

International Federation of Surveyors
Fédération Internationale des Géomètres
Internationale Vereinigung der Vermessungsingenieure



International Federation of Surveyors

XLII General Assembly

AGENDA AND APPENDICES

22 and 26 April 2019
Hanoi National Convention Centre

Hanoi, Vietnam

INTERNATIONAL FEDERATION OF SURVEYORS**FIG 42nd GENERAL ASSEMBLY****22 and 26 April 2019****National Convention Centre, NCC, Hanoi, Vietnam****PROGRAMME**

Monday 22 April	09:00-13:00 14:00-16:30	General Assembly, First Session
Tuesday, 23 April – Thursday 25 April 2019 FIG Working Week 2019 and Exhibition, National Convention Centre www.fig.net/fig2019		
Tuesday, 23 April	14:00–15:30	FIG Director Generals Forum
Wednesday, 24 April	11:00–12:30	Academic Members Forum joint with FAO
Wednesday, 24 April	11:00–12:30 and 14:00-15:30	FIG Member Association, Regional Bodies and Regional Networks Forum
Wednesday 24 April	16:00 – 17:30	FIG Corporate Members Meeting
Wednesday 24 April	17:30 – 18:30	Annual Meetings of FIG Commissions
Thursday, 25 April	14:00–15:30	FIG Task Force on Governance
Thursday 25 April NB – Changed day and time	16:00 – 18:00	FIG Presidents’ Meeting This event is convened by the FIG President and is reserved for Presidents or Heads of delegation of Member Associations (or their representatives) By invitation only
Friday 26 April	9:00–12:30	General Assembly, Second Session including Closing Ceremony. Closing ceremony will start immediately after the conclusion of the General Assembly and will be followed by the Farewell Reception hosted by the hosts of FIG Working Week 2020, GIN, Society for Geo-Information Netherlands

For full Working Week programme check: <http://www.fig.net/fig2019/program.htm>

FIG 41st GENERAL ASSEMBLY

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FIG 42nd GENERAL ASSEMBLY

AGENDA

for the meetings to be held on Monday 22 April 2019 in Banquet Hall and on Friday 26 April 2019 in Room 318 at National Convention Centre, NCC, Hanoi, Vietnam

MONDAY, 22 APRIL

Monday, 22 April, 09:00-13:00 and 14:00-16:30
Banquet Hall, National Convention Centre, Hanoi, Vietnam
General Assembly, First Session

1. OPENING PROCEEDINGS

President Rudolf Staiger to open the 42nd General Assembly.

2. ROLL CALL

Please note: The roll call will be done for member associations only. Delegates representing affiliate members, academic members, corporate members and correspondents as well as honorary presidents and honorary members will be entered in the records, but they shall register before the meeting starts at the meeting venue to the staff of FIG Office. Member associations are asked to inform the FIG Office by **15 April 2018** about their attendance, at the same time to submit the names of their delegate(s) and to inform who their Head of the delegation is, if it is not the President or Chair. Please use this special link below to inform us about your delegation.

To register:

<https://forms.gle/aSVxLNnUQiy8Gc4r7>

Please note that only member associations that have paid all their membership fees to the end of 2018 are allowed to vote at the meeting. A list of member associations that are not allowed to vote will be published and posted on the FIG web site **15 April 2019**.

Appendix to items 2 & 24: Roll Call including information on member associations that are not allowed to vote at the General Assembly because of unpaid membership fees for 2018 and earlier. (will be posted 15 April 2019)

Motion: Those members present are recorded in the minutes.

Decision:

3. APPOINTMENT OF TELLERS

The General Assembly shall appoint two persons as tellers for the entire General Assembly. The tellers will represent the member associations hosting the current and the following General Assembly

- Vietnam Association of Geodesy - Cartography - Remote Sensing, Vietnam VCGR
- Geo-Information Netherlands - GIN

Motion: That the General Assembly appoints a representative from Vietnam Association of Geodesy - Cartography - Remote Sensing, Vietnam and Geo-Information Netherlands as tellers for this General Assembly.

Decision:

4. ADOPTION OF THE AGENDA

The General Assembly was announced through the newsletter and on FIG web site, and the Agenda for the General Assembly was also published on the web site and sent by email to all members.

Motion: That the agenda be adopted.

Decision:

5. ADOPTION OF THE MINUTES OF THE 41st GENERAL ASSEMBLY

The minutes have been circulated previously.

Appendix to item 5: Minutes of the General Assembly in Istanbul, Turkey, May 2018, without appendices.

The minutes incl. appendices are also available on the FIG web site:

http://fig.net/organisation/general_assembly/agendas_and_minutes/2018/minutes.asp

Motion: That the minutes be adopted as recorded.

Decision:

6. MEMBERSHIP

6.1. Admittance of new Member Associations

FIG Council has so far received no applications for member association since the 41st General Assembly.

Motion: That the General Assembly notes the update.

Decision:

6.2. Other Member Association Issues

No other member association issues since the General Assembly in Istanbul May 2018 to report.

Motion: That the General Assembly notes the update.

Decision:

6.3. Expulsion of member associations

Subscriptions of following member associations are more than three years in arrears:

- Association des Géomètres et Topographes du Burkina (AGT-B), Burkina Faso, MA-10014
- Colegio de Ingenieros Topógrafos de Costa Rica, MA-10019
- Union of Surveying Engineers of Serbia, MA-10072
- Cyprus Association of Property, MA-10111
- Distinctive Engineering Group, Rwanda, MA-10125

The General Assembly has power to expel from the Federation any member association whose fees are in arrears and shall under normal circumstances expel any member association whose fees are three years in arrears. (Article 4.3 of the Statutes). The FIG office has sent information to these associations informing that if their membership fees are still in arrears at the time of the General Assembly the General Assembly shall expel the above member associations in Hanoi.

After acceptance of new member associations and before expulsions the number of FIG member associations is 105 from 91 countries.

Motion: That the General Assembly expels:

- Association des Géomètres et Topographes du Burkina (AGT-B), Burkina Faso, MA-10014
- Colegio de Ingenieros Topógrafos de Costa Rica, MA-10019
- Union of Surveying Engineers of Serbia, MA-10072
- Cyprus Association of Property, MA-10111
- Distinctive Engineering Group, Rwanda, MA-10125

if no payment has been received before the General Assembly takes place.

Decision/Action:

6.4. Suspended status 2019

In accordance with its administrative measures, FIG Council, has deferred to continue for 2019 the issuance of a membership subscription invoice to the following members and FIG Council deem their membership to be in suspension:

- the Order of Syrian Engineers and Architects, OSEA as all efforts to maintain contact with them has not yielded results and will deem their membership in suspension giving due consideration to its internal situation.
- Licensed Surveyors Association in Palestine

Public Union, Ukrainian Society for Geodesy and Cartography, MA-10088 has paid their membership fee and has now returned to normal membership status.

The situation with these associations will be reconsidered by Council again in 2020.

Motion: That the General Assembly notes the members in suspension.

Decision:

6.5. Other membership issues

6.5.1. Affiliate members

There have been two applications for affiliate membership since the General Assembly 2018.

- National Survey Authority of Oman, AF-20067
- Department of Lands & Surveys, Anguilla, Government of Anguilla, - AF-20068

The council has expelled the following affiliate members because of unpaid membership subscriptions:

- Office of the Surveyor General, Namibia, AF-20013
- Ministry of Municipal and Rural Affairs, Saudi Arabia, AF-20017
- General Direction of Land Registry, mapping and Cadastre, Benin, AF-20055
- Scientific-Production Center of Land Cadastre, Kazakhstan, AF-20061

General Commission for Survey (GCS), General Directorate of Geodesy and Land Survey (GLS), Saudi Arabia (AF-20050) .has resigned, because in 2018 they were approved as member association by the General Assembly.

After these changes the number of Affiliate members is 42 from 40 countries.

6.5.2. Corporate members

FIG Council has admitted the following Corporate Member:

- GeoPlus, Canada – CM-30071 in the Category E - Basic level
- SuperMap, China - CM-30072 in the Category B - Gold level

FIG Council has expelled the following member due to lack of payment of membership fee:

- NEH Vietnam CM-30056
- Innovation for Trading and Contracting, Egypt, CM-30058
- DataLife Environmental Services, Nigeria CM-30059

After these changes the number of corporate members is now 26.

6.5.3. Academic members

FIG Council has admitted one application to become Academic member since the General Assembly 2018:

- British Columbia Institute of Technology (BCIT), Canada - AC-40151

The council has expelled the following 4 Academic Members due to lack of payment:

- Kwame Nkrumah University of Science and Technology, Ghana, AC-40136
- Kaduna Polytechnic University, Nigeria, AC-40137
- Federal University of Technology, Nigeria AC-40139
- Tafe NSW - Riverina Institute, Australia AC-40148

The payment structure of the Academic Members was changed in 2013 so that Academic Members would be invoiced every 4 years instead of every year. The four-year payment will reward the members with a 50% discount. Academic members were invoiced in 2014, and again in 2018.

The number of Academic Members after these changes is 83 from 50 countries.

6.5.4. Correspondents

The number of correspondent members is still 4.

Motion: That the General Assembly notes the actions that the Council has taken with other membership matters.

Decision:

7. PRESIDENT'S REPORT

President Rudolf Staiger has prepared the President's report on the activities of the Federation since the General Assembly in Istanbul, Turkey, May 2018.

Appendix to item 7: President's report. (to be posted)

Motion: That the General Assembly accepts the President's report.

Decision:

8. APPOINTMENT OF HONORARY PRESIDENT

The Technical Chamber of Greece has sent FIG Council a proposal that it makes a nomination to the General Assembly of appointing Prof. Chryssy Potsiou, the immediate Past President of FIG as an Honorary President of the Federation. The letter is attached as appendix to agenda item 8. FIG Council has decided to bring forward this proposal to the General Assembly, noting that Chryssy Potsiou fulfills the criteria for an Honorary President and her achievements as the President have contributed the Federation to extend that she deserves to be appointed as a FIG Honorary President.

Appendix to agenda item 8: Nomination letter from the Technical chamber of Greece

Motion: That the General Assembly appoints Chryssy Potsiou as FIG Honorary President.

Decision:

9. APPOINTMENT OF CHAIR FOR FIG COMMISSION 4, 2019-2022

In 2018 at the General Assembly, the Chairs for the commissions 1, 3, 5, 6, 7, 8, 9 and 10 were elected and the Chair of commission 2 appointed. At the time of the General Assembly 2018, there were no candidates for the position of chair for FIG Commission 4. The General Assembly decided that Council in consultation with the commission would find a suitable candidate during the months following the General Assembly. FIG Council has appointed Prof. Dr. Mahmud Mohd Razali, Malaysia. The nomination from PEJUTA, Malaysia is attached to agenda item 9.

Motion: That the General Assembly records the appointment of Prof. Dr. Mahmud Mohd Razali, Malaysia as Chair of FIG Commission 4 for the term 2019-2022

Decision:

10. FIG COUNCIL WORK PLAN 2019-2022

The Council has prepared the FIG Council Work Plan for 2019-2022. Together with the Commission Work Plans the Council Work Plan will form the FIG Work Plan for the next four years. The proposal for the Council Work Plan 2019-2022 is attached to the agenda and is based on preparations made in one Council seminar in September 2018, ACCO meeting and Council meeting in January 2019. The Council Work Plan has been coordinated with the Commissions', Networks', Task Forces' and Permanent Institutions' Work Plans.

President Staiger will present the Work Plan at the meeting.

The Council has also decided on responsibilities of individual Council members. This list is included as an appendix to the Council Work Plan. An up-to-date list will always be available on the FIG web site.

Appendix to item 10: FIG Council Work Plan 2019-2022 (to be added)

Motion: That the General Assembly adopts the Council Work Plan for 2019-2022.

Decision:

11. REPORT OF THE PRESIDENT OF THE FIG FOUNDATION 2018-19 AND WORK PLAN 2019-2020

Mr. John Hohol, President of the FIG Foundation has prepared a report on the FIG Foundation activities from MAY 2018 to March 2019. He will make a brief report orally at the General Assembly. Mr John Hohol will also give a short report on the planned activities for 2019-20.

Appendix to item 11:

- Report of the FIG Foundation activities 2018-2019
- Financial result 2018

Motion: That the General Assembly:

- adopts the report of the President of the FIG Foundation and records its thanks to the President and members of the Board of Directors of the FIG Foundation for their past year's work;
- adopts the plan for the term 2019-2020

Decision:

12. TASK FORCE ON FIG AND THE SUSTAINABLE DEVELOPMENT GOALS

The Council has established two new Task Forces for 2019-2022. The first Task Force will focus on FIG and the Sustainable Development Goals. This Task Force is chaired by Ms. Paula Dijkstra from the Netherlands. The Task Force has organised a session in the technical programme at the Working Week. Members of the Task Force will be appointed by the Council and brought to the General Assembly for endorsement.

Appendix to item 13: Terms of Reference for the Task Force on FIG and the Sustainable Development Goals (to be added)

Motion: That the General Assembly records the Council's decision of establishment of the Task Force on FIG and the Sustainable Development Goals, appointment of Ms. Paula Dijkstra to chair the Task Force and its terms of reference for information.

Decision:

13. TASK FORCE ON FIG GOVERNANCE

This second Task Force will be an internal Task Force focusing on an evaluation and proposal of potential changes of the current FIG Governance. This Task Force is chaired by Vice President Diane Dumashie from United Kingdom. Its work will be based on the results from the previous Task Force on Commission Structure. At the General Assembly in 2018 an outline of terms of reference based on the results from the Task Force on Commission Structure were presented by Vice President Mikael Lilje, and the General Assembly 2018 decided to leave the decision how to take this work onwards to the new council. This Task Force will in contradiction to the former Task Force not only focus on the structure of the commissions. It will furthermore investigate the entire structure of the federation. The Task Force will have its first meeting in Hanoi where members of the Task Force will be appointed by the Council and brought to the General Assembly for endorsement.

Appendix to item 13:

Motion: That the General Assembly records the Council's decision of establishment of the Task Force on FIG Governance, appointment of Vice President Dr. Diane Dumashie to chair the Task Force and its terms of reference for information.

Decision:

14. FIG NETWORKS – REPORT FROM 2018-19 AND PLAN FOR THE TERM 2019-2022

14.1. Young Surveyors Network

FIG Young Surveyors Network is for the term 2019-2020 chaired by Ms. Melissa Harrington, New Zealand. She will give a status report on the activities of Young Surveyors Network and present the Work Plan for the Young Surveyors Network.

Appendix to item 14.1 – Report 2018-19 and Work Plan 2019-2020.

Motion: that the General Assembly notes the report and work plan, and thanks all the many active Young Surveyors.

Decision

14.2. Standards Network

The Chair of the network, David Martin will give a report to the General Assembly of the activities 2018-19 and the Work Plan 2019-2022.

Appendix to item 14.2 – Report 2018-19 and Work Plan 2019-2022

Motion: That the General Assembly records the report from the Network and records its thanks to the Chair of the Task Force and its members.

Decision:

14.3. FIG Regional Capacity Development Networks

The chairs of the two networks will give a report on the status of the networks and the Work Plans for the term 2019-2022:

- Africa Network (Jennifer Whittal)
- Asia/Pacific Network (Rob Sarib)

Appendix to item 14.3 –

- Africa Network (Jennifer Whittal)
- Asia/Pacific Network (Rob Sarib)

Motion: That the General Assembly records the report from the networks and records its thanks to the Chair of the Task Force and its members.

Decision:

15. FIG COMMISSION WORK PLANS 2019-2022

The Commission Chairs have prepared their Commission Work Plan for 2019-2022 based on discussions at their Commission meetings at the FIG Congress in Istanbul. After Istanbul the Work Plans have been coordinated with the Council Work Plan and with other Commission Work Plans at the meeting of Commission chairs and the FIG Council in January 2019.

All Commission Work Plans have now been finalised and synchronised with the Council Work Plan and are presented for the General Assembly for its approval in Hanoi in April 2019.

At the General Assembly 2 hours are reserved for the members to discuss the Work Plans and Commission activities with the Commission Chairs.

Appendix to item 15: Commission reports:

- Commission 1
- Commission 2
- Commission 3
- Commission 4
- Commission 5
- Commission 6
- Commission 7
- Commission 8
- Commission 9

- Commission 10

Again in 2019 the Commission 5/NavXperience Award will be given to a selected Commission 5 paper.

The prize winner will be announced at the General Assembly.

Motion: That the General Assembly adopts the reports of the Commission Chairs and records its thanks to the chairs and other officers of the Commissions for their ongoing contributions.

Decision:

16. FIG PERMANENT INSTITUTIONS – REPORT 2018-19 AND WORK PLAN 2019-2022

16.1. International Office of Cadastre and Land Records (Office International du Cadastre et du Régime Foncier) OICRF

Prof. Dr. Christiaan Lemmen, Director of OICRF has prepared a report on the OICRF activities since the General Assembly in Istanbul and the Work Plan for the coming term 2019-2022 for OICRF. He will make a short report to the General Assembly.

Appendix to item 16.1: Report from the International Office of Cadastre and Land Records (Office International du Cadastre et du Régime Foncier) OICRF and plan for the coming term 2019-2022.

Motion: That the General Assembly adopts the report and records its thanks to the members of OICRF for their past year's work and contribution.

Decision:

16.2. International Institution for the History of Surveying and Measurement, Permanent Institution of FIG

Mr. Jan de Graeve, Director of the IIHSM, Mr John Brock and Mr Jim Smith have prepared a report on the IIHSM activities since the General Assembly in Istanbul, and the Work Plan for the coming term. Mr John Brock will make a short report to the General Assembly.

Appendix to item 16.2: Report from the International Institution for the History of Surveying and Measurement, Permanent Institution of FIG and plan for the coming term 2019-2022.

Motion: That the General Assembly adopts the report and records its thanks to the Director and the members of the permanent institution for their past year's work and contribution.

Decision:

17. FIG ACCOUNTS FOR 2018, AUDITOR’S REPORT AND BUDGETS 2019-2022

FIG President Rudolf Staiger (in his former role as Vice President responsible for the finances) will present the report to the General Assembly. This report includes the auditor’s report from 2018, official accounts (income statement 2018) and balance sheet 31 December 2018, a summary of 2018 accounts, an updated budget for 2019 and proposals for budgets 2020-2022 and proposal for membership fees for member associations in 2021.

Appendix to item 17:

Report on Financial Issues (including 2018 accounts and budgets 2019-2022) (to be added)

Annexes:

- **17A** Auditor's Report, Income Statement for 2018 and Balance Sheet at 31 December 2018.
- **17B** FIG Result 2018
- **17C** FIG Budgets 2019-2022
- **17D** List of member associations whose membership fees are in arrears for 2018 and earlier and that are not allowed to vote - to be published on the FIG web site **15 April 2019** (in roll call).

Motion: That the General Assembly

- adopts the audited accounts for 2018,
- adopts the Finance Report, and
- adopts budgets for 2019–2022

Decision:

18. SUBSCRIPTION RATES FOR 2021

The General Assembly has to set levels of fees for member associations two years in advance of the year in which they become payable. Fees are payable in respect of each individual member up to a maximum of 5,500 members. The membership fee structure was changed in 2009. Membership fees have been discussed as part of the finance report, **appendix to item 17**.

The 2018 General Assembly approved membership fees for 2020 as follows:

Year	Per capita fee	Minimum fee	Maximum fee
2020	€4.80 per member up to a maximum of 5,500 members Member associations from countries listed by the World Bank as low-income economies or lower-middle-income economies shall pay €2.40 per member up to a maximum of 5,500 members.	25 members or €50 (whichever is greater)	5,500 members (€26,400)

The World Bank lists of the low-income economies and the lower-middle-income economies are available at: <http://data.worldbank.org/about/country-classifications/country-and-lending-groups>

The General Assembly decided in 2017 to increase subscription fees with 8% for 2019 after subscription fees have been kept at the same level for the years 2012-2018. In 2018 the General Assembly agreed to keep the level from 2019 for the 2020 subscriptions, and Council suggest keeping this same rate for 2021.

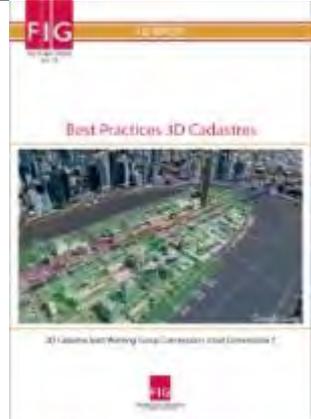
Motion: That the General Assembly adopts following membership fees payable by member associations in 2021:

Year	Per capita fee	Minimum fee	Maximum fee
2021	€4.80 per member up to a maximum of 5,500 members Member associations from countries listed by the World Bank as low-income economies or lower-middle-income economies shall pay €2.40 per member up to a maximum of 5,500 members.	25 members or €50 (whichever is greater)	5,500 members (€26,400)

Decision:

19. NEW FIG PUBLICATIONS

Three new publications will be presented at the FIG Working Week 2019.

		
Publication 72: Best Practices 3D Cadastres	Publication 73: New Trends in Geospatial Information: The Land Surveyors Role in the Era of Crowdsourcing and VGI	Publication 74: Cost Effective Precise Positioning with GNSS

Motion: That the General Assembly records the publications for information and records its thanks to editors and authors of these publications.

Decision:

20. CO-OPERATION WITH THE UNITED NATIONS AND THE WORLD BANK

Since the 41st General Assembly, FIG has continued to collaborate with the World Bank and various agencies and structures within the United Nations.

The main activities in the co-operation with the United Nations and the World Bank during this period have been:

Participation to FAO and the Voluntary Guidelines, VGGT.

At FIG Congress three special sessions, one of them being the FIG Academic Forum, were organised. The other two sessions covered a special session on Land Consolidation and a session on VGGT

At the FIG Working Week 2019 there will be three sessions and one Master Class in cooperation with FAO: FIG Academic Forum, a session on Technology Contribution to Improve Tenure Governance, session on Strengthening Democratic Spaces to Balance Societal Priorities in Spatial Planning and a Master Class: Learning Session on the Use of Technology. The Master Class can accommodate 20 participants. To participate, please fill in this [questionnaire](#)

Participation to Global Land Tool Network GLTN:

- Lead of Global Land Tool Network Professional Cluster 2016-18,
- Participation in the GLTN International Advisory Board
- STDM workshop in cooperation with FIG Young Surveyors
- Participation in the Partners Meeting
- Co-chair of the Land Tool Network Professional Cluster 2019-2020 together with Arab Union
- Participation in the GLTN Steering Committee
- Special sessions in the Working Week technical programme

UN-Habitat/GLTN-Young Surveyors Volunteer Community Surveyor Programme VCSP.

VCSP is an innovative volunteer program that is a powerful driver for both social impact and professional development. The VCSP leverages on the skills, experience, talents and education of young surveyors, matches this competence with the needs of GLTN, particularly in GLTN's county level implementation plans and programs. 13 Young Surveyors from Senegal, Nigeria, Nepal, New Zealand Uganda, England, Namibia, Australia and Zimbabwe have successfully been working on GLTN Projects for 2-4 weeks in DR Congo, Kenya, Nepal, Uganda, Philippines and Zambia.

Participation to the work of UN-GGIM

- UN-GGIM-Geospatial Societies – Member
(Previously Joint Board of Spatial Information Societies JB-GIS)
- Expert Group on Land Administration

- Associate member of Sub-committee on Geodesy
- Participation at the Eights Session of the United Nations Committee of Experts on Global Geospatial Information Management in New York, USA, August 2018
- Participation at UNGGIM WGIC – Inaugurate World Geospatial Congress in Dequing, China

Participation to the work of the International Committee on Global Navigation Satellite Systems (ICG)

Participation to UN-OOSA, Co-chairing WG-D

Cooperation on Reference Frame in Practice Seminar, Pre-event at FIG Working Week 2019

Participation at the World Bank Conference in March 2019.

World Bank and FIG have organised two special sessions at the FIG Working Week 2019.

Motion: That the General Assembly adopts the report on the co-operation between FIG and the United Nations, its agencies and the World Bank and records its thanks to all those who have contributed to this co-operation

Decision:

21. LIAISON WITH INTERNATIONAL PROFESSIONAL ORGANISATIONS

The Joint Board of Spatial Information Societies JB-GIS was formally established during the FIG Working Week in Cairo in 2005. The name was in 2017 changed to UN-GGIM-Geospatial Societies. The Geospatial Societies meet annually during the United Nations Committee of Experts on Global Geospatial Information Management meetings. The meeting of UN-GGIM-GS in 2018 was held in August 2018. Some of the Geospatial Societies also met in Dequing, China at the UN-GGIM WGIC.

