineers.
- There is more work to be done for the IDC to further strengthen the content of the ISSMGE website with useful resources that the membership can use. This can be done with further engagement of Technical Committees, member societies, young members and corporate associates. In addition, the IDC should continue to support the open access vision of ISSMGE, whether it is through the Publishing initiative (conference paper review platform, online library) or the educational content (through the Virtual University), as well as additional initiatives.
- ISSMGE may also want to consider the establishment of a standing committee on Open Access Publishing to support the activities of ISSMGE. This may allow IDC to undertake additional new and exciting initiatives.

## 6 ACKNOWLEDGEMENTS

The IDC would like to gratefully acknowledge the support of the ISSMGE Board, the President and the Secretary General, and the Chairs of the other Board level Committees for their support in conducting this work.

## 7. APPENDIX

The following proceedings are currently available in open-access on the ISSMGE online library:

### International Conference on Soil Mechanics and Geotechnical Engineering

- 19th International Conference on Soil Mechanics and Geotechnical Engineering (Seoul)
- 18th International Conference on Soil Mechanics and Geotechnical Engineering (Paris)
- 17th International Conference on Soil Mechanics and Geotechnical Engineering (Alexandria)
- 16th International Conference on Soil Mechanics and Geotechnical Engineering (Osaka)
- 15th International Conference on Soil Mechanics and Foundation Engineering (Istanbul)
- 14th International Conference on Soil Mechanics and Foundation Engineering (Hamburg)
- 13th International Conference on Soil Mechanics and Foundation Engineering (New Delhi)
- 12th International Conference on Soil Mechanics and Foundation Engineering (Rio De Janeiro)
- 11th International Conference on Soil Mechanics and Foundation Engineering (San Francisco)
- 10th International Conference on Soil Mechanics and Foundation Engineering (Stockholm)
- 9th International Conference on Soil Mechanics and Foundation Engineering (Tokyo)
- 8th International Conference on Soil Mechanics and Foundation Engineering (Moscow)
- 7th International Conference on Soil Mechanics and Foundation Engineering (Mexico)
- 6th International Conference on Soil Mechanics and Foundation Engineering (Montréal)
- 5th International Conference on Soil Mechanics and Foundation Engineering (Paris)
- 4th International Conference on Soil Mechanics and Foundation Engineering (London)

- 3rd International Conference on Soil Mechanics and Foundation Engineering (Switzerland)
- 2nd International Conference on Soil Mechanics and Foundation Engineering (Rotterdam)
- 1st International Conference on Soil Mechanics and Foundation Engineering

TC306 Conferences on Education

- ICETGES - 2008
- SFGE - 2012
- SFGE - 2016
- International Conference On Geotechnical Engineering Education 2020 (GEE2020)

TC204 Underground Construction Conferences

- IS NEW DELHI '94
- IS LONDON '96
- IS TOKYO '99
- IS TOULOUSE '02
- IS AMSTERDAM '05
- IS SHANGHAI '08
- IS ROME '11
- IS SEOUL '14
- IS SAO PAULO '17

International Conferences on Geotechnical Engineering (ICGE)  
ICGE Colombo 2015

TC102 Conferences on In-situ testing

- Fifth International Conference on Geotechnical and Geophysical Site Characterization (ISC'5)

TC302 Conferences on Forensic Geotechnical Engineering

- 5th International Conference on Forensic Geotechnical Engineering

Young Geotechnical Engineers' Conferences

- 6th International Young Geotechnical Engineers' Conference (iYGEC6)
- 25th European Young Geotechnical Engineers Conference
- 26th European Young Geotechnical Engineers Conference

Regional Conferences on Soil Mechanics and Geotechnical Engineering

- 17th Nordic Geotechnical Meeting (NGM-2016)
- 17th European Conference on Soil Mechanics and Geotechnical Engineering
- 17th African Regional Conference on Soil Mechanics and Geotechnical Engineering

TC104 Conferences on Physical modelling

- EUROFUGE 2016 (Nantes, France)

TC203 Conferences in Earthquake Engineering

- 3rd International Conference on Performance-based Design in Earthquake Geotechnical Engineering (Vancouver 2017)
- 5th International Conference on Earthquake Geotechnical Engineering (Santiago, Chile)
- 6th International Conference on Earthquake Geotechnical Engineering (Christchurch, New Zealand)
- 7th International Conference on Earthquake Geotechnical Engineering (Roma, Italy)

TC106 Conferences in Unsaturated Soils

- 7th International Conference on Unsaturated Soils 2018 (Hong Kong)

TC220 Conferences in Field Monitoring in Geomechanics  
Field Measurements in Geomechanics 2018

Pan-American Conferences on Soil Mechanics and Geotechnical Engineering (PCSMGE)

- 14th Pan-American Conference on Soil Mechanics and Geotechnical Engineering 64th Canadian Geotechnical Conference, October 2-6, 2011, Toronto, Ontario, Canada
- XVI Pan-American Conference on Soil Mechanics and Geotechnical Engineering (XVI PCSMGE)

Australia - New Zealand Conferences on Geomechanics

- 13th Australia - New Zealand Conference on Geomechanics (Perth, 2019)
- 12th Australia - New Zealand Conference on Geomechanics (Wellington, 2015)
- 11th Australia - New Zealand Conference on Geomechanics (Melbourne, 2012)
- 10th Australia - New Zealand Conference on Geomechanics (Brisbane, 2007)
- 9th Australia - New Zealand Conference on Geomechanics (Auckland, 2004)
- 8th Australia - New Zealand Conference on Geomechanics (Hobart, 1999)
- 7th Australia - New Zealand Conference on Geomechanics (Adelaide, 1996)
- 6th Australia - New Zealand Conference on Geomechanics (Christchurch, 1992)
- 5th Australia - New Zealand Conference on Geomechanics (Sydney, 1988)
- 4th Australia - New Zealand Conference on Geomechanics (Perth, 1984)
- 3rd Australia - New Zealand Conference on Geomechanics (Wellington, 1980)
- 2nd Australia - New Zealand Conference on Geomechanics (Brisbane, 1975)
- 1st Australia - New Zealand Conference on Geomechanics (Melbourne, 1971)

TC304 Conferences On Engineering Practice of Risk Assessment and Management

- 1st International Symposium on Geotechnical Safety and Risk (ISGSR 2007)
- 7th International Symposium on Geotechnical Safety and Risk (ISGSR 2019)

TC213 Conferences on Scour and Erosion

- 10th International Conference on Scour and Erosion (ICSE-10)

Other

- 13th International Symposium on Landslides (XIII ISL)
- 3rd International Symposium on Coupled Phenomena in Environmental Geotechnics (CPEG2020 - Kyoto, Japan)

## Appendix 8: Report of the Technical Oversight Committee for the term 2017 – 2021

### Pierre Delage

*Chair, Technical Oversight Committee*

This report of the Technical Oversight Committee (TOC) for the term 2017 – 2021 also contains some thoughts, conclusions and suggestions resulting from the two terms made by Pierre Delage as Chair of the TOC (2013 – 2017 under ISSMGE President Roger Frank and 2017 – 2021 under President Charles Ng).

#### 1 INTRODUCTION.

The 37 Technical Committees (TCs) of the ISSMGE are the foundation on which the technical and scientific activities of the ISSMGE are based. They are managed by a Chair and a Secretary and, if deemed necessary, a Vice-Chair. They are composed of four members appointed by the Chair (with voting right), of members (two members per Member Society, with voting right) and of corresponding members (with no voting right, no limitation in number). Members and corresponding members are nominated through their Member Societies, who are also in charge of putting their names in the TC website. The functioning of the TCs, based on a volunteer basis, is supervised by the Technical Oversight Committee and defined in the “Guidelines for ISSMGE Technical Committees and ISSMGE Honour Lectures” (revised in November 2019, called “Guidelines” in the following, see Section 5 below). The Guidelines state that TCs are “forum for discussing, developing and applying specialist geotechnical knowledge related to the behaviour of geo-materials, geotechnical engineering and engineering for society”, with the following objectives:

- 1. Develop and disseminate knowledge and practice within the topic of the TC to the membership of the ISSMGE.
- 2. Establish guidelines and technical recommendations within the topic of the TC.
- 3. Assist with technical programs of international and regional conferences organised by the ISSMGE.
- 4. Interact with industry and overlapping groups working in areas related to the specialist area of the TC.

Briefly, it can be stated that, within active TCs during the past term, items 1 and 3 have been fairly well carried out, whereas item 2, which is much more time consuming, is not often done. In some applied TCs close to industry and practice, item 4 is correctly carried out. Item 1 can only be correctly performed when regular TC meetings are organised by TC officers. However, the question of the dissemination from the TC membership to ISSMGE membership arises. It should involve the contribution of Member Societies through their TC members, which is not always guaranteed and not easy to check.

Useful information aimed at introducing TC officers to the management of TCs is provided in the TOC website, together with some updates. TC officers are responsible for managing their TC website (including the TC membership), based on the User Guide for TC Officers prepared International Society for Soil Mechanics and Geotechnical Engineering Société Internationale de Mécanique des Sols et de la Géotechnique by the TC webmasters. In this regard, the TOC is very grateful for

the two webmasters (Alexandros Tsavalas and Kostis Tsantilas) for their constant reactivity and efficiency.

#### 2 COMPOSITION OF TECHNICAL OVERSIGHT COMMITTEE

The TOC is composed of the Vice Presidents of the ISSMGE Regions, who were the following during the last term:

- Africa: Etienne Marcelin Kana (CTGA - Comité Transnational des Géotechniciens d’Afrique)
- Asia: Eun-Chul Shin (Korea)
- Australasia: Philipp Robbins (New Zealand) – formerly Gavin Alexander, deceased in 2020
- Europe: Mario Manassero (Italy)
- North America: Timothy Newson (Canada)
- South America: Alejo Sfriso (Argentina)

The idea with this composition was to have the Vice Presidents following more closely the activities of the TC in their region. It wasn’t finally not so successful, for some reasons

#### 3 TC ACTIVITIES

An important concern of the TOC was to make sure that the activities conducted by the TCs under their officers’ leadership was satisfactory and in line with the Guidelines, so as to be useful and beneficial for the ISSMGE and for geotechnical engineering practice. There is no use for ISSMGE in having inactive TCs. The functioning of TCs is based on a volunteer basis and it is not easy to impose anything. There is no problem with motivated officers, but some problems may occur in the case of officers (perhaps somewhat seduced by the prestige of the title) who might not have realised the expectations of the appointment, which is rather more than making use of their own technical and scientific expertise. TC inactivity can frustrate motivated TC members, though they often do not express this until asked directly. Besides inactivity, the lack of an international dimension (in cases where most officers coming from the same country, and/or managing all their events in their own country) is also poorly appreciated by TC members. All these issues are closely followed by the TOC and discussed when necessary during ISSMGE Board meetings. Note also that some TCs may have some dormant members, which is not useful and can now be corrected thanks to changes made in the Guidelines (see below).

The main conclusion drawn by the TOC is that the level and quality of TC activities strongly depend on the personal motivation of the Chairs. Given the way they are appointed (see below), most Chairs do have the relevant expertise. Managing of a TC is a volunteer activity, and some Chairs find it difficult to mobilise all the time and energy needed for developing relevant and satisfactory activity. The solution to this issue is not straightforward. It is indeed possible (but not easy) to change the TC Chair in some extreme cases, but not in “average” cases

where it is obvious that the level of activity less than expected. In the case where the TC Chair has been changed (easier at the end of their term of appointment), it is not necessarily easy to find a replacement, even in the case of hot topics in which a TC is obviously needed.

During the two last terms (2013 – 2017 and 2017 – 2021), some changes have been successful, with good restarts of the TC, but some others not, depending on the personality of the new Chair. In some (rare) cases, a motivated Chair may also have been disappointed by the lack of reactivity of their members, who didn't follow the Chair proposals by lack of reactivity/motivation.

The monitoring of TC activity is made by using a Table in which various activities are recorded, as seen in Section 8. Points are given for various activities, finally resulting in an indicative but imprecise ranking. The Table is not used for TC awards (for which the TOC is, surprisingly, not consulted at all), but it provides a way to distinguish between very good TCs, good ones and problematic ones.

Three items are given more importance:

- The regular running of administrative meetings, which has been significantly favoured by the pandemic, with a generalised use of on-line meetings (3 points). Such meetings are considered essential to animate and promote the TC culture and the sense of community among TC members. Regular meetings are unfortunately still not managed by some TCs, though they have been strongly encouraged to do so in the future. They appear in the Table at low ranking levels;
- The running of a series of specific conferences regularly organised by the TC (3 points). These conferences are considered quite important since they regularly provide to TC members and to the profession an idea of the main progresses and achievements made in the field of the TC. They can be run by TCs well established in their field. Note however that some active ISSMGE TCs may not have their own series of conferences, in some domains like numerical methods, for instance. Publishing conferences proceedings in Open Access is strongly encouraged and most often followed by officers. Note that the ISSMGE IT Group led by Dimitrios Zekkos now provides through the ISSMGE website a useful system of paper management for ISSMGE Conferences;
- The maintaining of an updated website (1 to 3 points) with relevant information (either within the ISSMGE website or within specific TC website).

Other items include the managing of ISSMGE Honour Lectures and Bright Spark lectures. ISSMGE Honour Lectures are now only presented within the TC specific conferences, so TC with no specific conference cannot have an Honour Lecture. Participation to ISSMGE Conferences through specific workshops are also considered, together with contributions to other initiatives like the Virtual University, the Time Capsule Project, the Case History Journal, newsletters, surveys... Observation of the Table shows a clear distinction between active TCs, with scores above 10, and TCs with problems, with scores below 6 (note that some of them are starting ones, so the ranking does not apply). All good TCs hold regular meetings and many of them organise a specific conference series. The situation of low ranked TCs is discussed within the Board to end up with appropriate conclusions with respect to their status. Some exchanges are also made with the TOC to help clarify the reasons of poor ranking, in an attempt to improve things.

In the case of clearly identified problems, the TOC, following the Guidelines and after consultation and discussion during Board meetings, has two options:

- 1. Trying to restart the TC by changing the chairmanship;
- 2. Stopping the activity of the TC.

During the term, the Chair of TC206 (Interactive design) has been changed and the restart has been quite successful thanks to the motivation of the new chair. A change in Chair has also been made in TC214 (Soft soils) and, more recently in TC107 (with its name changed from "Lateritic soils" to "Tropical residual soils", with an on-line international seminar recently organised). Conversely, the change in chair of TC207 (Soil-Structure Interaction and Retaining Structures) has not been considered successful by the Board. Considering also a low level of past activity, this TC has been recently disbanded (note that any suggestion to re-activate it would be welcome).

#### 4 ISSMGE HONOURS LECTURES

The procedure that TCs have to follow to propose a new ISSMGE Honour Lecture is described in detail in the Guidelines. The list of the ISSMGE Honour Lectures is presently as follows:

- TC101: BISHOP Lecture – Laboratory testing (TC101 website)
- TC102: MITCHELL Lecture – Site characterization (TC102 website)
- TC104: SCHOFIELD Lecture – Physical modeling (TC104 website)
- TC106: BLIGHT Lecture - Unsaturated Soils (TC106 website)
- TC202: PROCTOR Lecture – Transportation Geotechnics (TC202 website)
- TC203: ISHIHARA Lecture - Earthquake (TC203 website)
- TC204: FUJITA Lecture – Underground construction (TC204 website)
- TC209: McCLELLAND Lecture – Offshore geotechnics (TC209 website)
- TC211: MENARD Lecture – Soil Improvement (TC211 website)
- TC212: POULOS Lecture – Deep foundations (TC212 website)
- TC215: ROWE Lecture – Environmental geotechnics (TC215 website)
- TC220: DUNNICLIFF Lecture – Field Monitoring (TC220 website)
- TC301: KERISEL Lecture – Monument preservation (TC301 website)
- TC304: LACASSE Lecture - Risk (TC304 website)
- TC306: BURLAND Lecture - Education (TC306 website)
- TC308: Energy Geotechnics Honour Lecture (TC308 website)

#### 5 CHANGES IN THE GUIDELINES (REV. 2019)

The changes made in November 2019 in the revised version of the Guidelines, with the substantial contribution of Prof. Neil Taylor, Secretary General, are summarised below. These changes, aimed at improving the functioning of the TCs, resulted from observations of how they work, from exchanges with TC officers during the TOC – TC meeting held during the Reykjavik European CSMGE in 2019 and from informal discussions and e-mails with TC officers and TC members.

The changes are as follows:

- The length of the term of appointment of TC members is 8 years. It can be renewed for 4 years upon proposal of the TC chair and approval by the TOC. Approval will be based on evidence of active and essential participation; - The chair may suggest to the ISSMGE President and the TOC to remove or replace inactive members;
- Normally, the venue for TC ISSMGE Honour Lectures shall be within a specific conference arranged by the TC;
- Newly created TCs are submitted to a two years probationary period prior to being formally confirmed by the Board;
- A new chair who has some responsibilities in other TCs (Vice-chair or Secretary) should resign from those positions;

- To reflect the international nature of TCs, TC chairs are strongly encouraged to select a Secretary and a Vice Chair from a different MS to that of the Chair.

## 6 CHANGES IN TC CHAIRS

The term of TC Chairs is of four years and can be renewed once, leading to a maximum Chairmanship of 8 years. Particular attention has been paid to ensure clear and sound changes in TC Chairs, with open calls among all the members (nominated, chair nominated and corresponding) followed by e-mail votes by TC members (nominated and chair nominated).

Although the participation of members was not necessarily significant in all cases (sometimes smaller than 50%, indicating low involvement of some members), the Chair was selected based on the largest number of votes received. In some cases, in which there was some risk of conflict of interest/loyalty with a Chair too much involved in favouring a candidate, a secret e-mail vote was organised by the TOC Chair in conjunction with the Secretary General. It seems that this nomination procedure worked well, providing the necessary legitimacy to the new Chair. Once selected among the TC, the personality has to get the support of his/her Member Society prior to be proposed by the TOC to the ISSMGE President for official appointment.

## 7 CREATION OF NEW TCS

As stated in the Guidelines, the creation on new TCs results either from personal initiatives of ISSMGE members (who propose a new topic that they find of interest and explain how they plan to deal with it within the new TC) or after some discussion within the Board about important topics to cover. If accepted by the Board (with possible modifications suggested), the TC is started. The new TCs started during the last term are the following:

- TC309 – Machine learning (2017), proposed and chaired by Dr. Zhongqiang Liu (NGI)
- TC219 - System performance (2019), proposed and chaired by Prof. Gang Zheng (Tianjin U., China)
- TC220 – Field Monitoring in Geomechanics (2019), proposed and chaired by Dr. Andrew Ridley (Geo-Observations) in the prolongation of a series of successful conferences already existing on this topic
- TC221 – Tailings and Mine Waste (2020), resulting from discussion within the Board and managed with the help of the Vice-President of South America, Prof. Alejo Sfriso. The Chair is Prof. Ramon Verdugo (Universidad de Chile)
- TC222 - Geotechnical BIM and Digital Twins (2021), chaired by Magnus Rømoen (NGI)

The start of these new TCs has been successful and they usefully complement the technical and scientific fields covered by the ISSMGE, extending the abilities of geotechnical engineers in topics of importance.

## 8 CONCLUDING REMARKS

The activity of TCs is of utmost importance for the technical and scientific achievements of the ISSMGE. Significant attention has then been paid to facilitate and support the managing of TCs by officers, and to help ensuring satisfactory activities in TCs. Good activity is mainly based on the willingness of the TC chairs, who are nominated following a clear and open procedure.

The reactivity of TC members is another important component, and it is now possible, thanks to the revised version of the Guidelines, to refresh the TC membership when necessary. The close following of TC activities helps suggesting improvements, when needed, in conjunction with the Board, so as to ensure the significant technical and scientific achievements of ISSMGE.