FIG has collaborative MoUs with a number of the organizations who are part of the Geospatial Societies.

FIG has further bilateral agreements of co-operation with several other international associations like ISM, IFHP, CIB, ION, ICEC, FIABCI, IFHS, PAIGH and PAQS.

In November 2018 FIG held its 140 anniversary and Hand Over event in conjunction with TUFE – a High-Level International Conference organised by the Technical Chamber of Greece in cooperation with the International Federation of Surveyors, the Working Party for Land Administration of the United Nations Economic Commission for Europe, the International Union of Architects (Greek Section) and the European Council of Civil Engineers. At this conference a cooperation agreement between FIG, The Union of Architects and the Council of Civil Engineers were signed.

Report: http://fig.net/news/news_2018/11_cooperation FIG UIA ECCE.asp

FIG is represented in the International Construction Measurement Standard Coalition by Chair of FIG Commission 10, See Lian Ong who has been appointed chair of the Standard Setting Committee. FIG is represented in the Trustee Board by the President.

FIG is represented in International Land Measurement Standard Coalition by Mr. Maurice Barbieri.

FIG is member of the Ethics Standard Committee.

FIG is a member of the International Council for Science (ICSU) and is working together with ISO and International Valuation Standards Committee (IVSC) on standards.

Again in 2019 there were various activities around the world celebrating Global Surveyors day on 21 March 2019

Motion: That the General Assembly records the report on the liaison with other international associations.

Decision:

22. DECISION ON THE VENUE FOR FIG WORKING WEEK 2023 – PRESENTATION OF CANDIDATE

The FIG Working Weeks are organised by FIG together with a local member association. FIG will together with the local member association have full responsibility of the arrangements and of the financial result. This offers FIG better opportunities in terms of organising events and generating revenue. Therefore, the Council has to ensure that all candidates are aware of the role of FIG and split of responsibilities for organising the Working Week. This General Assembly will decide on the host for the 2023 Working Week.

The FIG Council has received only one bid to host the FIG Working Week 2023, and FIG Council thanks NSPS for their special engagement and contribution to FIG.

The Council has discussed the incoming bid, and has evaluated it based on the considerations, as laid out in the invitation documentation:

- Rotation of the conferences (region);
- Country (hosting of earlier FIG events, experience);
- Member association (its activeness, commitment to FIG and to the Working Week, execution ability for local association);
- Supporting organisations (local support to the Working Week, governmental support, financial support, general support);
- Host city (characteristics and interest from congress programme point of view, host city attractiveness, host city offerings);
- Venue (price/affordability, location of venue, internet availability suitability of rooms, size of venue, structure and layout of the venue, catering, value for money, hotels nearby facilities for exhibition);
- Accessibility (flight connections, several access possibilities, security, visa issues, air fare to destination);

- Safety and security (political stability, airport safety, city safety, political stability in the country - rating must be 3 or higher);
- Proposed dates (must meet FIG requirements, Following FIG statutes, practical dates, availability of venue, other conferences at the same time)
- Technical programme (coverage of all FIG Commissions, potential partners, originality, special ideas);
- Technical tours (coverage of all FIG Commissions, originality, ideas proposed);
- Social programme (attractiveness and variety, proposals for dinners, attractiveness of offered dinners, proposals for tours, is the programme following the overall FIG concept);
- Attendance (expectation of international, regional and local attendance, realistic number of international and national participants);
- Finances (estimate of surplus and financial risks, realistic fees proposed, fees in an acceptable price range, difference between international and national fees, realistic budget, estimated revenue);
- Sponsorship (estimate sponsorship and exhibition income, proposed income, how realistic is proposed income, local sponsor offerings, sponsor interest to conference);
- Why host (reason for hosting);
- Objectives and outcomes (thought through why conference should be held at destination, difference to other destinations, short term outcome, long term outcome);
- Suggested theme (thought of possible theme that fits to local/regional situation);
- Events organised in the past three years (how experienced is the host in organising events)
- Major events planned in the proposed city (many events might affect the price level):
- Initiatives for sustainable conference environment (is host city, venue and local host paying attention to environmental issues);
- New initiatives or activities (originality – but within the overall FIG concept)
- What legacy to leave locally from the Working Week (with host, hosting city, for the surveying community)

The Council has made the conclusion that NSPS is well prepared and able to host the Working Week in the proposed city, Orlando, Florida, USA, organised by National Society of Professional Surveyors (NSPS)

The General Assembly is recommended to read the bid carefully.

Appendix to item 22 and 26

- Bidding document for FIG Working Week 2023 for Orlando, Florida, USA, National Society of Professional Surveyors (NSPS)

At the session the candidate will be given 15 min. to make a presentation of its proposal and framework of the Working Week and its bid.

Since only one bid has been submitted and it fulfils the criteria, FIG proposes to General Assembly to adopt the bid. This will be done at the second General Assembly on 26 April. In case one or more members prefer a blind vote they are asked to inform Council either prior the General Assembly to Director Louise Friis-Hansen, lfh@fig.net or during the Working Week to the President or Director of FIG and the latest on 26 April before the start of the General Assembly at 9:00.

Motion: That the General Assembly notes the submission and the presentation, makes its careful consideration and decision during the second session of the General Assembly on 26 April.

Decision:

CHARITY DANCE – 22 April 16:30 in the Foyer outside the General Assembly Room.

Join the Young Surveyors and participate in the Charity Dance. The money that the Charity Dance raises will be split between FIG Foundation and a local initiative, decided by the Young Surveyors.

THURSDAY 25 APRIL 2019

16:00-18:00

**TRIMBLE Room (210bc),
NCC, Hanoi, Vietnam**

Presidents' Meeting (by invitation only)

23. FIG PRESIDENT'S MEETING

Separate invitation is sent to Presidents of the Member Associations.

NB – Please note the changed time.

FRIDAY 26 APRIL 2019

9:00–12:30

**Room 318
NCC Hanoi, Vietnam**

General Assembly, Second Session and Closing Ceremony

24. ROLL CALL

Please note: The roll call will be done for member associations only. Delegates representing affiliate members, academic members, corporate members and correspondents as well as honorary presidents and honorary members will be entered in the records, but they shall register before the meeting starts at the meeting venue to the staff of FIG Office.

Please note that only member associations that have paid all their membership fees to the end of 2018 are allowed to vote at the meeting. A list of member associations that are not allowed to vote will be published and posted on the FIG web site **15 April 2019**.

Appendix to items 2 & 24: Roll Call including information on member associations that are not allowed to vote at the General Assembly because of unpaid membership fees for 2018 and earlier. (will be posted 15 April 2018)

Motion: Those members present are recorded in the minutes.

Decision:

25. MEMBERSHIP MATTERS

The Council will decide on other membership issues, if any, considered in Hanoi and bring them for the General Assembly for decision or information as necessary.

Motion: That the General Assembly decides on the membership issues based on the proposal of the Council.

Decision:

26. DECISION ON THE VENUE FOR FIG WORKING WEEK 2023

The candidate for FIG Working Week 2023 has made its presentations in the first session of the General Assembly. The candidate is: Orlando, Florida, USA, National Society of Professional Surveyors (NSPS)

Since only one bid has been submitted and it fulfils the criteria, FIG proposes to General Assembly to adopt the bid. This will be done at the second General Assembly on 26 April. In case one or more members prefer a blind vote they are asked to inform Council either prior the General Assembly to Director Louise Friis-Hansen, lfh@fig.net or during the Working Week to the President or Director of FIG and the latest on 26 April before the start of the General Assembly at 9:00.

Motion: That the General Assembly decides the host and venue for FIG Working Week 2023.

Decision:

27. REPORTS FROM ASSOCIATION, AFFILIATE, ACADEMIC, CORPORATE MEMBERS FORUM AND OTHER (IF ANY)

During the Working Week there has been Member Association/Regional Bodies/Regional Networks Forum, the Director General's/Affiliate Members Forum, Academic Members Forum, Regional Bodies Forum and Corporate Members Meeting. They may report back to the General Assembly on any issues that may need the endorsement of or are of general interest to the General Assembly.

Motion: That the General Assembly records the report(s)

Decision:

28. REPORTS FROM COMMISSIONS

FIG Commissions had their annual meetings, administrative meetings and technical sessions during the Working Week. They may report back to the General Assembly on any issues that may need the endorsement of or are of general interest to the General Assembly. Any other activities from the Working Week may be reported back to the General Assembly on any issues that may need the endorsement of or are of general interest to the General Assembly.

FIG Networks and Task Forces will also have meetings during the Working Week

Motion: That the General Assembly records the report(s).

Decision:

29. REPORTS FROM NETWORKS, TASK FORCES, PERMANENT INSTITUTIONS, FIG FOUNDATION AND OTHER WORKING WEEK ACTIVITIES (IF ANY)

Networks, Task Forces, Permanent Institutions, FIG Foundation and others had their meetings and technical sessions in Hanoi. They may report back to the General Assembly on any issues that may need the endorsement of or are of general interest to the General Assembly. Any other

activities from the Working Week may be reported back to the General Assembly on any issues that may need the endorsement of or are of general interest to the General Assembly.

Motion: That the General Assembly records the report(s).

Decision:

30. OTHER ISSUES

Any other issues that the members want to raise for discussion.

Motion: That the discussion will be recorded and the Council will consider action that will be required.

Decision:

31. REPORT ON THE FIG CONGRESS 2022 IN CAPE TOWN, SOUTH AFRICA

Representatives from the Local Organising Committee from the Local Organising Committee from South African Geomatics Institute (SAGI) will give a presentation on preparations of FIG Congress 2022.

Motion: That the General Assembly records the report.

Decision:

32. REPORT ON THE FIG WORKING WEEK 2021 IN ACCRA, GHANA

Representatives from the Local Organising Committee from Licensed Surveyors Association of Ghana and Ghana Institution of Surveyors will give a presentation on preparations of FIG Working Week 2021.

Motion: That the General Assembly records the report.

Decision:

33. REPORT ON THE FIG WORKING WEEK 2020 IN AMSTERDAM, THE NETHERLANDS

Representatives from the Local Organising Committee from Geo-Information Netherlands, GIN will give a presentation on preparations of FIG Working Week 2020.

Motion: That the General Assembly records the report.

Decision:

34. PRESENTATION OF CERTIFICATES OF APPRECIATION AND CLOSING CEREMONY

Roll call - and votings

Country	Members hipID	Organisation	Memb	votes	22-apr	26-apr	
MEMBER ASSOCIATIONS							
Afghanistan	MA-10134	Afghan Surveyors Association	185	1			0
Algeria	MA-10001	Order of Land Surveyors Expert. (O.G.E.F)	500	1			0
Argentina	MA-10002	Federación Argentina de Agrimensores	150				
Australia	MA-10004	SSSI - Surveying and Spatial Sciences Institute	1438	2			0
Austria	MA-10005	Austrian Society for Surveying and Geoinformation	632	1			0
Bahamas	MA-10006	Bahamas Association of Land Surveyors	50	1			0
Belarus	MA-10007	Land Reform Association (NGO)	67	1			0
Belgium	MA-10008	Union Belge des Géomètres- Experts Immobiliers	388	1			0
Benin	MA-10113	Order of the Expert Geometricians of Benin	57	1			0
Bosnia and Herzegovina	MA-10112	Geodetic Association of Herceg- Bosnia, Bosnia-Herzegovina	66	1			0
Botswana	MA-10010	Botswana Surveying and Mapping Association	119	1			0
Burkina Faso)	MA-10014	Association des Géomètres et Topographes du Burkina (AGT-B)					0
Brunei Darussalam	MA-10012	Brunei Institution of Geomatics (BIG)	57				0
Bulgaria	MA-10013	Union of Surveyors and Land Managers in Bulgaria	100	1			0
Bulgaria	MA-10108	Chamber of Graduated Surveyors	300	1			0
Cameroon	MA-10015	National Order of Cameroon Surveyors (NOCS)	121				0
Canada	MA-10016	Canadian Institute of Geomatics	211	1			0
China	MA-10017	Chinese Society for Surveying, Mapping and Geoinformation (CSSMG)	1300	2			0
China	MA-10102	China Institute of Real Estate Appraisers and Agents (CIREA)	2750	2			0
China	MA-10120	China Land Science Society (CLSS)	1130	2			0
Colombia	MA-10124	Colombian Society of Surveyors	70				0
Congo, Democratic Republic of the	MA-10101	Federation of Geometers and Surveyors	54	1			0
Costa Rica *)	MA-10019	Colegio de Ingenieros Topógrafos de Costa Rica	476				0

Country	Members hipID	Organisation	Memb	votes	22-apr	26-apr	
Côte d'Ivoire	MA-10129	Ordre des Géomètres Experts de Côte d'Ivoire (OGECI)	35	1			0
Croatia	MA-10020	Croatian Geodetic Society	552	1			0
Cyprus	MA-10022	Cyprus Association of Rural and Surveying Engineers	200				0
Cyprus *)	MA-10111	Cyprus Association of Valuers & Property Consultants	83				0
Czech Republic	MA-10023	Czech Association of Certified Property Appraisers	259	1			0
Czech Republic	MA-10024	Czech Union of Surveyors and Cartographers	116	1			0
Denmark	MA-10025	The Danish Association of Surveyors	998	1			0
Egypt	MA-10026	Egyptian Committee of Surveying and Mapping	200	1			0
Estonia	MA-10027	Association of Estonian Surveyors	209	1			0
Fiji	MA-10028	Fiji Institute of Surveyors	18	1			0
Finland	MA-10029	Finnish Association of Geodetic and Land Surveyors (MIL)	800	1			0
Finland	MA-10030	Finnish Association of Surveyors (MAKLI)	610	1			0
France	MA-10031	Ordre des Géomètres-Experts OGE	1851	2			0
France	MA-10032	French Association of Topography, AFT	360	1			0
Georgia	MA-10099	Society of Professionals of Land Information Technologies SPLIT	50				0
Germany	MA-10033	DVV – Society of geodesy, geoinformation and landmanagement	7032	3			0
Ghana	MA-10034	Ghana Institution of Surveyors	897	1			0
Ghana	MA-10126	Licensed Surveyors Association of Ghana (LISAG)	110	1			0
Greece	MA-10035	Technical Chamber of Greece	1500	2			0
Hong Kong SAR, China	MA-10100	The Hong Kong Institution of Engineering Surveyors	396	1			0
Hungary	MA-10038	Hungarian Society of Surveying, Mapping and Remote Sensing	390	1			0
Indonesia	MA-10039	Indonesian Surveyor Association	258	1			0
Iran	MA-10040	Iranian Professional Society of Surveying Engineers (ISS)	475				0
Israel	MA-10043	Association of Licensed Surveyors in Israel	182				0
Italy	MA-10044	National Council of Italian Surveyors	100000	3			0
Jamaica	MA-10045	The Land Surveyors Association of Jamaica (LSAJ)	103				0

Country	Members hipID	Organisation	Memb	votes	22-apr	26-apr	
Japan	MA-10046	Japan Federation of Surveyors	308	1			0
Kenya	MA-10047	Institution of Surveyors of Kenya (ISK)	355	1			0
Korea, Republic of	MA-10048	Korea Confederation of Surveyors	850	1			0
Kosovo	MA-10049	Kosova Association of Surveyors	105	1			0
Latvia	MA-10050	Latvian Association of Surveyors (LMB)	80	1			0
Lebanon	MA-10051	Order of Surveyors	437				0
Liberia	MA-10119	Association Professional Surveyors of Liberia	70	1			0
Lithuania	MA-10053	Lithuanian Association of Surveyors	50	1			0
Luxembourg	MA-10054	Ordre Luxembourgeois des Géomètres (OLG)	45	1			0
Malaysia	MA-10055	Association of Authorised Land Surveyors(PEJUTA)	500	1			0
Malta	MA-10056	Malta Institution of Surveyors	45	1			0
Mongolia	MA-10098	Mongolian Association of Geodesy Photogrammetry and Cartography (MAGPC)	200	1			0
Morocco	MA-10059	National Order of Surveying Engineers and Surveyors (ONIGT)	995	1			0
Nepal	MA-10110	Nepal Institution of Chartered Surveyors (NICS)	26	1			0
Netherlands	MA-10060	Geo-Information Netherlands (GIN)	1100	2			0
New Zealand	MA-10061	New Zealand Institute of Surveyors (NZIS)	670	1			0
Nigeria	MA-10062	Nigerian Institution of Surveyors (NIS)	1320	2			0
Nigeria	MA-10063	The Nigerian Institute of Quantity Surveyors (NIQS)	344	1			0
Norway	MA-10064	Norwegian Association for Chartered Surveyors (NJKF) and GeoForum	1350	2			0
Palestine, State of (***)	MA-10065	Licensed Surveyors Association in Palestine					0
Papua New Guinea	MA-10066	Association of Surveyors of Papua New Guinea (ASPNG)	100	1			0
Philippines	MA-10107	Geodetic Engineers of the Philippines, Inc.	500				0
Poland	MA-10067	Association of Polish Surveyors	612	1			0
Portugal	MA-10068	Order of Engineers - College of Geographical Engineering	239	1			0
Romania	MA-10070	Union of Romanian Geodesy	150	1			0
Romania	MA-10105	Romanian Association of Private Surveyors	187	1			0

Country	Members hipID	Organisation	Memb	votes	22-apr	26-apr	
Russian Federation	MA-10071	Federal Service for State Registration, Cadastre and Cartography (Rosreestr)	554	1			0
Russian Federation	MA-10121	Association "Self-regulated Organization of Activity of Cadastral Engineers"	451	1			0
Rwanda *)	MA-10125	Distinctive Engineering Group	32				0
Saint Lucia	MA-10123	The Institute of Surveyors Inc. ISSL	66	1			0
Saudi Arabia	MA-10133	General Commission for Survey	328	1			0
Senegal	MA-10116	National Order of Surveyors of Senegal (ONGES)	59	1			0
Serbia *)	MA-10072	Serbian Union of Surveyors	100				0
Slovakia	MA-10074	Slovak Union of Surveyors and Cartographers	59	1			0
Slovakia	MA-10075	Chamber of Surveyors and Cartographers, CSC	265	1			0
Slovenia	MA-10076	Association of Surveyors of Slovenia	600	1			0
South Africa	MA-10077	South African Geomatics Council	546	1			0
South Africa	MA-10128	South African Geomatics Institute (SAGI)	570	1			0
Spain	MA-10078	Colegio Oficial de Ingenieros Técnicos en Topografía	500	1			0
Sri Lanka	MA-10079	Institute of Surveyors Sri Lanka	220				0
Sweden	MA-10080	Swedish professionals for the built environment	1400	2			0
Switzerland	MA-10081	Swiss Association for Geomatics and Landmanagement (geosuisse)	670	1			0
Syrian Arab Republic ***)	MA-10082	Order of Syrian Engineers and Architects / OSEA	200				0
Tanzania, United Republic of	MA-10130	Tanzania Institution of Valuers and Estate Agents (TIVEA)	334				0
Togo	MA-10084	Ordre des Géomètres du Togo	25	1			0
Trinidad and Tobago	MA-10085	Institute of Surveyors of Trinidad and Tobago	180	1			0
Turkey	MA-10087	Chamber of Surveying and Cadastre Engineers of Turkey	1841	2			0
Uganda	MA-10132	Institution of Surveyors of Uganda	280	1			0
Ukraine	MA-10088	Ukrainian Society of Geodesy and Cartography	215	1			0
United Arab Emirates	MA-10131	Society of Engineers	1200	2			0
United Kingdom	MA-10090	Chartered Institution of Civil Engineering Surveyors ICES	701	1			0
United Kingdom	MA-10091	The Royal Institution of Chartered Surveyors RICS	80000	3			0

Country	Members hipID	Organisation	Memb	votes	22-apr	26-apr
United States	MA-10092	National Society of Professional Surveyors (NSPS)	17600	3		0
Uruguay	MA-10094	Surveyors Association of Uruguay	50	1		0
Vietnam	MA-10095	Vietnam Association of Geodesy - Cartography - Remote Sensing	300	1		0
Zimbabwe	MA-10097	Survey Institute of Zimbabwe	75	1		0
	105			105		0

*) to be expelled 22 April 2019

**) membership to be approved 22 April 2019

***) suspended membership

Not able to vote

2 votes

3 votes

AFFILIATE MEMBERS						
Albania	AF-20049	Central Office of Immovable Property Registration – IPRO Albania				
Brunei Darussalam	AF-20003	Survey Department				
Bulgaria	AF-20058	Geodesy, Cartography and Cadastre Agency of Bulgaria				
Cambodia, Kingdom of	AF-20004	Ministry of Land Management,				
Chile	AF-20005	Servicio Hidrográfico y Oceanográfico de la Armada de Chile				
China	AF-20043	China Land Surveying and Planning Institute, Ministry of Land and Resources				
Colombia	AF-20006	Instituto Geográfico Agustín Codazzi				
Croatia	AF-20042	State Geodetic Administration Of Republic Of Croatia				
Cyprus	AF-20045	Cyprus Lands and Surveys Department				
Denmark	AF-20026	Agency for Data Supply and Efficiency				
Denmark	AF-20063	The Danish Geodata Agency				
Fiji	AF-20051	iTaukei Land Trust Board, FIJI				
Finland	AF-20030	National Land Survey of Finland				
Hungary	AF-20009	Government Office for the Capital, Budapest				
Iceland	AF-20010	Register Iceland				
India	AF-20065	Survey Of India				

Country	Members hipID	Organisation	Memb	votes	22-apr	26-apr
Iran	AF-20036	National Cartographic Center of Iran				
Israel	AF-20040	Survey of Israel				
Italy	AF-20035	SIFET-Italian Society of Photogrammetry and Topography				
Japan	AF-20052	Geospatial Information Authority of Japan				
Jordan	AF-20011	Department of Lands & Survey				
Latvia	AF-20057	The State Land Service of Latvia				
Lesotho	AF-20054	Land Administration Authority, Lesotho				
Macedonia, FYR	AF-20019	The Agency for Real Estate Cadastre, AREC				
Mexico	AF-20012	National Institute of Statistics and Geography (INEGI)				
Moldova, Republic of	AF-20041	Agency for Land Administration and Cadastre of Rep. of Moldova				
Mongolia	AF-20018	Administration of Land Affairs, Geodesy & Cartography				
Nepal	AF-20021	Topographical Survey Branch, HMG Survey Department				
Netherlands	AF-20025	Cadastre, Land Registry and Mapping Agency				
New Zealand	AF-20059	Land Information New Zealand				
Nigeria	AF-20066	Surveyors Council Of Nigeria (Surcon)				
Norway	AF-20023	Norwegian Mapping Authority				
Oman	AF-20067	National Survey Authority (NSA)				
Philippines	AF-20060	National Mapping and Resource Information Authority				
Romania	AF-20020	National Agency for Cadastre and Land Administration				
Russian Federation	AF-20029	Siberian State University of Geosystems and Tehnologies				
Sri Lanka	AF-20044	Survey Department of Sri Lanka				
Sweden	AF-20027	Lantmäteriet - The Swedish mapping, cadastral and land registration authority				
Switzerland	AF-20033	Swiss Federal Office of Topography swisstopo				
United Arab Emirates	AF-20032	Surveying Department - Geodesy & Hydrographic Survey Section				
United Kingdom	AF-20064	Ordnance Survey				
United States	AF-20024	National Geodetic Survey, National Oceanic and Atmospheric Administration				
	42					