9 TABLE OF TC ACTIVITIES

Website	Honour lecture	Bright Spark lecture	Reg. admin. meeting telecons	Specific Conf. Series	Open access proceedings	Task force	Interaction TCs	Case History Journal	Newsletter, Journal, review papers, Youtube, on line workshop, survey	Wk or Session ERC Reykjavik	Session ARC Tai Pei	ISSMGE virtual U.	TCP - TC meeting	TCP - TC contribution	SoA, SoP, Guidelines	TC Workshop Sydney	Note
3	1	1	3	3	1	1	1	1		1	1	1	1		1	1	21
3	1	1	3	3	1	1	1	1		1	1	1	1	1	1		21
3	1	1	3	3	1		1	1	1	1		1	1		1		19
3	1		3	3	1		1		1	1		1	1		1	1	18
3	1		3	3	1	1		1	1	1		1	1	1	1		18
3	1		3	3	1		1	1	1	1		1	1	1			18
3	1	1	3	3	1	1		1	1	1	1		1				17
2		1	3	3		1	1	1	1	1			1	1		1	17
3	1		3	3	1		1			1			1		1	1	16
2	1		3	3		1	1	1		1	1		1	1			16
3		1	3	3	1	1	1	1		1			1				16
2		1	3	3	1	1	1	1					1		1	1	16
2	1	1	3	3					1	1			1	1	1		15
2	1	1	3	3	1			1		1		1	1				15
3			3		1		1	1	1	1			1		1	1	14
3		1	3	3	1		1	1					1				14
2	1	1	3	3	1					1		1	1				14
1	1	1	3	3	1		1			1		1	1				14
3			3				1			1	1	1	1	1	1		13
2	1	1	3	3	1					1			1				13
3	1		3	3			1		1				1				13
3			3				1	1		1		1	1	1			12
2			3			1	1		1	1			1	1		1	12
2			3	1				1	1	1		1	1	1			11
2			3			1	1	1		1			1	1			11
1		1	3			1	1		1				0				8
2			3				1		1				0				7
2	1			1				1		1			1				7
2	1						1	1		1			0				6
2			3										1				6
2							1	1	1				1				6
2					1			1			1		1				6
2										1	1		1				5
2							1			1		1	0				5
1										1			1				3
2							1						0				3
2																	2
1							1						0				2

## Appendix 9: Report of the Young Members Presidential Group 2017-2021

### Lucy Wu

*ISSMGE Young Member Presidential Group (YMPG), Chair*

**SUMMARY:** This report presents the work of the Young Members Presidential Group primarily from 2020 to 2022 with background provided on the work done in 2017 to 2019 as context. The report summarizes the major initiatives undertaken, the objective behind the initiatives, and the outcomes achieved. This report also describes how these initiatives supports the overall mission of the committee in its transition from an advisory committee to the President to becoming the nexus of younger member networks within the ISSMGE.

### 1 INTRODUCTION

The Young Members Presidential Group (YMPG) is a Board Level Committee within the ISSMGE working to engage the next generation of geotechnical engineers. This report primarily details the work of the YMPG from 2020 to 2022 in continuing the mission that was determined at the end of the 2017 to 2019 term. Where applicable, the work done during the 2017 to 2019 term was included to provide context and completeness.

### 2 MISSION STATEMENT

The Mission Statement that the YMPG adopted for the 2020 to 2022 term is as follows:

The mission of the YMPG is to engage the next generation of geotechnical engineers in the ISSMGE. This is accomplished through a wide network of liaisons and corresponding members around the world. The YMPG will act as the nexus of this network by:

1. Enabling the sharing of knowledge and ideas
2. Connecting groups with each other, and
3. Facilitating communication between younger members and ISSMGE leadership.

### 2 MEMBERSHIP

The committee is led by the Chair, appointed for a four-year term by the ISSMGE President. Membership is restricted to ISSMGE members 35 years of age or younger at the time of appointment. Members serve two-year terms, renewable for an additional two years depending on interest, activity level, and age eligibility. In previous terms, three members from each region were nominated by the Regional Vice Presidents, creating a committee of 19 members representing a broad global reach.

At the end of the previous term (2017-2019), a change to the composition of the membership was proposed to the Board to reduce the size of the Core Committee Team to less than ten members. The Core Team will still be very international in its composition but will not represent any region or Member Society. This Core Team would transition the YMPG from a group that creates initiatives to become the nexus of young member activities within the ISSMGE. This would be accomplished through the creation of official liaisons with all Member Societies and eventually with Technical Committees and other affiliated groups. For the 2020-2022 term, the Core Team comprised 7 people.

### 3 INITIATIVES AND ACHIEVEMENTS

This section describes the activities undertaken by the committee during this term.

#### 3.1 *Bright Spark Lectures*

The Bright Spark Lectures award is an initiative started by the current ISSMGE President, Professor Charles Ng. The purpose of the Bright Spark Lectures award is to promote young and promising geotechnical engineers/academics by giving them a platform to deliver keynote and invited lectures at conferences.

During the previous term, the YMPG, with the support of the Vice Presidents and Conference Organizing Committees, advertised and vetted applications for four of the 2019 Regional Conferences: Europe, Africa, Pan-America, and Asia. The lectures at these conferences were well received. It was recognized that since the Regional Conferences are only held every four years, there is some inherent luck with applicants who are close to the age cutoff. These lectures were used as platforms to encourage Member Societies and Technical Committees to host Bright Spark Lectures at their own conferences. The award was promptly adopted by a number of conferences and its prestige has grown over this period.

Therefore, the selection of the Bright Spark Lectures for the Sydney ICSMGE became a center focus initiative for the YMPG in 2020 due to the conference's importance and prominence in ISSMGE activities. With the help of the Organizing Committee and Member Societies, the Committee aggressively advertised this award. A total of 45 nominees and 22 societies were received, far exceeding expectations. The nominations were very high quality and winners were announced in the ISSMGE Bulletin Volume 14, Issue 5, October 2020 and ISSMGE News.

#### 3.2 *YMPG Alumni*

Since the YMPG has existed for more than 10 years, there is now a growing list of former YMPG committee members. This is a valuable group of people who are likely to be willing to serve on one-off task forces, provide mentorship, and willing to be panelists for younger member sessions at conferences. Maintaining this group as a community would allow the YMPG to continue to tap into the group as a resource.

A list of all past committee members has been created. No further action had been taken to reconnect with this group during this term. This committee believes that most YMPG alumni would highly appreciate targeted communications and also continue to contribute and interact with the Society.

#### 3.3 *YMPG Liaisons*

One of the most important initiatives undertaken this term was the development of the network of YMPG Liaisons. The committee sought official nominations from each Member Society ensuring that the representative has support from his/her Member Society. This structure also better reflects the way the Society communicates through Member Societies rather than directly to individual members.

This network would be a venue to share ideas, allow groups to network with each other, and allow the Society to gain better feedback from its younger members. With full engagement from all Member Societies and Technical Committees, this would create 100-200 young member positions within the ISSMGE community, allowing more people to participate on the international level.

### 3.3.1 Pilot Group

An initial pilot group of seven liaisons were chosen from some of the most active societies. The nominated representatives took part in monthly meetings to explore different topics of interest, test methods of communication, and to get to know each other on an informal basis. One of the key findings was that even though the Liaisons were very active in their own Member Society, they did not seem to know about some key ISSMGE resources. The outcome was the creation of onboarding presentations about the ISSMGE and YMPG that were used to onboard subsequent YMPG Liaisons.

### 3.3.2 General YMPG Liaison Meetings

After the initial pilot group, nominations were accepted from all Member Societies. The group of YMPG Liaisons grew to about 30 individuals. Even though this does not come close to the total number of Member Societies in the ISSMGE (more than 90), this was deemed to be an adequate size group.

After initial onboarding meetings, meetings included guest speakers and specific topics. Guest speakers include Darren Paul (Chair of 7iYGEC), Sukumar Pathmanandavel (Co-Chair of CAPG), and KK Phoon (Vice Chair of IDC). Another particularly engaging meeting was a discussion about the structure of young member groups in each Member Society. The Liaisons described how their Member Society engages their younger members and opportunities ranged from having a position on the Board to dedicated student and young member groups. The global and diverse nature of the group created space for everyone to consider something different from their own norms. The group came to the conclusion that there is no single right way for professional society engagement but rather it is an ongoing effort to adapt to the needs of the members.

### 3.3.3 Overdesign Survey/Challenge

The confluence of this international collaboration and global events was the spark that influenced a series of “Are We Overdesigning” competitions that took place at the end of 2020.

The CAPG had been promoting the Overdesign Survey and it was recognized that the survey may get more responses if there is an actual event. The global pandemic normalized virtual events. The YMPG Core Team and Liaisons, both being “remote-first” groups where members meet virtually on a regular basis, were in a special position to take the technical work that the CAPG has started and disseminate it. After a few months of getting to know each other, the Liaisons were ready to take on a challenge. The following events were led and executed through the leadership of the YMPG Liaisons and other younger member representatives appointed by their Member Society (see Table 1).

Table 1. Overdesign Events/Competitions and Engagement

Region/Society	Engagement
Africa, led by South Africa	150 live attendees
Australia and New Zealand	480 registered, 300 live attendees
Southeast Asia (jointly hosted by Singapore, Indonesia, Malaysia, Hong Kong Societies)	500 registered, 300 live attendees, 600 views on YouTube

Latin America (jointly hosted by Paraguay, Chile, Argentina Societies)	3 separate events, 100 participants each
Francophone event (jointly hosted by France and Morocco Societies)	170 live attendees, 700 views on YouTube
Canada	300 live attendees

Most notable was that the Latin American and Francophone events held entirely in Spanish and French, respectively. The leaders of these events took it upon themselves to translate all the technical material from English into French and Spanish. They considered this to be a critical part in making this event accessible to their members. Reception from the audience was overwhelmingly positive, many of whom remarked that the international nature of these events excited them to attend and participate.

### 3.4 Future of Geotechnics Event

In 2021, the Committee centered its focus in the creation of the Future of Geotechnics, an online event that explored the future of the profession with an international audience. The event was inspired by the success of the Overdesign Challenges, the call-to-action for the Time Capsule Project, and the desire to create a capstone event to end the current YMPG term.

This event had four main objectives:

- To inspire younger geotechnical engineers to think beyond their own national borders
- To provide younger engineers the opportunity to interact with professors and researchers doing cutting edge research
- To demonstrate how geotechnics can contribute to big global problems
- To contribute to the Time Capsule Project by encapsulating what we think the future looks like

Three central themes, held as separate events, centered on the questions of “What will the world and the field of geotechnics look like in 40 years?” The themes are as follows:

- Mitigation of Climate Change: The current and future contributions of the geotechnics profession on the mitigation of global carbon emissions through supporting advances in renewable energy technologies, developing a circular carbon economy through research and development of energy geotechnics, and enabling carbon capture through sequestration.
- Adaptation to Climate Change: Increasing awareness on challenges that arise from climate change in the form of sea level rise, groundwater inundation, permafrost loss, and the increased frequency of natural disasters leading to an increased need for resiliency in our built environment.
- Technology, AI, Big Data: Realizing that the intersection of technology and geotechnical engineering will require geotechnical engineers to embrace and integrate advances in computing in their practice. This event was co-hosted with TC309, the Technical Committee on Machine Learning and Big Data.

The events were held as three separate, two-hour events approximately eight hours apart over the course of two days in October 2021. The timing was selected to allow an international audience to reasonably attend two out of the three events live.

The events featured participation from many groups within and affiliated with the ISSMGE. The leadership provided by TC309 in making the Technology event happen was invaluable. The Adaptation event featured a special appearance from the International Geosynthetics Society (IGS), a sister society of the



ISSMGE and a member of the Federation of International Geo-Engineering Societies (FedIGS). Several speakers were nominated by the Corporate Associates of the ISSMGE. The YMPG Liaisons promoted the event through social media and other channels in multiple languages.

Online registration for the event reached audiences in over 80 countries with more than 2,700 online tickets issued, far exceeding expectations. The live events were well attended and the recordings provided an additional way for members to engage with the content.

This event showcased a way to engage global members in a dialogue that is both meaningful and impactful. The YMPG envisages that this event is the start of a conversation where engineers consciously think about the future of the profession. As part of the Time Capsule Project, the YMPG also hopes that this event encapsulates the sentiments and concerns of the engineering community at this point in time.

#### 4 CORRESPONDING MEMBERSHIP

The corresponding membership of the YMPG through Google Groups email list, GeoWorld Group, and LinkedIn Group have steadily increased over the past four years despite the lack of emphasis on increasing the membership numbers (see Figure 1). Previous terms have driven membership numbers and achieved a critical mass such that the groups continue to grow with little direct recruiting effort. The purpose of these communication channels was to enable direct communication to younger members worldwide as well as provide a platform for all members to share and disseminate resources and events happening in their own societies.

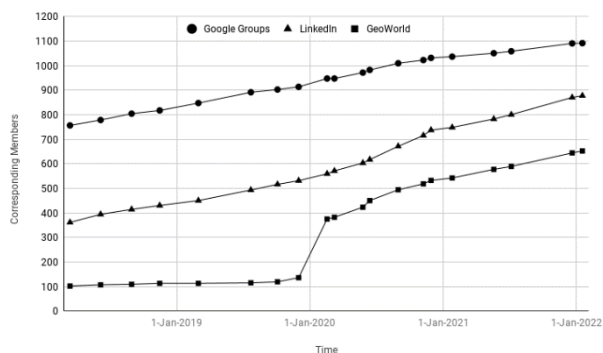


Figure 1. YMPG corresponding membership numbers over the past four years.

#### 5 RECOMMENDATIONS

The Committee has started the transition of the committee’s mission and composition to allow for wider participation of younger members in the Society. The following recommendations are provided for consideration for future YMPG committees:

- Continue to redefine the mission of the YMPG as a platform where initiatives are created, ideas are exchanged, and networks are formed.
- Build the YMPG Liaisons and Alumni networks to enable and elevate the participation of younger members on the national, regional, and international levels.
- Enhance the Society’s impact on younger engineers through collaboration with other Board Level Committees and Technical Committees.

- Continue to promote the Bright Spark Lectures and the idea of allowing younger engineers to give prominent keynote lectures.

#### 6 ACKNOWLEDGEMENTS

This committee would like to thank the efforts of other Board Level Committees, Board Members, and Technical Committees for supporting our initiatives. Special thanks go to the CAPG, IDC, and TC309 for their enthusiasm and unwavering support.

The group would also like to applaud the individual efforts of the YMPG members, both the Core Team and the Liaisons, who operated on a voluntary basis to advance the field of geotechnical engineering for younger members around the world. Their efforts and continued dedication have been remarkable especially given the challenging circumstances due to the global pandemic.

## Appendix 10: Report of the Corporate Associates Presidential Group (CAPG) to the ISSMGE Council meeting, May 2022

**Peter Day & Sukumar Pathmanandavel**

*Chair and Co-chair of CAPG*

### 1 INTRODUCTION

The ISSMGE Corporate Associates Presidential Group provides a platform for leading corporations, consultancies, contractors, research institutions, equipment specialists, and product manufacturers in the geotechnical industry to participate directly in the activities of the ISSMGE. The CAPG now has 42 members <https://www.issmge.org/corporate-associates/listing>.

This report summarises the activities of the CAPG for the 2017 – 2022 Presidential term.

### 2 ISSMGE REGIONAL CONFERENCES

The CAPG hosted sessions at all five regional conferences in 2019.

- 13th Australasian Regional Conference, Perth, Australia – April 2019: Collaboration in geotechnical engineering – Impact on research and project delivery.  
[http://issmge2014.ust.hk/jun2019/3b.Conference\\_report](http://issmge2014.ust.hk/jun2019/3b.Conference_report)
- 17th European Regional Conference, Reykjavik, Iceland – September 2019: Bridging the gap between designers and constructors: how do we ensure effective ‘transfer’ of design into construction?  
<http://issmge2014.ust.hk/oct2019/2.CAPG.pdf>
- 17th African Regional Conference, Cape Town, South Africa – October 2019: Geotechnical innovation. 8 Papers on innovation available at  
<https://www.issmge.org/publications/online-library>  
Search under Regional Conferences tab, then the 17th African Regional conference, and then CAPG session.
- 16th Asian Regional Conference, Taipei, Taiwan – October 2019 Are we overdesigning?  
<http://issmge2014.ust.hk/feb2020/2.Message.pdf>
- 16th Pan-American Conference, Cancún, México – November 2019: Geo-education for the Future.  
<http://issmge2014.ust.hk/apr2020/3.CAPGmessage.pdf>

### 3 OVERDESIGN SURVEY

During the 16th Danube Conference in Macedonia in 2018, members of the Asian Region raised the question “are we overdesigning?”. In response, the CAPG launched a survey in which respondents provided solutions to 10 simple geotechnical problems on sand and clay sites – see

<https://www.issmge.org/news/are-we-overdesigning-a-survey-of-international-practice>

The number of responses to the survey was significantly boosted by six online "geotechnical design challenge" events covering Africa, parts of SE Asia, Francophone countries, Canada, South America and Australia/New Zealand. These events were hosted mainly by young members and involved leading geotechnical experts in all regions. Just under 250 responses have been received. The results will be presented at the 20th ICSMGE in Sydney, Australia in May 2022. Thanks to the organisers of these events for their sterling efforts.

TC 304 made a major contribution by analysing all 10 survey questions from a reliability-based design perspective – see

<https://issmge.org/files/reports/TC304-TC205-CAPG-YMPG-Report-on-overdesign-survey-problems.pdf>.

### 3 FOUNDATIONS CONFERENCE AND EQUIPMENT EXPO (IFCEE)

The International Foundations Conference and Equipment Expo (IFCEE), an important event in the North American Geotechnical calendar, was held in May 2021 in Dallas, Texas, USA. With the assistance of the YMPG and local CAPG members, the CAPG hosted a speciality session entitled "Knowledge gaps in geotechnical engineering design and construction and the role that the USA could play in influencing global practice".

The event was hailed as a success and represents an important step towards greater involvement of the ISSMGE in Industry-sponsored speciality events in the USA.

### 4 TIME CAPSULE PROJECT (TCP)

The virtual time capsule project, led by CAPG Co-Chair Sukumar Pathmanandavel and the TCP Design Team, aims to record the past, understand the present and anticipate the future of geotechnical engineering and, in so doing, encourage dialogue at all levels of ISSMGE membership. Contributions are expected from past presidents, member societies, technical committees, the YMPG and the CAPG.

The time capsule will be officially launched at the 20th ICSMGE in Sydney, May 2022. Further details can be found at <https://www.issmge.org/the-society/time-capsule>

### 5 20TH ICSMGE, SYDNEY, AUSTRALIA – MAY 2022

With the kind permission of the Conference Organisers, the CAPG will be hosting a session on “Innovations and Achievements in Geotechnical Engineering” at which 13 papers by CAPG members will be presented. The CAPG will also use this opportunity to present the results of the “Overdesign survey”.

Depending on the COVID-19 situation at the time, the CAPG intends hosting a social event for its members at the Sydney conference.

### 6 THANKS

The CAPG express its thanks to all our members, the CAPG core team who have met every 6 – 10 weeks for the past 5 years, the coordinators of these meetings, the organisers of the Overdesign online events, contributors to speciality and regional conference sessions and the YMPG for their assistance and valuable contributions.

## Appendix 11: Report on the Activities of the ISSMGE Awards Committee (AWAC)

### Committee period: 2017-2022

#### Roberto Terzariol

President of ISSMGE Awards Committee (AWAC)

#### Andre Archer

Secretary of ISSMGE Awards Committee (AWAC)

SUMMARY: This report outlines AWACs activities from August 2020 to January 2021 and acts as a guide for the awards currently on offer by the ISSMGE.

### 1 INTRODUCTION.

Professor Charles W.W. Ng, president effective from September 2017, appointed Roberto Terzariol as the new chairman of the Awards Committee (AWAC).

A new secretary, André Archer from South Africa, was nominated and his position as secretary was approved at the ISSMGE Board Meeting in Singapore on 10 March 2019. Other memberships to this committee were formed through consultation and nominations by regional vice-presidents.

The composition of this new AWAC consists of representatives from six regions.

### 2 MEMBERSHIP AND RESPONSIBILITIES OF AWARDS COMMITTEE

Committee members

Chairman: Roberto Terzariol (Argentina)

Secretary: André Archer (South Africa)

Regional representatives:

- Lidija Zdravkovic (Europe)
- Werner Bilfinger (South America)
- Hugo Acosta (Australasia)
- Teik Aun Ooi (Asia)
- Kerry Rowe (North America)
- Carlos Quadros (Africa)

The main responsibilities are to work with the ISSMGE Board to devise and improve awards guidelines and nomination procedures, to coordinate review processes, to conduct review of nominations and to make recommendations to the Board for consideration and approval.

### 3 TYPES OF ISSMGE AWARDS

The ISSMGE offers the following awards to recognize those individuals and bodies who have made important contributions to our profession, society and the world:

- 3.1. ISSMGE Outstanding Geotechnical Project Award
- 3.2. ISSMGE Outstanding Innovator Award (individual or team).
- 3.3. ISSMGE Outstanding Member Society Award

3.4. ISSMGE Outstanding Paper Published in the International Journal of Geo-Engineering Case Histories Award.

3.5. ISSMGE Outstanding Public Relations Award.

3.6. ISSMGE Outstanding Technical Committee Award.

3.7. ISSMGE Outstanding Young Geotechnical Engineer Awards (up to three awards).

3.8. ISSMGE Bright Spark Lecture award

Awards will be given once every four years, except for the Bright Spark lecture award, which is given yearly at various conferences.

Guidelines for the nomination of the various awards follow below.

All nominations must be made through the local ISSMGE Member Society (except the Outstanding Paper Award) and must reach the ISSMGE Secretariat by the deadline, which will be approximately one year before the International Conference on Soil Mechanics and Geotechnical Engineering (ICSMGE).

In this case the ICSMGE conference is to be held in Sydney, Australia in May 2022. The conference has been postponed due pandemic.

### 4 ASSESSMENT PROCEDURES

To avoid any potential conflict of interests, five sub-committees were formed to review and assess the suitability and quality of nominations and to make recommendations to the AWAC for considerations.

Additional committee members have also been chosen to assist.

The committee chairs and members will be asked on an ad-hoc basis to assist during the review period.

Nominations received will be distributed to selected committee chairs and members for an independent review.

Based on the outcome of the review process, the awardees will be communicated to the ISSMGE board for approval.

#### 4.1. Sub Committees

The five sub-committees and committee members are listed as follows:

Sub-committee Chairs:

Dr Hugo Acosta (Australia)  
Dr André Archer (South Africa)  
Professor Kerry Rowe (Canada)  
Professor Lidija Zdravkovic (UK)  
Professor Dimitrios Zekkos (USA)

Committee members:

Dr Dennis Becker (Canada)  
Dr Werner Bilfinger (Brazil)  
Professor Jon Bray (USA)  
Dr Johnny Cheuk (Hong Kong)  
Dr Peter Day (South Africa)  
Professor Russel Green (USA)  
Professor Mark Jaksza (Australia)  
Professor Mike Jamiolkowski (Italy)  
Dr Zachieh Moh (Chinese Taipei)  
Dr TA Ooi (Malaysia)  
Professor K.K. Phoon (Singapore)  
Professor Pedro Pinto (Portugal)  
Professor Carlos Quadros (Mozambique)

The Bright Spark Lecture Award procedure is independent of AWAC with nominations sent directly to the Young Members Presidential Group (YMPG).

The YMPG will assess and short-list candidates, with the selected lecturers sent to the president for final approval.

## 5 NOMINATIONS RECEIVED

The deadline for award nomination was 1 July 2020. Due to the COVID-19 Pandemic the Awards Committee, in consultation with the President, decided to extend the submission deadline to 30 November 2020.

This was deemed a reasonable exception to allow for healthy competition and fair adjudication.

The following is a summer of the nomination received:

- 5.1. Outstanding Young Geotech. Engineer Award: 13
- 5.2. Outstanding Member Society Award: 3
- 5.3. Outstanding Geotechnical Project Award: 2
- 5.4. Outstanding Innovator Award: 3
- 5.5. Outstanding Tech. Committee Award: 3
- 5.6. Outstanding Public Relations Award: 1
- 5.7. Outstanding Paper Published in IJGCH: IJGCH have been contacted to nominate two papers for this reward.
- 5.8. Bright Spark Lecture Award: Nominations will go directly to YMPG for adjudication.

With the deadline extended, additional nominations were received, and this will allow for an equitable assessment and improved competition.

The adjudication process for the various awards have been completed.

To allow for a fair adjudication, and given the postponement of ICSMGE2021, it was decided to allow the adjudication process run until 31 March 2021.

The results will be conveyed to the ISSMGE Board for approval.

For the adjudication, the following sub-committee chairs have been nominated to coordinate a particular award, in order to avoid potential conflict of interest:

- a. Outstanding Young Geotechnical Engineer Award: Prof. Lidija Zdravkovic (UK).
- b. Outstanding Member Society Award: Prof. Dimitrios Zekkos (USA).
- c. Outstanding Geotechnical Project Award: Dr André Archer (South Africa).
- d. Outstanding Innovator Award: Dr Hugo Acosta (Australia).
- e. Outstanding Technical Committee Award: Professor Pedro Pinto (Portugal).
- f. Outstanding Public Relations Award: Dr André Archer (South Africa)

In general, AWAC believes the adjudication process for all the awards was fair and rigorous, and the variety of rewards meets the needs of the ISSMGE.

## Appendix 12: Activity of the Professional Image Committee 2018-2022

Ikuo Towhata

### PREFACE

The International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE) has been seeking for a better public recognition of its profession for many years. In spite of many people who were engaged in this effort, the output was not satisfactory. This is in a clear contrast with the efforts of some other disciplines that have attained very good image among people. During the term of 2018-2022, its newly formed committee named Professional Image Committee, of which I was the Chair, attempted to propose a new approach towards the better recognition from a different perspective.

Because the international activity for this important theme was supposed to be difficult due to lack of frequent meeting and communication, a special domestic committee was established by the Japanese Geotechnical Society, of which I was the Chair as well, and this committee made efforts to propose what to do in order to improve the image of the geotechnical engineering profession among public.

This report is associated with a Power Point file that helps easy dissemination of the value of geotechnical engineering among public.

The outputs of this domestic committee, which consist of this report and the power point file, are distributed among and shared by the Member Societies of ISSMGE so that they may use them for their domestic image. Certainly, the Member Societies can freely translate and/or edit the outputs into their local languages (except a few imageries with copyright notes).

The outputs and their edited/translated versions should be cited as "Ikuo Towhata (2022) For better professional image of geotechnical engineering, Output of the Professional Image Committee of ISSMGE Board in conjunction with the Japanese Geotechnical Society."

The major point of this report is that attentions are paid not only to the value of our profession, as has been stressed by the past efforts repeatedly without much success, but also to the weakness and shortcomings as well. The weakness stems from the nature of the ground that is heterogeneous and invisible, and makes engineering very difficult. The shortcomings are such as the low income of the geotechnical occupation and the insufficient public exposure. The income should be improved by stressing the importance of more subsurface investigation in order to mitigate the Georisk. The public exposure should be increased by saying "Do not be satisfied with customer satisfaction."

It is desired that the Member Societies of ISSMGE recognize the source of our weakness and use the power point file for better future of our YOUNGER colleagues.

Ikuo Towhata

Chair of the Professional Image Committee of ISSMGE and of the special committee established by the Japanese Geotechnical Society

### 1 INTRODUCTION.

This report summarizes the achievements of the Professional Image Committee (PIC) from 2018 when the committee resumed

its activities to the present time. The members of PIC other than myself are; Sam Mackenzie (Australia), Alessander Kormann (Brazil), Wenjie XU(China), François Depardon (France), Bruno Demay (France), Wolfgang Sondermann (Germany), Hemanta Hazarika (India), Tatsuya Nojima (Japan), Jin Man Kim (Korea), Stephen Crawford (New Zealand), Adam Latimer (UK), Donald A. Bruce (USA), Rick Deschamps (USA) and Trevor Green (South Africa). The major concern of PIC has been the improvement of the image of geotechnical engineering among people that is currently not very good in many countries. Ground or geotechnical sphere is invisible. Although it is essential to maintain the reliability and safety of human life and the civilization, people tend to overlook it or even unaware of it. From the technological viewpoint, ground is a product of the natural process in which no care is taken by nature of the homogeneity, engineering quality, quality certification, and material decay. As a consequence, it is very difficult to capture the three-dimensional underground structure, and empiricism as well as observational method is relied on. It is a pity that cost-saving clients are reluctant to allocate enough budget to accurate site investigation. Accordingly, once an underground trouble occurs, they have to pay much bigger fee to solve the problem.

Due to shortage of subsurface information, construction projects often face 'georisk' troubles in which unexpectedly adverse soil/rock conditions cause additional cost and/or delay of the project. It is interesting that human is not aware of diseases that is going on in their organ and that medical doctors have to find it through health check so that suitable treatment may be made. This similarity (with many differences) between geotechnical practice and medical treatment will be touched upon in the later part of this report.

People suppose that geotechnical engineering is a 'dirty' engineering that is far behind the state-of-art modern technology such as information and biological technologies. In the worst case, people do not know anything about 'geotechnical' engineering.

Many geotechnical people made efforts to change this adverse situation. I have seen many advertisements by means of photos and motion pictures that demonstrate the great contribution of geotechnical engineering to the public welfare. Unfortunately, those efforts have not been very successful so far. People still do not care geotechnical engineering.

The unfavorable image of our profession has to be taken seriously because bright people of the next generation are not likely attracted to geotechnical engineering, and the shortage of talented people will make the scientific and technological developments difficult in the geotechnical profession.

In 2017, I decided to rethink the direction of such efforts and make different types of effort in order to improve the situation. It is expected today that the Member Societies pay attention to my output and start new types of effort in their countries.

It is encouraging that young citizens have fascinating image of geotechnical engineering. In 2009, the Japanese Geotechnical Society organized a picture contest for which many fantastic pictures were submitted by young fellows. Some of them are presented in this page but, for more, readers can visit the web site at: <http://www.jgskantou.sakura.ne.jp/report/090819kaiga.htm>.



Fig. 1.1. My dream (Sohta Tsuge) (property of JGS).



Fig. 1.2. Dinosaurs under my town (Ayane Ohno) (property of JGS).



Fig. 1.3. Earth is my life (Yuzu Inoue) (property of JGS).



Fig. 1.4. Hand contact with earth (Ayana Nitta) (property of JGS).

## 2 REVIEW OF THE PAST

It is obvious that the efforts have to be continued to disseminate the importance and the great contribution of geotechnical engineering to the public. The question is why the efforts in the past were not very successful in contrast to other fields of engineering and technology that did similar efforts and won good reputations among people. You can just imagine the good public image of computer & communication technology, space technology, biological technology, and many others. Probably, our efforts were not so efficient as theirs.

One possible reason for the difference is the 'dirty' appearance of geotechnical engineers who work in the field, touch 'dirt' and live in construction sites. However, the 'dirty' appearance is not the only reason of our unfavorable image because the rugby football players after match are 'dirtier' than us but are highly respected by people.

I make four points that have not been considered in our past efforts;

- Income of geotechnical engineers is not attractive to young and bright people.
- Geotechnical engineering is not visible and not known by people.
- Geotechnical engineering does not directly help people. It is working only with clients.
- Geotechnical engineering is not very scientific, relying on many empirical knowledge.

These points are discussed in more detail in the following sections.

## 3 INCOME AND GEORISK MITIGATION

As stated before, the relatively low income of geotechnical profession negatively affect the young and bright people and the shortage of good human resource makes development of geotechnical engineering more difficult.

Income is an important component of life because everybody has to maintain daily life of family, improve one's own professional skill and capability, and bring up the next generation (children). People sincerely wish to do these duties. To do them, availability of money is important. Some people advocate by saying "You geotechnical engineers contribute a lot to the community. Your job has a supreme value. Do not insist on money!" But, they do not provide engineers with daily food and fees for children's education. Many family duties are supreme as well.

In general, people do not respect poor men. Note that it is not advisable just to claim more payment to the clients. It is necessary to show the clients that geotechnical engineering deserves more funding.

The following discussion concerns mainly the geotechnical consultants who are engaged in field investigation and data interpretation. This is because they are the major component of our Society and also belong to its Corporate Associates. However, geotechnical researchers are concerned as well. The aim of discussion is to show that more budget should be allocated to the subsurface investigation prior to construction so that unnecessary underground troubles may be avoided. This idea is named georisk management in this report. It is thereby expected that increased investigation business will bring more income to the geotechnical engineers and to make our profession more attractive and more respectable.

### 3.1 What is georisk?

In this report, georisk means the unfavorably increased cost of construction project and/or the elongation of the construction period as a consequence of underground troubles that are induced by insufficient subsurface information. It is herein expected that

well-organized subsurface investigation can reduce, mitigate and manage those troubles. Several examples of georisk are presented in what follows. I believe that the readers can easily understand these example troubles and I do not provide their details.



Fig. 3.1. Leaning of a skyscraper in the center of a mega city.



Fig. 3.2. Minor tilting of a condominium building whose reconstruction cost US 400 million \$ to the contractors and the developers.

Figs. 3.1 and 3.2 illustrate tilting of condominium buildings induced by heterogeneous subsurface conditions. Although the extent of buildings was minor in both cases, these troubles caused profound loss of the value of real estates. In this regard, the current level of geotechnical investigation is not high enough to predict a few-cm subsidence of huge buildings. Elaborately planned investigation program and sufficient funding are desired together with observational construction. In the case of Fig. 3.2, the site is close to a hill and the depth of the pile bearing layer was variable. The residents worried about insufficient pile length and the risk of total collapse during the big earthquake, which is coming soon, and the developers had to demolish the five buildings in the photograph, although only one was tilting. The financial loss of the developer and the contractors was disastrous.

(a) Surface depression



(b) Same site after restoration (the ongoing construction on the left-hand side of this street has nothing to do with the incidence)



Fig. 3.3. Collapse of shallow metro tunnel during construction (Fukuoka, Japan) (Photograph provided by the Asahi Shimbun Newspaper).

Fig. 3.3 shows an incidence in city center. A subway tunnel under construction suddenly collapsed and the street pavement depressed. Although soil condition had been investigated to a moderate level (not especially detailed), there was a localized geological weakness. When tunnel was excavated under the weak section, it collapsed under the effect of ground water pressure. The official investigation committee of this incidence (MLIT Investigation Committee on Depression of Subway Tunnel 2017) stated that

- more emphasis must be put on geotechnical investigation,
- ground water condition is important as well,
- deformation should be assessed by varying ground parameters in order to capture the worst possible situation (parametric study considering uncertainty and heterogeneity of ground parameters),
- information should be collected also from other projects in the vicinity (consideration of heterogeneous ground condition; importance of open-access geotechnical data base),
- monitoring is important during construction in order to detect any precursor of collapse, and
- stake holders should make good communication with one another, in order to avoid incidence of this type.

Fig. 3.4 schematically illustrates a complicated geological condition where lateral tectonic stress made the strata nearly vertical. Consequently, an unlithified/unconsolidated sandy layer became vertical and was filled with water. Because this sand chimney was thin, the preliminary subsurface investigation could not capture its existence. When the tunneling hit the bottom of this chimney, sand-water mixture flowed into the tunnel and flooded it (Fig. 3.5). Consequently, the tunneling project had to halt for more than one year.

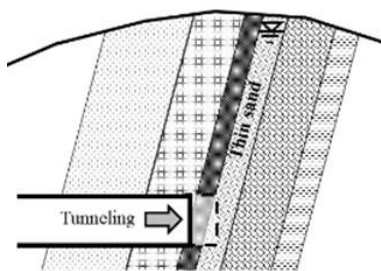


Fig. 3.4. Unlithified vertical sandy layer encountered by tunneling.



Fig. 3.5. Tunnel collapse after hitting the bottom of an unlithified sand pipe with water.

Obstacles hidden underground cause georisk troubles. The H-steel piles in Fig. 3.6 were installed fifty years ago as a foundation of temporary earth-retaining structures in deep excavation. After the excavation was completed, basement and building were constructed as usual and these temporary pile foundation was left under soil without recording its location. In contrast, the location of the pile foundation of the building was precisely recorded as usual.

After decades, the old building was demolished and new building construction started by firstly installing new pile foundations between old piles. Unfortunately, the old temporary H-steel piles were unexpectedly hit and the project halted for one year. A similar trouble was caused by plastic drains for acceleration of consolidation settlement in clayey subsoil. The problem is that

- no detailed record was made of the location of temporary structures,
- it is difficult to investigate the subsurface conditions under existing big buildings during new design prior to demolishing, and
- the same problem will be likely repeated from now on.



Fig. 3.6. H-steel pile foundation of temporary structures for basement excavation during the construction of previous building 50 years ago (their location was not documented for future construction).



Fig. 3.7. Plastic drain that was installed 50 years ago without documenting location and prevented jet grouting for recent construction.

### 3.2 More subsoil investigation for georisk management

The content of this section was obtained by a joint study that was carried out by the Japanese Geotechnical Society together with the Georisk Society and the Japan Geotechnical Consultants Association. For more details, refer to Towhata et al. (2021a and 2022).

The problem of insufficient subsurface investigation has been recognized by experts for a long time. Fig. 3.8 presents the results of pioneering works in this field and indicates clearly that the undesirable increase of construction cost can be avoided by allocating more budget on preliminary soil investigation. The readers should remember that '2%' of the construction cost is not a bad criterion of reasonable investigation expense.

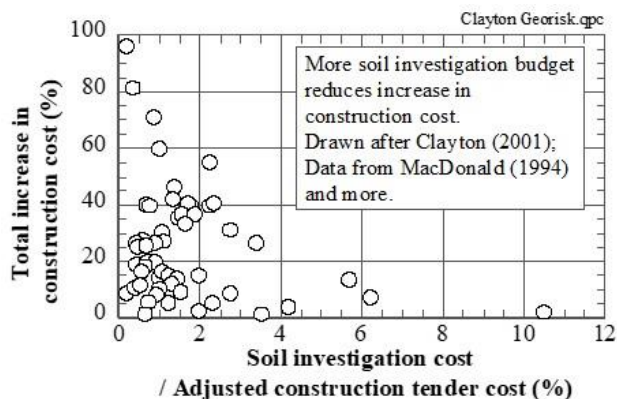


Fig. 3.8. Benefit of more expenditure on soil investigation as evidenced by reduced construction cost; experiences in UK.

Georisk Society and its founder President, Prof. T. Watanabe, have been collecting georisk information from real construction projects by organizing annual symposia on this issue. I borrowed the data thus collected and interpreted all of them again for myself. The most noteworthy information obtained by this society is the one from the construction of the bridge connecting the Kitakyushu Airport Island and the main land in Fukuoka, Japan (Fig. 3.9). The submarine geology consists of thick Pleistocene stratum underlain by older stable layers (Fig. 3.10) and the end-bearing piles designed for 28 piers on the basis of conventional SPT (Standard Penetration Test) N values were considered too costly (Tagami et al. 2010). The second choice was the use of shorter friction piles designed by SPT N again but it was considered costly again. Hence, the project decided to increase the subsurface investigation budget and to carry out more detailed field studies, including undisturbed soil sampling and laboratory tests. This effort made it possible to design shorter



friction piles and reduce the total construction budget. As illustrated in Fig. 3.11, the increased investigation budget (US 2 million \$) saved the total cost by 100 million \$, for which the cost benefit ratio was 2:100.



Fig. 3.9. Bridge connecting the Kitakyushu Airport Island with the mainland.