Country	Members hipID	Organisation	Memb	votes	22-apr	26-apr
CORPORATE MEMBERS						
Category A - Platinum level	CM-30035	Bentley Systems Inc.				
Category A - Platinum level	CM-30001	Esri				
Category A - Platinum level	CM-30003	Leica Geosystems AG -				
Category A - Platinum level	CM-30005	Trimble				
Category B - Gold level	CM-30072	SuperMap Software Co., Ltd				
Category C - Silver level	CM-30043	Geoweb S.p.A				
Category C - Silver level	CM-30024	Thomson Reuters				
Category D - Bronze level	CM-30068	Topcon Europe Positioning				
Category D - Bronze level	CM-30011	COWI A/S -				
Category D - Bronze level	CM-30062	Géographie, Topographie, Hydraulique, Energie et Construction (GEOTHECO)				
Category D - Bronze level	CM-30012	GIM International - Geomares Publishing				
Category D - Bronze level	CM-30067	GIS/Transport Ltd.				
Category D - Bronze level	CM-30057	RIPRO Corporation,Japan				
Category D - Bronze level	CM-30070	RKSoft Mühendislik Bilgisayar Programiama				
Category E - Basic level	CM-30060	Beijing iSpatial Co., Ltd				
Category E - Basic level	CM-30038	Derinsu Underwater Engineering Ltd. -				
Category E - Basic level	CM-30064	Geoide Geosystems S.A. -				
Category E - Basic level	CM-30071	Geo-Plus				
Category F - Regional level	CM-30055	Branco Etera Ltd				
Category F - Regional level	CM-30042	Coordinates Magazine -				
Category F - Regional level	CM-30063	Génie Congo Sarl -				
Category F - Regional level	CM-30018	GEO:connexion Ltd -				
Category F - Regional level	CM-30061	GeoReference, Engineering Consultants -				

Country	Members hipID	Organisation	Memb	votes	22-apr	26-apr
Category F - Regional level	CM-30066	M/s Accord Marine Surveyors & Consultants,				
Category F - Regional level	CM-30065	M/s. Survey Scale Pvt. Limited. -				
Category F - Regional level	CM-30036	ORBITS Engineering Firm -				
	26					
ACADEMIC MEMBERS						
Australia	AC-40003	RMIT University				
Australia	AC-40002	The University of Melbourne				
Australia	AC-40004	University of New South Wales				
Australia	AC-40005	University of Southern Queensland Australia				
Australia	AC-40006	University of Technology Sydney				
Austria	AC-40007	Universität für Bodenkultur Wien BOKU				
Belgium	AC-40123	Antwerp Maritime Academy				
Belgium	AC-40093	ECAM - Haute Ecole Leonard de Vinci				
Belgium	AC-40141	Ghent University				
Belgium	AC-40096	Universite de Liege				
Brazil	AC-40011	Universidade do Vale do Rio dos Sinos – UNISINOS				
Canada	AC-40092	Université Laval				
Canada	AC-40012	University of Calgary				
Canada	AC-40013	University of New Brunswick				
Canada	AC-40151	British Columbia Institute of Technology (BCIT)				
China	AC-40091	School of Public Administration				
China	AC-40126	The University of Nottingham Ningbo China				
Colombia	AC-40128	Daniel Paez, Universidad de los Andes - Facultad de Ingeniería Catastral y Geodesia				
Colombia	AC-40016	Universidad Distrital Francisco José de Caldas				
Colombia	AC-40017	Universidad Distrital Francisco José de Caldas - Facultad del Medio Ambiente y Recursos Naturales				
Croatia	AC-40020	University of Zagreb				
Czech Republic	AC-40107	Brno University of Technology				
Denmark	AC-40021	Aalborg University				
Ethiopia	AC-40103	Bahir Dar University - Institute of Land Administration				
Fiji	AC-40053	University of the South Pacific				

Country	Members hipID	Organisation	Memb	votes	22-apr	26-apr
Finland	AC-40022	Aalto University				
Finland	AC-40023	Helsinki Metropolia University of Applied Sciences				
Finland	AC-40129	Lapland University of Applied Sciences				
France	AC-40024	Ecole Supérieure des Géomètres et Topographes (ESGT)				
Germany	AC-40025	Anhalt University of Applied Sciences				
Germany	AC-40027	Berlin Institute of Technology				
Germany	AC-40026	Technische Universität München (TUM)				
Germany	AC-40127	University of Stuttgart				
Ghana	AC-40030	University of Mines and Technology				
Greece	AC-40031	School of Rural and Surveying Engineering				
Hong Kong SAR, China	AC-40033	The Hong Kong Polytechnic University				
Hungary	AC-40034	Obuda University, AMK, Institute of Geoinformatics				
Ireland	AC-40036	Dublin Institute of Technology				
Israel	AC-40104	Technion Research & Development Foundation				
Jamaica	AC-40037	University of Technology Jamaica				
Latvia	AC-40090	Riga Technical University				
Lebanon	AC-40124	Lebanese Canadian University (LCU)				
Lebanon	AC-40130	Lebanese International University, LIU				
Macedonia, FYR	AC-40150	South-East European Research Institute on Geo Sciences				
Multinational	AC-40120	UNIGIS International Association				
Namibia	AC-40144	Namibia University of Science and Technology				
Nepal	AC-40089	Land Management Training Centre				
Netherlands	AC-40046	University of Twente - Faculty of Geo-Information Science and Earth Observation (ITC)				
New Zealand	AC-40047	University of Otago				
Nigeria	AC-40121	ABIA State Polytechnic, ABA, Nigeria				
Nigeria	AC-40138	University of Benin				
Nigeria	AC-40140	University of Nigeria Nsukka Enugu Campus				
Norway	AC-40113	Bergen University College				
Norway	AC-40052	Norwegian University of Life Sciences				
Palestine, State of	AC-40099	Palestine Polytechnic University				
Papua New Guinea	AC-40143	Papua New Guinea University of Technology				

Country	Members hipID	Organisation	Memb	votes	22-apr	26-apr
Puerto Rico	AC-40056	Polytechnic University of Puerto Rico				
Romania	AC-40058	"1 Decembrie 1918" University of Alba Iulia				
Romania	AC-40134	Technical University Bucharest, Romania				
Romania	AC-40145	University of Oradea- Faculty of Construction, Cadastre and Architecture				
Russian Federation	AC-40060	Moscow State University of Geodesy and Cartography				
Russian Federation	AC-40094	State University of Land Use Planning				
Rwanda	AC-40131	INES-Ruhengeri				
Senegal	AC-40133	Ministry of finances and economy, cadastral office				
Serbia	AC-40097	University of Novi Sad				
Slovenia	AC-40062	University of Ljubljana				
South Africa	AC-40063	University of Cape Town				
Spain	AC-40122	University of Jaen Spain				
Sri Lanka	AC-40146	Institute of Surveying and Mapping, Sri Lanka				
Sri Lanka	AC-40135	Sabaragamuwa University of Sri Lanka				
Sweden	AC-40068	Department of Real Estate Science at Lund University				
Sweden	AC-40067	Royal Institute of Technology				
Sweden	AC-40142	University West				
Switzerland	AC-40069	University of Applied Sciences Northwestern Switzerland				
Trinidad and Tobago	AC-40085	University of the West Indies				
Turkey	AC-40071	Istanbul Technical University				
Turkey	AC-40147	Selçuk Üniversitesi				
Uganda	AC-40119	Makerere University				
Ukraine	AC-40149	National University of Life and Environmental Sciences of Ukraine				
United Kingdom	AC-40074	Oxford Brookes University				
United Kingdom	AC-40110	Real Estate and Planning, Reading University				
United Kingdom	AC-40076	Sheffield Hallam University				
United States	AC-40081	New Mexico State University				
United States	AC-40084	Texas A&M University - Corpus Christi				
	83					
CORRESPONDENT MEMBERS						
Maldives	CR-50026	Mr. Ahmed Nuaim				
Pakistan	CR-50027	Javaid Akhtar				
Tonga	CR-50017	Mr. Viliami Folau				

Country	Members hipID	Organisation	Memb	votes	22-apr	26-apr
	4					

*) to be expelled 29 May 2019

**) membership to be approved 29 May 2017

***) suspended membership

Not able to vote

2 votes

3 votes

INTERNATIONAL FEDERATION OF SURVEYORS

**FIG 41st GENERAL ASSEMBLY
6 and 11 May 2018
Istanbul Congress Center, Istanbul, Turkey**

PROGRAMME

FIG 41st GENERAL ASSEMBLY

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FIG 41st GENERAL ASSEMBLY

MINUTES

for the meetings held on Sunday 6 May 2018 and on Friday 11 May 2018
in ÜSKÜDAR Room at Istanbul Congress Center, Istanbul, Turkey

SUNDAY, 6 MAY

Sunday, 6 May, 09:00-13:00 and 14:00-16:30
ÜSKÜDAR Room, Istanbul Congress Center
General Assembly, First Session

1. OPENING PROCEEDINGS

President Chryssy Potsiou opened the 41st General Assembly by welcoming all delegates to Istanbul, Turkey and to this fourth and final general assembly of her 4-year term of presidency. The President expressed her gratitude to members and delegates for their participation. She acknowledged the hard and successful work of the local organisers from the Chamber of Surveying and Cadastre Engineers of Turkey for the Congress. Despite many challenges the local organisers have managed to organise a large and spectacular FIG congress in the beautiful city of Istanbul.

The President noted with sadness the trouble that many Africans, and especially Nigerians, have had in their attempt to get visa to attend the congress, even though the local organisers and FIG had done what they could to assist and to prepare the embassies. Unfortunately, too many were not successful and they were missed at the general assembly and congress. The President urged future local conference organising committees to be aware that it takes a lot to work with these visa issues. She did however also note that although FIG works seriously and hard to assist to get visa, still, the final decisions on granting visas is beyond the control of FIG.

The President welcomed Honorary President Bob Foster to the meeting and noted several greetings and apologies that were received from member associations and other members. There were special greetings from Honorary Presidents Holger Magel and Juha Talvitie and from Honorary Member Markku Villikka. She also asked for a moment of silence for the passing of Clifford Dann MBE, FRICS, Honorary Member of FIG, who passed away on 19 September 2017.

2. ROLL CALL

Vice President Rudolf Staiger took the roll call. The roll call was done for member associations only. It was noted that only member associations that have paid all their membership fees to the end of 2017 were allowed to vote at the meeting. A list of member associations that were not allowed to vote was published and posted on the FIG web site 16 April 2018. Some associations have after this date settled their arrears.

Appendix to items 2 & 25: Roll Call including information on the number of votings per member association and members that were not allowed to vote at the General Assembly because of unpaid membership fees for 2017 and earlier.

59 member associations out of 103 were present at this session which is more than one third of the membership needed for the General Assembly to be constitutionally valid.

Motion: Those members present are recorded in the minutes.

Decision: The motion was adopted.

3. APPOINTMENT OF TELLERS

The General Assembly shall appoint two persons as tellers for the entire General Assembly. The tellers will represent the member associations hosting the current and the following General Assembly

- Mr Muzaffer Kahveci (Chamber of Surveying and Cadastre Engineers of Turkey)
- Mr Hoang Kim Quang (Vietnam Association of Geodesy - Cartography - Remote Sensing, Vietnam)

Motion: That the General Assembly appoints Muzaffer Kahveci from Chamber of Surveying and Cadastre Engineers of Turkey and Hoang Kim Quang as tellers for this General Assembly.

Decision: The motion was adopted.

4. ADOPTION OF THE AGENDA

The General Assembly was announced as mandated, two months prior the general Assembly by email and on FIG web site, and the Agenda for the General Assembly was also published on the web site and by email to all members.

Motion: That the agenda be adopted.

Decision: The motion was adopted.

5. ADOPTION OF THE MINUTES OF THE 40th GENERAL ASSEMBLY

Minutes have been circulated previously.

The minutes and appendices are available on the FIG web site:

http://fig.net/organisation/general_assembly/agendas_and_minutes/2017/minutes.asp

Motion: That the minutes be adopted as recorded.

Decision: The motion was adopted

6. MEMBERSHIP

6.1. Admittance of new Member Associations

FIG has received one application for membership since the agenda was distributed and since the 40th General Assembly. This application was discussed at the FIG Council meeting on 4 May and council decided to bring this application forward to the General Assembly

6.1.1 General Commission for Survey (GCS), Kingdom of Saudi Arabia MA-10133

General Commission for Survey (GCS), Kingdom of Saudi Arabia has applied for association membership. The association was established in 2006. Their total membership (all categories) is 328 General Commission for Survey (GCS), Kingdom of Saudi Arabia fulfils the criteria of FIG member association.

Appendix to agenda item 6.1.1:
Application form
Objectives and Ethics

Motion: That the General Assembly admits General Commission for Survey (GCS), Kingdom of Saudi Arabia to become a member association of FIG.

Decision: The motion was adopted, and the membership certificate was handed over by FIG President.

6.2. Other Member Association Issues

6.2.1. Colegio de Ingenieros Topógrafos de Costa Rica, MA-10019

Colegio de Ingenieros Topógrafos de Costa Rica has unfortunately decided to resign from FIG. FIG thanks for their membership until the end of 2017.

Motion: That the General Assembly notes the update.

Decision: The motion was adopted.

6.3. Expulsion of member associations

Subscriptions of following member associations are more than three years in arrears:

- Mali: Ordre des Geometres Experts du Mali MA-10117

The General Assembly has power to expel from the Federation any member association whose fees are in arrears and shall under normal circumstances expel any member association whose fees are three years in arrears. (Article 4.3 of the Statutes). The FIG office has sent information to these associations informing that if their membership fees are still in arrears at the time of the General Assembly the General Assembly shall expel the above member associations in Istanbul.

Order of Land Surveyors Expert. (O.G.E.F), Algeria, MA-10001

FIG office has received payment from Order of Land Surveyors Expert. (O.G.E.F), Algeria, MA-10001 and the association will therefore not be expelled.

The Institute of Surveyors Inc. ISSL, Saint Lucia, MA-10123

FIG office has received payment from the association and The Institute of Surveyors Inc. ISSL will therefore not be expelled.

After acceptance of new member associations and before expulsions the number of FIG member associations is 103 from 89 countries.

Motion: That the General Assembly expels:

- Mali: Ordre des Geometres Experts du Mali MA-10117

From the FIG membership because membership fee has not been received.

Decision/Action: The motion was adopted.

6.4. Suspended status 2018

In accordance with its administrative measures, FIG Council, has deferred to continue for 2018 the issuance of a membership subscription invoice to the following members and FIG Council deem their membership to be in suspension:

- the Order of Syrian Engineers and Architects, OSEA as all efforts to maintain contact with them has not yielded results and will deem their membership in suspension giving due consideration to its internal situation.
- Ukrainian Society of Geodesy and Cartography
- Licensed Surveyors Association in Palestine

Iranian Professional Society of Surveying Engineers (ISS) has paid their membership fee and has now returned to normal membership status.

The situation with these associations will be reconsidered by Council again in 2019.

Motion: That the General Assembly notes the members in suspension.

Decision: The motion was adopted.

6.5. Other membership issues

6.5.1. Affiliate members

There have been two applications for affiliate membership since the General Assembly 2017.

- Danish Geo Data Agency, Denmark – AF-20063
- Ordnance Survey, United Kingdom – AF-20064

The council has expelled the following affiliate members because of unpaid membership subscriptions:

- Bahrain: Survey and Land Registration Bureau AF-20056
- Cambodia: Ministry of Land Management, Cambodia AF-20004
- Guatemala: Guatemalan Registry of Cadastral Information AF-20053
- Iraq: General Directorate for Surveying / Baghdad AF-20031

After these changes the number of Affiliate members is 43 from 41 countries.

6.5.2. Corporate members

FIG Council has admitted the following Corporate Member:

- RKSOFT Turkey (CM-30070)

FIG Council has expelled the following member due to lack of payment of membership fee:

- Qatar: Concord Surveying Works Co. CM-30048
- Sri Lanka: JKO Surveyors & Consultants (Pvt) Ltd, Sri Lanka CM-30054

After these changes the number of corporate members is now 27.

6.5.3. Academic members

FIG Council has admitted the following University to become Academic member since the General Assembly 2017:

- South East European Research Institute on Geo Science, Macedonia FYROM

The council has expelled the following 11 Academic Members due to lack of payment:

- Nigeria: University of Lagos AC-40049
- Nigeria: Nnamdi Azikiwe University AC-40050
- Russian Federation: Moscow State University of Geodesy and Cartography AC-40060
- Spain: Escuela Universitaria de Ingenieria Tecnica Topografica AC-40064
- United Kingdom: University of Nottingham Institute of Engineering Surveying & Space Geodesy AC-40078
- United Kingdom: University of West England Faculty of Built Environment AC-40079
- Mexico: Universidad Autonoma de Nuevo León AC-40101
- USA: University of Houston, College of Technology AC-40108

- Kazakhstan: East-Kazakhstan State Technica AC-40112
- Kazakhstan: Kazakh National technical University after K. I. Satpaev AC-40125
- Gabon: Ecole Nationale du Cadastre et des Sciences Geographique (ENCSG) AC-40132

The payment structure of the Academic Members was changed in 2013 so that Academic Members would be invoiced every 4 years instead of every year. The four-year payment will reward the members with a 50% discount. Academic members were invoiced in 2014, and again in 2018.

The number of Academic Members after these changes is 84 from 50 countries.

6.5.4. Correspondents

The Council has admitted the following new correspondent:

- Jean Pierre Habiyaremye, Rwanda

The number of correspondent members is now 4.

Motion: That the General Assembly notes the actions that the Council has taken with other membership matters.

Decision: The motion was adopted

7. PRESIDENT'S REPORT

President Chryssy Potsiou has prepared the President's report on the activities of the Federation since the General Assembly in Helsinki, Finland, May 2017.

Appendix to item 7: Hand-outs of the presentation

Motion: That the General Assembly accepts the President's report.

Decision: The motion was adopted

8. REPORT OF THE PRESIDENT OF THE FIG FOUNDATION 2017-2018

Mr. John Hohol, President of the FIG Foundation has prepared a report on the FIG Foundation activities from May 2017 to March 2018. He gave a short oral report to the General Assembly.

Appendix to item 8:

Report of the FIG Foundation activities 2017-2018

Result 2017

Motion: That the General Assembly adopts the report of the President of the FIG Foundation and records its thanks to the President and members of the Board of Directors of the FIG Foundation.

Decision: The motion was adopted.

9. REPORTS FROM THE DIRECTORS OF PERMANENT INSTITUTIONS 2017-2018

9.1. International Office of Cadastre and Land Records (Office International du Cadastre et du Régime Foncier) OICRF

Dr. Christiaan Lemmen, Director of OICRF has prepared a report on the OICRF activities since the General Assembly in Christchurch. He gave a short oral report to the General Assembly.

Appendix to item 9.1: Report from the International Office of Cadastre and Land Records (Office International du Cadastre et du Régime Foncier) OICRF.

Motion: That the General Assembly adopts the report and records its thanks to the members of OICRF for their past year's work and contribution.

Decision: The motion was adopted

9.2. International Institution for the History of Surveying and Measurement, Permanent Institution of FIG

Mr. Jan de Graeve, Director of the IIHSM, Mr John Brock and Mr Jim Smith have prepared a report on the IIHSM activities since the General Assembly in Helsinki. Mr John Brock gave a short oral report to the General Assembly.

Appendix to item 9.2: Report from the International Institution for the History of Surveying and Measurement, Permanent Institution of FIG.

Motion: That the General Assembly adopts the report and records its thanks to the Director and the members of the permanent institution for their past year's work and contribution.

Decision: The motion was adopted.

10. REPORTS OF FIG TASK FORCES (2015-2018)

FIG has currently two Task Forces.

10.1. Task Force on Real Property Markets

The Task Force assesses the progress of establishing the real property markets in the countries with economies in transition. The Task Force is chaired by Pekka Halme, Finnish Association of Geodetic and Land Surveyors MIL.

Appendix to item 10.1 – Status Report from the Task Force

Motion: That the General Assembly records the report from the Task Force and records its thanks to the Chair of the Task Force and its members.

Decision: The motion was adopted.

10.2. Task Force on Corporate Members

The Task Force is established to strengthen the FIG relationship with corporate members. The Task Force is chaired by John Hohol, National Society of Professional Surveyors (NSPS) in cooperation with Bryn Fosburgh, Vice President of Trimble. Mr John Hohol gave a short oral report to the General Assembly.

Appendix to item 10.2

- Status Report from the Task Force
- Hand-outs of the presentation

Motion: That the General Assembly records the report from the Task Force and records its thanks to the Chair of the Task Force and its members.

Decision: The motion was adopted.

11. REPORT FROM YOUNG SURVEYORS NETWORK

FIG Young Surveyors Network is currently chaired by Ms. Eva-Maria Unger, Austria. She gave a status report on the activities of Young Surveyors Network.

Based on the changed election structure reported at the FIG General Assembly 2017, the Young Surveyors have appointed a new Chair for the term 2019-2020, Ms Melissa Harrington, which has been approved by FIG Council.

Motion: that the General Assembly notes the report and succession plan and records a thanks to the chair for her term of office 2015-2018, and a thanks to all the many active Young Surveyors.

Decision: The motion was adopted.

12. REPORTS FROM STANDARDS AND REGIONAL CAPACITY NETWORKS 2017-2018

Each Network Chair has submitted a written report on their Network activities since the FIG Working Week in Helsinki and they all gave a short oral report on the Network activities to the General Assembly.

Appendix to item 12: Network reports:

- Standards Network (David Martin)
- Regional Capacity Network (Diane Dumashie)
 - Africa Network (Diane Dumashie)
 - Asia/Pacific Network (Rob Sarib)

Motion: that the General Assembly notes the reports and records a thanks to the chairs of the network.

Decision: The motion was adopted.

13. REPORTS FROM FIG COMMISSIONS

Each Commission Chair has submitted a written report on their Commission activities since the FIG Working Week in Helsinki. These reports include progress reports of the Commission working groups. Each Commission held a meeting during the Working Week on Tuesday 8 May, 17:30-18:30. All commissions reported at the General Assembly on their commission activities. The reports were grouped into three panels and were followed by questions and comments from the delegates.

Appendix to item 11: Commission reports and handouts:

- Commission 1
 - Working Group 1.1 - International Ethical Standards proposal on an updated code on ethics (also to be discussed during the week in session TS01A - 1.2 - Ethics and the practicing surveyor on Monday 7 May at 14:00-15:30)
- Commission 2
- Commission 3
- Commission 4
- Commission 5
- Commission 6
- Commission 7
- Commission 8
- Commission 9
- Commission 10

Areas that were commented by the general assembly were: encouragement of commission 9 to include the other commissions in the work of the blockchain technology and use for surveyors; an encouragement to the incoming commission chair for commission 10 to also have a focus

on Africa on BIM, since BIM is new in Africa but there is a big interest and engagement; and to encourage work in FIG commission 1 on women in surveying.

Two prizes for papers have been introduced.

Survey Review offers a biennial prize to a peer review paper. There will be a trial period for 2018 and 2020 In 2018 selection was among the successfully peer reviewed papers, and the winner was called to the stage by representative from Survey Review, Richard Grover. Winner was: Kwabena Asiamah (Netherlands), Rohan Bennett (Australia), Jaap Zevenbergen (Netherlands) and Seth Asiamah (Ghana): Land Valuation in Support of Responsible Land Consolidation on Ghana's Rural Customary Lands (9214). The paper was used as FIG Article of the Month for July 2018:

http://fig.net/resources/monthly_articles/2018/kwabena_etal_july_2018.asp

Last year FIG Commission 5 introduced the **NavXperience Award** that again in 2018 was given to a selected Commission 5 paper. This year's winner was: Wan Anom WAN ARIS, Tajul Ariffin MUSA, Kamaludin MOHD OMAR and Abdullah Hisam OMAR, Malaysia with the paper: Non-Linear Crustal Deformation Modeling for Dynamic Reference Frame: A Case Study in Peninsular Malaysia.

This paper was used as FIG Article of the Month for June 2018:

http://fig.net/resources/monthly_articles/2018/wan_aris_musa_et_al_june_2018.asp

The prize winners were announced at the General Assembly.

Motion: That the General Assembly adopts the reports of the Commission Chairs and records its thanks to the chairs and other officers of the Commissions for their ongoing contributions.

Decision: The motion was adopted

14. TERMS OF REFERENCE FOR GROUP TO WORK ON FIG GOVERNANCE

At the General Assembly 2017, as an outcome of the Task Force on Commission Structure, it was decided that:

Based on the Task Force Recommendations, comments and feedback from the members, the President established a new group of volunteers among the members to contribute to the definition of a Terms of Reference for a future Working Group on a review of the overall FIG Governance.

And that these Terms of Reference will be presented at the General Assembly 2018 on 6 May.

Vice President Mikael Lilje presented a draft ToR at the General Assembly for a working group to evaluate the the present governance framework and if needed propose changes that meet the future needs and expectations.

Appendix to item 14:

- Draft terms of Reference

- Hand-outs of presentation

Motion: that the General Assembly notes the Terms of Reference and Council action.

Decision: The motion was adopted. During the congress some members expressed interest in participating in the work. Council informed that participants would be invited by end of September and a face-to-face work-shop will be organised.

15. CO-OPERATION WITH THE UNITED NATIONS AND THE WORLD BANK

Since the 40th General Assembly, FIG has continued to collaborate with the World Bank and various agencies and structures within the United Nations.

The main activities in the co-operation with the United Nations and the World Bank during this period have been:

Participation to FAO and the Voluntary Guidelines, VGGT.

At FIG Working Week 2017 two special sessions, one of them being the FIG Academic Forum, were organised. The second session was about Land Consolidation

At the Congress 2018 there will be three sessions in cooperation with FAO: FIG Academic Forum a special session on Land Consolidation and a session on VGGT.

Participation to Global Land Tool Network GLTN:

- Lead of Global Land Tool Network Professional Cluster 2016-17,
- Participation in the GLTN International Advisory Board
- STDM workshop in cooperation with FIG Young Surveyors
- Expert Group Meeting on Fit-for-Purpose Land Administration in Rwanda
- Special sessions in the Congress 2018 technical programme

UN-Habitat/GLTN-Young Surveyors Volunteer Community Surveyor Programme VCSP.

VCSP is an innovative volunteer program that is a powerful driver for both social impact and professional development. The VCSP leverages on the skills, experience, talents and education of young surveyors, matches this competence with the needs of GLTN, particularly in GLTN's county level implementation plans and programs. 13 Young Surveyors from Senegal, Nigeria, Nepal, New Zealand Uganda, England, Namibia, Australia and Zimbabwe have successfully been working on GLTN Projects for 2-4 weeks in DR Congo, Kenya, Nepal, Uganda, Philippines and Zambia.

FIG Publication 52 FIG Publication no 52 The Social Tenure Domain Model - A Pro-Poor Land Tool on Social Tenure Domain Model. FIG Report, 2010.

<http://www.fig.net/pub/figpub/pub52/figpub52.pdf>

has now been translated into three languages:

Arabic: http://www.fig.net/resources/publications/figpub/pub52/Figpub52_arabic.pdf

French: https://www.fig.net/resources/publications/figpub/pub52/Figpub52_french.pdf

Japanese: https://www.fig.net/resources/publications/figpub/pub52/Figpub52_japanese.pdf

Participation to the work of UN-GGIM

- UN-GGIM-Geospatial Societies – Member
(Previously Joint Board of Spatial Information Societies JB-GIS)
- Expert Group on Land Administration
- Associate member of Sub-committee on Geodesy
- Participation at the 5th UNGGIM High Level Forum in Mexico City, November 2017
- Participation at the Seventh Session of the United Nations Committee of Experts on Global Geospatial Information Management in New York, USA, August 2017
- Participation at UNGGIM Asia-Pacific sixth plenary meeting, October 2017, Kumamoto, Japan

Participation to the work of the International Committee on Global Navigation Satellite Systems (ICG)

Participation to UN-OOSA, Co-chairing WG-D

Participation at the World Bank Conference in March 2018.

World Bank and FIG have organised two special sessions at the FIG Congress 2018.

Motion: That the General Assembly adopts the report on the co-operation between FIG and the United Nations, its agencies and the World Bank and records its thanks to all those who have contributed to this co-operation

Decision: The motion was adopted.

16. LIAISON WITH INTERNATIONAL PROFESSIONAL ORGANISATIONS

The Joint Board of Spatial Information Societies JB-GIS was formally established during the FIG Working Week in Cairo in 2005. The name was in 2017 changed to UN-GGIM-Geospatial Societies. The Geospatial Societies meet annually during the United Nations Committee of Experts on Global Geospatial Information Management meetings. The meeting of UN-GGIM-GS in 2017 was held in August 2017. The Geospatial Societies also met in Prague in August 2017.

FIG has collaborative MoUs with a number of the organizations who are part of the Geospatial Societies.

FIG has further bilateral agreements of co-operation with several other international associations like ISM, IFHP, CIB, ION, ICEC, FIABCI, IFHS, PAIGH and PAQS.

In December 2017 FIG President signed a renewed Cooperation Agreement with the International Real Estate Federation, FIABCI.

FIG is represented in the International Construction Measurement Standard Coalition by Chair of FIG Commission 10, See Lian Ong who has been appointed chair of the Standard Setting Committee. FIG is represented in the Trustee Board by the President.

FIG is represented in International Land Measurement Standard Coalition by Mr. Maurice Barbieri.

FIG Council has in 2017 decided to join the Ethics Standard Committee.

FIG is a member of the International Council for Science (ICSU) and is working together with ISO and International Valuation Standards Committee (IVSC) on standards.

CLGE and NSPS initiated the first Global Surveyors day on 21 March 2018, supported by FIG, and this was launched during the World Bank Conference in Washington.

Motion: That the General Assembly records the report on the liaison with other international associations.

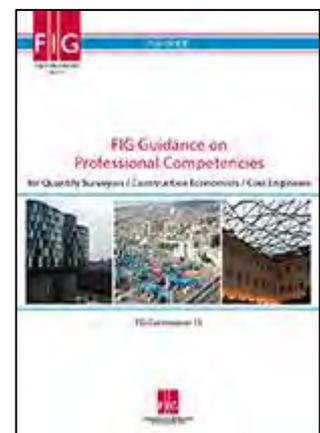
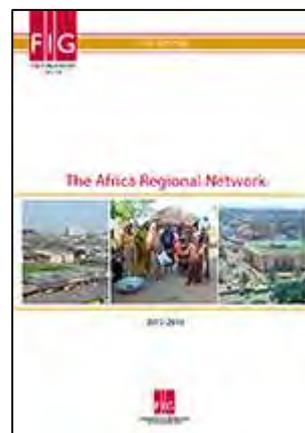
Decision: The motion was adopted

17. NEW FIG PUBLICATIONS

Two new FIG publications were presented during the Congress:

Publication 70: The Africa Regional Network 2015-2018

Publication 71: FIG Guidance on Professional Competencies for Quantity Surveyors / Construction Economists / Cost Engineers (commission 10)



The president announced that more publications were in the process to be finalised before the end of 2018.

Motion: That the General Assembly records the publications for information and records its thanks to editors and authors of these publications.

Decision: The motion was adopted.

18. FIG ACCOUNTS FOR 2017, AUDITOR'S REPORT AND BUDGETS 2018-2021

Vice President Rudolf Staiger presented the report to the General Assembly. This report includes the auditor's report from 2017, official accounts (income statement 2017) and balance sheet 31 December 2017, a summary of 2017 accounts, an updated budget for 2018 and proposals for budgets 2019-2021 and proposal for membership fees for member associations in 2020.

Appendix to item 18:

Report on Financial Issues (including 2017 accounts and budgets 2018-2021)

Annexes:

- **18A** Auditor's Report, Income Statement for 2017 and Balance Sheet at 31 December 2017.
- **18B** FIG Result 2017
- **18C** FIG Budgets 2018-2021
- **Hand-outs of the presentation**

Motion: That the General Assembly

- adopts the audited accounts for 2017,
- adopts the Finance Report, and
- adopts budgets for 2018–2021

Decision: The motion was adopted.

19. SUBSCRIPTION RATES FOR 2020

The General Assembly has to set levels of fees for member associations two years in advance of the year in which they become payable. Fees are payable in respect of each individual member up to a maximum of 5,500 members. The membership fee structure was changed in 2009. Membership fees have been discussed as part of the finance report, **appendix to item 18**.

The 2017 General Assembly approved membership fees for 2019 as follows:

Year	Per capita fee	Minimum fee	Maximum fee
2019	€4.80 per member up to a maximum of 5,500 members Member associations from countries listed by the World Bank as low-income economies or lower-middle-income economies shall pay €2.40 per member up to a maximum of 5,500 members.	25 members or €50 (whichever is greater)	5,500 members (€26,400)

The World Bank lists of the low-income economies and the lower-middle-income economies are available at: <http://data.worldbank.org/about/country-classifications/country-and-lending-groups>

The 2018 subscription fees were kept at the same level as for the years 2012-2018, and General Assembly agreed to increase the fee with 8% for 2019. Since increase has been made for 2019, Council suggest keeping this same rate for 2020.

Motion: That the General Assembly adopts following membership fees payable by member associations in 2020:

Year	Per capita fee	Minimum fee	Maximum fee
2020	€4.80 per member up to a maximum of 5,500 members Member associations from countries listed by the World Bank as low-income economies or lower-middle-income economies shall pay €2.40 per member up to a maximum of 5,500 members.	25 members or €50 (whichever is greater)	5,500 members (€26,400)

Decision: The motion was adopted

20. ELECTION OF COMMISSION CHAIRS FOR THE TERM 2019-2022 – PRESENTATION OF CANDIDATES

The General Assembly decided in 2016 to postpone the election of Commission Chairs (Elects) until 2018 due to the work that was being done by the Task Force on Commission structure. Thus, the General Assembly shall appoint Commission Chairs Elects for the term of office 12 May 2018 until 31.12.2018 and these Chairs Elects will then become Commission Chairs for the term of office 2019-2022.

Member associations have made following nominations for the open posts during the nomination period:

- Commission 1: Winnie Shiu, CSSMG, China
- Commission 3: Hartmut Müller, DVW, Germany
- Commission 5: Daniel Roman, NSPS, USA
- Commission 6: Maria João Henriques, OE-CEG, Portugal
- Commission 7: Daniel Paez, Colombian Society for Surveyors, Colombia
- Commission 8: Marije Louwsma, GIN, the Netherlands
- Commission 9: Ben Elder, RICS, UK
- Commission 10: Alan Muse, RICS, UK

One application was received late and therefore unfortunately rejected.

As there were no nominations for Commission 2 and Commission 4 Council has discussed about the situation and has decided according to the FIG Statutes that the positions will be appointed by Council.

The profile templates of each candidate were attached to the agenda and the presentation handouts to the minutes. In the first session of the General Assembly each candidate was given equal time (not more than 5 minutes) to introduce her/him and make a presentation focusing on his/her ideas and goals for developing the FIG agenda within the commission. Handouts of the presentations are attached to these minutes.

The elections will take place at the second session of the General Assembly by blind votes in on Friday 11 May 2018.

Appendix to item 20 and 27: Profiles of the candidates for FIG Commission Chairs 1.1.2019-31.12.2022

Commission 1: Winnie Shiu, CSSMG, China
Commission 2: David Mitchell, SSSI, Australia (appointed by Council)
Commission 3: Hartmut Müller, DVW, Germany
Commission 4: vacant
Commission 5: Daniel Roman, NSPS, USA
Commission 6: Maria João Henriques, OE-CEG, Portugal
Commission 7: Daniel Paez, Colombian Society for Surveyors, Colombia
Commission 8: Marije Louwsma, GIN, the Netherlands
Commission 9: Ben Elder, RICS, UK
Commission 10: Alan Muse, RICS, UK

Motion: That the General Assembly notes the presentations and decides to make the election at the second session of the General Assembly on the 11 of May.

Decision: The motion was adopted

21. ELECTION OF VICE PRESIDENTS FOR THE TERM 2019-2022 – PRESENTATION OF CANDIDATES

FIG Council has received three nominations for the two posts of FIG Vice President:

- a) Diane Dumashie, RICS, UK
- b) Alojz Kopacik, Chamber of Surveyors and Cartographers, Slovakia
- c) Jixian Zhang, CSSMG, China

The profile templates of each candidate were attached to the agenda. In the first session of the General Assembly each candidate was given equal time (not more than 6 minutes) to introduce her/him and make a presentation focussing on his/her ideas and goals for developing the FIG agenda to the General Assembly. Hand-outs of the presentations are attached to the minutes.

The elections will take place at the second session of the General Assembly by blind votes in on Friday 11 May. The elections will take place one position at a time. If there will be no absolute majority in the first voting, second vote will be organised between those two candidates that have most votes.

Appendix to item 21 and 28: Profiles of the candidates for FIG Vice President 1.1.2019-31.12.2022:

- a) Diane Dumashie, RICS, UK
- b) Alojz Kopacik, Chamber of Surveyors and Cartographers, Slovakia
- c) Jixian Zhang, CSSMG, China

Motion: That the General Assembly notes the presentations and decides to make the election at the second session of the General Assembly on the 11 of May.

Decision: The motion was adopted.

22. ELECTION OF PRESIDENT FOR THE TERM 2019-2022 – PRESENTATION OF CANDIDATES

The Council has received two nominations for the post of FIG President:

- a) Brian Coutts, NZIS, New Zealand
- b) Rudolf Staiger, DVW, Germany

In the first session of the General Assembly the candidates were given time (not more than 10 minutes) to introduce themselves and make a presentation focusing on their ideas, goals and agenda for furthering FIG's objects and global stature. The hand-outs of the presentations are attached to the minutes.

The election will take place at the second session of the General Assembly by blind votes on Friday 11 May 2018.

Appendices to item 22 and 29: Nomination templates of candidate to FIG President 1.1.2019-31.12.2022:

- a) Brian Coutts, NZIS, New Zealand
- b) Rudolf Staiger, DVW, Germany

Motion: That the General Assembly notes the presentations and decides to make the election at the second session of the General Assembly on the 11 of May.

Decision: The motion was adopted.

23. DECISION ON THE VENUE FOR FIG CONGRESS 2022 – PRESENTATION OF CANDIDATES

The FIG Congresses are organised by FIG together with a local member association. FIG will together with the local member association have full responsibility of the arrangements and of the financial result. This offers FIG better opportunities in terms of organising events and generating revenue. Therefore, the Council has to ensure that all candidates are aware of the role of FIG and split of responsibilities for organising the Congress. This General Assembly will decide on the host for the 2022 Congress.

The FIG Council has received two bids to host the FIG Congress 2022, and FIG Council thanks all bidding member associations for their special engagement and contribution to FIG.

The Council has prepared a desktop summary on the bids. In the summary report the following considerations, as laid out in the invitation documentation, are described for comparison:

- Rotation of the conferences (region);
- Country (hosting of earlier FIG events, experience);
- Member association (its activeness, commitment to FIG and to the Working Week, execution ability for local association);
- Supporting organisations (local support to the Working Week, governmental support, financial support, general support);
- Host city (characteristics and interest from congress programme point of view, host city attractiveness, host city offerings);
- Venue (price/affordability, location of venue, internet availability suitability of rooms, size of venue, structure and layout of the venue, catering, value for money, hotels nearby facilities for exhibition);
- Accessibility (flight connections, several access possibilities, security, visa issues, air fare to destination);
- Safety and security (political stability, airport safety, city safety, political stability in the country - rating must be 3 or higher);
- Proposed dates (must meet FIG requirements, Following FIG statutes, practical dates, availability of venue, other conferences at the same time)
- Technical programme (coverage of all FIG Commissions, potential partners, originality, special ideas);
- Technical tours (coverage of all FIG Commissions, originality, ideas proposed);
- Social programme (attractiveness and variety, proposals for dinners, attractiveness of offered dinners, proposals for tours, is the programme following the overall FIG concept);
- Attendance (expectation of international, regional and local attendance, realistic number of international and national participants);
- Finances (estimate of surplus and financial risks, realistic fees proposed, fees in an acceptable price range, difference between international and national fees, realistic budget, estimated revenue);
- Sponsorship (estimate sponsorship and exhibition income, proposed income, how realistic is proposed income, local sponsor offerings, sponsor interest to conference);
- Why host (reason for hosting);
- Objectives and outcomes (thought through why conference should be held at destination, difference to other destinations, short term outcome, long term outcome);
- Suggested theme (thought of possible theme that fits to local/regional situation);
- Events organised in the past three years (how experienced is the host in organising events)
- Major events planned in the proposed city (many events might affect the price level):
- Initiatives for sustainable conference environment (is host city, venue and local host paying attention to environmental issues);
- New initiatives or activities (originality – but within the overall FIG concept)
- What legacy to leave locally from the Working Week (with host, hosting city, for the surveying community)

The summary report will not give a recommendation or a preference to any candidate but it will provide useful information on each items listed above and summarise the pros and cons of each candidate to assist the member association in making their decision. The General Assembly

must note that, especially in these past years, the issue of security and financial viability has come to the fore. The purpose of the evaluation process is to maintain the continued viability, high standard and quality of the FIG Congress.

The Council has considered the bids and has decided to present the submitted bids to the General Assembly for its decision:

- a) Cape Town, South Africa, The South African Geomatics Institute (SAGI)
- b) Florida, USA, National Society of Professional Surveyors (NSPS)

The General Assembly is recommended to read the summaries and the bids carefully.

Appendix to item 23 and 30

- Summary Reports on the Bids for FIG Congress 2022 (to be added)
- Bidding documents for FIG Congress 2022:

- a) Cape Town, South Africa, The South African Geomatics Institute (SAGI)
- b) Orlando, Florida, USA, National Society of Professional Surveyors (NSPS)

At the session each candidate was given the same time (not more than 10 minutes) to make a presentation of their proposal and framework of the Congress and their bid.

Decision on the venue of FIG Congress 2022 will be made at the second session of the General Assembly on 11 May. The voting will be made by blind votes.

Motion: That the General Assembly notes the submission, the summary report and the presentations, makes its careful consideration and decision during the second session of the General Assembly on 11 May.

Decision: The motion was adopted.

FRIDAY 11 MAY 2018

Friday, 11 MAY, 08:30-10:30

**Room BEYLERBEYİ 1-2,
ICC, Istanbul Turkey**

Presidents' Meeting (by invitation only)

24. FIG PRESIDENT'S MEETING

A total of 88 delegates attended this Presidents' Meeting. At the meeting challenges facing the member associations and relations between member associations and FIG were discussed as well as experiences from the FIG Congress 2018. A separate memorandum of this meeting is circulated to the member associations.

Friday, 11 May, 11:00–12:30 and 13:30-15:00

**Room ÜSKÜDAR
ICC, Istanbul Turkey
General Assembly, Second Session and Closing Ceremony**

25. ROLL CALL

Vice President Rudolf Staiger took the roll call. The roll call was done for member associations only.

It was noted that only member associations that have paid all their membership fees to the end of 2017 were allowed to vote at the meeting. A list of member associations that were not allowed to vote was published and posted on the FIG web site 16 April 2018. Some associations have after this date settled their arrears.

At the second General Assembly 73 member associations out of 105 were present representing 91 votes. Together with observers around 400 persons participated in the General Assembly.

Appendix to items 2 & 25: Roll Call including information about number of votes for member associations and members that are not allowed to vote at the General Assembly because of unpaid membership fees for 2017 and earlier.

It is to be noted that the General Assembly at its first meeting on 6 May has appointed two representatives as tellers:

The tellers represent the member associations hosting the current and the following General Assembly

- Mr Muzaffer Kahveci (Chamber of Surveying and Cadastre Engineers of Turkey)
- Mr Hoang Kim Quang (Vietnam Association of Geodesy - Cartography - Remote Sensing, Vietnam)

Motion: Those members present are recorded in the minutes.

Decision: The motion was adopted

26. MEMBERSHIP MATTERS

During the Congress, the Council has received one application for member association membership and has decided to bring it to the General Assembly.

26.1 Afghan Surveyors Association (ASA), Afghanistan

FIG Council has received an application for membership from Afghan Surveyors Association (ASA), Afghanistan. This application was discussed at the FIG Council meeting during FIG Congress 2018 and council decided to bring this application forward to the General Assembly.

The association was established 2 April 2018. Their total membership (all categories) is 185. Afghan Surveyors fulfils the criteria of FIG member association.

Appendix to agenda item 6.1.1: Application

Motion: That the General Assembly admits Afghan Surveyors Association, ASA, Afghanistan to become a member association of FIG.

Decision: The motion was adopted, and the Afghan Surveyors Association received their membership certificate by the President.

26.2 Other membership matters

Association Professional Surveyors of Liberia was expelled at the General Assembly 2017. Liberia has now paid their remaining arrears and are therefore reinstated as member.

FIG has received the following application for Affiliate membership:

- Survey of India (AF-)
- Surveyors Council of Nigeria (SURCON)

FIG has received the following application for Academic membership:

- National University of Life and Environmental Sciences of Ukraine

The number of member associations after expulsions and admittance of new members is 105 from 91 countries.

The number of affiliate members is after the updates 45 from 43 countries.

The number of Academic members is after the update 86 from 52 countries.

Motion: That the General Assembly notes the updates

Decision: The motion was adopted

27. ELECTION OF COMMISSION CHAIRS

According to the FIG Statutes and Internal Rules the General Assembly shall elect Commission Chairs Elects. These Chairs Elect will then become Chairs of the Commissions for the next term of office, 2019-2022. Thus the General Assembly shall appoint at this meeting Commission Chairs for the term of office 1.1.2019-31.12.2022. Their respective nominating member associations have reconfirmed all nominated Chairs 2019-2022.

The decision for the candidates for Commission 1, 3, 5, 6, 7, 8, 9, and 10 took place by blind votes in one voting sheet following the FIG statutes and internal rules with the possibility to vote yes, no or blank.

Commission 1: Winnie Shiu, CSSMG, China, 84 votes
Commission 3: Hartmut Müller, DVW, Germany, 82 votes
Commission 5: Daniel Roman, NSPS, USA, 82 votes
Commission 6: Maria João Henriques, OE-CEG, Portugal, 82 votes
Commission 7: Daniel Paez, Colombian Society for Surveyors, Colombia, 85 votes
Commission 8: Marije Louwsma, GIN, the Netherlands, 80 votes
Commission 9: Ben Elder, RICS, UK, 81 votes
Commission 10: Alan Muse, RICS, UK, 81 votes

For Commission 2 council has consulted the commission and SSSI, and has appointed David Mitchell, SSSI, Australia.

For Commission 4 Council proposed to the General Assembly that Council in consultation with the commission finds a suitable candidate during the following months.

Appendix to item 20 and 27: Profiles of the candidates for FIG Commission Chairs
1.1.2019-31.12.2022

Commission 1: Winnie Shiu, CSSMG, China
Commission 2: David Mitchell, SSSI, Australia (appointed by Council)
Commission 3: Hartmut Müller, DVW, Germany
Commission 4: to be appointed by Council
Commission 5: Daniel Roman, NSPS, USA
Commission 6: Maria João Henriques, OE-CEG, Portugal
Commission 7: Daniel Paez, Colombian Society for Surveyors, Colombia
Commission 8: Marije Louwsma, GIN, the Netherlands
Commission 9: Ben Elder, RICS, UK
Commission 10: Alan Muse, RICS, UK

Motion: That the General Assembly:

- elects the Chairs Elects to commissions 1, 3, 5, 6, 7, 8, 9, 10 as described above,
- notes the appointment of the Chairs Elects to commission 2 and 4,
- appoints the Chairs Elects for Chairs for the term 2019-2022.

Decision: The motion was adopted. The General Assembly also noted the council appointment of the Chair Elect for commission 2, David Mitchell, and the fact that Council will appoint a Chair Elect for commission 4 in the coming months.

28. ELECTION OF TWO VICE PRESIDENTS FOR 2019-2022

The General Assembly has heard presentation of the three candidates for the two positions for FIG Vice President 2019-2022 at the first session.

The election took place between:

- a) Diane Dumashie, RICS, UK
- b) Alojz Kopacik, Chamber of Surveyors and Cartographers, Slovakia
- c) Jixian Zhang, CSSMG, China

The elections took place by blind votes following the FIG statutes and internal rules. The elections were done one position at a time.

Appendix to item 21 and 28: Profiles of the candidates for FIG Vice President 1.1.2019-31.12.2022:

- a) Diane Dumashie, RICS, UK
- b) Alojz Kopacik, Chamber of Surveyors and Cartographers, Slovakia
- c) Jixian Zhang, CSSMG, China

Motion: This General Assembly elects two Vice Presidents for the term 1.1.2019-31.12.2022.

Decision: In the first round Diane Dumashie got 55 votes, Alojz Kopacik 12 votes and Jixian Zhang 22 votes out of a total of 91 votes (there were 2 invalid votes). Because Diane Dumashie got absolute majority in the first round she was elected.

After the election of the first candidate there remain two candidates for the second position, and in this election Alojz got 33 votes and Jixian Zhang got 58 votes.