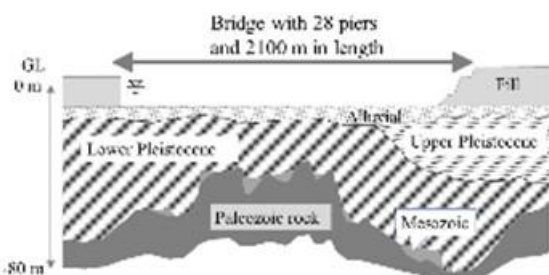


Fig. 3.10. Geological cross section along the Kitakyushu Airport Bridge (drawn after Tagami et al. 2010).

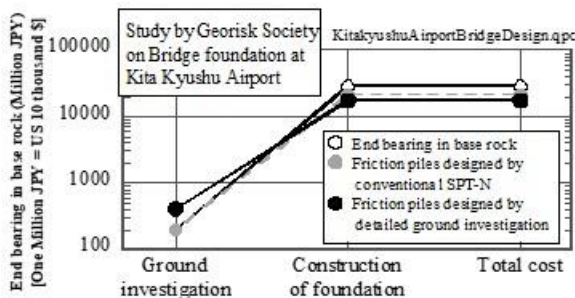


Fig. 3.11. Comparison of construction costs and expenditures with different extent of initial subsurface investigation (data by Tagami et al. 2010) (note that the original budget was decided by Japanese currency, while its conversion to US currency is subject to the varying currency exchange rate).

Georisk Society classified the studied cases into 4 groups;

- Group A: Original design was over-conservative and additional subsurface investigation helped reduce the cost, or georisk was anticipated after the initial design and additional ground investigation (georisk management) helped avoid troubles (59 cases),
- Group B: Risk (trouble) occurred during project and countermeasures increased the total cost (24 cases),
- Group C: Risk was anticipated during early stage of project and the additional investigation helped avoid the catastrophe (29 cases), and
- Group D: Detail is not clear (31 cases).

The following discussion addresses Groups A-C for which detailed information was available.

Fig. 3.12 shows the distribution of the types of structures for which georisk problem was reported. The majority is the slope instability and is followed by foundation. The detailed

information shows that the unexpected slope instability occurred in a good number of cut slopes where instability was not anticipated prior to construction. Probably, weathering and hydration affected rock mass under the cut slopes to a substantial depth.

Georisk Society has been asking the site engineers about the original budget of construction, additional (increase) investigation budget, and two kinds of total construction cost that are the real expenditure and the hypothetical expenditure in case of troubles caused by georisk. Fig. 3.13 presents the summary for Group A for which georisk was successfully managed and georisk troubles were avoided. It is clear that the possible (hypothetical) high expenditure without georisk management was reduced to the real expenditure. The difference between these two expenditures is called 'Profit'. In one case, the real cost was reduced to as small as one million JPY because the anticipated ground instability was declined by detailed investigations and overdesign for safety was found unnecessary. Thus, safety confirmation is another type of benefit of detailed investigation.

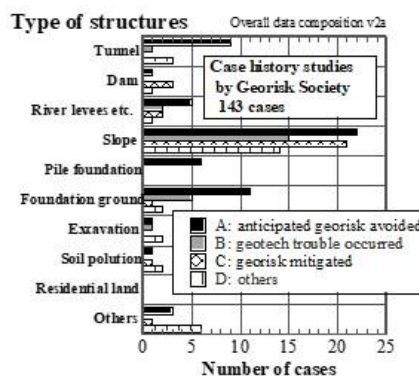


Fig. 3.12. Composition of Georisk Society's case history study

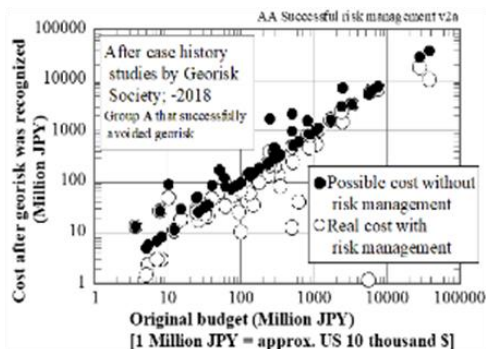


Fig. 3.13. Comparison of cost with and without successful risk management (Group A).

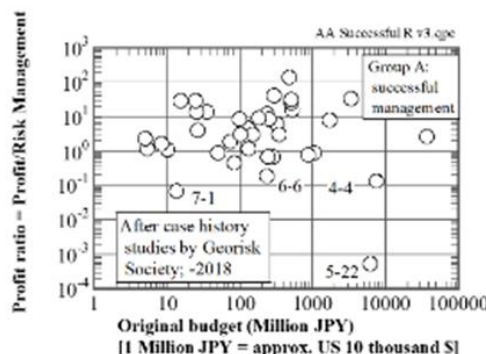


Fig. 3.14. Profit ratio versus original construction budget (Group A).

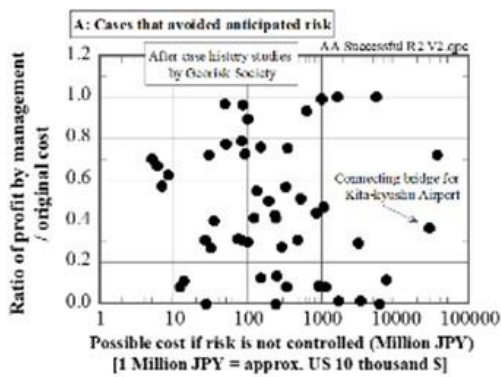


Fig. 3.15. Ratio of profit and original project budget plotted against total cost after possible risk manifestation (Group A).

The profit ratio for Group A is defined by ‘Profit’ / ‘Additional expenditure on investigation’ and is plotted in Fig. 3.14 against the original construction budget. In many cases, the profit ratio was greater than unity and the additional subsurface investigation was successful. Note that the ratio < 1 does not mean financial loss. ‘Profit’ is still positive and the total construction cost was saved. The very small profit ratio of the case of 5-22 in Fig. 3.14 is considered still successful by the concerned engineers because troubles other than money was avoided. Site engineers felt satisfied by avoiding headaches. Fig. 3.15 indicates that the ratio of profit against the original construction budget is independent of the worst-scenario cost in which georisk would have triggered troubles.

Fig. 3.16 shows the distribution of the types of additional investigation in response to the anticipation of georisk. Obviously, SPT (Standard Penetration Test) is the majority because of the tradition. However, eye inspection is considered important as well so that the overall situation may be captured.

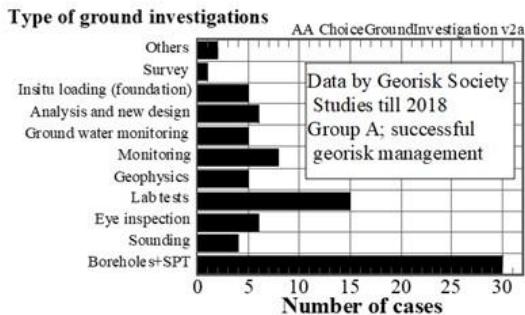


Fig. 3.16. Types of investigation employed for georisk management (Group A).

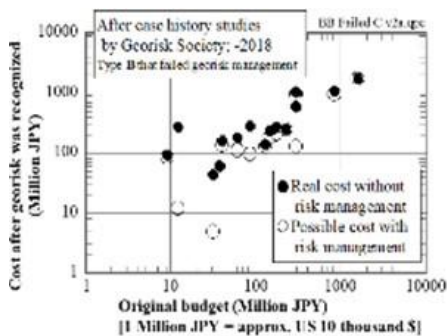


Fig. 3.17. Comparison of real cost increased by georisk and possible cost reduced hypothetically by missed risk management (Group B).

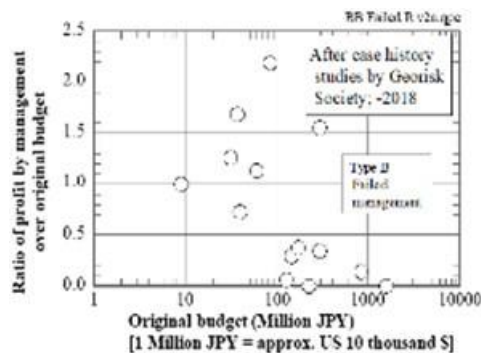


Fig. 3.18. Relative profit and size of project (Group B).

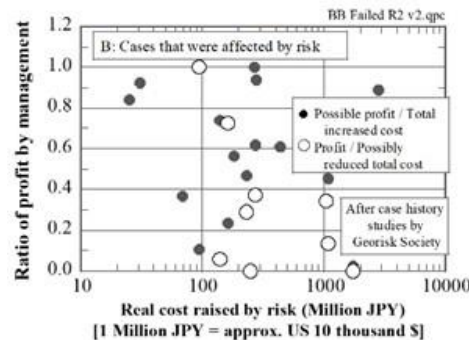


Fig. 3.19. Ratio of profit over two types of costs versus real cost increased by georisk (Group B).

Group B of georisk consists of the cases in which georisk was not properly managed and troubles occurred. The concerned engineers calculated two types of total construction costs that were the real cost as a consequence of the induced troubles and the hypothetical cost in case that georisk would have been managed in a reasonable way and troubles would have been avoided. They are plotted in Fig. 3.17 and their difference is called ‘Profit’ again. Then the ratio of this profit over the original construction budget is plotted against the project size (original budget) in Fig. 3.18. For smaller projects, this ratio can be greater than unity and the induced trouble was fatal to those projects. Even for bigger projects, 30 – 40 % of the original budget could have been saved if georisk had been recognized earlier and investigation had been carried out properly. Fig. 3.19 shows that the hypothetical ratio of profit construction cost is independent of the project size.

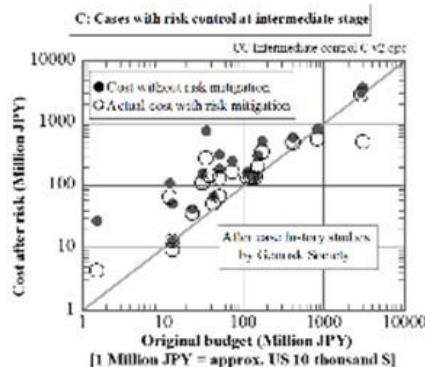


Fig. 3.20. Relationship between costs with and without georisk management and the original construction budget (Group C).

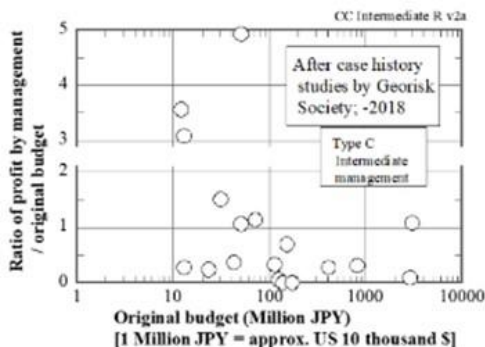


Fig. 3.21. Ratio of profit in Group C changing with the original budget.

Group C addresses the cases in which georisk was recognized at an intermediate stage of construction and subsurface investigation was conducted to avoid the worst situation. The meaning of ‘intermediate stage’ depends on individual judgement of site engineers but the timing of the georisk management was not so early as for Group A but not so late as for Group B.

In line with figures for other groups, Fig. 3.20 indicates that the total construction cost was reduced by the intermediate georisk management. The difference between the costs with and without georisk management (subsurface investigation) is called ‘Profit’ here. Fig. 3.21 illustrates the ratio of this profit over the original construction budget and, similar to Fig. 3.18 for Group B (failed georisk management), this ratio is substantially greater than unity for small projects. This means that the catastrophic situation was avoided in small projects by properly doing georisk management. The ratio of profit over total cost (worst-scenario cost without georisk management) is variable, being independent of the project size.

Fig. 3.23 plots ‘Profit’ of georisk management (subsurface investigation, changing design and construction methods) for three groups (A, B and C) against the additional investigation budget. The broken line in this diagram shows the 1:1 relationship and those data above this line indicates the cases in which the profit was greater than the additional investigation cost. In this regard, careful subsurface investigation deserves attention. Note that the data below this 1:1 line do not mean loss of money because their profit was positive and money was saved to a certain extent.

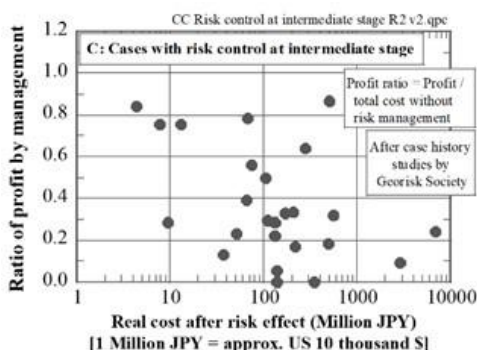


Fig. 3.22. Ratio management profit over total cost without management (Group C).

Fig. 3.24 demonstrates an important point. The ratio of expenditure on georisk management over the original construction budget is plotted here against the size of the project for the successful Group A cases. The concerned engineers feel that their georisk management was successful by spending this ratio of budget on additional subsurface investigation and related



Fig. 3.23. Overall summary on profit of georisk management changing with cost for additional subsurface investigation (Groups A-C).

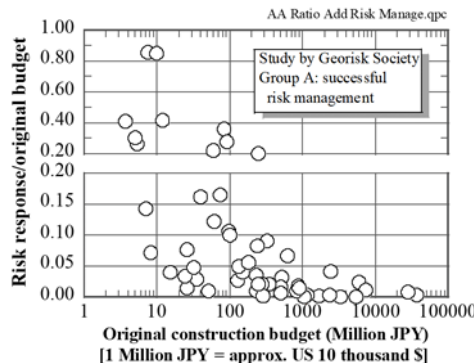


Fig. 3.24. Ratio of risk management cost and the original budget of the entire construction (Group A).

activities. By focusing on relatively big projects (>100 million JPY), it may be reasonable to state that 2-5 % expenditure on (additional) subsurface investigation helps avoid georisk troubles. By briefly inquiring several practitioners domestically and internationally, I found that, at the beginning before manifestation of georisk, most construction projects allocate on subsurface investigation 1% or less of the total construction budget. By adding this percentage to the additional 2-5% in Fig. 3.24 and then avoiding charging too much, I would state that 2% of the total construction budget is a reasonable amount to be allocated to subsurface investigation that helps avoid georisk troubles. Be recalled that 2% was a reasonable criterion as well in Fig. 3.8.

Delay of construction is another type of trouble in practice. Fig.3.25 plots the shortening of construction period (opposite to delay) by georisk management. For successful Group A, the shortening is mostly within one week only. This means that site engineers are not much interested in drastically shortening the construction period. It is good enough for them to complete the project on time. On the contrary, the unsuccessful Group B suffered from long delay such as several weeks. In this regard, sufficient amount of subsurface investigation helps avoid delay of construction.

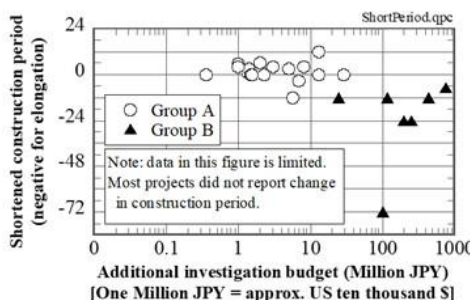


Fig. 3.25. Change in construction period after georisk management (Groups A and B).

### 3.3 More thoughts on georisk management

This report states that more budget should be allocated to subsurface investigation. The increased income will help improve the facilities of consulting firms as well as the professional image of geotechnical engineers. Thus, geotechnical engineering will be more scientific. However, geotechnical engineers have to make efforts that their job deserves more payment of the clients. Geotechnical engineers have to improve their professional skill and achieve good quality of job. One of the most serious problems in the current practice is the poor maintenance of equipment. In Fig. 3.27, the SPT device is not well maintained, and the edge of the sampling tube is rusted, making the penetration difficult and increasing the measured SPT-N values.

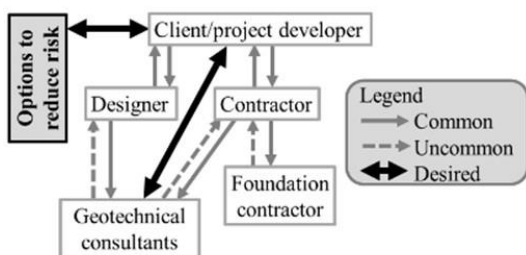


Fig. 3.26. Desirable human organization in construction projects.



Fig. 3.27. Example of poorly-maintained field investigation equipment.

Geotechnical consulting firms should establish a system of qualification and only good firms are allowed to enjoy the increased investigation budget. This qualification should be given not to individual engineers but to firms, similar to ISO (International Organization for Standardization) Certification because individuals cannot control the quality of company's practice.

Figs. 3.2 and 3.3 presented cases in which shortage of subsurface investigation led to troubles. While subsurface conditions have to be carefully investigated during the project, it is also important for the project managers and structural designers to understand the ground conditions and plan the project well in advance 'prior to bidding'. Then, the problem is the difficulty to run any subsurface investigation when the project has not yet started. Fig. 3.28 indicates the location of bore holes (investigation data available to the public) around the site of the condominium tilting in Fig. 3.2. Before construction of the condominium, there was not bore hole data in the open-access data base that was available to the project.

Actually, there was a factory at the site of this condominium and bore hole investigation was conducted before the factory construction many decades ago. The problem is that the current

laws and regulations protect such data under the name of copy right of private sectors. The open-access data in Fig. 3.28 are entirely from public projects such as road and bridge construction. It is important now to change the copy right regulations on bore hole data because the earth is a common property of the society and property data should be shared for the safety of the public. Somebody worry that investigation data obtained by somebody else decades ago is not reliable and that the open-access data base is not necessary. That is wrong. Although the quality of investigation may be questionable, it is still possible to get a brief idea on soil type and the depth of pile-bearing layers from the 'unreliable' investigation records.

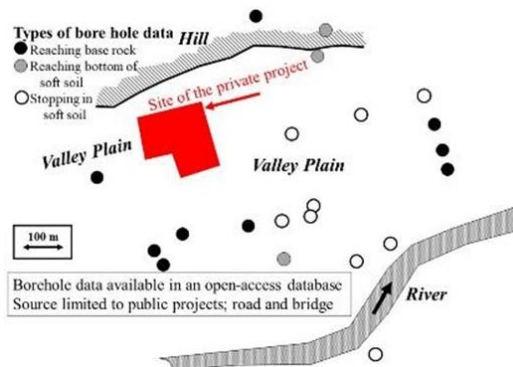


Fig. 3.28. Sites of bore hole data open to the public use.

The site of tunnel depression (Fig. 3.3) had locally weak geology and this problem had been recognized during one of the previous projects in its vicinity several decades before the incidence. One engineer in charge noticed this finding to his successor but, thereafter, this knowledge disappeared. This was a failure of knowledge transfer over generations. The issue is how to successfully transfer geotechnical knowledge over generations. As the case of Fig. 3.6 implies, the knowledge in the past may become essentially important after one life cycle of a structure that is typically 50 years or longer.

Many people think about the use of electronic media for conservation of knowledge and information. However, we have to be careful of the durability of electronic data for 50 years. The major electronic media 50 years ago (1970s) was a paper tape or punch cards and we do not have a device to read them anymore today. In 1980s, we had a floppy disk and do not have a floppy disk reader today. Although the value of electronic media is important from now on, we have to think about a supplementary medium for knowledge transfer.

We do not have to transfer much knowledge over 50 years. An exception was the case of Taga-Jo Castle near Sendai, Japan (Fig. 3.3), where a remote branch of the central government was situated since AD 8th Century. An official chronicle clearly described a devastating tsunami disaster in AD 869 that water came to the human settlement in front of this site and destroyed everything. Unfortunately, the ancient stone statue in this site (Fig. 3.29b) did not refer to this disaster. Consequently, the modern people did not trust this knowledge written in the official chronicle, considering it as a typical exaggeration of ancient people in Kyoto who did not directly experience the tsunami. Finally, the disaster was repeated in 2011.