The general Assembly elected Ms Diane Dumashie and Mr Jixian Zhang as Vice presidents for the term 2019-2022 after they got the majority of the votes in the elections. FIG President Potsiou thanked all three candidates and their member associations for their contributions and willingness to serve FIG.

29. ELECTION OF PRESIDENT FOR 2019-2022

The General Assembly has heard presentation of the two candidates for the FIG President 2019-2022 at the first session. The election took place between

- a) Brian Coutts, NZIS, New Zealand
- b) Rudolf Staiger, DVW, Germany

The election took place by blind votes following the FIG statutes and internal rules.

Appendix to item 22 and 29: Profiles of the candidates for FIG President 2019-2022:

- a) Brian Coutts, NZIS, New Zealand
- b) Rudolf Staiger, DVW, Germany

Motion: That the General Assembly elects the President for FIG for term of office 1.1.2019-31.12.2022.

Decision: In the voting, Mr. Brian Coutts got 23 votes and Mr. Rudolf Staiger 68 votes. The General Assembly elected Mr Rudolf Staiger as President for the term 2019-2022. The President thanked Brian Coutts and NZIS for the nomination and for their willingness to contribute to and serve FIG.

30. DECISION ON THE VENUE FOR FIG CONGRESS 2022

Candidates for FIG Congress 2022 have made their presentations in the first session of the General Assembly and FIG Council has presented its evaluation. The decision will be made between:

- a) Cape Town, South Africa, The South African Geomatics Institute (SAGI)
- b) Orlando, Florida, USA, National Society of Professional Surveyors (NSPS)

The decision took place by blind votes following the FIG statutes and internal rules.

Motion: That the General Assembly decides the host and venue for FIG Congress 2022.

Decision: In the election Cape Town got 52 votes and Orlando 39 votes. The General Assembly decided that the FIG Congress 2022 will be hosted jointly by The South African Geomatics Institute (SAGI) and FIG and will take place in Cape Town, South Africa.

31. REPORTS FROM ASSOCIATION, AFFILIATE, ACADEMIC, REGIONAL BODIES, CORPORATE MEMBERS FORUM AND OTHER (IF ANY)

During the Congress the following forums and meetings were held: Member Association Forum, the Director General's/Affiliate Members Forum, Academic Members Forum, Regional Bodies Forum and Corporate Members Meeting. There were reports back from the Regional Bodies forum and Corporate Member Forum.

Appendix to item 31 - Report from:

- Regional bodies forum
- Corporate members forum

Motion: That the General Assembly records the report(s)

Decision: The motion was adopted

32. REPORTS FROM COMMISSIONS

FIG Commissions had their annual meetings, administrative meetings and technical sessions during the Congress. They reported back to the General Assembly on their activities during the Congress.

Appendix to item 32: Report from commissions

Motion: That the General Assembly records the report(s).

Decision: The motion was adopted.

33. REPORTS FROM NETWORKS, TASK FORCES, PERMANENT INSTITUTIONS, FIG FOUNDATION AND OTHER WORKING WEEK ACTIVITIES (IF ANY)

Networks, Task Forces, Permanent Institutions, FIG Foundation and others held meetings and technical sessions in Istanbul. There were reports from:

- Young Surveyors Network
- Africa FIG Regional Capacity Development Network
- Asia/Pacific FIG Regional Capacity Development Network
- FIG Foundation

Motion: That the General Assembly records the report(s).

Decision: The motion was adopted.

34. OTHER ISSUES

There were no further issues raised for discussion.

Motion: That the discussion will be recorded and the Council will consider action that will be required.

Decision: No further issues were raised.

35. REPORT ON THE FIG WORKING WEEK 2021 IN ACCRA, GHANA

Representatives from the Local Organising Committee from Licensed Surveyors Association of Ghana and Ghana Institution of Surveyors gave a presentation on preparations of FIG Working Week 2021.

Motion: That the General Assembly records the report.

Decision: The motion was adopted.

36. REPORT ON THE FIG WORKING WEEK 2020 IN AMSTERDAM, THE NETHERLANDS

Co-conference director Paula Dijkstra from the Local Organising Committee from Geo-Information Netherlands, GIN gave a presentation on preparations of FIG Working Week 2020.

Motion: That the General Assembly records the report.

Decision: The motion was adopted.

37. REPORT ON THE FIG WORKING WEEK 2019 IN HANOI, VIETNAM

Co-conference Director Trinh Anh Co from the Local Organising Committee from the Vietnam Association of Geodesy - Cartography - Remote Sensing gave a presentation on preparations of FIG Working Week 2019, and welcomed all participants warmly to next year's Working Week 2019 and to the Farewell reception.

Motion: That the General Assembly records the report.

Decision: The motion was adopted

38. PRESENTATION OF CERTIFICATES OF APPRECIATION AND CLOSING CEREMONY

FIG President Potsiou thanked FIG members and participants of the General Assembly. President Potsiou presented at the closing ceremony certificates of appreciation to the members of the local organising committee of the XLI FIG General Assembly and the FIG Congress. Special thanks were recorded the local host the Chamber of Surveying and Cadastre Engineers of Turkey and their past and current Presidents, Ertugrul Candas and Orhan Kasap, as well as to the local organising committee members Muhittin Ipek and Mizaffer Kahveci and to the Co-congress director Orhan Ercan. There was also a special thanks to the Government representatives and Municipalities that were involved in the planning and executing of the successful congress. At the closing ceremony the FIG banner was handed over by Mr Orhan Ercan, Co-Conference Director of the Congress 2018 to Mr. Trinh Anh Co, Co-Conference Director of FIG Working Week 2019. The FIG Working Week 2019 and 42nd General Assembly will be held in Hanoi, Vietnam, 22-26 April 2019.

President Chryssy Potsiou presented her closing address that summarises the findings and the main outcomes of the FIG Congress 2018. The President formally closed the 41st General Assembly of FIG Congress 2018 with the FIG Fanfare.

Appendix to item 38:

Handouts of the President's Closing Address

Closing video

CHAMBRE TECHNIQUE DE GRECE

4, RUE DE NIKIS - ATHENES 105 63

TEL. +30 210 3291200

FAX: +30 210 3221772

TECHNICAL CHAMBER OF GREECE

4, NIKIS STREET - 105 63 ATHENS

TEL. +30 210 3291200

FAX: +30 210 3221772

GENERAL ADMINISTRATION

Directorate of European Affairs &
International Relations

Tel: (+) 30 210 3291613 – 608

Fax: (+) 30 210 3291614

Email: greok@central.tee.gr

Athens, 27/11/2018
Ref. No 28664

To:

Prof. Rudolf Staiger

President of International Federation
of Surveyors (FIG)

Theme: **“Nomination of Prof Chryssy A Potsiou for Honorary President of FIG”**

Dear President,

As President of TCG, National Member Association of FIG, I wish to congratulate you for your election as the new President of FIG, to wish you a great success, and to ensure the continuous support of TCG to FIG activities in the years to come.

I also wish to propose to the FIG Council to appoint Prof Chryssy A. Potsiou, by the FIG GA in Vietnam in 2019, as Honorary President of FIG.

Prof. Potsiou has been an outstanding FIG President, the first female President in the history of FIG, as well as the first Greek President. Her long, voluntary and successful contribution to FIG since 1983 has been well appreciated both in Greece and internationally.

She has served FIG, as TCG delegate, through the following positions:

For the periods: 1994 – 1998 member of the Working Group 7.1 of FIG Commission 7; 1998 – 2002 Chair of the Working Group 3.1 “Spatial Information Management – Technical Aspects” of FIG Commission 3; 2002-2006 Chair of Working Group 3.3 “Spatial Information Management – State of the Art” of FIG Commission 3; 2004 – 2006 Vice chair of FIG Commission 3 ‘Spatial Information Management’; 2006 - 2010 she was elected for the position of Chair of FIG Commission 3 ‘Spatial Information Management’; 2007 – 2010 elected member of the FIG Council for 2 periods as ACCO representative; 2011 - 2014 she was elected for the position of FIG Vice President and chair of the FIG Task Force on Property and Housing. She currently serves following elections for the period 2015 – 2018 as the President of FIG.

As FIG President she became member of the International Advisory Board of the Global Land Tool Network (GLTN), and she was elected as chair of the International Professional Bodies Cluster of GLTN. She has also contributed to the Academic Forum of UNGGIM. Her international activity also includes a long UN contribution as elected bureau member of the UNECE Working Party of Land Administration since 2001 until 2019.

CHAMBRE TECHNIQUE DE GRECE

4, RUE DE NIKIS - ATHENES 105 63

TEL. +30 210 3291200

FAX: +30 210 3221772

TECHNICAL CHAMBER OF GREECE

4, NIKIS STREET - 105 63 ATHENS

TEL. +30 210 3291200

FAX: +30 210 3221772

Professor Potsiou has initiated joint UNECE/FIG research in the field of informal housing and real estate markets. Through all the years of her contribution she has organized more than 40 international conferences/workshops and has worked for the compilation of several FIG and UN publications, such as the FIG/UNHABITAT/GLTN publication on Informal development, the FIG publication 48 on Megacities and Spatial Information, the UNECE publication on Self-made Cities, the joint FIG/UNECE publication on Formalizing the Informal Settlements, the new FIG/UNECE Guidelines of Formalization of Informal Real Estate and the under-compilation publication on crowdsourcing in surveying. She has also been responsible for the initial organization of the Peer Review Process in FIG conferences, and chief editor for the 2008 and 2009 conferences.

As FIG President Prof. Potsiou has been committed and worked hard. She has established MoU between FIG and the World Bank, FIABCI, UIA and ECCE mainly focusing on the management of urban areas and on establishing sustainable real estate markets. Among others she has represented FIG successfully to several UN bodies and the World Bank, has supported the activities of FIG member associations, has been invited speaker and keynote speaker in international conferences, and has chaired the FIG General Assembly in an open, inclusive and democratic manner.

I hope that the FIG Council will recommend the nomination of Prof Potsiou to FIG's next General Assembly. I believe that this is a deserving recognition and I definitely look forward to a favorable decision of both the FIG Council and the FIG GA.



Ακριβές Αντίγραφο
Ο ΥΠΑΡΧΩΝ
ΤΟΥ ΤΜΗΜΑΤΟΣ ΓΡΑΜΜΑΤΕΙΑΣ

A handwritten signature in blue ink, appearing to be 'G. Stasinou'.

ΑΙΓΑΗ ΜΑΡΚΑΝΤΩΝΗ

Sincerely Yours,
The President

Giorgos N. Stasinou

**CURRICULUM VITAE
(MOHD RAZALI MAHMUD)**

NAME :	MOHD RAZALI MAHMUD	AGE :	57 YRS	
CURRENT POSITION :	PROFESSOR OF HYDROGRAPHY			
NATIONALITY :	MALAYSIAN			
TEL (H) :	+607-5204341			
TEL (O) :	+607-5530827			
TEL (HP) :	+6019-7291109			
E-MAIL :	razalimahmud@utm.my; razali.mahmud@gmail.com			
ADDRESS :	FACULTY OF BUILT ENVIRONMENT AND SURVEYING UNIVERSITI TEKNOLOGI MALAYSIA 81310 UTM JOHOR BAHRU MALAYSIA			

ACADEMIC QUALIFICATION

- 1999 Doctor of Philosophy (Surveying), University College London, United Kingdom (Title of Thesis: Precise Three-Dimensional Attitude Estimation From Independent GPS Arrays).
- 1992 Master of Philosophy (Surveying Science), University of Newcastle upon Tyne, United Kingdom (Title of Thesis: Stochastic Modelling for the Processing of Offshore Positioning Systems using Kalman Filter).
- 1986 Bachelor of Science (Honours) Surveying and Mapping Sciences, North East London Polytechnic, United Kingdom (Title of Thesis: The Development of Swathe Sounding Systems and Their Comparisons with the Conventional Echo Sounders).
- 1982 Diploma in Land Surveying, Universiti Teknologi Malaysia, Kuala Lumpur.

MEMBERSHIP

- 1994-present Member, Royal Institution of Surveyors, Malaysia.

TECHNICAL COURSES/TRAINING

International

- 1994 "Special Training on Hydrographic Surveying". University of New Brunswick, Fredericton, New Brunswick, Canada. 4 June - 1 August 1994.
- 1994 "CARIS - A User's Perspective (Training)". Universal System Limited, Fredericton, New Brunswick, Canada. 2-12 August 1994.
- 1994 "Hydrographic Training with Canadian Survey Ship (PENDER)". Canadian Hydrographic Service, Bella Bella, British Columbia, Canada. 13-29 August 1994.
- 1994 "ISAH HYDAS & CARISAH System Operator's Course". Quester Tangent Corporation, Sidney, British Columbia, Canada. 30 August - 16 September 1994.
- 2000 "Y2K Multibeam Sonar Training Course". United States/Canada Hydrographic Commission (Coastal Multibeam Working Group), Burlington, Ontario, Canada. 4-10 April 2000.

PROFESSIONAL AFFILIATIONS

- 1992-1995 Member and Secretary, Commission 4 (Hydrography), Land Surveying Section, Institution of Surveyors Malaysia.
- 1992-1995 Member, Technical Committee, ASEAN/AUSTRALIA Regional Ocean Dynamics Project.
- 1993-1995 Member, Malaysia National Hydrographic Committee.
- 1994-1995 Member and Secretary, and as Malaysian Counterpart Project Officer, Project Advisory Committee, Hydrographic Co-operation between Malaysia and Canada.
- 1999-2001 Member and Secretary, and as Malaysian Counterpart Project Officer, Project Advisory Committee, Hydrographic Co-operation between Malaysia and Canada.
- 2001 Chairman "2001 East Asia Hydrographic Symposium and Exhibition", The Legend Hotel, Kuala Lumpur.
- 2001-2003 National Delegate for Institution of Surveyors Malaysia in International Federation of Surveyors (FIG) Commission 4 (Hydrography).

**CURRICULUM VITAE
(MOHD RAZALI MAHMUD)**

2001-2014	Vice Chairman 1/Board Member, International Federation of Surveyors (FIG) / International Hydrographic Organisation (IHO) / International Cartographic Association (ICA) International Board on Standards of Competence for Hydrographic Surveyors and Nautical Cartographers.
2002-present	Editorial Advisory Board Member of Hydro International, Geomares Publishing, The Netherlands.
2005-2016	Associate Editor, Marine Geodesy Journal (An International Journal of Ocean Surveys, Mapping and Sensing, Peer Review Journal), Taylor and Francis Publishers.
2006	Session Chair on Ocean Mapping and Seafloor Characterization at The Twelfth Pacific Congress on Marine Science and Technology, PACON 2006, Yangon, Myanmar, 11-15 June 2006.
2007	Session Chair on GNSS Positioning & Moving Platform at Joint International Symposium and Exhibition on Geoinformation & International Symposium on GPS/GNSS 2007, Johor Bahru, 5-7 November 2007.
2009	Chairman "2009 East Asia Hydrographic Symposium and Exhibition", The Legend Hotel, Kuala Lumpur. Period: From 20-22 October 2009.
2009-2012	Member, Malaysia National Hydrographic Committee.
2012-2013	Member, Scientific Programme Committee of the 10 th (Jubilee) International Conference on Marine Navigation and Safety of Sea Transportation (Transnav 2013) organised by the Faculty of Navigation of the Gdynia Maritime University and the Nautical Institute from 19-21 June 2013.
2013	Member, Steering Committee, International Seminar on Hydrography: Roles of Hydrography in Marine Industry and Resources Management, Bandung Institute of Technology, 27-28 August 2013.
2016	Chairman "2016 UTM Hydrography Seminar & Exhibition", Menara Razak UTM, Kuala Lumpur. Period: From 18-19 May 2016.
2017-present	Chairman "Malaysia Steering Committee on FIG/IHO/ICA Hydrography/Cartography Programmes".
2019-2020	Member, Scientific Programme Committee of the 13 th International Conference on Marine Navigation and Safety of Sea Transportation (Transnav 2019) organised by the Faculty of Navigation of the Gdynia Maritime University and the Nautical Institute from 12-14 June 2019.
2019-2010	International Programming Council of the TransNav, the International Journal on Marine Navigation and Safety of Sea Transportation (http://www.transnav.eu).

SUMMARY OF KEY EXPERIENCE

1988-1989	Surveying Demonstrator (part-time) at the Department of Civil Engineering, Faculty of Engineering, Universiti Malaya, Kuala Lumpur.
1982-1986	Assistant Lecturer 'B', Universiti Teknologi Malaysia
1986-1992	Assistant Lecturer 'A' Universiti Teknologi Malaysia
1986-1989	On loaned to Faculty of Civil Engineering, Universiti Teknologi Malaysia, Kuala Lumpur as an academic staff and supervisor for student's training on engineering surveying.
1992-1997	Lecturer.
1997-2007	Associate Professor.
2007-present	Professor.

PROFESSIONAL RECORDS

Administrative Duties and Appointments

1991-1992	Head of Hydrographic Unit, Faculty of Geoinformation and Real Estate UTM.
1991-1993	Head of Engineering Surveying and Cadastral Laboratory, Faculty of Geoinformation and Real Estate UTM.
1992-1995	Director of Centre for Hydrographic Studies, Faculty of Geoinformation and Real Estate UTM.
1999-2003	Director of Centre for Hydrographic Studies, Faculty of Geoinformation and Real Estate UTM.
2003-2005	Head of Hydrography Group INSTEG, Faculty of Geoinformation and Real Estate UTM.
2004-2006	Chief Editor, Buletin Geoinformasi, Faculty of Geoinformation and Real Estate UTM.
2006-2008	Head of Department (Postgraduate Studies), Faculty of Geoinformation and Real Estate UTM.
2008-2012	Head of Department (Geomatic Engineering), Faculty of Geoinformation and Real Estate UTM.
2013-present	Head of GeoCoastal Research Unit GI2RG, Faculty of Geoinformation and Real Estate UTM.
2017-June 2018	Dean of Faculty of Geoinformation and Real Estate UTM.

Special Programmes and Courses

1995-2012	Programme Director and Chief Instructor for Hydrographic Surveying I or HYDRO I (FIG/IHO/ICA Category B Level, 13 programmes) and Hydrographic Surveying II (FIG/IHO/ICA
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	Category A Level, 7 programmes). Subjects' taught (a) Hydrographic Positioning, (b) Tides: Theory and Practice, (c) Hydrographic Surveys), and Law of the Sea.
2006-2008	Programme Director and Chief Instructor for "Basic Hydrographic Surveying Course" for Fugro World Wide Employees (11 courses). Subjects' taught (a) Multibeam Survey and (b) Tides and Water Level Theory.
2008	Programme Director and Chief Instructor for "International Course on Nautical Cartography for Military Survey Department of United Arab Emirates". Client: Military Survey Department of United Arab Emirates from 17 November 2008 to 12 December 2008, Johor Bahru.
2009	Programme Director and Chief Instructor for Workshop on Tides for Employees of Geokinetics from 16-19 November 2009, Johor Bahru.
2012	Programme Director and Chief Instructor for Workshop on Tidal Measurement, Analysis and Processing held for Department of Survey and Mapping Malaysia (JUPEM), and National Institute of Hydraulic Research Malaysia (NAHRIM) from 16-19 April 2012, Kuala Lumpur.
2013	Programme Director and Chief Instructor for Basic Land Surveying Workshop for Employees of Brunei Shell Petroleum Company from 2-13 December 2013, Johor Bahru..
1999-2015	Programme Director and Chief Instructor on Various Short Courses and Workshops (International): (a) Workshop on Hydrographic Surveying and AutoCAD Processing, (b) Workshop on Hydrographic Positioning & Navigation, (c) Workshop on Multibeam Surveying, and (d) Workshop on Tidal Measurement Processing & Analysis.
2016	Training Instructor for Workshop on Tidal Data Management : QA & QC. Client : Dubai Municipality, 21-25 August 2016, Dubai City, United Arab Emirates.
2017	Special Lectures on Tidal Data Theory and Processing for Employees of Department of Survey and Mapping Malaysia (JUPEM), 11-12 July 2017, Kuala Lumpur.
2017	Training Instructor for Workshop on Tidal Data Management : QA & QC. Client : Royal Navy Oman, 12-15 November 2017, Mussanah, Sultanate of Oman.
2018	Training Instructor for Workshop on Tidal Data Management for Employees of National Hydrographic Office of Oman from 29 March 2018 – 1 April 2018, Johor Bahru.

Selected Consultancy Projects

1994	Project Leader for "The Determination of Test Location for Subsurface Investigation and Testing at Johor Straits for Johor Coastal Development, Parcel C". Johor Bahru, Johor Darul Takzim.
1994	Consultant for "The Preliminary Hydrographic Surveying and Current Meter Measurements for the Development of the Proposed Independent Crude Oil Storage Terminal at Tanjung Piai". Pontian, Johor Darul Takzim.
1994	Consultant for "Hydrographic Surveying for the Application of a Floating Restaurant Site". Kukup, Johor Darul Takzim.
2004	Project Leader for "Tidal Observation and Prediction for Offshore Platform Removal Topside".
2005	Project Leader for "Bathymetry Survey for the Transportation and Floatover of BR-E CO ₂ Removal Topside".
2005	Project Leader for "Tidal Observation and Prediction for the Transportation and Floatover of BR-E CO ₂ Removal Topside".
2005	Project Leader for "Post-Dredged Hydrographic Survey for GUNTONG-E Topside".
2005	Project Leader for "Tidal Observation (Auto and Manual) and Prediction for Month of September/October/November/December 2005 and during Loadout Operation".
2008	Project Leader for "Hydrographic Survey Work at Sungai Johor and Sungai Lebam".
2008	Project Leader for "Tide Monitoring Services for BO-A CPP Topsides at SDE East Wharf", Pasir Gudang, Johor.
2008	Project Leader for "Hydrographic Survey for BO-A CPP Topsides at SDE Water Front and Approach Channel of Pasir Gudang, Johor".
2014-2015	Project Leader for "Tidal Analysis Project for PETRONAS Carigali Sdn. Bhd.".
2014-2017	External Accessor for "PETRONAS: Geomatics TPCP Assessment".

Selected Research Projects

1994	Project Leader for "The Studies on the Rate of Sedimentation at Bekok Dam using Hydrographic Technique". Research Management Centre UTM.
1995	Researcher for "The Studies on Automation in Hydrographic Surveying". Research Management Centre UTM.
1995	Researcher for "The Studies on the CARIS (Computer Aided Resource Information System) Software to Produce Hydrographic Chart". Research Management Centre UTM.
2000	Project Leader for "Multibeam Editing Technique in Producing Hydrographic Database". Research Management Centre UTM.
2000	Researcher for "Seabed Mapping from Raw Side Scan Sonar Images". Research Management Centre UTM.

**CURRICULUM VITAE
(MOHD RAZALI MAHMUD)**

- 2000 Project Leader for “Development of Hydrographic Sweeping System for Application in Ports and Protected Areas”. Intensified Research Priority Area (IRPA), Ministry of Science, Technology and Innovation.
- 2002 Project Leader for “The Development of a Low-Cost Integrated Marine Navigation System for Leisure Crafts and Small Boats”. Intensified Research Priority Area (IRPA), Ministry of Science, Technology and Innovation.
- 2002 Project Leader for “Application of Real Time Tidal Acquisition and Processing System for Hydrographic Survey and Dredging Operations”. Intensified Research Priority Area (IRPA), Ministry of Science, Technology and Innovation.
- 2012 Project Leader for “Tidal Variation During El-Nino/La-Nina Phenomenon in Malaysian Coastline”. Research University Grant.
- 2013 Researcher for “Characterisation of Benthic Communities using Acoustic Ground Discrimination”. Research University Grant.
- 2013 Project Leader for “An Approach to Improve Multibeam Snippets Data Classification for Seafloor Mapping”. Fundamental Research Grant Scheme, Ministry of Education.
- 2014 Project Leader for “Coastal Habitat Mapping using Water Column Imaging Technique”. Research University Grant.
- 2014 Researcher for “Remote Identification and Coral Reef Mapping via Acoustic Sonar and Underwater Video Observations”. Research University Grant.
- 2014 Project Leader for “Impact of Climate Change on Marine Environment of Malaysian Seas - A Remote Sensing Perspective”. Fundamental Research Grant Scheme, Ministry of Education.
- 2015 Project Leader for “Appraising Effect of Tidal Amplitude Parameter to Salt Marsh Regards to Relative Sea Level Rise (Mantee Project)”.
- 2015 Project Leader for “Impact of Climate Change on Flooding Due to Extreme Rainfall and Tidal Phenomena”. Research University Grant.
- 2016 Researcher for “Retrieving Physical Properties and Spatial Model Mapping for River Bed Sediment using Underwater Acoustic Sensor: Case Study Hulu Perak River of Royal Belum State Park”. Research University Grant.
- 2017 Project Leader “Assessing Satellite-Derived Bathymetry for Territorial Sea Baseline Delineation”, Research University Grant.