3.29(a) Entrance to the governmental section of Taga-Jo Castle in the eastern suburb of Sendai where the 2011 Tohoku earthquake caused tsunami disaster



3.29(b) Stone statue that describes the governmental branch here but does not refer to the tsunami in AD 869.

Fig. 3.29 (a & b) above. Archaeological site of the Taga-Jo Castle where a devastating tsunami disaster happened in Jogan Period (AD 869).

Clear writing of important knowledge on stone statues ‘on site’ is durable and more persuasive. Fig. 3.30 indicates a Buddhism statue that was built in memory of the victims of tsunami in AD 1677. Shown also in Fig. 3.31 is a historical stone statue that records the height of flood water in 1938. These two statues verify the long-term durability of records carved on stone. It is exciting that modern geotechnical engineering would record information in the same way as Ramesses II of Egypt recorded the Battle of Qadesh against Hittites in BC 1274; no progress for over 3,000 years?



Fig. 3.30. Stone statue in memory of tsunami victims who were killed by the disaster in 1677 (earthquake magnitude Mw = 8.5) (Kuju-Kuri in Chiba, east of Tokyo)



Fig. 3.31. Stone statue that records the water level during the heavy rain and flood in 1938 (located to the north of Hakutsuru Museum, Sumiyoshi River, Kobe; pass by the museum, cross the Ochiai Bridge and take right. You will see this statue after 100 meters).

#### 4 UNFORGETTABLE GEOTECHNICAL CONTRIBUTIONS TO HUMAN CIVILIZATION

Because of your geotechnical background, there is no need for me to write about the great history of our profession in details. Just for readers’ information, I would like to present the photographs of the past great achievements so that you can show it to non-geotechnical people. Please feel free to add more photographs from your own album.

##### 4.1 Urban sewage

Until the modern period, big cities in the world could not treat human wastes in a proper manner. Although draining the waste into rivers was practiced, the lack of proper treatment and purification resulted in the river pollution by pathogens, and smell (stink) was serious (Halliday 1999, Van Oosten 2016). This bad situation was remarkably improved by installation of modern sewer treatment systems (Fig. 4.1). Installation of underground pipeline network and treatment facilities were therein essential. Obviously, geotechnical engineering played one of the major roles therein and contributed to the improved hygiene of people. Probably, the geotechnical contribution to people’s healthful life was as big as that of modern medicine. A similar drainage channel in Fig. 4.2 was successful as well in spite of the lack of modern waste treatment because the human waste was separated at the source (family) and purchased as organic fertilizer by farmers.



Fig. 4.1. The first modern sewage system in Paris (19th Century).



Fig. 4.2. Pre-modern sewage system in Osaka, which was originally constructed in the 16th Century as an open channel and was later covered.

#### 4.2 Irrigation and providing drinking water

Cities have to provide sufficient drinking water to the citizens. When springs, wells, and rivers could not provide sufficient water, reservoirs and canals had to be constructed to acquire and transport water from far distance. Irrigation is another very important role of water supply. Construction of these facilities is a very important traditional mission of geotechnical engineering; see Figs. 4.3 to 4.7. Thus, we cannot stress too much the importance of the geotechnical contribution to water supply. In addition to these monumental structures, we should not overlook a small piece of the urban water system which is called lifeline and constructed/maintained by many people (Fig. 4.8).



Fig. 4.3. Tamagawa canal that provided water to present Tokyo, constructed in 17th Century



Fig. 4.4. All American Canal in southern California, USA , constructed in 1920s.



Fig. 4.5. Spillway at water intake of Dujiangyan, Sichuan Province, China (BC 3rd Century), from River Minjian



Fig. 4.6. Shushtar Irrigation Hydraulic System, Khuzestan, Iran (AD 3rd Century).



Fig. 4.7. Ganges Canal for irrigation in Uttarpradesh, northern India (construction in late 19th Century).



Fig. 4.8. One small piece of urban lifeline network undergoing maintenance (Zurich, Switzerland).

### 4.3 Rockfill and earthfill dams

Dams made of earth and rock fill are also the important monuments of geotechnical contribution to human welfare. Fig. 4.9 shows Wushantou Dam for irrigation system in southern Taiwan that drastically changed a dry plane to an agriculturally-rich field. Moreover, many dams contribute to hydraulic power generation (clean energy); see Fig. 4.10.



Fig. 4.9. Wushantou Dam for irrigation in Taiwan (completion in 1930).



Fig. 4.10. Mattmark Dam made of rock pieces in Switzerland (completion in 1965).



Fig. 4.11. Aswan High Dam in Egypt made of rockfill (completion in 1970).



Fig. 4.12. Dike Kokaral in Aral Sea, Kazakhstan (completion in 2005).

In addition to irrigation and energy production, dams also contribute to flood and erosion control. It is well known that the Aswan High Dam in Egypt (Fig. 4.11) saved the Nile Delta from flood and consequent plague. The Kokaral Dike in Kazakhstan



Fig. 4.13. Shiraiwa erosion control dam in Tateyama Caldera, Japan (completion in 1939).

(Fig. 4.12) was constructed in the former Aral Sea in order to keep the fresh water from the Syr Darya River and create the Little Aral Sea. This was one of the practical solutions of the gigantic climatic disaster in which the former Aral Sea disappeared. It is interesting that this dam has a very gentle slope gradient which is as small as 2.5 %. Further from the disaster mitigation perspective, the Shiraiwa Dam in Japan (Fig. 4.13) was constructed in a volcanic valley in order to control the sediment disaster in the densely populated area in the downstream.

### 4.4 Transportation infrastructures

Transportation by sea (vessels), by land (road and railway) and by air is essential in the modern world. Both passengers and cargos are transported for better life. All the transportation infrastructures rely on geotechnical engineering because they rest on land or installed underground.

Figs. 4.14 - 4.17 present canals. In the pre-modern period, ships and boats were the most powerful and efficient tools of mass transportation, and canals made inland transportation very easy. In particular, the Suez Canal in Fig. 4.17 changed the world, directly connecting the east and the west.



Fig. 4.14. Corinth Canal in Greece (completion in 1893).



Fig. 4.15. Jing Hang Great Canal in Hangzhou, China, connecting north and south of the country (history since Sui Dynasty in 6 – 7th Centuries).



Fig. 4.16. Caledonian Canal in Scotland (completion in 1822).



Fig. 4.17. Suez Canal in Egypt (completion in 1869).



Fig. 4.18. Entrance water path of the ancient military harbor of Carthage (Carthago) that was constructed by digging inland (in present Tunisia)



Fig. 4.19. Liquefaction-induced damage in Port Island of Kobe Harbor in 1995.

Harbor construction has a very long history which is more than 2000 years (Fig. 4.18) and are often constructed on soft marine soils. It is not easy to maintain the stability of harbor ground under gravity (consolidation settlement) and seismic force (mitigation of earthquake disaster). The pending of harbor operation exerts profound negative effects on the local and regional economy (Fig. 4.19).

There is not much need either to mention the important roles in the modern world played by land transport (Fig. 4.20). However, it should be stressed that roads and railways often have to cross mountains (Fig. 4.21), big rivers, and sea straits where difficult construction and maintenance are required. The famous aqueduct in Fig. 4.22 was constructed during the Roman Period. Although being installed underground and invisible, its foundation has been supporting the entire structure for nearly 2000 years. More recent bridges in Figs. 4.23 - 4.25 are supported by their invisible foundations for a long time as well. Without reliable bridges, land transport would be badly time wasting.



Fig. 4.20. Trans-Siberian Railway near Khabarovsk, Russia.



Fig. 4.21. Highway crossing Los Andes at Portillo in Chile.



Fig. 4.22. Masonry aqueduct crossing a valley in Segovia, Spain (early AD 2nd Century, Roman Period).





Fig. 4.23. Forth Bridge in Scotland (completion in 1890).



Fig. 4.24. Epoch-making Golden Gate Bridge with its central span = 1280 m (completion in 1937).



Fig. 4.25. Akashi Strait Bridge with its central span = 1991 m (completion in 1998).

The same is true of tunnels (Figs. 4.26 and 4.27). Nowadays, the technical development has made it possible to make the tunnel length longer than 50 km; Seikan submarine railway tunnel in Fig. 4.28 together with more recent Channel Tunnel connecting UK and France (50.45 km long and completion in 1994) and the Gotthard Base Tunnel under the Alps Mountains in Switzerland (57.10 km long and completion in 2016). Those tunnels drastically improved the efficiency of mass land transport by railway. Notwithstanding this, the invisible geological conditions trigger difficulties, troubles and even incidences during tunnel construction (Fig. 4.29). In landslide-prone mountainous regions, tunnels provide essential help for survival of local communities (Fig. 4.30).



Fig. 4.26. Construction of the Uodzu No. 2 Tunnel in Toyama, Japan, by means of the New Austrian Tunnelling Method.



Fig. 4.27. Shield tunnelling for urban motorway in Tokyo.



Fig. 4.28. Seikan submarine railway tunnel with total length = 53.85 km (completion in 1988).



Fig. 4.29. Tunnel collapse during construction due to unstable and heterogeneous geological condition.

Aviation is the latest version of transportation. As the airplanes become bigger and the number of tourists increases, the size of the airports becomes bigger as well. This means that many international airports are situated upon adverse ground conditions. Fig. 4.31 shows ongoing treatment of soft subsoil under a planned taxiway of the Soekarno-Hatta International Airport of Jakarta, Indonesia. The Kansai Airport of Osaka is situated on a huge manmade island that was constructed on thick consolidation-prone submarine strata (Nakase 1987). Although consolidation of the alluvial marine clay was well handled, the consolidation settlement in the deeper Pleistocene strata was difficult to treat. The subsidence of the island has been substantial, although the airport operation is maintained, and the extremely high sea wave during typhoon in September 2018 overtopped the sea walls and the airport was inundated by sea water (Figs. 4.32 and 4.33). After this problem, the sea walls and the runways were elevated.



Fig. 4.30. Protection of road traffic by tubular steel tunnel embedded in concrete (Sichuan Province, China)



Fig. 4.31. Ground improvement for expansion of the international airport in Jakarta, Indonesia.



Fig. 4.32. Kansai Airport of Osaka as seen from an airplane immediately before landing (September 21st, 2018).



Fig. 4.33. Dead reddish grass on the surface of the Kansai Airport after sea water inundation.

#### 4.5 Urban re-development

Cities live long. Because the life style of people change with time, the plan and the infrastructures in the cities have to change and catch up with the new demands. Therefore, continuous efforts are needed to demolish or renovate the existing structures and to install new ones. This is the reason why the established

city centers are continuously prone to big construction projects such as deep digging (excavation) for new underground shopping malls, railways and motorways (Figs. 4.34 – 4.36). Extreme care is necessary there not to trigger tilting or subsidence of adjacent buildings. If the local soil condition is too soft, special effort is made to improve the soil condition prior to construction (Fig. 4.37).



Fig. 4.34. Deep excavation for foundation of a new building (Yokohama, Japan).



Fig. 4.35. Big dig project in the center of Boston, USA, in 1990s.



Fig. 4.36. Construction of new underground tram (Köln, Germany).



Fig. 4.37. Ground improvement prior to excavation (Köln, Germany).

#### 4.6 Disaster mitigation

Human history is full of natural disasters such as floods, earthquakes, landslides, high tides, volcanic eruptions, bush fires and droughts. It is important that geotechnical engineering has been, is and will be making remarkable contributions to prevent or mitigate many of them. This report has already touched upon the dams and irrigation channels to mitigate the effects of drought. Therefore, the following sections will introduce other geotechnical efforts concerning flood, earthquake, landslide and tsunami.

There are three types of infrastructures that can mitigate the effects of flood, which are dams in the upstream, the retention basins in the midstream, and levees in the mid- and downstream. Although some people believe in the value of emergency evacuation, it can help only human lives, while properties, workplaces, and community infrastructures cannot be saved by evacuation. In this regard, geotechnical engineering should emphasize the value of traditional measures that can save both human lives and infrastructures.

Fig. 4.38 demonstrates one of the most marvelous examples of levee (or causeway) that created a huge fresh-water Ijssel Lake which is isolated from the high tide in the North Sea. Many levees are protecting the human community from flood disasters (Fig. 4.39). To maintain its resistance against high water level during floods, the levees have to be continuously maintained by cutting grass (no animal living and no hole, burrow or den through which water may flow and trigger piping failure of the levee), filling holes, repairing subsidence, etc. Noteworthy is that the higher levee prevents flood but send more flood water to the downstream where the risk of overtopping increases. Therefore, the engineers always take care of the total safety of the communities along the river.

In this regard, the second mitigation measure is the retention basin in which the flood water is intentionally flooded and stored for some time in the midstream and, after the high water level ends, this stored water is sent back into the river (Figs. 4.40 and 4.41).



Fig. 4.38. Afsluitdijk in the Netherlands that produced a fresh-water lake disconnected from the North Sea (32 km long and completion in 1932).



Fig. 4.39. Levee along Danube River in Hungary.

Earthquakes triggers many kinds of disasters and, among them, geotechnical engineering concerns prevention or mitigation of slope failures (landslides) soil liquefaction and tsunami. Fig. 4.42 demonstrates the results of water drainage from an unstable slope where a previous earthquake in 1978 triggered a notable landslide disaster. In one part, no stabilization was made and the slope failed again (Fig. 4.42a), while in the other part, water had been drained out and no damage happened (Fig. 4.42b). Fig. 4.43 illustrates the slope reinforcement in a residential development fill that is intended to avoid landslide during future earthquakes.



Fig. 4.40. Intention of overtopping of flood water into a retention basin schematically illustrated by arrows (Midai River, Japan, 16th Century).



Fig. 4.41. Lower section of river levee where flood water overtops intentionally (Ohkubo Retention Basin, Japan).



Fig. 4.42 (a). Effects of drainage of ground water (removal of water) from an unstable slope during the 2011 Tohoku earthquake of Mw=9.0 in Shiroishi, Japan. Failure of slope without geotechnical mitigation



Fig. 4.42(b). Effects of drainage of ground water (removal of water) from an unstable slope during the 2011 Tohoku earthquake of Mw=9.0 in Shiroishi, Japan. Successful drainage and slope stabilization next to the damage site in (a)

Liquefaction is a phenomenon in which loosely-packed young sandy ground saturated with water undergoes strong seismic shaking and is converted into a very soft medium like liquid. Its consequence is intolerable extent of displacement and deformation such as subsidence of buildings, floating of underground structures, lateral displacement of sloping ground and consolidation settlement (Fig. 4.44). There are many mitigation technologies as practiced by geotechnical engineering nowadays, inclusive of ground water drainage as mentioned above, but this report cannot refer to all of them. For more information, refer to a summary paper (Towhata, 2021).



Fig. 4.43. Slope reinforcement to protect residential development from earthquake landslide (Takaradzuka, Japan).



Fig. 4.44. View after liquefaction disaster; see road undulation, ejected sand on pavement and tilting of structures (after 2011 Tohoku earthquake).



Fig. 4.45 (a). Contrast between densified and untreated parts of a sand compaction project (2011). Machines for densification of loose sandy subsoil



Fig. 4.45 (b) Contrast between densified and untreated parts of a sand compaction project (2011). Liquefaction and sand ejecta only at the surface of the untreated part (see arrows)



Fig. 4.46. Small jet grout machine for soil improvement in a narrow space.



Fig. 4.47. Ongoing jet grouting in a narrow space between houses (Urayasu, Japan).

Compaction/densification is a popular and reliable method to mitigate the liquefaction problem (Fig. 4.45a). Once densified, the treated ground will be resistant against liquefaction forever without maintenance. During the 2011 Tohoku earthquake in Japan, one project of ground densification was going on. Fig. 4.45b demonstrates a clear contrast between no liquefaction in the densified part and sand/water ejection (evidence of liquefaction) in the other to-be-densified part. Mixing sand with grout is another mitigation. Special liquid is ejected from such a device as in Fig. 4.46 (jet grouting) and mixed with liquefaction-prone sand. Because of its small size, this device can work in a very small space between houses (Fig. 4.47).

The lesson learnt from the project of Fig. 4.47 is that people desire more safety but are not willing to spend much money. Most people are affected by normalcy bias that disaster is somebody else's problem and does not occur to his/her own family. This attitude is difficult to change despite that media reports many earthquake and landslide disasters all the year around.



Fig. 4.48. Rock mass reinforcement prior to construction of Three Gorge Dam, China.



Fig. 4.49. Rainfall-induced landslide in Izu Oshima Island, Tokyo, Japan, triggered by 824 mm rainfall in one night (October 16th, 2013); arrows show the head scarp of many slope failures.

While coseismic landslide (triggered by earthquake shaking) is an important issue, more landslide problems are caused by gravity or heavy rainfall. To mitigate this hazard, water drainage is an efficient way (as shown in Fig. 4.42). However, there are situations in which water drainage is not sufficient and mechanical reinforcement is required therein (Fig. 4.48).

Heavy rainfall can trigger significant slope disasters and this problem is becoming more serious than before because of the (probably) ongoing climate change. Fig. 4.49 shows an example

of such a disaster in Izu Oshima volcanic island in Tokyo (Towhata et al. 2021b).

Although many people are afraid of landslide behind their houses, they cannot get public fund to mitigate the problem because landslide is basically a personal problem for which public funding is not appropriate and also because there are too many hazardous slopes for the public sector to reinforce. In this situation, the people's choice is slope monitoring and early warning for evacuation. Fig. 4.50 indicates one of the sites of slope monitoring and, later, the landslide precursor was detected several hours before the final disaster (Uchimura et al. 2015, Towhata et al. 2015).

From the viewpoint of global warming, the risk of melting glacier ice is stressed. The melt water flows into slopes and increases the risk of slope failure. In the case of Fig. 4.51, the huge landslide blocked the river flow and formed a natural dam (Yin 2000; Zhou et al. 2016). After the dam breaching, the flood water flowed 500 km downstream along the Yarlung Tsangpo/Brahmaputra River Valley and caused flood in Assam, India (Delaney and Evans, 2015). It seems that melting of glacier will aggravate the risk of landslides at high altitudes.



Fig. 4.50. Slope monitoring with sensor atop the pole, aiming to foresee landslide and promote emergency evacuation (China).



Fig. 4.51. Yi Gong landslide site in Tibet, China, where landslide dam was formed and its breaching sent flood far down to Assam, India, in 2000.

Tsunami and high tide can destroy everything (Figs. 4.52 and 4.53). To mitigate this powerful and extreme disaster, the human choice is limited. One idea is construction of high sea walls along the vulnerable shore line (Fig. 4.54). This wall is made of earth and is a typical contribution of geotechnical engineering. It is aimed to fully protect the local community from tsunami of medium height; thus, infrastructures and community are not devastated by tsunami. However, there is always a possibility of extremely high tsunami that exceeds the wall height. Therefore, people should not feel safe with the wall and resume evacuation as quickly as possible when tsunami warning is issued.



Fig. 4.52. Banda Aceh, Indonesia, after tsunami devastation in 2004.



Fig. 4.53. Rikuzen Takata, Japan, after tsunami devastation in 2011.



Fig. 4.54. High sea wall in Rikuzen Takata constructed after the disaster in 2011 (2 km long and 12 m high).



Fig. 4.55. Earth fill as a tsunami shelter (Fukuroi, Japan).



Fig. 4.56. Traditional earth fill constructed as a shelter after typhoon and high tide in 1680.



Fig. 4.57. Embankment used for cyclone shelter in the coastal area of Myanmar

For evacuation, shelter has to be prepared in advance. Fig. 4.55 shows an earth fill where more than one hundred local people can stay during the next tsunami. Although this area is protected by high sea wall, the local community also prepare this shelter for the worst ‘in case’ situation. A gigantic earthquake of magnitude greater than 8 and tsunami are anticipated to occur before 2050 by seismologists. It should be noted that the local community here has a tradition to prepare such an earth shelter as shown in Fig. 4.56. The same idea is employed at other places in the world. Fig. 4.57 shows a cyclone shelter in the coastal region of Myanmar where there is no sea wall and the region is vulnerable to cyclone-induced high tides.