PUBLICATIONS AND PRESENTATIONS

Book

- 1996 One translation book.
- “Ukur Kejuruteraan”.
Translation to Malay from English text book entitled *Engineering Surveying : Problems and Solutions, Second edition, 1983* by F.A. Shepherd (Published by Edward Arnold Publishers Ltd., London; 370 pp).
Co-translator with Mohd Zulkifli bin Mohd Yunus.
Published by Penerbit Universiti Teknologi Malaysia.

Monograph

- 1997 “Basic Hydrography”.
Main author. Co-authors: Rusli bin Othman, Usmuni bin Din and Ahmad Shahlan bin Mardi. Faculty of Geoinformation and Real Estate UTM.
- 2005 “Tidal Theory”. Monograph, Faculty of Geoinformation and Real Estate UTM. October 2005.
- 2006 “The Development of a Low Cost Integrated Marine Navigation System for Leisure Crafts and Small Boats” Research Monograph, Penerbit Universiti Teknologi Malaysia. 195 pages.
- 2007 “Pembangunan Sistem Sapuan Hidrografi Bagi Aplikasi di Pelabuhan dan Kawasan Lindungan” Research Monograph, Penerbit Universiti Teknologi Malaysia. 220 pages.
- 2007 “Teknik Penyuntingan Berbilang Alur Bagi Menghasilkan Pangkalan Data Hidrografi” Research Monograph, Penerbit Universiti Teknologi Malaysia. 110 pages.

Journal

Selected Articles

- 2002 “Hydrography within Oceanology International”. Interview, published in Hydro International, March 2002, Volume 6, Number 2. Published by GITC bv, The Netherlands.
- 2002 “International Co-operation in Hydrographic Training”. Hydro International, Volume 6, Number 10, December 2002, GITC bv., The Netherlands

- 2003 "Hydrographic Training: Why Continuity Paramount". Hydro International, Volume 7, Number 10, December 2003, GITC bv., The Netherlands
- 2003 "We Visited for You: International Hydrographic & Oceanographic Industry 2003". Hydro International, Volume 7, Number 8, December 2003, GITC bv., The Netherlands
- 2004 "Web-Based GIS for Nautical Charts". Hydro International, Volume 8, Number 9, November 2004, GITC bv., The Netherlands
- 2004 "GIS Application for Safe Vessel Navigation (Based on Water Level)". Co-author with Norkhair Ibrahim and Chai Beng Chung. The Malaysian Surveyor, Volume 39.1, September 2004. Published by the Institution of Surveyors Malaysia.
- 2005 "Hydrography in the Far East". Interview, Hydro International, Volume 9, Number 4, May 2005, GITC bv., The Netherlands.
- 2005 "Cat A Hydro or Cat A Carto". Hydro International, Volume 9, Number 8, October 2005, GITC bv., The Netherlands.
- 2005 "International Hydrographic & Oceanographic Industry 2005". Hydro International, Volume 9, Number 8, October 2005, GITC bv., The Netherlands.
- 2006 "Keeping Up With Hydrographic Technology". Hydro International, Volume 10, Number 9, November 2006, GITC bv., The Netherlands.
- 2006 "Data Thinning for Multibeam Echo Sounding Data: Is There an Ideal Algorithm?" Voice of The Pacific Newsletter, Volume 22, No. 4, 2006, The Pacific Congress on Marine Science and Technology.
- 2007 "Hydrographic Information Databases" Hydro International, Volume 11, Number 7, July/August 2007, Reed Business, The Netherlands.
- 2009 "Turning Hydrographic Graduates into Competent Surveyors". Hydro International, Volume 13, Number 3, April 2009, Reed Business, The Netherlands.
- 2010 "In Pursuit of Marine Geospatial Data Infrastructure". Hydro International, Volume 13, Number 2, March/April 2009, Reed Business, The Netherlands.
- 2012 "Ensuring Competencies in Hydrography and Cartography". Hydro International, Volume 16, Number 5, July/August 2012, Geomares Publishing, The Netherlands.
- 2013 "Establishment of a National Hydrographic Committee". Hydro International, Volume 17, Number 1, January/February 2013, Geomares Publishing, The Netherlands.
- 2014 "Mean and Seasonal Circulation of the South Indian Ocean Estimated by Combining Satellite Altimetry and Surface Drifter Observations". Terrestrial Atmospheric and Oceanic Sciences, Vol. 25, No. 1, 91-106, February 2014 (Co-author with N. Peter Benny, Daisuke Ambe, K. Rayaroth Mridula, Sahrum Ses and Kamaludin Mohd Omar).
- 2014 "Sustainable Marine Environmental and Habitat: Whose Responsibilities?" Hydro International, Volume 18, Number 2, March 2014, Geomares Publishing, The Netherlands.
- 2014 "On the Issues of Overlapping Maritime Claims in the Far East". Hydro International, Volume 18, Number 6, September 2014.
- 2015 "Variations of Sea Level and Tidal Behaviour during El-Nino/La-Nina : An Example of Malaysian Coastline". Co-author with Mohd Hilmi Abdullah and Nor'ainat Amat. Jurnal Teknologi.
- 2015 "Northern South China Sea Surface Circulation and its Variability Derived by Combining Satellite Altimetry and Surface Drifter Data". Co-Author with Kamaludin Mohd Omar, Sahrum Ses, Mridula Kuttyattu Rayaroth and Benny Neettumkkara Peter. Terrestrial Atmospheric And Oceanic Sciences.
- 2015 "Mesoscale Surface Circulation and Variability of Southern Indian Ocean Derived by Combining Satellite Altimetry and Drifter Observations". Co-Author with Mohd Nadzri Md Reba, Mazlan Hashim, Shenbakavalli Ranjan and Benny Neettumkkara Peter. Acta Oceanologica Sinica.
- 2016 "An Application of Fuzzy Inference System to Marine Fish Landings for West Coast of Malaysia". Co-author with A. I. Hamid-Mosaku and M.S. Mohd. International Journal of Information and Decision Sciences.
- 2016 "Hulu Sungai Perak Bed Sediment Mapping using Underwater Acoustic Sonar". Co-author with Othman Zainon, Usmuni Din, Abd Wahid Rasib, Ahmad Shahlan Mardi, Zulkarnaini Mat Amin, Rusli Othman, Nurfadhilah Arriafdi and Nazam Sulaiman. Proceeding of 2016 International Conference on Geomatic and Geospatial Technology, The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences.
- 2016 "Togetherness towards the Challenging Phase", Hydro International, Volume 20, Number 2, March 2016, Geomares Publishing, The Netherlands.
- 2016 "An Evaluation of Marine Geospatial Data Infrastructure (MGDI) by Delphi-Analytic Hierarchy Process (AHP) Approach". Co-author with A. I. Hamid-Mosaku and M.S. Mohd. Jurnal Teknologi.
- 2016 "High-resolution Surface Circulation of the Bay of Bengal derived from Satellite Observation Data". Co-author with Mridula Kuttyattu Rayaroth and Benny Neettumkkara Peter. Journal of Marine Science and Technology.
- 2016 "The Potential of Mangrove Forest as a Bioshield in Malaysia". Co-Author with Noorzalinee Ghazali, Khairulazhar Zainuddin, Mohd Zainee Zainal, Hamlussalam Md Dali and Abdul Manan Samad. Proceeding of 2016 IEEE 12th International Colloquium.
- 2017 "The Unmanned System: A New Menace to the Hydrographic Surveyor Profession". Hydro International, Volume 21, Number 4, July/August 2017, Geomares Publishing, The Netherlands.

- 2017 "Satellite-Derived Bathymetry: Accuracy Assessment on Depths Derivation Algorithm for Shallow Water Area". Co-author with Najhan Md Said and Rozaimi Che Hasan. Proceeding of 2017 International Conference on Geomatic and Geospatial Technology, The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences, XLII-4/W5, 159-164. Available online: <https://doi.org/10.5194/isprs-archives-XLII-4-W5-159-2017> (Scopus indexed).
- 2017 "Variation of Chart Datum towards Maritime Delimitation due to Rising Sea Level". Co-author with Mohd Faizuddin Rahman. Proceeding of 2017 International Conference on Geomatic and Geospatial Technology, The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences (Scopus indexed).
- 2017 "Effect of Long Term Tidal Constituents on Mean Sea Level Trend During El-Nino and La-Nina Phenomena". Co-author with Nur Hidayah Md Yusof. Proceeding of 2017 International Conference on Geomatic and Geospatial Technology, The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences (Scopus indexed).
- 2017 "An Application of Fuzzy Inference System to Marine Fish Landings for West Coast of Malaysia". Co-author with A. I. Hamid-Mosaku and M.S. Mohd. International Journal of Information and Decision Sciences (Scopus indexed).
- 2017 "Fuzzy Evaluation of Marine Geospatial Data Infrastructure (MGDI) and MGDI Decisions' Criteria". Co-author with A. I. Hamid-Mosaku, M.S. Mohd, A.L Balogun and K. A. Raheem. Journal of Engineering Research, Volume 22, Number 1, June 2017.
- 2018 "Evaluating Satellite-Derived Bathymetry Accuracy from Sentinel-2A High-Resolution Multispectral Imageries for Shallow Water Hydrographic Mapping". Co-Author with Najhan Md Said and Rozaimi Che Hasan. IGRSM 2018 IOP Publishing. IOP Conference Series: Earth and Environmental Science 169. Available online: <https://doi:10.1088/1755-1315/169/1/012069> (Scopus indexed).
- 2018 "Water Column Features and Seafloor Characteristics using Simultaneous Multibeam Water Column Detection". Co-Author with K.N.A. Aziz, M.D.E.K Gunathilaka, B.N. Peter, J. Tajam, M.A. Roslani and S.A. Kamaruddin. Paper submitted to Journal of Advanced Manufacturing Technology.

Selected Papers

- 1997 "Benchmarking of Commercial Offshore GPS-Based Attitude Determination Systems". Co-author with Paul Cross and Simon Corbett. Presented at the International Symposium on Kinematic Systems in Geodesy, Geomatics and Navigation (KIS97), Banff, Canada. 3-6 June 1997.
- 1998 "Multi-Receiver GPS Attitude Determination". Presented at the GEOSCIENCE 98: Geodesy Workshop, Keele University, United Kingdom. 14-18 April 1998..
- 1999 "GPS Based Attitude Determination for Airborne Remote Sensing". Co-author with Paul Cross and Kevin Sheridan. Presented at the International Union of Geodesy and Geophysics (IUGG) Symposium, Birmingham, United Kingdom. 18-30 July 1999.
- 2001 "GPS and Mean Sea Level in Peninsular Malaysia". Co-author with Azhari Mohamed, Shahrum Ses and Abd Majid Kadir. Presented at the 2001 East Asia Hydrographic Symposium and Exhibition, Kuala Lumpur. 12-14 June 2001.
- 2002 "Optimization of Hydrographic Survey in Ports and Protected Areas using Multi-transducer System". Co-author with Muhammad Ariff Abdul Jalil. Presented at the International Symposium and Exhibition on Geoinformation 2002 (ISG02), Kuala Lumpur. 22-24 October 2002.
- 2003 "The Needs for Precision in Mapping the Seabed". Co-author with Chai Beng Chung. Presented at the International Hydrographic & Oceanographic Industry 2003: Conference & Exhibition (IHOCE'03), Kuala Lumpur. 8-10 July 2003.
- 2003 "The Benefit of GIS for the Offshore Engineering". Co-author with Chai Beng Chung. Presented at the International Symposium and Exhibition on Geoinformation 2003 (ISG03), Shah Alam, Selangor, 13-14 Oktober 2003.
- 2003 "Solving Uncertainty in the Calibration of Multibeam Echo Sounder System". Co-author with Najhan Md. Said. Presented at the International Symposium and Exhibition on Geoinformation 2003 (ISG03), Shah Alam, Selangor, 13-14 Oktober 2003.
- 2004 "Development of a Calibration Processing Tools for a Multibeam Echo Sounding System". Co-author with Najhan Md. Said. Presented at the International Symposium and Exhibition on Geoinformation 2004 (ISG04), Kuala Lumpur, 21-23 September 2004.
- 2004 "Integrated Web-Based GIS for Electronic Charts". Co-author with Cham Tau Chia. Presented at the International Symposium and Exhibition on Geoinformation 2004 (ISG04), Kuala Lumpur, 21-23 September 2004.
- 2004 "The Determination of Tidal Constituents and Prediction Based on Short Observation Period". Co-author with Hery Purwanto. Presented at the International Symposium and Exhibition on Geoinformation 2004 (ISG04), Kuala Lumpur, 21-23 September 2004.
- 2004 "General Workflow for Outliers Detection and Removal in Multibeam Echo Sounding Data". Co-author with Othman Mohd Yusof. Presented at the International Symposium and Exhibition on Geoinformation 2004 (ISG04), Kuala Lumpur, 21-23 September 2004.

**CURRICULUM VITAE
(MOHD RAZALI MAHMUD)**

- 2005 "Determination of Tidal Characteristics in Peninsular Malaysia using μ -TAPS Software". Co-author with Hery Purwanto. Presented at the International Symposium and Exhibition on Geoinformation 2005 (ISG05), Penang, 27-29 September 2005. (Invited Speaker)
- 2005 "Automatic Filtering of Far Outliers in Multibeam Echo Sounding Dataset using Robust Detection Algorithms". Co-author with Othman Mohd Yusof. Presented at the International Symposium and Exhibition on Geoinformation 2005 (ISG05), Penang, 27-29 September 2005.
- 2006 "GIS: The Key to Success in Submarine Pipeline Routing". Co-author with Chai Beng Chung. Presented at the International Symposium and Exhibition on Geoinformation 2006 (ISG06), Subang Jaya, 19-21 September 2006.
- 2006 "The Implementation of Post-Processing Data Thinning for Multibeam Echo Sounding Data". Co-author with Othman Mohd Yusof. Presented at the International Symposium and Exhibition on Geoinformation 2006 (ISG06), Subang Jaya, 19-21 September 2006.
- 2006 "GIS Application in Oil and Gas Exploration & Production Activities Based on Past Experience". Co-author with Mohd. Zukhairi bin Abd. Latif. Presented at the International Symposium and Exhibition on Geoinformation 2006 (ISG06), Subang Jaya, 19-21 September 2006.
- 2007 "Patch Test Calibration for Multibeam Echosounder System". Co-author with Kelvin Tang Kang Wee. Presented at The 13th Pacific Congress on Marine Science and Technology (PACON 2007), Hawaii, USA, 24-27 June 2007.
- 2007 "An Appraisal of Multibeam Echosounder Calibration". Co-author with M.D.E.K. Gunathilaka. Presented at the Joint International Symposium and Exhibition on Geoinformation & International Symposium on GPS/GNSS 2007 (ISG-GNSS 2007), Johor Bahru, 5-7 November 2007.
- 2007 "Effects of Inadequate Surface Sound Speed Measurements in Multibeam Echosounder System". Co-author with M.D.E.K. Gunathilaka. Presented at the Joint International Symposium and Exhibition on Geoinformation & International Symposium on GPS/GNSS 2007 (ISG-GNSS 2007), Johor Bahru, 5-7 November 2007.
- 2007 "Navigational Challenges in Limited Sea Areas". Co-author with Noorzalinee Ghazali. Presented at the Joint International Symposium and Exhibition on Geoinformation & International Symposium on GPS/GNSS 2007 (ISG-GNSS 2007), Johor Bahru, 5-7 November 2007.
- 2008 "Hydrographic Training, Research and Education at Universiti Teknologi Malaysia". Presented at the "Advance Technology in Offshore Survey Seminar and Exhibition (ATOSSE 2008)", Institution of Surveyors Malaysia, Kuala Lumpur, 18-20 February 2008.
- 2008 "Hydrographic Database for Coastal Zone – The Needs". Co-author with Masmi Mardin. Presented at the "7th International Annual Symposium on Sustainability Science and Management", Universiti Putra Malaysia, Kuala Terengganu, 8-10 June 2008.
- 2008 "Development of Interactive Nautical Chart using Geographical Information System". Co-author with Masmi Mardin. Presented at the "7th International Annual Symposium on Sustainability Science and Management", Universiti Putra Malaysia, Kuala Terengganu, 8-10 June 2008.
- 2008 "Classification of Seafloor Habitats using Acoustic Backscattering of Multibeam Echosounder Systems". Co-author with Mohamad Kelana Juwit. Presented at the 7th International Symposium and Exhibition on Geoinformation (ISG 2008), Kuala Infrastructure University College, Kuala Lumpur, 13-15 October 2008.
- 2009 "Tides and River Basin Flooding". Co-author with M.D.E.K. Gunathilaka". Presented at the 2009 East Asia Hydrographic Symposium and Exhibition (EAHSE), Kuala Lumpur, 20-22 October 2009.
- 2009 "Common Issues in the Implementation of the Marine Geospatial Data Infrastructure for Malaysia". Co-author with A.I. Hamid-Mosaku. Presented at the 2009 East Asia Hydrographic Symposium and Exhibition (EAHSE), Kuala Lumpur, 20-22 October 2009.
- 2011 "LAT and ISLW for Vertical Datum Level of Malaysian Waters". Presented at the 17th National Hydrographic Committee Meeting, Kuala Terengganu, 24-25 September 2011.
- 2012 "Modelling the Tidal Datum Variability at the Straits of Malacca". Co-author with M.D.E.K. Gunathilaka". Presented at the 11th International Symposium and Exhibition on Geoinformation 2012 (ISG2012), Kuala Lumpur, 25-26 September 2012.
- 2012 "Marine Geospatial Data Infrastructure (MGDI) Decisions: A Sine Qua Non to Ubiquitous Geospatial Solutions to Marine Applications". Co-author with A.I. Hamid-Mosaku. Presented at the 11th International Symposium and Exhibition on Geoinformation 2012 (ISG2012), Kuala Lumpur, 25-26 September 2012.
- 2012 "Latest Technologies in the Training of Hydrographic Surveyors". Presented at the RESON Asia Pacific (APAC) User Conference 2012, Singapore, 26 November 2012.
- 2013 "Hydrographic Training, Standards and the Latest Technologies". Presented at the International Seminar and Workshop on Hydrography (ISWH): Roles of Hydrography in Marine Industry and Resources Management, Batam, Indonesia, 27-28 August 2013.
- 2014 "Intelligent GIS Modelling and Implementation to Ships Calling at Malaysian Ports". Co-author with Isa Adekunle Hamid-Mosaku and Mohd Safie Mohd. Paper presented at the 9th National GIS Symposium in Saudi Arabia, under the Patronage of His Royal Highness; Governor of the Eastern Province, The High Committee of Geographic Information Systems (GIS) in the

- Eastern Province, at Sheraton Dammam Hotel & Towers, Eastern Province, Saudi Arabia, 28-30 April 2014.
- 2014 "Ceaseless Tidal Zoning for Straits of Malacca using Spatial Interpolation". Co-author with M.D.E.K. Gunathilaka. Peer Review Paper. Presented at the XXV FIG Congress, Kuala Lumpur, 16-21 June 2014.
- 2014 "Marine Activities and Delineation Zones: In the Context of Marine Geospatial Data Infrastructure (MGDI) Decision". Co-author with Isa Adekunle Hamid-Mosaku. Peer Review Paper. Presented at the XXV FIG Congress, Kuala Lumpur, 16-21 June 2014.
- 2015 "Fuzzy Analysis of Marine Fish Landings for West Coast of Malaysia". Co-author with A. I. Hamid-Mosaku and M.S. Mohd. Paper presented at 1st ICRIL-International Conference on Innovation in Science and Technology (IICIST 2015), 20 April 2015.
- 2016 "Marine Geospatial and Cartography Programme". Paper presented at the FIG/IHO/ICA International Board on Standards of Competence for Hydrographic Surveyors and Nautical Cartographers, Brest, France, 5 April 2016.
- 2016 "Principle and Challenges in Settling Disputes on Maritime Boundary Delimitation". Keynote Speaker at the 9th International Research Conference, General Sir John Kotelawala Defence University, 8 September 2016, Sri Lanka.
- 2016 "Sediment Classification from Multibeam Backscatter Images using Simple Histogram Analysis". Co-author with Rozaimi Che Hasan and Shahrin Amizul Shamsudin. Paper presented at the Hydro 2016 at Rostock Warnemunde, Germany, November 2016.
- 2017 "Implication of South China Sea Arbitration to Malaysia (Case Study: Philippine Versus China)". Co-author with Mohd Faizuddin Rahman and Mohd Hilmi Abdullah. Paper presented at The 2017 6th ICT International Student Project Conference (ICT-ISPC 2017), 23-24 May 2017.
- 2017 "Satellite-Derived Bathymetry: Optimising New Promising Technology for Low-Water Line (Baselines) Delineation". Co-author with Najhan Md Said and Rozaimi Che Hasan. Paper presented at the 9th ABLOS Conference (UNCLOS: Pushing the Limits of UNCLOS), Monaco, 9-11 October 2017.
- 2017 "Addressing the Challenges in Producing Competent Professional in Geomatic Surveying Industry". Keynote Speaker at the 15th Conference on Science and Technology, Ho Chi Minh City University of Technology, 20 October 2017, Ho Chi Minh City, Vietnam.
- 2018 "Imagery-Derived Bathymetry in Strait of Johor's Turbid Waters using Multispectral Images". Co-author with Kelvin Kang Wee Tang. To be presented at the International Conference on Geomatics and Geospatial Technology 2018, 3-5 September 2018, Kuala Lumpur.

SUPERVISION AND EXTERNAL EXAMINER

Foreign Supervision

- 2004 "POGO-IOC-SCOR Fellowship for Training on Data Management using CARIS".
Guest Lecturer : Dr. Haryono Joyosentono from Universiti Gadjah Mada, Indonesia.
Period : From 26 August 2004 – 8 November 2004.

Supervision at PhD Level

(Graduated : 4 students, On-going : 5 students)

- 2007 (graduated) "Development of Automated Data Screening and Optimal Data Thinning in Post Processed MBES Data Set". Student: Othman Mohd Yusof.
- 2014 (graduated) "Intelligent Geospatial Decision Support System for Marine Geospatial Data Infrastructure for Malaysia". Student: Hamid Mosaku Adekumle Isa.
- 2014 (graduated) "Modelling the Tidal Phenomenon at the Strait of Malacca by Spatial Interpolation". Student: Malavige Don Eranda Kanchana Gunathilaka.
- 2014 (graduated) "Mesoscale Circulation of the Bay of Bengal and Its Influence on Marine Productivity", Student: Mridula Kuttyattu Rayaroth.
- 2014 (on-going) "Strategies in the Processing and Analysis of Continuous Tidal Data Set". Student: Mohd Hilmi Abdullah.
- 2015 (on-going) "Optimisation of Satellite-Derived Bathymetry's Empirical Method for Shallow Water Hydrographic Mapping". Student: Najhan Md Said.
- 2018 (on-going) "Coastal and Shallow Water Seabed Topography Modelling using Satellite-Derived Bathymetric Approach". Student: Kelvin Tang Kang Wee.
- 2018 (on-going) "Feasibility Study and Performance of Kalman Filter Approach for Tidal Analysis and Prediction". Student: Auwal Garba Abubakar.
- 2018 (on-going) "Modelling of Shoreline Fluctuation using Geospatial Techniques in Lake Chad". Student: Alhaji Hussaini.