The advantage of such an earth mound is that construction is easy with local materials only and maintenance is inexpensive. In contrast, care must be taken of buildings as a tsunami shelter. Fig. 4.58 shows a building in Onagawa Harbor, Japan, where the tsunami in 2011 exerted high lateral force on this building and the foundation (pile foundation) could not resist the pull-out force. The consequence was toppling of the building. Because this site is a land reclamation, it is also possible that liquefaction occurred and skin friction along the pile shaft was drastically reduced.



Fig. 4.58. Building in Onagawa Harbor, Japan, toppled by tsunami in 2011; a steel pile is hanging next to the base slab (shown by arrow).

## 5 EXPOSURE OF GEOTECHNICAL ENGINEERING TO THE PUBLIC

Fig. 3.26 stressed the importance of communication between geotechnical engineers and the client who unlikely has engineering background. Nevertheless, geotechnical engineering does not have a good exposure to the public and suffers from many unfortunate misunderstanding by people. The problem lying behind this situation is the lack of communication tools, conversation channels and even common languages. In this regard, computer and information technologies are doing much better; see young children know about specifications of smart phones and even programming languages. Some geotechnical engineers may not want to communicate with people because they are not the customer of any project. It is true that construction projects come from public sectors and big industries. However, there is something more important.

People pay tax and the tax money is spent on construction projects. Public policies are governed by politicians who are elected by people through democratic processes. It is therefore important for geotechnical and construction engineers to be able to communicate with people. Nevertheless, most engineers have been and happy to satisfy the customers. In other words, they have been satisfied with customer satisfaction. They are not much interested in what people want and, therefore, cannot make a good proposal to the public sector in charge of construction policies.

On the other hand, geotechnical engineers do not have to entertain people. They are not comedians. It is important for them to make proposals whose significance can be understood by people. To do this, there are many major problems that the world is facing nowadays. Although all of them are not fully geotechnical, geotechnical engineering can collaborate with other disciplines and play important roles.



Fig. 5.1. Storage of used nuclear fuel in water pool inside a reactor building (Kashiwazaki-Kariwa Nuclear Power Plant).



Fig. 5.2. Fukushima No. 1 Nuclear Power Plant after disaster on March 11, 2011 (photograph taken on Nov. 30, 2016).



Fig. 5.3. Coolant pipelines for construction of frozen underground wall that prevents water from flowing into the radioactively contaminated basement of reactor buildings.

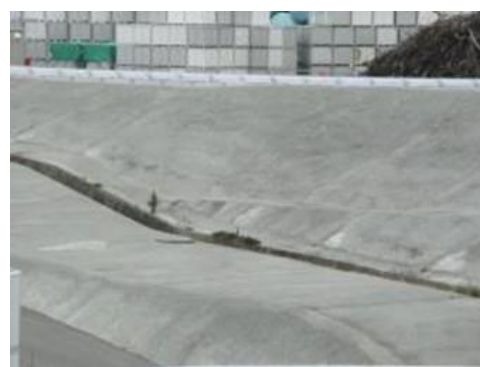


Fig. 5.4. Paved ground surface in order to prevent rain water from filtrating into soil and increasing polluted ground water.

Nuclear industries are seeking for safe and reliable repositories where the radioactive waste fuels and other wastes can be permanently dumped (Fig. 5.1). The tsunami disaster at the Fukushima No.1 Nuclear Power Plant is now undergoing many geotechnical issues (Figs. 5.2 – 5.4). The final dumping of radioactively-contaminated materials will be underground. The same is true of other kinds of waste (municipal waste after incineration in Figs. 5.5 and 5.6, industrial waste after necessary purification and even CO<sub>2</sub> gas nowadays by means of Carbon dioxide Capture and Storage) that will be dumped underground as the ultimate treatment. Therefore, waste management is a chief job of geotechnical engineers who are familiar with mechanics, geohydrology, and environmental technologies and can make necessary safety measures against slope failure and leakage.

The Leuwigajah municipal waste landfill in Bandung, Indonesia, failed after rainy days (Fig. 5.7) (Koelsch et al. 2005, Lavigne et al. 2014). It seems to me that the fill was originally reinforced unintentionally to a certain extent by fibrous components in the waste (plastics and papers) but they were burnt down by fire. Afterwards, the slope stability was substantially reduced (Towhata 2007). Another fill made of construction wastes in Atami, Japan, failed during heavy rainfall in July, 2021. The number of victims was 26. After this disaster, it was found that the owner of this landfill did not take necessary care of safety as advised (not regulated) by related rules. The lesson was that we have to spend more money on safety of waste treatment and final dumping.



Fig. 5.5. Municipal waste landfill of mega city (Delhi, India).



Fig. 5.6. Collection of CH<sub>4</sub> gas from municipal waste landfill in Delaware, USA.



Fig. 5.7. Municipal waste landfill of Leuwigajah in Bandung, Indonesia, that failed in 2005 during heavy rain and claimed 143 lives.



Fig. 5.8. Rainfall-induced collapse of fill of construction-waste earth in Atami, Japan that claimed 26 lives and one missing (July 2021).

One of the global problems that I have in my mind is the shortage of water for both drinking and irrigation. There are many countries where population is increasing rapidly and

climate is arid; see India and Iran for example. Therefore, development of new water resource can help people who are prone to drought and shortage of food.

The present water management is very strict everywhere in the world. There is little chance to obtain surplus water from lakes and rivers in populated regions. One exception is the ground water that is flowing directly into the seabed; nobody claims to use it. Care must be taken, however, because uncontrolled pumping of ground water near the sea brings salty water into the underground aquifer and induces salt contamination of the subsurface environment.

Underground dam is the key and has a good tradition in the history (Åke 1988). As illustrated in Fig. 5.9, an underground dam is simply an impervious wall that is constructed by mixing cement with soil. The ground water level should be monitored for good water management (Fig. 5.10). Because both sides of the underground wall are supported by soil, mechanical strength of the wall is not important. Moreover, because water is stored underground, its evaporation loss is limited. The land use upon the surface is not affected by reservoir construction (Fig. 5.11). Good geotechnical expertise is important for underground dam construction with respect to site characterization, geohydrological study, construction quality, and operation. Possibly, the impervious wall does not have to reach the base rock as shown in Fig. 5.12. Fig. 5.13 indicates geological issues related with the underground dam in Miyako Jima Island.

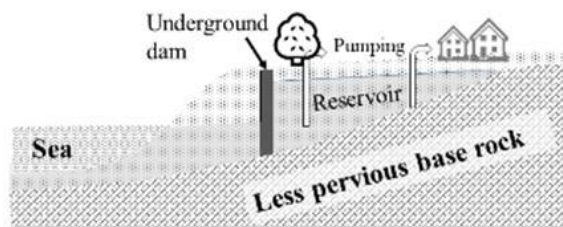


Fig. 5.9. Concept of the use of ground water near sea shore by installing underground dam.



Fig. 5.10. Monitoring of underground reservoir water in Miyako Jima Island, Japan.



Fig. 5.11. Site of underground dam that is not visible at the surface



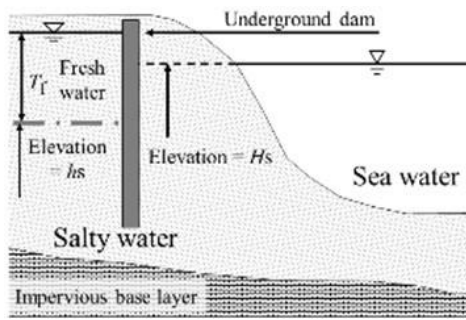


Fig. 5.12. Calculation of fresh water level achieved by underground partial impervious wall

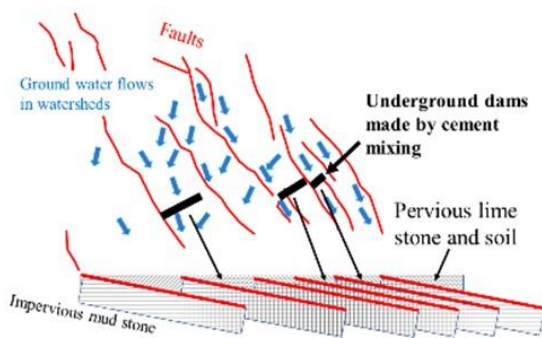


Fig. 5.13. Geo-hydraulic issues in Miyako Jima Island for underground dam planning (drawn after Tomita et al., 1987).



Fig. 5.14. Deteriorated steel bridge immediately before its scheduled demolition.



Fig. 5.15. Coseismic failure of road embankment made of crushed mud stone that absorbed water and got deteriorated (slaking) after many years (Niigata Chuetsu earthquake, 2004).

Deterioration of infrastructures is another urgent issue in many countries where construction was booming in 1950 – 1970 and the structures constructed in those days are now 50 – 70 years old and are prone to the deterioration problems (Fig. 5.14). Some people may imagine that the deterioration is a problem of steel and concrete structures but they are not very right. Soil and rock deteriorate as well through weathering and hydration (Fig. 5.15). The most vulnerable component of geotechnical structure is anchorage embedded in mudstone slopes where hydration and slaking mechanism may be affecting the safety factor. Asada (2005) studied the N values of Standard Penetration Tests at many residential development fills (Fig. 5.16) which were unfortunately constructed at saved cost. It was shown that the older fills have lower N values, implying that the fill is chiefly made of mud stone prone to slaking and becoming weaker with time. Fig. 5.17 illustrates another example of deteriorated infrastructure. The same problem is going on in many cities of the world.

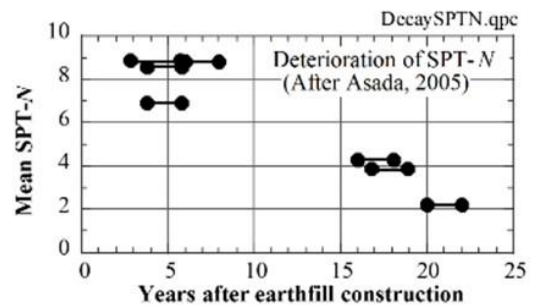


Fig. 5.16 Decreasing trend of SPT-N value with years after earth filling for residential development (Asada 2005).



Fig. 5.17. Collapse of sidewalk pavement caused by deterioration of underground water pipelines, leakage and consequent soil erosion.

Efforts to make maintenance periodically and to keep the quality of infrastructures above a certain level help elongate the life cycle of infrastructures and improve the cost-benefit ratio. In other words, those who are engaged in maintenance business should be respected.

As stated in Introduction, there are similarities and differences between geotechnical engineering practice and medical doctor's practice. This is presented in details in Table 5.1. It is shown herein that the public image is substantially different between the two disciplines although the situation and problem are very similar. The important reason for this is that people can feel ill (pain, tiredness, discomfort etc.) once it starts, while people (public) do not see the geotechnical troubles. Even from the viewpoints of natural disasters, people are controlled by the normalcy bias and do not worry about the disasters, saying "it is somebody else's problem!" Many efforts have been made by

disaster mitigation experts to change this bias by disseminating people about the consequence of natural disasters without much success.

Table 5.1. Similarity and difference in played roles between geotechnical engineers and medical doctors who carry out investigation/medical check prior to construction or treatment.

	Geotechnical	Medical
Limited available information	Local geology & geomorphology	Health/medical history
Target of work	Structures to be constructed	Current illness/surgery
First step of investigation	Monitoring from outside	Health monitoring from outside
Second step	Sounding & boring	Scanner, X-ray etc.
Third step	Undisturbed soil sampling and tests	Sample incubation and inspection
Action planning	Design	Treatment planning
Action	Construction	Treatment/surgery
Difficulty	High pressure to save cost	Low pressure; good result is respected
Bad scenario	Trouble and georisk	Unsatisfactory treatment
Self-discipline	Less	More
Independence	Controlled by company and client	High responsibility and authorization to make individual decision
People's idea	Ground is rigid without any disaster.	People do not mind spending money to recover health once problem is detected.
Income	Lower	Higher
Public image	Lower	Higher

## 6 ARE YOU ENJOYING YOUR JOB?

To make our occupation look attractive to others, we have to enjoy it. It is not enough to only talk about the social importance of your occupation. I arise a question "Are you enjoying your job?" It is very fortunate of me that I have found many interesting issues in geotechnical engineering. The following photographs show them. There is no need to talk about them in addition to showing the photographs. Earth and nature are amazing indeed.



Fig. 6.1. Obduction of the southern mountain mass over north; tectonic activity in Switzerland showing the dynamism of the earth.



Fig. 6.2. Rock powder mashed by collision between Indian subcontinent and Eurasia, resulting in many slope instabilities (Himalayan front in Nepal).



Fig. 6.3. Many piping holes from which ground water was ejected during heavy rainfall-induced landslide (Izu Oshima Island, Japan, in 2013), indicating complex geological-geotechnical-geo-hydrological system.



Fig. 6.4. Buddhism temple 'Mai-ji-shan shi-ku' carved by private funding in rock monolith (Period of Northern Wei Dynasty, 5-6 Centuries, Gansu Province, China).



Fig. 6.5. Site of famous strong earthquake motion records in El Centro, USA



Fig. 6.6. Sandy ground in Amazon, Brazil; once vegetation is destroyed, recovery is not easy.



Fig. 6.10. Thermopyles in Greece where the sea was close to the mountain in BC 480 but now is very far due to rapid deposition of eroded soil.



Fig. 6.7. Creeping rock slope in Bhutan.



Fig. 6.11. One of many mud volcanos in Gobustan of Azerbaijan.



Fig. 6.8. Creeping slope of Mt. Chogatake in Japan; the movement started more than 10,000 years ago and the rate of displacement is approximately 1 cm/year.



Fig. 6.12. Rock in Mahabalipuram, Tamil Nadu, India, presumably formed by weathering of a mother stone.



Fig. 6.9. Pyramid of Kush, Sudan, where the ancient local kings tried to do the same as the great Pharaohs of Egypt but in a much smaller scale.



Fig. 6.14. Rift valley in Ethiopia where the African Continent is split into its eastern and western segments



Fig. 6.15. Big pit of Chuquicamata Copper Mine in Chile (air is dusty).



Fig. 6.16. 'Sur le Pont d'Avignon' in France.



Fig. 6.17. Seidmareh gigantic prehistoric landslide in Iran with 22 billion cubic meters in volume.

## 7 RE-EVALUATION OF THE PIC ACHIEVEMENT EXAMINED AGAINST ITS ORIGINAL ACTION PLAN

The achievements of the committee are evaluated in Table 7.1 against the original plan that are described in its Terms of Reference.

Table 7.1. Self-assessment of achievements for respective aims proposed in Terms of Reference (dated September 4, 2018).

Item	Detail	Score <sup>+</sup>	Self-assessment
Objective 1: dissemination	Dissemination of contribution to the public welfare made by <u>geotechnical engineering</u>	4	See Chapter 3 of this report for contents. PPT file is under preparation and will be available for Member Societies to modify it freely. The score is not 5 because international dissemination was impossible due to pandemic.
Objective 2: Mitigation of Georisk	Analysis of case history studies by Georisk Society	5	Benefit by more detailed subsurface investigation was validated by interpreting case history data base and the desired budget for investigation was proposed.
Objective 3: Future possibility of geotechnical engineering	Proposal of new roles to be played by geotechnical engineering	4	Several ideas were proposed including disaster mitigation and water resource development. New Technical Committee for water technology was declined by the Board.
Objective 4: Production of materials for dissemination	PPT file for public presentation	4	Under preparation, paying attention to issues related with climate change, water and food shortage, population increase and decay of infrastructures. Most of its contents are included in this report.
Objective 5: Communication with public	Public dissemination	1	PPT file is not yet completed. Contact with public is very difficult due to pandemic. For domestic dissemination, initiative of Member Societies is desired.
Objective 6: Communication with clients	Dissemination	1	Difficult due to pandemic. Initiative of Member Societies is desired.
Objective 7: Awards	Promotion of enthusiastic efforts for better public image		Too early, not done.

+: 1 for lowest and 5 for highest.

## 8 EPILOGUE

This report reviews the activities of the Professional Image Committee since 2018 and suggests several points that should be appealed by Member Societies to the public. The major points of the suggestions are as what follows.

1) To improve our professional image of our discipline among public, it is essential to appeal our great achievements to the public. The problem is that this type of efforts in the past were not very successful. Something more should be done.

2) The public do not respect occupation with low income. It is important that geotechnical engineers should get reasonable income for what they do for the customers.

3) The public do not necessarily have to care what is going on in the invisible and heterogeneous underground space.

4) Subsurface investigation is an important procedure by which the hidden problems are detected in the invisible and heterogeneous underground space.

5) Georisk is a trouble caused by insufficient subsurface investigation and makes financial loss and/or delay in execution of projects. Customers should understand this risk and provide reasonable funds for investigation.

- 6) Georisk come from the fact that ground was made by nature without taking care of homogeneity, material quality and durability. These characteristics and invisibility makes subsurface investigation a difficult task.
- 7) Interpretation of georisk case histories suggests that about 2% of the construction cost should be allocated to the investigation.
- 8) Subsurface investigation helps avoid both financial loss and delay of construction projects.
- 9) On the other hand, geotechnical engineers have to do good jobs that deserve higher payment. Qualification should be granted on a company (consulting firm) basis, not on personal basis because individual engineers cannot control the company's policy.
- 10) Subsurface investigation should be supplemented by open-access bore-hole data base together with transfer of knowledge of land history (filling, digging, flood, landslide, liquefaction etc.) from generation to generation.
- 11) Do not be satisfied with customer satisfaction. Be exposed directly to the public and search what people want.
- 12) Geotechnical engineering has been doing many wonderful contributions to the human world. Because most of the achievements are hidden under ground, people are not aware of them unless special dissemination efforts are made of the geotechnical community.
- 13) To make our occupation attractive to the public, we must enjoy our occupation.

The figures and photographs were drawn or taken by myself except young fellows' pictures in Chapter 1, which belong to the Japanese Geotechnical Society, and Fig. 3.3(a) on depression of the subway construction site. I do not claim my copy right to them. Therefore, those who wish to use them and promote geotechnical engineering among public can freely use them only with a credit "Ikuro Towhata (2022) For better professional image of geotechnical engineering. Output of the Professional Image Committee of ISSMGE Board in conjunction with the Japanese Geotechnical Society".

## 9 ACKNOWLEDGMENT

The review of the georisk in real construction projects were made possible as a collaboration of the Japanese Geotechnical Society with the Georisk Society and Japan Geotechnical Consultants Association in Tokyo. The data on georisk has been collected by the long-term efforts of Georisk Society in which its founder president, Prof. T. Watanabe, has been playing the chief role. The value of these activities are deeply appreciated by the Author. My special thanks are extended to the members of the special committee that was established by the Japanese Geotechnical Society in order to promote the activities of PIC of ISSMGE. The names of the committee members are shown here: Messrs. S. Sawada, K. Azuno, T. Watanabe, T. Sumi, T. Shuku, H. Imanishi, S. Yamamoto, H. Hazarika, M. Ohishi, N. Hiraoka, M. Tozawa, T. Yasuda, T. Nozawa, K. Kato, K. Watanabe and K. Nakayama.

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## Appendix 13: 2022 Report of the International Journal of Geoenvironment Case Histories

### Dimitrios Zekkos

Editor-in-Chief & Associate Professor, Department of Civil and Environmental Engineering, University of California at Berkeley, [zekkos@berkeley.edu](mailto:zekkos@berkeley.edu)

### Jean-Louis Briaud

Co-Editor in Chief & Professor, Department of Civil and Environmental Engineering, Texas A&M University, [briaud@tamu.edu](mailto:briaud@tamu.edu)

**SUMMARY:** The International Journal of Geoenvironment Case Histories is an ISSMGE journal and the only diamond open access journal in the geotechnical engineering field. The journal focuses on geotechnical practice through the careful documentation of case histories. A review of the activities undertaken in the past four years, along with statistics for the year 2021 are provided in this report. In 2021, the 124 papers published in the journal were downloaded 84,000+ times. Efforts are underway to better integrate the journal with the International Society. To facilitate this integration, the role of Technical Committee Liaisons was established and Special Issues organized by Technical Committees were published.