Selected Supervision at MSc Level

Graduated : 35 students, On-going : 4 students)

- 2005 (graduated) "Tidal Analysis from Harmonic Method using Least Squares Estimation". Student: Hery Purwanto.
- 2006 (graduated) "Effect of Monsoon Rain on Tides in Peninsular Malaysia". Student: Tan Tai Hung.
- 2011 (graduated) "Comparative Study Between Flat and Uniform Bottom Assumptions for Snippet Imageries in Hydrographic Applications". Student: Rubasingam Ragulan.
- 2012 (graduated) "Pengaruh Fenomena El-Nino dan La-Nina Terhadap Corak Pasang Surut di Malaysia". Student: Mohd Hilmi Abdullah.
- 2012 (graduated) "Development of Maritime Rescue Application System using Geographic Information System Approach". Student: Norfariza Zainal.
- 2013 (graduated) "Pitch, Roll and Yaw Estimation Based on Global Positioning System and Inertial Motion Unit". Student: Jimmy Ng Kah Ban.
- 2014 (graduated) "Comparison of Three Multibeam Acoustic Wave Path Refraction Compensation Techniques". Student: Loh Khai Xian.
- 2016 (graduated) "Penentuan Pembatasan Sempadan Maritim Berdasarkan kepada Konvensyen Undang-undang Laut 1982 (KUUL 1982): Kajian Kes Melaka dan Negeri Sembilan". Student : Zakaria Abdullah.
- 2016 (graduated) "Simultaneous Water Column Detection and Seafloor Characteristics using Multibeam Echo Sounder System". Student: Khairul Naim Abd Aziz.
- 2016 (graduated) "Variability of Surface Circulation and Biological Productivity in Southern Indian Ocean – in a Remote Sensing Perspective". Student: Shenbakavalli a/p Ranjan.
- 2016 (graduated) "Integrated Marine Mapping System using Advanced Multibeam and Mobile Laser Scanner". Student: Khairul Hazwan Hussin.
- 2018 (on-going) "Variation of Chart Datum towards Maritime Delimitation due to Rising Sea Level". Student: Mohd Faizuddin Abd Rahman.
- 2018 (on-going) "GIS Modelling of Flood in Kelantan due to Extreme Rainfall and Tidal Phenomenon". Student: Nur Hidayah Md Yusof.
- 2018 (on-going) "Optimal Technologies for Determination of Deformation in Offshore Environments". Student: Noor Safaruddin Kamaruddin.
- 2018 (on-going) "Offshore Structure Modelling and Dimensional Control Survey by Unmanned Aerial Vehicle (UAV) Photogrammetry". Student: Tham Siew Kee.

Supervision at BSc Level

Graduated : 120 students

External Examiner

- 2007 "Study of Chart Datum and its Impact Towards National Baseline Point". Student (MSc in Civil Engineering) : Zaaim Hasan (Universiti Kebangsaan Malaysia).
- 2014 "Spatial Multicriteria for Land Suitability of Sustainability Hillside Development: A Case Study of Penang Island". Student (PhD in Civil Engineering): Imtiaz Ahmed (Universiti Teknologi PETRONAS).
- 2014 "A Spatial Decision Support System (SDSS) for Sustainable Tourism Planning in Cameron Highland". Student (PhD in Civil Engineering): Mansir Aminu (Universiti Teknologi PETRONAS).

PhD student under International Mobility Programme : Najhan Md Said

International Mobility (inbound), programme under the sponsorship of LabexMER, Université De Bretagne Occidentale (UBO) at the Institute Universites European De La Mer (IUEM), Brest, France from 25 August to 24 December 2017. Supervised by Dr. France Floch (IUEM) and Dr. Sophie Loyer (SHOM).



**PERSATUAN JURUUKUR TANAH BERTAULIAH MALAYSIA
(PEJUTA)**

ASSOCIATION OF AUTHORISED LAND SURVEYORS MALAYSIA

Presiden:
Dato' Dr Haji Mohd Zaid Abdullah
Naib Presiden :
Siew Siew Weng
Setiausaha Agung:
Haji Shahrudin Musa
Bendahari:
Md Rodi Ismail

Our ref : PJTBM/MISC/2018/6B/17 (868)

BY EMAIL

3 September 2018

Dr Chryssy Alex Potsiou
President
International Federation of Surveyors, FIG
Kalvebod Brygge 31-33
DK-1780 Copenhagen V DENMARK

Dear Chryssy,

NOMINATION OF FIG COMMISSION 4 CHAIR

- **Professor Mohd Razali Mahmud**
University of Technology Malaysia

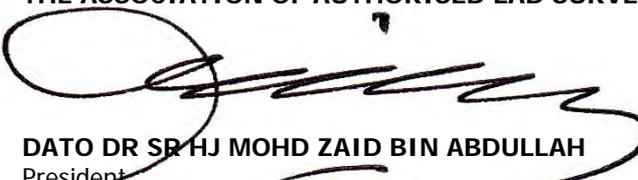
The Association of Authorised Land Surveyors Malaysia (PEJUTA) is supportive of the efforts of FIG in promoting the profession to meet the expectations of the global society. We were informed that until the FIG Congress 2018 in Istanbul, Turkey the chair of the FIG Commission 4 – Hydrography is still vacant.

Hence, PEJUTA is pleased to nominate **Professor Mohd Razali Mahmud**, from the University of Technology Malaysia to be the Chair of FIG Commission 4 from 2019 – 2022. Please find his Curriculum Vitae as attached. PEJUTA will also be providing financial assistance to cover his travels and accomodation expenses in discharging his duties as chair of commission 4.

PEJUTA is also hopeful this nomination is successful. We believe that with his background he could contribute significantly to the progress of FIG.

Thank you.

Your faithfully,
THE ASSOCIATION OF AUTHORISED LAD SURVEORS MALAYSIA


DATO DR SR HJ MOHD ZAID BIN ABDULLAH
President

...2/-

c.c.

- 1) The Chairman of Land Surveyor Board Peninsular Malaysia
- Dato' Mohd Noor bin Isa

- 2) Chief Executive Officer of Land Surveyor Board Peninsular Malaysia
- Tuan Haji Ismail bin Harun

- 3) University of Technology Malaysia
- Prof. Dr. Mohd Razali Mahmud

- 4) Immediate Past President PEJUTA
- Mohammad Azmi Mohd Zin

Income Statement for 1 January - 31 December 2018 for the FIG Founda

	<u>2018</u>	<u>2017</u>
	<i>EURO</i>	<i>EURO</i>
Donations		
Personal donations.....	1.032	1.374
Other donations.....	10.000	10.642
FIG Conferences.....	21.650	24.320
Financial income.....	<u>(1.980)</u>	<u>641</u>
Total Income	30.702	36.977
Expenses		
Grants.....	<u>(51.898)</u>	<u>(15.190)</u>
Total Expenses	(51.898)	(15.190)
Final Result (Deficit)	<u>(21.196)</u>	<u>21.787</u>

Balance Sheet at 31 December 2018 for The FIG Foundation

	2018	2017
	<i>EURO</i>	<i>EURO</i>
<u>Assets</u>		
Current assets:		
Receivables:		
Account receivable, FIG.....	236.568	257.608
Other receivables.....	0	1.155
Cash at hand and bankaccounts.....	3.181	3.181
Total current assets	239.749	261.944
Total assets	239.749	261.944
<u>Equity and liabilities</u>		
Equity:		
Equity at the beginning of the year.....	260.945	239.158
Retained earnings.....	(21.196)	21.787
Total equity	239.749	260.945
Liabilities:		
Other debt.....	0	999
Total liabilities	0	999
Total equity, reserves and liabilities	239.749	261.944

**Report to the 42nd General Assembly
FIG Working Week 2019, Hanoi, Vietnam
FIG Foundation
Report of Activities 2018**



The FIG Foundation

1. Administration

The FIG Foundation is located in and administered by the FIG Office in Copenhagen.

A Board of Directors chaired by the President of the FIG Foundation makes the decisions of the Foundation.

The Board of Directors for 2018 was as follows:

- John Hohol, President of the FIG Foundation (USA)
- Prof. Michael Barry, Director (Canada)
- FIG Vice President Orhan Ercan, (Turkey)
- Ms Winnie Shiu, Director (PR China)
- Mr Daniel Steudler, Director (Switzerland)

2. Programmes with Corporate Members

FIG Foundation Partners

Charter Foundation Partner Trimble Navigation continues to support the FIG Foundation by sponsorship of the FIG Foundation Dinner since 2010 and providing other support directly through the Foundation.

3. Meetings 2018

The board held its official meeting in Istanbul, Turkey during the 2018 congress week. Apart from the board members the Charter Foundation partner Trimble, represented by William Marbell, were present at the meeting. Furthermore, the board has been in frequent contact through emails.

FIG Foundation introduced to FIG Council and Commission Chairs (ACCO) a FIG Commission Publication Author Support Grant of up to 28,000 EUR over a maximum of four years. These grants are aimed at increasing FIG Publications by authors who reside in low-income, lower-middle or upper-middle income countries, and contributing to the implementation of part of a Commission's Working Plan. The grant was published on FIG web site and through FIG Newsletter: http://fig.net/figfoundation/2019_commission_grant.asp

4. Grants 2018

For 2018, two different grants were offered, an academic research grant and a PhD grant.

For the academic research grant FIG Foundation has received four applications, however they were all rejected due to the fact that they did not fulfil the requirements.

FIG Foundation received four applications for PhD. grant, of which one was accepted: Mr Bruno Lot Tanko, Nigeria, for his research project on “Roadmap for Implementing Value Management (VM) in the Nigerian Construction Industry”.

Mr Bruno Lot Tanko has received EUR 4,000 and he can receive an additional grant of EUR 3,000 to enable him attend and present his published paper if it will be accepted as peer review paper.

In 2018 the FIG Foundation awarded grants totalling EUR 14,234 to Young Surveyors to participate in the Congress Week in Istanbul, Turkey

The three Young Surveyors were:

- Jean-Pierre Habiyaremye (Rwanda)
- Ana Julia Herrera Gonzalez (Costa Rica)
- Mudit Kapoor (India)
- James Quick (United Kingdom)
- Cemre Sahinkaya (Turkey/Munich)

Ms. Melissa Robert, Uruguay was approved a grant in 2018 of 8.835 EUR to support her attendance at various conferences in which she has promoted and informed about FIG and FIG Young Surveyors. At the same time FIG and FIG Foundation extend a special thanks to Ms Melissa Roberts for her work on the promotion of FIG in the Latin American area.

CLGeGL, Italy has received a grant of EUR 5,000 as support for their Summer School.

Together with UN-Habitat/Global Land Tool Network (GLTN) the FIG Young Surveyors introduced a new pilot programme in 2017 – Volunteer Community Surveyor program (VCSP). This programme made it possible for young surveyors to apply for an exchange and to contribute to projects that GLTN is involved in at country levels implementing land tools. This project went from October 2017-April 2018 and was supported by FIG Foundation with in total 5,000 EUR. Expenses were included in the 2017 accounting, however most of the expenses were held in 2018.

Three Young Surveyors Regional meetings were supported by FIG Foundation. The 2nd FIG YSN Asian-Pacific meeting in Japan, the 3rd FIG Young Surveyors meeting in US and the inaugural Young Surveyors meeting in Africa, Botswana were supported each with 5,000 EUR.. Two participants/volunteers were supported to attend the ESRI User conference – co-sponsored by Young Surveyors and FIG Foundation.

Finally, at its meeting in 2017 FIG Foundation agreed to invest in a video performance on how to apply for applications. Too many applications have been received that did not fulfil the criteria and it is the hope that this video can help and inspire to receive better applications to the Foundation, but also to help in general with grant application writing. Part of the costs were covered in 2017 and the rest in 2018. The videos are posted on the FIG Foundation web site and is available on the FIG Youtube channel.

How to write a one-page grant: <https://www.youtube.com/watch?v=gO7ZFjB0XgI>

How to write a grant proposal: <https://youtu.be/g9kgPU3ceRE>

At the same time a general intro video about FIG was made.

In total **51,898 EUR** was spent in 2018.

5. Donations in 2018

	EUR
Registrations Congress+donation and charity run	21,650.00
Voluntary donations at the Congress	350.00
Other donations/Trimble	10,000.00
Personal donations	682.00
These donations were given by:	
Jürgen Dold, Vice President Hexagon	
Teo CheeHai, FIG Honorary President	
Bob Foster, FIG Honorary President	
Interest 2018	1,081,00
Various expenses (video production)	(3,061)
<u>Total Income FIG Foundation 2018</u>	<u>30,702.00</u>

In total FIG Foundation received donations of in total 350 EUR made through the registration to the Congress. Thanks to:

Name	Country	Donation
Brock John Francis	Australia	100
Grover Richard	United Kingdom	50
Dijkstra Paula	Netherlands	25
Smejkal David	Czech Republic	25
Camilleri Randolph	Malta	
Wergeland Steinar	Norway	
Willams-Wynn Christopher David	South Africa	
Ahmed Yusuf	Nigeria	
Andersen Birgitte	Denmark	
Andersen Soeren Ladegaard	Denmark	
Bank Emin	Turkey	
Dabiri Thomas	Nigeria	
Golubev Vladimir Victorovich	Russian Federation	
Hardos Jan	Slovakia (Slovak Republic)	
Henriques Maria	Portugal	
Ironside Simon	New Zealand	

Ivan Gyula	Hungary
Keenan Ryan	Australia
Kopacik Alojz	Slovakia (Slovak Republic)
Markus Bela	Hungary
Mccutcheon Robyn	Australia
Mulol Richard	Congo, Democratic Republic of the
Nyarubaji Odetha Vianney	Tanzania, United Republic of
Okada Kengo	Japan
Soro Ziessouhe Nanga	Cote D'Ivoire
Stuedler Daniel	Switzerland
Varga Felician	Hungary
Yacouba Dagnoko Hamed	Cote D'Ivoire

Thanks to all who have contributed to the Foundation.

6. Grants 2019

Again for 2019 the call for Academic Research Grants and the FIG Foundation PhD Scholarships were published.

The FIG Foundation Academic Research Grants provide grant of up to 40,000 EUR spread over four years. The conditions are that applicants shall be based in a surveying/geomatics academic programme that teaches surveying in a country listed by the World Bank as a low-income, lower-middle or upper-middle income economy. Deadline was 1 March 2019.

The FIG Foundation PhD Scholarships will be provided of up to 4,000 EUR to PhD students. Successful applicants will qualify for a further grant of up to 3,000 EUR to attend and present a peer reviewed paper at a FIG conference. Conditions are that applicants shall be studying for a PhD degree and registered solely in a surveying/geomatics academic programme that teaches surveying in a country listed by the World Bank as a low-income, lower-middle or upper-middle income economy. Deadline was 1 February 2019.

7. Accounts 2018

The income statement for 2018 and the balance sheet at 31 December 2018 are attached to this report.

The total income in 2018 was 30,702 EUR and expenses 51,898 which gives the net result of (21,196) EUR.

The total assets are 239,749 EUR.

The FIG Foundation would like to sincerely thank all those who have generously donated in 2018 in support of the FIG Foundation.

The FIG Foundation would also like to sincerely thank Trimble Navigation for their generous contribution and support of the FIG Foundation over these many years.

John Hohol

President of the FIG Foundation

April 2019

Web page: www.fig.net/figfoundation

Appendix to item 14
Report to the 42ND General Assembly
FIG Working Week 2019, Hanoi, Vietnam

Africa FIG Regional Development Network (ARN)
Report of Activities 2018

1. Overview and Purpose

This is the Chair's report, during the last year of the term 2015- 18, on the workshop activity of the Africa FIG Regional Network (ARN), in 2018.

The key purpose of ARN is to enable the surveying profession in Sub Saharan Africa to deal with social responsibility in terms of contributing to achieving the UN Sustainable Development Goals (SGDs). In this regard, the role of the surveyors as change agents engaging with the politicians is important.

The Africa Network through workshop activities will consider and present new and creative tools and other means to revitalise and strengthen Land professional members within Sub Saharan Africa. The focus will be led by FIG Member Associations to build the capacity of the surveying association and individual surveyors to act as agents of positive change and encourage the process of development and growth for the benefit of Africa and its people.

This is the final year of this ARN term, the next 2019- 2022 we are so pleased to welcome to hand over the leadership to the newly elected chair, Jennifer Whittal (UCT) and Peter Newmarch (SAGI) who we are sure will continue to strive to optimise and **continue the network's deliberations in Africa.**

Key workshop activities undertaken in 2018

2. Cooperation

Central to the activities of the ARN is the cooperation and collaboration with a range of stakeholders, including FIG Member Association, the Young Surveyors Network and Corporate members.

This year (2018) we cooperated specifically with ESRI-Southern Africa to hold our annual ARN capacity development workshop their support both financially and with cutting edge content enabled a highly successful workshop at the Tlotlo Hotel and conference Centre in Gaborone, Botswana.

3. 2018 Seminar organisation

Every year, ARN partners with an African FIG member to host the ARN workshop activities. In 2018 the opportunity arose to cooperate with Botswana Institute of Geomatics (BIG).

The Networks terms of reference allowed for 3 workshops throughout the period 2015-2018, and it is with great and sincere thanks to President Jakoba Kgopolelo of the Botswana Institute of Geomatics who proposed and led on this additional ARN gathering.

The BIG conference “Geo-spatial Technology Impacts: Shifting the Paradigm IN Africa” was held in Gaborone Tlotlo Conference Centre, Botswana 17-19th October 2018. It innovatively was based on a 3 day template providing 2 days of morning roundtables, and 2 afternoons of participatory workshops.

Importantly the conference was preceded by the 1st African Young Surveyors meeting, that sought to deliberate on their own administrative issues; but also crucially a one day workshop titled: **“Fitting Africa’s Needs: The Young Surveyors in a Smart World”** The full report can be seen here [[Link TO YSN REPORT](#)]

Welcomed by President Jakoba Kgopolelo, the ARN conference high profile opening included the delivery of key notes and welcome speeches from Mr Tshepo Mophuting the Deputy Permanent Secretary from the Ministry of Land Management, Water and Sanitation services, with Dr D Dumashie providing an overview of FIG and highlighting the importance of our Members work in Smart Cities [[Link to ddd presentation](#)]

The ARN workshop brought together a record 100 land professionals drawn from Botswana land professionals and also a range of professionals from the FIG family from across the continent including a particularly large contingent from Zimbabwe (great to see you all!), as well as attendees from West and Southern Africa.

The conference focus on Smart Cities in the context of SDG11 was coordinated by BIG President, Jakoba Kgopolelo, Lopang Maphale and Olebogeng Molefhi. The afternoon participatory workshops were designed by Vice President Diane Dumashie who facilitated the training workshop assisted by Carsten Bjornsson (ESRI Southern Africa); Importantly ARN collaborated with the Africa Young Surveyors, supported on this occasion by Kwabena Asiana, Lore Kelvin Sereetsi, Jakoba Kgopolelo and significantly although not able to attend, Sam Kingsley.

Finally, Emma and Lone, staff of BIG ensured the workshop progressed smoothly, and who were indispensably on logistical arrangements prior and during the workshop.

4. 2018 Seminar deliberations

The workshop focus concentrated on the theme Smart Cities, and the role of the African Geomatics Professions within it. Specifically, the impacts of the ever changing geospatial technologies and how they can be utilised to best contribute to the challenges and opportunities of the Sustainable Development Goals. It appealed to those wishing to have an understanding of the emerging global trend in Smart cities and how this interfaces with land governance and our role.

The tone was set in the opening morning’s key notes, in particular the Deputy Permanent Secretary highlighted the important role of the private sector working with government, emphasising the government’s ambition to continue to engage; but with demands comes certain responsibilities – notably, expectations must be clearly considered by all parties.

Ultimately we know that as land professionals there is a need to shift our own paradigm of skills and working; we understand the need to act to ensure our relevance in the fast changing technological world.

The framework to achieve the deliberations used interactive panel discussions that stimulated and set the conference scene, complimented by some remarkable presentations, and followed by participatory workshop, we explored the need to shift- understood our context- thought how we engage- and importantly how we may deliver geospatial technologies.

The conference was coordinated by the masters of ceremonies, Lopang Maphale. In her opening key note presentation, Diane Dumashie posed two questions that became the focus of the afternoon deliberations. As President Jakoba Kgopolelo reminded us, this is a Working- workshop, with lively inputs needed (and given) by the participants.

In the context of SDG11 - Smart cities and Sustainability, the highlights from the ARN 2 day deliberations follows:

On workshop Day 1 - **In the context of governments:**

The conference unfolded with a dynamic plenary session on the role of African government in advancing Geospatial Technologies that are fit for purpose. Our panellists: Peter Newmarch, Abednico Maphuru, Carsten Bjornsson, and Chris Williams-Wynn provided a platform for lively debate including thoughts around:

- Recognising the need to engage with politicians, but given that their political tenure/ time horizon is relatively short; there is a need to engage with the civil servants,
- Noting that around the world, there are increasing declarations from cities that they are to become 'smart'; we need to understanding and clarify what Smart means, it requires clear definition if the public and private sectors are to address the arising urbanisation issues
- If Smart cities in our Africa context means: **a 'way of enabling modernisation and natural development'** we need to proactively work toward this agenda such as outlined in the **Smart Africa - Strategic Vision**.

Working in response to question one, *"As a profession do we do enough to be part of this [Smart city] reality?"*

Working in groups this question was unpacked, **'Agenda for Actions'** were devised, with further work using rapid assessments, followed by presentations and rapid critique within the market place in order to form the basis of work in the second day.

On workshop Day 2 - **In the context of Smart Cities**

With enthusiasm and momentum created from the previous day, the conference went straight into progressing our deliberations, with an opening plenary focusing on shifting the paradigm to develop African Smart Cities and Communities. The panellist included Diane Dumashie, Jakoba Kgopolelo, Maje-Maje and Muhammad Mansur Kabir. They provided thought leadership in what it means to develop and plan smart cities. The subsequent Q& A discussion concluded:

- It is clear that an African model is needed, and importantly the conference considered that there is momentum across the continent for this to evolve by involving multiple stakeholders drawn from civic society, government and the private sector.
- Importantly this evolution considered for the first time, the *interconnectivity of the City: with Smart Villages*.

- The opportunity is for our profession to be the voice of geospatial technologies; but can our Member Associations truly lead the way?

To address the second question ***“What is the shift required in our profession?”***

The afternoon participatory workshop started with Carsten Bjornsson (ESRI Southern Africa) providing a detailed presentation designed to excite, prompt and engage our thoughts. Carsten provided a detailed insight into the importance of geospatial technologies with the impactful range on offer. True to the workshop theme, GIS underpins city planning in all aspects: Data gathering, data analysis, Data design involving and bringing community along at every step.

We discovered important **pointers including ESRI’s Africa Geo portal, SMART Africa cities blue print and Open Street Mapping**, Kevin (Botswana) and Willy Frank Sob (Cameroon) provided an over view of this initiative, spearheaded across the continent by Willy; but led in Botswana by Kevin- they explained an amazing application of this **tool to the full range of the SDG’s (with the exception of SDG 14-** watch this space).

Armed with this thought provoking knowledge, in their groups participants designed **‘rapid’ infographics to illustrate** what shift is required in our profession as it relates to City themes such as transportation (intelligent road networks, connected cars and public transport), public utilities (smart electricity, water and gas distribution), education, health and social care, emergency services, and public safety.

During the plenary presentations, these were overviewed by Carsten Bjornsson (ESRI), noting that the groups had successfully:

- Understood the multiplicity of smart city planning,
- Clear beginnings to focus on where our professional relevance truly lies in various aspects of geospatial technologies, and
- And, certainly grasped the application of geospatial technologies- that importantly we own in our professional discipline

The workshop outcome: Engaging and participation is an important design feature of the ARN workshops, accordingly our deliberation steered us to the question, ***“Are we being smart enough, about being smart?”***

Our deliberations suggested that we did gain confidence, that our skill set is in evidence and, that there is also still much to do, including:

- Clear messaging and articulating our skills,
- Keep our skills relevant with continuous professional development,
- Being ‘brave’ to go into new areas, with the right professional development, and to be adaptive and agile.

Above all,

- Identify what could the role of our respective Member Associations be. Can they strategies to engage?

The workshop outcome is to **challenge each of our participating Member Associations:**

- To draft an engagement strategy over the up coming months,

- To be presented at the next ARN meeting, to share lessons learnt and ideas within our network
- **Noting that we as Individual professionals , it is our support within our own respective Associations is apramount to progress this further.**

BIG organsied a further day tour to the Department of Surveys and Mapping (Ministry of of Land Management, Water and Sanitation services) kindly hosted by Abednico Maphuru, Deputy Director. The departmnet staff generously gave their time to show the group, the Botswana modern project, LAPCAS (Improvement of Land Administration, Procedures, Capacity and Systems in Botswana) to see the department structure and processes, the cadastral information systems and the land information system plot and Plan module. It was rounded of by a lovely ceremony of appreciation from the Deputy Director to FIG. On behalf of all, Vice President Diane Dumashie gave her sincere thanks to the Department.