### 1 INTRODUCTION

The International Journal of Geoenvironment Case Histories is an official journal of the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE) that covers the broad area of practice in geotechnical engineering (soils and rocks).

It is a peer-review, diamond-level open access journal on the geotechnical engineering practice with a focus on careful documentation of case histories and emphasis on observations and data collected during and after project construction. Papers are reviewed by a distinguished international Editorial Board and additional reviewers.

All papers published in the journal are accompanied by electronic data for better documentation of each case history. The journal is the only diamond open-access journal in the geotechnical engineering field. Diamond open-access is the highest level of open-access where no publication costs are allocated to authors and paper accessibility is also provided at no-cost to the readers.

Each paper published in the journal is also accompanied by datafiles that include all the data presented in the figures of the paper. This is intended to increase the value of the published papers to the scientific community. In addition, each case history is positioned in an interactive map that allows visitors to find papers based on geographic terms. A view of the map showing the location of the case histories published in the journal to date is shown in Figure 1



Figure 1. Location of case histories published in the Journal.

### 2 RELEVANT STATISTICS

The journal is available at: <https://geocasehistoriesjournal.org/>  
To date, the journal has published a total of 124 papers. During 2021 these papers were downloaded 84,799 times, which is equivalent to an average download rate of each paper 684 times in one year. The most downloaded paper was downloaded 2719 times.

### 3 EDITORIAL BOARD TEAM

For the 2017-2022 period, the Editorial Board consisted of an international review board as follows:

Editor-in-Chief: Dimitrios Zekkos (USA & Greece) – Associate Professor, Civil and Environmental Engineering, University of California at Berkeley

Co-Editor-in-Chief: Jean-Louis Briaud, Professor, Texas A&M University, USA

Honorary Editor: Shamsheer Prakash, Emeritus Professor, University of Missouri-Rolla, USA

Ombudsman: Michele Jamiolkowski, Emeritus Professor, Technical University of Torino, Italy

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National Technical University of Athens, Greece

Kok Kwang Phoon  
Professor  
National University of Singapore, Singapore

Salah Sadek  
Professor  
American University of Beirut, Lebanon

#### 4 LIAISONS WITH TECHNICAL COMMITTEES

During the last four years, in an effort to better integrate the journal with ISSMGE, the journal has established liaisons with technical committees of the ISSMGE. The responsibilities of the Liaisons are:

- To review up to 5 papers per year;
- To publish one (or more) special issue under the auspices of the TC in the next four years;

In addition, a new role of a “Special Issues Coordinator” was established to work with TCs in coordinating the preparation of the special issues. The appointed Special Issues Coordinator is: Shehab Agaiby  
Cairo University and Dar Al Handasah

Current liaisons consist of:  
Malek Bouazza  
Professor  
Monash University  
TC215 Liaison

Ivan P. Damians  
Dr  
Universitat Politècnica de Catalunya (UPC-BarcelonaTech)

Noël Huybrechts  
Professor  
Belgian Building Research Institute  
TC211 Liaison

Sang Seom Jeong  
Professor  
Department of Civil & Environmental Engineering, Yonsei University  
TC212 Liaison

Apiniti Jotisankasa  
Dr  
Kasetsart University  
TC106 Liaison

Andy Y.F. Leung  
Dr  
Hong Kong Polytechnic University  
TC304 Liaison

Akira Murakami  
Professor  
Kyoto University  
TC103 Liaison

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Kyoto University  
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TC203 Liaison

Helmut Schweiger  
Professor  
Graz University of Technology  
TC103 Liaison

Erol Tutumluer  
Professor  
University of Illinois at Urbana-Champaign  
TC202 Liaison

Shinji Sassa  
Head of Soil Dynamics Group and Research Director  
National Institute of Maritime, Port and Aviation Technology  
Japan  
TC213 Liaison

#### 4. PUBLICATION OF SPECIAL ISSUES

In 2021 the following special issues were published:

- TC103 on Numerical Methods in Geomechanics by Guest Editors Giovanna Biscontin, Ryosuke Uzuoka, Akira Murakami



- TC304 on Engineering Practice of Risk Assessment and Management by Guest Editor Andy Yat Fai Leung

#### 4.1. JOURNAL FUNDING

As mentioned previously, the Case Histories journal is the only diamond open-access journal in the geotechnical field. Diamond open-access is the highest level of open-access where no publication costs are allocated to authors, and paper accessibility is also provided at no-cost for the readers. Funding for the journal is generated by a small group of forward-looking companies and organizations that support the Mission of the journal. In 2021, the funding for the journal was provided by the generous contribution of: Geosyntec Consultants, ENGEO, DAR Group (Al Handasah), and Conetec. Companies and organizations supporting the journal, are acknowledged in the back-page of all papers published by the Journal, as well as its website.

## Appendix 14: ISSMGE Foundation

**Michael C R Davies,**

*Chair of ISSMGE Foundation Trustees*

The attached document is a report on the activities of the ISSMGE Foundation that has been prepared for donors to the Foundation. As an independent charity, governance of the ISSMGE Foundation is conducted by a Board of Trustees and it is not overseen by Council. However, since the ISSMGE is a major donor to the Foundation and the beneficiaries are members of the ISSMGE Member Societies, it is highly appropriate that this report is presented to the ISSMGE Council for its information.

The ISSMGE Foundation was created to aid individual ISSMGE members throughout the world to enhance their geotechnical engineering knowledge and practice by providing financial support for participation in technical and professional activities. The report indicates that, since it was established, applications for an award have been received from individual members from all the ISSMGE regions and 43 of the 89 Member Societies. Whilst the global spread of awards is very good and increasing, the Trustees welcome applications for financial support for appropriate activities from members of all national geotechnical societies and request members of Council to help publicise the ISSMGE Foundation within their National Society.

As indicated in the report, as a consequence of the COVID-19 pandemic, fewer requests for funding were received over the last twenty months. However, the Trustees were very pleased to be able to make awards to applicants who requested funding to enable them to participate in online conferences and symposia. Recipients of these awards all indicated that they had gained significant educational and professional benefits from attending these events. A number of extracts from their reports are included in the attached document.

In addition to considering applications to the Foundation for awards, one of the major duties of the Trustees is to ensure the sustainability of the ISSMGE Foundation so it can continue to meet its objectives. To this end, the policy of the Trustees is to build an endowment so that awards can be made from the income that it earns. To achieve the situation where the Foundation does not have to rely on charitable donations to make awards but only on the income from the endowment, the Trustees believe that the endowment needs to be of the order of £1M. This figure has been set at as this target for fundraising for the ISSMGE Foundation. In 2019 the Trustees appointed Tilney Ltd (UK) to help establish an endowment fund and, as the attached accounts indicate, this now has a value of £574k. The Trustees are very grateful to all donors who have contributed to the Foundation since it was established by Professor Jean-Louis Briaud during his presidency of the ISSMGE. We are now making a new appeal to all members of the ISSMGE family to contribute to building an endowment that will secure the future of the Foundation. We seek the support of members of Council to help us achieve this.

The Trustees are also most grateful to the ISSMGE for its regular donations to the Foundation that have allowed the funds donated by corporate and private donors to grow to the current level

whilst still allowing the Foundation to maintain a success rate of 89% for applications for awards.

The Trustees commend this report to Council.

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### REPORT TO DONORS

The ISSMGE Foundation

A charitable incorporated organisation (CIO) associated with the International Society for Soil Mechanics and Geotechnical Engineering

Charity Commission of England and Wales - No. 1153795

Trustees:

Professor Michael C.R. Davies (Chair)  
Professor Emeritus, University of Sussex, UK

Professor R. Neil Taylor  
Professor in Geotechnical Engineering, City, University of London, UK

Professor Mark B. Jaksa  
Professor of Geotechnical Engineering, University of Adelaide, Australia

Mme Valérie Bernhardt,  
Executive Director, Terrasol, Paris, France

### BACKGROUND

The concept of the ISSMGE Foundation dates back to September 2009, when Professor Jean-Louis Briaud, the newly-elected President of the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE) in his acceptance speech to the ISSMGE Council Meeting (Alexandria, Egypt), introduced his vision of a foundation that would enable geotechnical engineers from around the world to make better use of resources that may otherwise be inaccessible to them. These resources would include participation in conferences, attending knowledge development courses, etc., with a view to enhancing the awardees own education and professional formation and, as a result, their contribution to society at large. In short, and as stated in the Foundation constitution, its objective is “the advancement of education and educational training in the field of geotechnical engineering and its applications for the public benefit”.

In September 2013, The ISSMGE Foundation achieved charitable status and was entered onto the Register of Charities of the Charity Commission of England and Wales, with the Registered Charity Number 1153795.

## STRUCTURE AND MANAGEMENT

The ISSMGE Foundation currently has four trustees: Professor Michael C.R. Davies (Chair), Professor R. Neil Taylor, Professor Mark Jaksa and Mme Valérie Bernhardt, all of whom contribute to decisions concerning the granting of awards. In the future and as the Foundation develops, the Trustees may find it necessary to name additional trustees. The new trustees may be recruited from the ISSMGE Membership, from its own (past) beneficiaries, or from other independent institutions, depending on the needs arising and skills and experience required to consolidate the activities of the Foundation. Professor Jean-Louis Briaud resigned as trustee in June 2019, at which point Mme Bernhardt was appointed.

Professor Taylor is also in charge of the day-to-day management; the ISSMGE Foundation does not have salaried staff members. Administrative support is provided by the ISSMGE.

## ACTIVITIES

The purpose of the Foundation is to award grants to applicants who fulfil the requirements as specified below.

## PROCEDURE FOR AWARDING GRANTS

The financial assistance is in the form of a bursary which the successful applicant can use to pay registration costs, travel and/or accommodation expenses. Although membership of the ISSMGE is not a prerequisite for receiving support from the Foundation, applicants are strongly encouraged to become members of their national geotechnical societies, and subsequently of the ISSMGE.

The following procedure has been developed to assess applications for ISSMGE Foundation bursaries:

- a. Applications can be submitted four times yearly (at 3-month intervals) on a standard form, to the Secretary General of ISSMGE;
- b. These applications are sent to the trustees (Professor Michael Davies, Professor Neil Taylor, Professor Mark Jaksa and Mme. Valérie Bernhardt);
- c. The trustees assess the applications on the basis of the following criteria:
  - i. Demonstration of need;
  - ii. Quality of the activity;
  - iii. Cost-sharing;
  - iv. Potential impact of the activity on the career progress of the individual and of his or her Member Society.
- d. Decisions are made and communicated normally within three weeks following the application round.
- e. After the successful applicant has completed his/her nominated activity, they provide a written report to the Trustees on the benefits that they and their Society have gained from the award of the bursary.

The criteria and procedure described above were established in February 2014, though may be modified when considered necessary.

To date (Sept 2021), there have been a total of 219 applicants with 176 awards being approved at a success rate of 89%. Of these, 176 bursaries (in total £152,063) have been paid with a

further 8 due when awardees have completed their activities. Some of this funding took place in the early days through the ISSMGE, prior to the Foundation achieving charitable status.

Not surprisingly and as a result of the pandemic, fewer requests for funding were received over the last twenty months. As activities are resumed both locally and internationally, it is expected that the number of applicants will increase. It is possible that the nature of the applications made and awards granted will evolve as more hybrid events (with possible online attendance) are rolled out.

The reports submitted by the awardees are available to read on the ISSMGE website: <https://www.issmge.org/issmge-foundation/recipients-reports>.

## FINANCES AND FUND RAISING

Funding for the ISSMGE Foundation is generated from companies and individuals who concur with the objectives of the Foundation. The funding levels are as follows:

- Diamond: \$50,000 and above
- Platinum: \$25,000 to \$49,999
- Gold: \$10,000 to \$24,999
- Silver: \$1000 to \$9,999
- Bronze: \$0 to \$999

The names of the donors are recognised with their corresponding levels on the ISSMGE web site (<https://www.issmge.org/issmge-foundation/donors-list>) and in the ISSMGE Bulletin on the page dedicated to the ISSMGE Foundation. They are also recognised at International Conferences on Soil Mechanics and Geotechnical Engineering.

ISSMGE Foundation cash reserves at the end of 2020 were £576,273 (at the end of 2019 they were £554,771), as per audited accounts, extracts attached. Currently, the Board is considering awards to the value of approximately US \$2000 (c. £1,630).

The ISSMGE Foundation trustees appointed Tilney Ltd (UK) in June 2019 to help establish an endowment fund which would enable the Foundation to make awards from the income earned, and not rely on charitable donations. The initial investment of £500,000 was valued at £574,584 on 31st December 2021.

## IMPACT OF ISSMGE FOUNDATION ACTIVITIES

It is clear that the financial assistance provided by the ISSMGE Foundation has had a very positive impact on the individuals receiving the bursaries and consequently on their Member Societies.

As awareness of the awards becomes more widespread among our Member Societies, the number of applications has increased. We expect the number of applications to rise with the approach of the next International Conference, and the associated Young Engineers' Geotechnical Conference (both in Sydney, in May 2022).

Historically, the number applications received per year was increasing, but the pandemic has halted that trend. As mentioned earlier, we would expect the number of applications to eventually rise to their pre-pandemic level, but it is likely that different types of events will be organised (online, hybrid, in-

person) and thus a greater range of values of the awards (as travel and accommodation may no longer be factors in some requests) will be considered by the trustees.

The ISSMGE Foundation is fulfilling its objective of providing financial help to geotechnical engineers throughout the world who wish to further their knowledge and practice. We are already seeing individuals who have benefitted from Foundation awards becoming valuable contributors to the future of ISSMGE via their national member societies, and through ISSMGE technical committees and presidential groups.

From our awardees:

The reports submitted by the awardees are available to read on the ISSMGE website: <https://www.issmge.org/issmge-foundation/recipient-reports>. The following are extracts from some of the reports.

<p><i>“The time schedule was well defined and allow people from all over the world to attended it. The key lectures were very interesting and it was great to attend to many relevant researchers’ lectures. The videos recorded for the themed sessions were available during the conference and two weeks after ..and that gave me the opportunity to watch again some of them and those that it wasn’t possible to watch during the event because of schedule conflicts.”</i></p>  <p>Malena D'Elia Otero</p> <p>XIII International Symposium on Landslides (COLOMBIA), 2021</p>	<p><i>“Everything was preplanned. The organizers asked for the presentation recording so if the participants have any issue regarding network connectivity, they can simply play their presentation. There were also preview rooms for each and every parallel sessions, in which participants have to show their entire presentation so any issues can be avoided”.</i></p>  <p>Manali S. Patel</p> <p>CREST2020, 1st International Symposium on Construction Resources for Environmentally Sustainable Technologies Location of (JAPAN), 2021</p>
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<p><i>“Although due to COVID Pandemic it was not able to an in person interaction but even in virtual mode I had able to interact with academicians and practicing engineers from various countries and leading researchers and stalwarts in the field of engineering and gain an insight into their on-going research activities. “</i></p>  <p>Chaidul Haque Chaudhuri</p> <p>17th World Conference on Earthquake Engineering (17WCEE) (JAPAN), 2021</p>	<p><i>“This was the first conference I have attended (although virtually), I was very delighted to learn about so many wide topics from researchers all over the world. I have read papers by the pioneers for my research, being able to listen to them live about their research interests was a unique experience for me.”</i></p>  <p>Sanchari Mondal</p> <p>6th International Conference on Geotechnical and Geophysical Site Characterisation (HUNGARY), 2021</p>
<p><i>“...the conference provided me with an ideal opportunity to interact with many young researchers and doctoral students which resulted in the exchange of ideas and feedback on our doctoral research work.”</i></p>  <p>Mohammed Ashfaq (India) with Prof. Anand Puppala</p> <p>GeoCongress 2020 (Minneapolis, USA)</p>	<p><i>“The knowledge gained in the conference and from the papers presented shall in no small measure guide me in my PhD research work. I am going to share the information gathered from the conference with other students for the furtherance of scientific research and development in the University of Port Harcourt.”</i></p>  <p>Will Ibm Beresibo (Nigeria)</p> <p>17th African Regional Conference on Soil Mechanics and Geotechnical Engineering, 2019 (Cape Town, South Africa)</p>

“...this conference enriched me with guidance on improving my research skills ... (an) opportunity to meet and network with colleagues, senior professors, practising and professional geotechnical engineers, which may open the door for me for future collaboration and career development.”



Imad Alainachi (Canada)

XVI Panamerican Conference on Soil Mechanics and Geotechnical Engineering 2019 (Cancun, Mexico)

“In the conference, I have made many friends with researchers from different countries which will help me significantly in the near future in exchange of valuable ideas and thereby leading to possible research collaborations.”



Kaustav Chatterjee (India)

XVI Asian Regional Conference on Soil Mechanics and Geotechnical Engineering 2019 (Taipei, Taiwan)

“I got an excellent opportunity to meet and talk to many professors, researchers and engineers from different countries and many other potential research collaborators as well.”



Anna Kupreichyk (Ukraine)

27th European Young Geotechnical Engineers Conference 2019 (Bodrum, Turkey)

“... this conference gave me immense opportunity to network with my peers and receive comments on my research work. ...I also received opportunity to network with professors working in research areas that bear similarity to my areas of interest and other geotechnical fields. Also, ... I got an opportunity to learn about research being carried out in different universities that can also help me improve my work and get an exposure of developments in other fields of earthquake geotechnical engineering.”



Kavita Tandon (India),

7th Internat Conf. Earthquake Geotechnical Engineering, 2019 (Rome, Italy)

“I was grateful for the career advice from senior professors and practising engineers.”



Santhoshkumar Gunasekaran (India) on the left with Prof. Ikuo Towhata (far right)

XVI Asian Regional Conference on Soil Mechanics and Geotechnical Engineering 2019 (Taipei, Taiwan)

“...the conference allowed us to continue learning from recognized professionals worldwide and interact with them in order to share knowledge to put into practice in our daily work. The most important of these types of events is that it promotes the continuous education of all professionals in our area.”



Jonathan Echevarria Vargas (Costa Rica)

ECSMGE 2019, “Geotechnical Engineering, foundation of the future” (Reykjavik, Iceland)

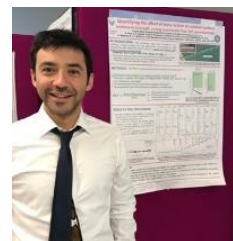
“Now I know more people and I have invitations from other conferences, which is great opportunity for my future research.”



Diana Egiazarova (Georgia)

China – Europe Conference on Geotechnical Engineering, 2018 (Vienna, Austria)

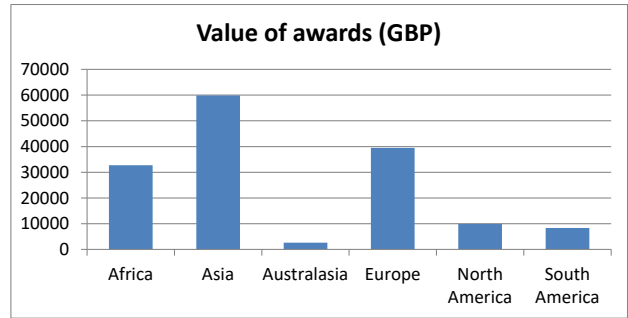
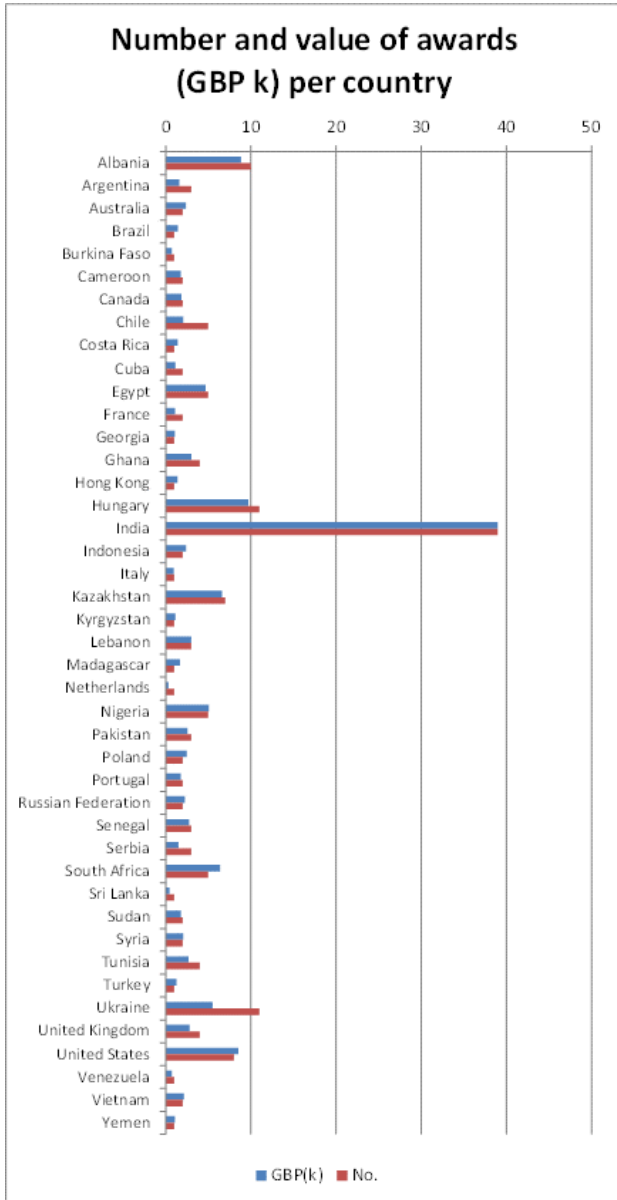
“CPT’18 allowed me to meet, network and learn from the world’s expert professional academics, researchers, consultants, practitioners etc. I also believe that participating this conference broadened my horizons in the field of geotechnical engineering by sharing and following the contemporary/state of art research and practices.”



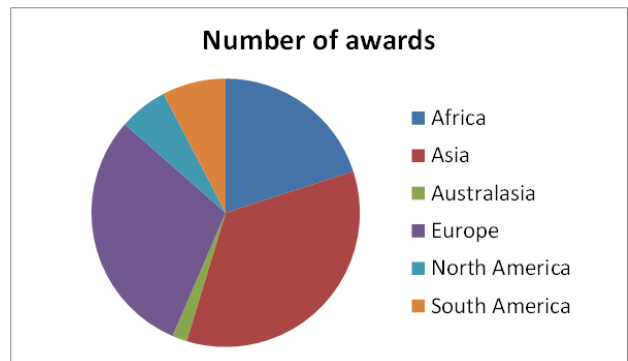
Cagdas Bilici (USA)

4th Internat Symposium on Cone Penetration Testing, 2018 (Delft, Netherlands)

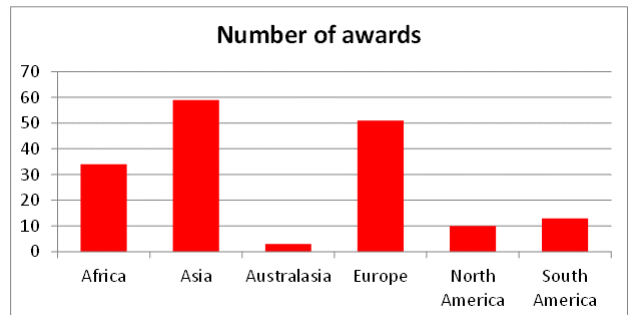
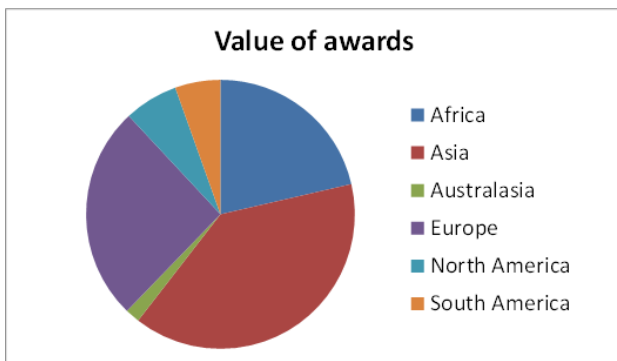
Number and value of awards (GBP k) per country



Proportional Distribution of Number of Awards



Proportional Distribution of Value of Awards



ISSMGE Foundation Accounts for the year ended 31 December 2019  
(As submitted to the Charity Commission)

<b>INCOME</b>	<b>Endowment Fund £</b>	<b>Unrestricted Funds £</b>	<b>Total Funds £</b>
Donations	-	41,000	41,000
Income from investment portfolio	2,200	-	2,200
Bank Interest		576	576
<b>Total incoming resources</b>	<b>2,200</b>	<b>41,576</b>	<b>43,776</b>
<b>EXPENDITURE</b>			
<i>Costs of raising funds:</i>			
Investment management fees	1,584	-	1,584
<i>Expenditure on Charitable activities:</i>			
Awards made	-	31,289	31,289
Bank Charges	-	664	664
<b>Total expenditure</b>	<b>1,584</b>	<b>31,953</b>	<b>33,537</b>
<b>NET INCOME BEFORE RECOGNISED GAINS</b>	<b>616</b>	<b>9,623</b>	<b>10,237</b>
Net gain/(losses) on investments	6,868	-	6,868
Transfer between funds	500,000	(500,000)	-
<b>NET MOVEMENT IN FUNDS FOR THE YEAR</b>	<b>507,486</b>	<b>(490,377)</b>	<b>17,107</b>
<b>TOTAL FUNDS BROUGHT FORWARD</b>	<b>-</b>	<b>537,664</b>	<b>537,664</b>
<b>TOTAL FUNDS CARRIED FORWARD</b>	<b>507,486</b>	<b>47,287</b>	<b>554,771</b>

ISSMGE Foundation Accounts for the year ended 31 December 2020  
(As submitted to the Charity Commission)

<b>INCOME</b>	<b>Endowment Funds £</b>	<b>Unrestricted Funds £</b>	<b>Total Funds £</b>
Donations	-	-	-
Income from investment portfolio	6,848	-	6,848
Bank Interest		-	-
<b>Total incoming resources</b>	<b>6,848</b>	<b>-</b>	<b>6,848</b>
<b>EXPENDITURE</b>			
<i>Costs of raising funds:</i>			
Investment management fees	4,597	-	4,597
<i>Expenditure on Charitable activities:</i>			
Awards made	-	4,384	4,484
Bank Charges	-	68	68
<b>Total expenditure</b>	<b>4,597</b>	<b>4,452</b>	<b>9,049</b>
<b>NET INCOME BEFORE RECOGNISED GAINS</b>	<b>2,251</b>	<b>(4,452)</b>	<b>(2,201)</b>
Net gain/(losses) on investments	23,703	-	23,703
Transfer between funds	-	-	-
<b>NET MOVEMENT IN FUNDS FOR THE YEAR</b>	<b>25,954</b>	<b>(4,452)</b>	<b>21,502</b>
<b>TOTAL FUNDS BROUGHT FORWARD</b>	<b>507,484</b>	<b>47,287</b>	<b>554,771</b>
<b>TOTAL FUNDS CARRIED FORWARD</b>	<b>533,438</b>	<b>42,835</b>	<b>576,273</b>

## ISSMGE FOUNDATION DRAFT ACCOUNTS

For the year ended 31 December 2021

	<b>Endowment Fund</b>	<b>Unrestricted Funds</b>	<b>Total Funds</b>
	<b>£</b>	<b>£</b>	<b>£</b>
<b>INCOME</b>			
Donations		40,000	40,000
Income from investment portfolio	5,830		5,830
Bank interest			
<b>Total incoming resources</b>	<b>5,830</b>	<b>40,000</b>	<b>45,830</b>
<b>EXPENDITURE</b>			
<i>Costs of raising funds</i>			
Investment management fees	4,945		4,945
<i>Expenditure on charitable activities</i>			
Awards made		2,905	2,905
Bank charges		93	93
<b>Total expenditure</b>	<b>4,945</b>	<b>2,998</b>	<b>7,943</b>
<b>NET INCOME BEFORE RECOGNISED GAINS</b>	<b>885</b>	<b>37,002</b>	<b>37,887</b>
Net gain/(losses) on investments	40,273		40,261
Transfer between funds			
<b>NET MOVEMENT IN FUNDS FOR THE YEAR</b>	<b>41,158</b>	<b>37,002</b>	<b>78,160</b>
<b>TOTAL FUNDS BROUGHT FORWARD</b>	<b>533,426</b>	<b>42,835</b>	<b>576,273</b>
<b>TOTAL FUNDS CARRIED FORWARD</b>	<b>574,584</b>	<b>79,837</b>	<b>654,421</b>





## Appendix 15: ISSMGE Time Capsule Project

**Sukumar Pathmanandavel**

Vice-chair CAPG

### 1 INTRODUCTION.

The Time Capsule Project (TCP) has the following aims:

- a. To bring through some of the collective experience of the member societies and technical committees in an accessible way for the broader geotechnical community, and enable positive and uplifting conversations across the individual membership, in a challenging time for all of us
- b. To assist the current and future generation of geotechnical engineers with a road map that helps them access the past, present and future in geotechnical engineering, globally, and stir their collective curiosity
- c. To provide a platform for the up-and-coming cohort of geotechnical engineers to stand for, and to tell the story of their member society/ technical committee, and in this way take on the leadership of addressing the challenges of the communities of the future.

### 2 THE PROCESS

A key focus of the TCP is the "process" by which there is connection and interaction with the individual members about the work of the contributors, an outcome of which is the "product" that is offered to the TCP for storage and display.

Through the respective vice presidents, 71 member societies have confirmed that they will be submitting, with the following commitment percentages - Africa 50%; Asia 70%; Australasia 100%; Europe 80%; North America 100%; and South America 100%. Corporate Associates, Technical Committees, Young Member Presidential Group (YMPG), and past presidents of the ISSMGE and others are active in creating contributions.

It is ISSMGE's expectation that

- submissions offered for the time capsule have secured all appropriate authorisations within the submitting organisation, and are first displayed and promoted on the originators' websites, marked as submissions to the ISSMGE Time Capsule 2022
- secure and authorised links to the relevant web pages of the originator are to be notified to the ISSMGE IT department
- a backup electronic copy of each submission needs to be provided to the ISSMGE IT department for the purpose of archival with the ISSMGE.

The TCP Design Team is not involved in reviewing or authorising any submission for the TCP.

TCP material post conference (THE PRODUCT) will comprise those listed in the following three parts.

### 3 PART A - CONVERSATIONS BUILDING ON SUBMITTED MATERIAL

- A simple, contents listing, (with links to web pages), subdivided into contributions by past presidents, member societies, technical committees, YMPG, Corporate Associates and material offered by the Innovations and Development Committee (IDC). (WORD DOCUMENT)
- A trailer of the product, still rough, short (if possible) presentations/trailers of all the material. A trailer of the information. Something that is available long term. Trailer to point people to more interesting items. (PRE RECORDED VIDEO)

#### At the 20th ICSMGE (Sydney, 1- 5 May 2022)

- Discussions with Custodians - The ability to talk to someone about something in the time capsule. Custodians of items need to stand for and explain the role of the item. (LIVE RECORDING BY CONFERENCE ORGANISERS)
- Treasure hunt - Theme - on common lines/ divergences across the board; Quizzes and games - require recollection & finding certain pieces of information. (LIVE RECORDING BY CONFERENCE ORGANISERS)

### 4 PART B - ROAD MAP TO STIR CURIOSITY

- Past presidents' material - contributions of the 16 past presidents of the ISSMGE. (PRE RECORDED VIDEO/ PODCASTS/ WORD DOCUMENTS)
- Vice presidents (2017 - 2022) presentations on their region's process and product (PRE RECORDED VIDEO/ PODCASTS/ WORD DOCUMENTS)
- Future of Geotechnical Engineering, extracts from YMPG online 2021 event (PRE RECORDED VIDEO)
- "Resources and Activities of the ISSMGE and how to get involved", Webinar Series, 2022, proposed by IDC (PRE RECORDED WEBINARS)

### 5 PART C - PLATFORM FOR EMERGING AND INNOVATIVE LEADERS

- Discoverers - A team of 30 discoverers; Abstracters; To go through the material and highlight things they have found; Explaining how things link together; Need a cast of actors.
- Interactive displays - To help make sense of intense amount of information; Similar to interactive exhibits at a museum; Takes into account many people will not be interested with specifics.

### 6 ACKNOWLEDGEMENTS

Charles Ng, the President, ISSMGE Board and Board Level Chairs (BLCs) have played a leading part in the shaping and the execution of the project. Pedro Pinto and Roger Frank, both past presidents and Board members, have led the creation and collation of contributions of all past presidents of the ISSMGE.

A large number of individual members of the ISSMGE have worked on the contributions of the member societies and technical committees. Members of the YMPG Liaisons have been engaged in a number of activities related to the time capsule. The ISSMGE IT team has provided timely support, and will have a significant role to play in the launch of the time capsule.

In 2020, the Time Capsule Committee comprised the following: Sukumar Pathmanandavel (lead), Ikuo Towhata, Osamu Kusakabe, Ceres Chung, Philip Robbins, Harry Poulos, Juan Ayala, Marc Ballouz, Menzer Pehlivan, Alejo Sfriso, Roberto Terzariol, Alessandro Flora, Fabio Tradigo, Laura Kerner, François Depardon, and Charles MacRobert. This committee played an important role in developing a common understanding of the concept of ISSMGE time capsule.

The TCP design team comprises Ceres Chung, Charles MacRobert, Emilio Bilotta and Sukumar Pathmanandavel (lead). In 2021, the TCP Design Team held an extensive number of online meetings to communicate the requirements of the time capsule to a variety of ISSMGE audiences. Now, the TCP Design Team is working on bringing together the product for launch at the Sydney 2022 conference.

The Time Capsule Project is still underway and updates can be accessed via the Time Capsule Project page on the ISSMGE website.

**End of report, 2 February 2022**

## Appendix 16: Report on the ISSMGE Bulletin (May 2019 – Feb 2022)

Anthony Leung

*EiC of the ISSMGE Bulletin Department of Civil and Environmental Engineering, Hong Kong University of Science and Technology, Hong Kong Special Administrative Region Department*

Dr Anthony Leung (Hong Kong University of Science and Technology, Hong Kong SAR) was appointed as the Editor-in-Chief (EiC) of the ISSMGE Bulletin since Oct 2017, after he served the Editorial Board (Europe) for more than 3 years.

The bulletin is published bimonthly. During the report period, a total of 17 issues have been published. Each issue of the bulletin is open-accessed and can be downloaded freely from the following website: <http://www.issmge.org/publications/issmge-bulletin>. The publication of each issue was promoted via different paths of social media to maximise the publicity. The 17 issues have reported “Research Highlights” for the ISSMGE members to get to know more about the research activities from reputed geotechnical engineering research groups around the world, including University of Tunis El Manar (Tunisia; Vol(13), issue 3), Institute of Geotechnical Engineering, ETH (Switzerland, Vol(13), issue 5), Kyoto University (Japan, Vol(14), issue 1), The University of New South Wales (UNSW, Australia, Vol(14), issue 2), L. N. Gumolyov Eurasian National University (Kazakhstan, Vol(14), issue 4) and Saint Petersburg State University of Architecture and Civil Engineering (Russia, Vol(15), issue 1).

Thanks to the close liaison of the editorial board members with conference organisers, the Bulletin serves as an effective platform for sharing highlights of some major international conferences in “Conference reports”. The content includes conference programme, keynote/invited speakers, conference tour and social events.

The Bulletin also has a section called “Young Member’s Arena”, for allowing young members to share their latest research activities such as the one-day technical event entitled “On the borderline between geotechnical and earthquake engineering” reported by a young member of the French Society for Soil Mechanics and Geotechnical Engineering (CFMS) at Vol(13), issue 4).

Activities organised by TCs of ISSMGE are reported under the section “TC Corner” in the bulletin. These include a new International Conference series on Embankment Dams organised by TC210 (Vol(13), issue 4), a joint TC304/309/210 workshop on “Machine Learning Dialogue for Geotechnics” (Vol(14), issue 1), an inauguration of the TC107 Symposium (Vol(14), issue 3), the first international administrative meeting of the TC305 (Vol(14), issue 3), the 5th ISSMGE Suzanne Lacasse Lecture organised by TC304 (Vol(14), issue 5), an International Online Symposium on Historical and modern applications in geotechnical engineering (Vol(14), issue 5), a report on an educational video “What happens when soil compresses” organised by TC306 (Vol(15), issue 1), a state-of-the-art review of inherent variability and uncertainty in geotechnical properties and models by TC304 (Vol(15), issue 2) and last but not least a joint TC304/309/210 workshop on “3<sup>rd</sup> Machine Learning Dialogue” (Vol(16), issue 1).

The Bulletin also publishes “Board-Level Committee Activity”. These include two reports written by the Corporate Associates Presidential Group (CAPG), one about an event held at the 17th ECSMGE, on an interesting session ““Bridging the gap between designers and constructors: how do we ensure effective ‘transfer’ of design into construction?” (Vol(13), issue 5) and the other one on an event held at the 16th ARC called “Are we overdesigning?” (Vol(14), issue 1). A regional session

report was also presented by the CAPG in Vol(14), issue 2 to summarise the observations on the event called ‘Geo-education for the Future’ held at the XVI Pan-American Conference on Soil Mechanics and Geotechnical Engineering.

The Bulletin also received five “Reports from Member Society”, including those from Hong Kong Geotechnical Society (Vol(13), issue 3 and Vol(15), issue 3), the Geotechnical Society of Bosnia and Herzegovina (Vol(13), issue 5), British Geotechnical Association (BGA; Vol(14), issue 4), Chinese Taipei (Taiwan) Geotechnical Society (Vol(15), issue 1) and Polish and Kazakhstan Geotechnical Society (Vol(15), issue 4).

With the new initiative of ISSMGE Time Capsule Project (TCP), the Bulletin offers a new platform for sharing articles of TCP Blog posts by five authors, Dr Charles MacRobert (Vol(15), issue 4), Dr Emilio Bilotta (Vol(15), issue 5), Ms Ceres Chung (Vol(15) issue 6), Dr Roger Estephan and Dr Grace Abou-Jaoude Estephan (Vol(16) issue 1) and Dr Marina Pantazidou (Vol(16) issue 2).

The Bulletin has a section called “Hot News”, which allows members to share major awards and achievements such as the 2021 Terzaghi’s Orator (Vol(14) issue 5), ISSMGE Spark Award (a new series created by the ISSMGE President for enabling young members to take the main stage at conference), call-for-papers, issues of new journals and books.

The Bulletin offers a platform for the awardees of ISSMGE foundation to share their experiences they have gained and learnt through the attendance of international conferences and workshops in a section called “ISSMGE Foundation report”.

In every issue, an updated “Event Diary” is provided closer to the end of the bulletin to advertise all ISSMGE- and non-ISSMGE-sponsored events (mainly conferences and workshops) that are registered in the ISSMGE website. Updated lists of “Corporate Associates” and “Foundation donors” are also given in every issue to acknowledge their financial support to the ISSMGE.

On behalf of the Editorial Board, I cordially invite you to contact your Member Society and share any interesting events/activities related to soil mechanics and geotechnical engineering in the Bulletin. I am sure our members will be interested in hearing your exciting news over the world. Feel free to get in touch via my email: [ceanthony@ust.hk](mailto:ceanthony@ust.hk)

Anthony Leung EiC of the ISSMGE Bulletin Department of Civil and Environmental Engineering, Hong Kong University of Science and Technology, Hong Kong Special Administrative Region