In addition, BIG ensured rest and relaxation and organised a further tour to wind down at the Mololodi Nature Reserve where they hosted a special traditional braai and a fantastic sunset game drive to view giraffe, zebra, deer, roe buck and a tortoise!

5. Workshop Closing remarks

This was the last workshop that Diane Dumashie chaired, her closing remarks are transcribed:

"The network is about equipping Land professionals to better contribute to society, to do this requires professionals to understand, adapt and embrace the future. Within the **SDG's** and having ethics underpinning everything that Land professionals do this workshop has considered the opportunity land professionals could make.

"I am so pleased to have shared with you the deliberations around this topic. I am so pleased to see your enthusiasm and demonstrative will to grasp this subject, and I hope you will all continue to step up to the challenge. For our profession will need to be proactive in this continually evolving geospatial technological world.

My sincere thanks to, President Jakoba Kgopolelo of the Botswana Institute of Geomatics, his team, Olebogeng, Lopang, Emma and Lone and those other behind the scenes with whom we have not met.

And, it is with great pleasure to welcome and hand over to Jennifer Whittal as our new ARN chair; and I look forward to continue to be involved as a participant so active in the Africa region. It has been a wonderful to make new friends, meet existing friends and make new ones.

Dr Diane Dumashie FRICS

FIG Vice President

Chair Africa FIG Regional Development Network 2015-18

**Report to the 42nd General Assembly
FIG Working Week 2019, Hanoi - Vietnam**

FIG Asia Pacific Capacity Development Network

Report of Activities 2018-19 (Term 2019-22)

1. General

The first discussions of the FIG Asia Pacific Capacity Development Network (AP CDN) occurred in response to the FIG Pacific Small Island Development Symposium (SIDS) - Suva Statement on “Spatially Responsible Governance”, held in Lami Bay Suva – Fiji, September 2013. Since then members of FIG, the FIG Corporate sector, and several of our sister organisations have formed an active network of specialists and experts to develop the geodetic and geospatial capacity in the Asia Pacific region, and to also assist countries to establish fit for purpose geodetic infrastructure that supports responsible land governance.

Over the last few years, the work plan for the FIG AP CDN has been focused on (a) addressing the technical geodetic and geospatial challenges, and (b) advocating how geospatial information can influence the socio and economic issues being faced today. The network’s success in delivering these remits, and to convene reference frame in practice workshops, seminars and meetings, is primarily due to the will to succeed, significant collaboration and relationship building with professional surveying bodies and like-minded agencies, developing geodetic capacity, and the alignment or harmonisation of geodetic wants and needs with the broader objectives of a country’s government.

2. Steering Committee

The sustainability of the FIG AP CDN relies on a very dedicated steering committee, which comprises of members from various agencies and countries:

- Dr. Matt Amos – International Association of Geodesy (IAG), Land Information New Zealand
- Mr. Neil Ashcroft – Leica Geosystems Singapore
- Ms. Rosamond Bing – Pacific Geospatial and Surveying Council Chair, Tonga
- Mr. Graeme Blick – UN Sub-Committee on Geodesy (UN SCoG), Land Information New Zealand
- Ms. Allison Craddock – UN SCoG Education Training Capacity Building, IGS USA
- Dr. John Dawson – UN GGIM AP, Geoscience Australia
- Mr. Nic Donnelly – FIG Commission 5, Land Information New Zealand
- Mr. Viliami Folau – Tonga
- Ms. Sharafat Gadimova – UNOOSA International Committee on GNSS (ICG), Austria
- Ms. Meizyanne Hicks – Pacific Geospatial and Surveying Council Vice Chair, Fiji
- Mr. Andrick Lal – Pacific Community Geoscience Division

- Mr. Mikael Lilje – FIG Vice President
- Mr. Basara Miyahara – UN GGIM AP, Geospatial Information Authority of Japan
- Mr. Gerry Ong – Vice President ASEAN Flag, Singapore
- Mr. Asakaia Tabua – Surveyor-General, Fiji
- Ms. Molly Powers-Tora – Pacific Community Geoscience Division
- Mr. Randolph Vicente – President ASEAN Flag, Philippines
- Mr. Rob Sarib – Surveying and Spatial Sciences Institute (Australia) and Chair of FIG AP CDN

3. Cooperation

The activities of the AP CDN have occurred through cooperation with individuals or the working groups or affiliated with our sister organisations, such as - International Association of Geodesy (IAG); UNOOSA - International Committee on GNSS (ICG); UN GGIM AP; and UN SCoG.

In addition, there have been numerous professional associations and government based agencies who have worked collaboratively with the AP CDN, namely - Pacific Geospatial Surveying Council, Pacific Community - Geoscience Division, Geoscience Australia, Bureau of Meteorology (Australia), Land Information New Zealand (LINZ), Geospatial Information Authority of Japan, JUPEM - Department of Survey and Mapping, Malaysia, Ministry of Lands & Natural Resources – Tonga, Ministry of Lands and Mineral Resources – Fiji, ASEAN Flag country members, Surveying and Spatial Sciences Institute (Australia), New Zealand Institute of Surveyors, Fiji Institute of Surveyors, and the Japan Federation of Surveyors.

4. Events

The significant FIG AP CDN workshops, seminars and meetings for the 2018 - 19 were:

- Pacific Geospatial Surveying Council meeting and Legal Policy and Frameworks Workshop (facilitated by UN GGIM AP) in Tonga - April 2018
- Reference Frame in Practice Seminar “Vertical and Dynamic Datums” (organised by FIG Commission 5) at the FIG Congress Istanbul, Turkey – May 2018
- FIG AP CDN Special Forum and meeting at the FIG Congress Istanbul, Turkey – May 2018
- Reference Frame in Practice “Operational Aspects of GNSS CORS” (jointly hosted with UN GGIM AP, FIG Commission 5, and the Fiji Government) in Suva, Fiji – September 2018
- UN GGIM AP Plenary and UN SCoG meetings at the United Nations World Geospatial Information Congress in Deqing, China – Nov 2018

Upcoming events in 2019 that the FIG AP CDN will participate in are:

- Reference Frame in Practice Seminar “Regional Reference Frames” (organised by FIG Commission 5) at the FIG Working Week in Hanoi, Vietnam – 20 / 21 April 2019
- Special sessions jointly hosted with the UN GGIM AP and UN SCoG at the FIG Working Week in Hanoi, Vietnam – 22 to 26 April 2019
- UNOOSA ICG and Fiji Government Workshop on the Applications of GNSS in Suva, Fiji – 24 to 28 June 2019

- Reference Frame in Practice Seminar “Positioning and GNSS CORS Infrastructure” at the South East Asia Survey Congress (SEASC) in Darwin, Australia – 15 to 18 August, 2019
- Capacity Building Workshop in conjunction with IAG / IUGG / GGOS / UNOOSA in Buenos Aires, Argentina – September 2019
- UN GGIM AP Plenary and UN SCoG meetings at the 2019 GEO Ministerial Summit in Canberra, Australia – November 2019

5. Communication and publications

Reports on the outcomes / activities from events, as well as news and publications, can be found at the FIG AP CDN website - http://www.fig.net/organisation/networks/capacity_development/asia_pacific/index.asp

Please note, the support and assistance from the FIG Office to organise events, and to manage and administer the AP CDN webpages is greatly appreciated.

6. Work-plan, Future Activities and Challenges

The FIG AP CDN in 2019, from a work-plan perspective will continue to -

- Expand the network of geospatial and surveying professionals so as assist with the capacity development of surveyors to manage the regional issues and trends affecting geospatial information and infrastructure.
- Support the creation of regional capacity building plans for Asian and Pacific countries and encourage the alignment of such plans with agency strategic goals; national objectives; and UN initiatives.
- Facilitate capacity development initiatives for the Asia Pacific Reference Frame (APREF) in conjunction with the UN GGIM AP Working Group 1 – Reference Frames.
- Provide advocacy to Asia and the Pacific geodetic (and geospatial) community through workshops, technical and professional advice, a website, and active attendance to meetings or events in the regions.
- Contribute to relevant UN initiatives pertaining to the development of geodetic (and geospatial) capabilities and infrastructure. Initiatives such as the Integrated Geospatial Information Framework, and Global Geodetic Reference Frame.
- Maintain and enhance the profile of the FIG in Asia and the Pacific.

In addition to the above, the FIG AP CDN will also endeavor to review and update the existing FIG Publication 64 – Reference Frames in Practice Manual. This activity will be done in conjunction with FIG Commission 5, and will also incorporate a chapter about the findings and workings of the FIG AP CDN.

FIG Commission 1 – Professional Standards and Practice

Work Plan 2019–2022

1. Title

Professional Standards and Practice.

2. Terms of Reference

- Professional practice, legal aspects and organisational structures;
- Codes of ethics and applications;
- Changes to society and ways of working and the corresponding impacts on professional practice;
- Community perceptions and understanding about the surveying profession, in particular on gender issues;

3. Mission Statement

The mission of Commission 1 is to:

- Establish a set of ethics principals that fits the surveying profession
- build the capacity of professionals to adapt to changing circumstances. Changes are affecting the operation of surveying practices, their management and their professional structures under the challenges of widening professional activities and a changing world;
- create a community of practice to share knowledge about professional standards and practice challenges and responses by surveying professions;
- build links to regional and world structures for surveying professionals that focus on issues around professional standards and practice;
- support professional surveyors by providing tools and approaches to dealing with common practice issues;
- develop individuals as professional surveyors and provide opportunities for them to continue to develop as part of the surveying community.

4. General

Commission 1 will continue the work carried forward from the last term on international boundaries, implement the International Ethics Standards in the international context and to set up Women in Surveying Network.

The Commission will liaise with the FIG Standards Network, the Young Surveyors Network and other Commissions as required in order to continue the work of those groups.

5. Working Groups

Working Group 1.1 - International Ethics Standards

Chair: Gary Strong, RICS, London gstrong@rics.org

Background:

This Working Group was formed in 2015, subsequent updates of the progress of the work had been reported at the FIG Working Weeks / Congress since 2016. A publication of International Ethics Standards (IES) by International Ethics Standards Coalition (IESC), which was established in the United Nations in 2014, was published in Dec 2016. More than 120 professional institutes, including FIG, have joined the IESC as members.

Policy Issues:

- To study ethics within the surveying profession and prepare proposals how to respond to the competition to market the profession as ethical for current and future generations;
- Surveying professionals practice in a variety of work environments increasingly internationally and are required to respond to constant changes ethically in how they deliver services. This creates challenges to them in how they practice and challenges on how to adapt to change; and
- Identifying and sharing new ethical ways of working from around the world will provide practical examples of ways others have successfully adapted and will build a set of case studies of change.

Specific Project(s):

- To promote the current and future role of ethics in surveying;
- To develop implementation plan for the International Ethics Standards (IES) published by the International Ethics Standards Coalition (IESC) in Dec 2016, and to review the results after the implementation by individual member associations;
- To participate on behalf of FIG as a member of the IESC and to gather results and identify the best practice examples of the implementation of IES for specific surveying cases from the members of the IESC upon the implementation of the IES;
- To review, based on the results of the best practice examples, if the Ethical Principles in the 'Statement of Ethical Principles and Model Code of Professional Conduct published in 1998' (FIG Publication No. 17) should be revised and replaced by the IES.

Workshop(s):

- Participation in FIG Working Weeks and other major FIG events with dedicated technical sessions and/or workshops as appropriate.

Publication(s):

- International Ethics Standards by IESC in 2016 – FIG and many member associations accredited;
- Revised FIG Ethical Principles in 2022

Timetable:

- Round table discussion on the implementation of IES in FIG Working Week 2019 in Hanoi Vietnam
- Report on the results of implementation of IES in FIG Working Week 2020 in Amsterdam
- Report on review of the FIG Ethical Principles of the 'Statement of Ethical

Principles and Model Code of Professional Conduct' published in 1998 (FIG Publication No. 17) in FIG Working Week 2020 in Amsterdam Holland.

- Plenary session for IES, once the best practice examples are identified with practical applications to the surveying profession, in FIG Working Week 2021 in Accra Ghana.
- Case study guidance in 2020-2024.

Working Group 1.2 Women in Surveying

Chair: Robyn McCutcheon

Background:

During the period from 2015-2018, the WG asked the question: Are women still underrepresented in the surveying industry? The results of our research have indicated that this is still the case.

The outcome from the study showed that there has been little change in the participation of women in the surveying profession and that there is some resistance to changing the ratio of male to female representation in certain areas of the profession, for example, in the makeup of panels of keynote speakers at conferences and seminars.

The WG confirmed in the 2018 Working Week in Istanbul that there is a need and/or demand for a Women in Surveying Network and the Working Group on Women in Surveying will look into how to implement this.

Policy Issues:

Therefore we have concluded that a policy is required to ensure that there is equal representation of females and males in all FIG arenas. The WG proposal is to present a policy statement to the FIG council to ensure a series of recommendations that came out of the previous WG are applied in FIG.

Goals:

The proposed action is to continue to build the women in surveying network using the tools available, online social media, meetings at FIG events, online seminars and education. We propose to collaborate with the other commissions, especially the Young Surveyors.

Actions:

To change the attitudes of the profession to having women participate, to make the profession more attractive and approachable to women, not only young women, but women looking for a long term career choice.

An action plan for getting more women into surveying, for making women more obvious in the industry/profession, for raising respect for women in surveying and for taking the tokenism out of women in surveying

The list of actions are:

- actively promote women in the industry,
- address the hidden bias towards women,
- address the lack of gender diversity

How to do this? By ensuring that we have:

- equal numbers of women on boards,
- equal numbers of women on keynote panels during conferences and seminars,
- continued support for Women in Survey network in FIG,
- recognition of women in the industry

Measure:

The success of the policy will be measured in future FIG gatherings.

Timetable:

- Setting up the network as soon as possible using the social media tools;
- Collaboration with other Women in Surveying Networks;
- Creating the policy recommendation to present to the FIG council – in the first year – 2019;

- In the 2nd and subsequent years reporting on the success of the proposed policy.

Working Group 1.3 International Boundary Settlement and Demarcation

Chair: Dr. Haim Srebro

Background:

The Working Group will continue the work of Working Group 1.4 initiated and led by Haim Srebro, in the 2011-14 Work Plan, which led to the FIG Publication 59: “International Boundary Making”, and will continue the work of Working Group 1.3 led by Don Grant in the 2015-18 Work Plan to publish a supplementary to FIG Publication 59 dealing with international boundaries on unstable ground.

Policy issues:

- To deal with theoretical, methodological, legal aspects and analysis of practical cases in international and national boundaries;
- To investigate and report on the long-term definition, delineation, demarcation, documentation, maintenance, recovery and stability of international land and maritime boundaries;
- To liaise with FIG Commissions 4 and 7 on matters of common interest.

Activity:

Workshop in a dedicated technical session at the 2020 FIG Working Week in Amsterdam, Netherlands

Publications:

- International Boundary Making, FIG Publication 59 in 2013
- International Boundaries on Unstable Ground, Supplementary to FIG Publication 59
- Maritime Boundaries

Timetable:

- International Boundaries on Unstable Ground, Supplementary to FIG Publication 59 in 2019
- Maritime Boundaries in 2022
- Final report at the FIG Congress 2022

6. Co-operation with Other Commissions and organisations

Collaboration with other Commissions related to education, training, women rights, cadastre and marine boundaries, FIG Standards Network and Young Surveyors Network.

7. Co-operation with United Nation Organisations, Sister Associations and other Partners

In addition to supporting FIG participation in various international standards coalitions such as;

- a. International Property Measurement Standards (IPMS) – through Commission 9;
- b. International Ethics Standards Coalition (IES) – through Commission 1;
- c. International Construction Measurement Standards (ICMS) – through Commission 10;
- d. International Land Measurement Standards (ILMS) – through Commission 7;
- e. New for 2018/19, co-operation and engagement in International Fire Safety Standards (IFSS) supported by the UN & World Bank through Commission 1.

Commission Officers

Commission Chair:

Sr Winnie SHIU
Chief Land Surveyor
Lands Department
23/F North Point Government Offices
333 Java Road
North Point
HONG KONG SAR, CHINA
Tel: +852 23095000
Email: shiuwinnie@yahoo.com

Vice Chair (Administration and Communication):

Gary Strong
Director of Practice Standards & Technical Guidance
Royal Institution of Chartered Surveyors (RICS)
Parliament Square
London
UNITED KINGDOM
Tel + 44 20 7695 1522
Fax + 44 20 7334 3712
Email: gstrong@rics.org

WG 1.1 International Ethical Standards

WG Chair:

Gary Strong
Director of Practice Standards & Technical Guidance
Royal Institution of Chartered Surveyors (RICS)
Parliament Square
London
UNITED KINGDOM
Tel + 44 20 7695 1522
Fax + 44 20 7334 3712
Email: gstrong@rics.org

WG 1.2 Women in Surveying

WG Chair:

Robyn McCutcheon

Data manager

SIBA

Melbourne

AUSTRALIA

Tel. + 61 411 401 759

Email: robyn.mccutcheon@gmail.com

WG 1.3 International Boundary Settlement and Demarcation

WG Chair:

Dr. Haim Srebro

Director Mapping & Boundaries

Co-Chair JTE,

Israel-Jordan Joint Boundary Commission

Tel Aviv

ISRAEL

Tel. +972 506221400

Email: haim.srebro@gmail.com

Sr Winnie SHIU

Chair, FIG Commission 1

www.fig.net/commission1

January 2019

FIG 42nd General Assembly

Hanoi, Vietnam 22-26 April 2019

FIG Commission 1 – Work Plan 2019-2022

FIG Commission 2 – Professional Education (5/1/19)

Work Plan 2019 – 2022

1. Title

Commission 2 - Professional education

2. Terms of Reference

- Professional surveying education (vocational, higher and academic education) curriculum development.
- Professional surveying education (vocational, higher and academic education) learning and teaching methods and technologies
- The role of professional education and its relation to the public sector, private sector and professional organizations.
- The domain of professional surveying education (continuing professional development).
- Knowledge transfer in education and training, , and via existing academic networks.

3. Mission statement

Promote good practices in professional surveying education by:

- Exploring the needs of society and endorsing universities and other educational organizations to develop mechanisms and processes that will help to meet those needs.
- **Methods and content of education:** To support and promote advances in learning and teaching methods and content of curricula with special emphasis on the impact of technology and learning styles on education (outcome – report on state of education).
- **Knowledge sharing.** Promoting sharing of advances in professional education, research in surveying education and training and initiate joint projects (curriculum development, educational material development, joint courses, quality assurance etc.). Improving dissemination of information on educational theory and practice to the members across the world via existing academic networks. (outcome – special issue of journal, seminars/conferences).
- **Supporting capacity building** for surveying education in the developing world, through strengthening knowledge transfer (including collaboration with UN-GGIM, GLTN, RICS and

- academic networks). (outcome – regional knowledge sharing)
- **Cooperation with other professions.** Reinforcing cooperation with Educational Commissions of International Organisations on the related professions.
 - **Continuing Professional Development.** Encourage improved surveying practice through the promotion of continuing professional development (CPD) and the practical application of research, help surveyors continuously to update their academic and professional profiles.

Key priorities include becoming a more active Commission, a focus on worldwide professional education, supporting the education continuum in surveying education, and preparing land professionals for new challenges.

4. General

FIG Commission 2 is the domain of professional surveying education. The traditional core areas for the commission are: 1) curriculum and core surveying body of knowledge, 2) teaching and learning methodology, 3) marketing and management of professional education and 4) accreditation and quality assurance. During the 2011-2014 term Frank (2008, 2012) and Greenfeld (2010, 2012) centred on the understanding of the surveying core body of knowledge. Developments and discourse justified the broadening of the scope of FIG Commission 2 from surveying education to educating the land professional (Enemark & Williamson, 2004; Enemark, 2008, 2009, 2010; Magel et al. 2009; Mitchell & Enemark, 2008).

During the 2015 -2018, FIG Commission 2 built on the above work focusing on the following themes (i) *Becoming an active Commission*, (ii) *Professional education world-wide*, (iii) *the chain of professional surveying education*, and (iii) *towards educating the land professional*. A key publications from this term were Masum et al (2017) focusing on Bridging the Gap between Demand for and Supply of Professional Education, and Groenendijk (2017) reviewing the VGGTs in the curriculum¹ (next step in this research is to research the gaps in the implementation and adoption of the VGGTs in the curriculum).

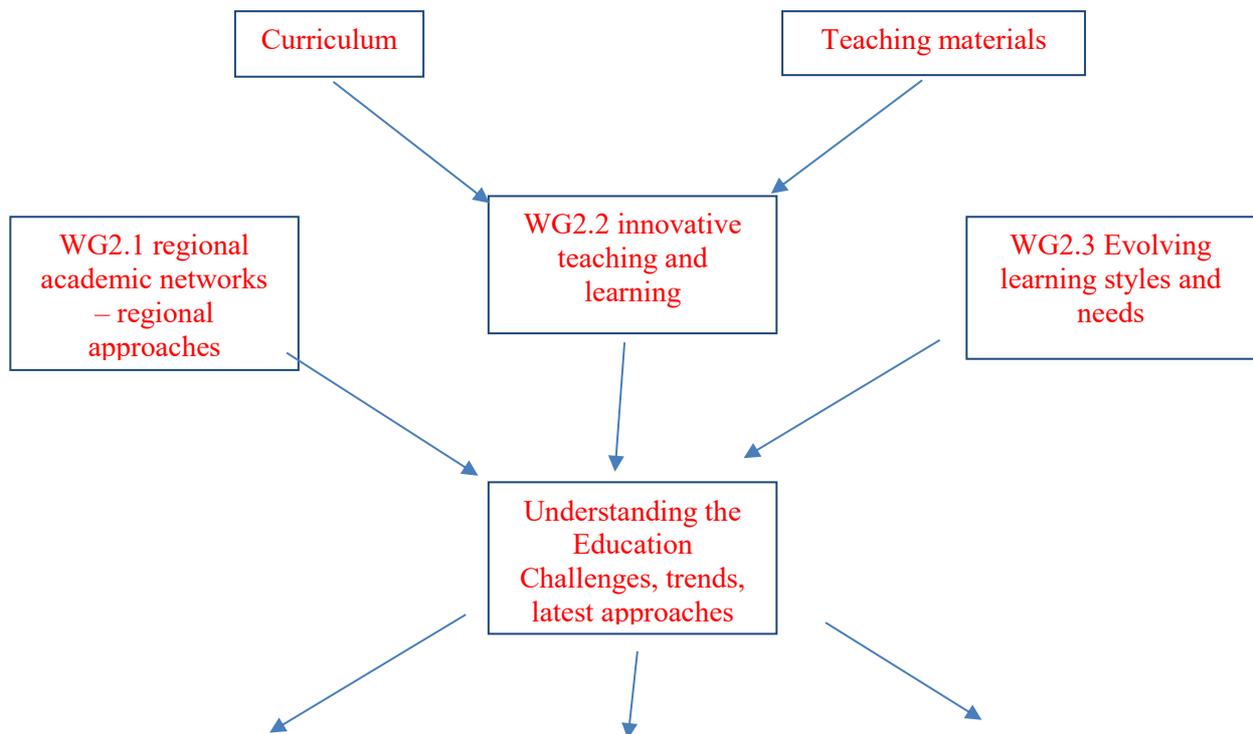
Innovative learning and teaching has always received major attention in FIG Commission 2. This is reflected in the work of Enemark (2004, 2007, 2009; Enemark & Gallant, 2012) promoting innovative teaching and learning approaches in surveying education, in particular project- and problem-based learning. E-learning, open learning and knowledge management achieved major attention by Markus (2005, 2008, and 2010). The work on e- learning resulted in the most recent publication by FIG Commission 2: FIG Publication No. 46. Enhancing Surveying Education through e-Learning. Markus (2010) mentioned the following two challenges for FIG Commission 2 that are still highly relevant to consider: ubiquitous learning and open education. For the new term these will be embraced and further explored.

¹ Case study approach where the members of the Academic Forum Working Group “Exploring the VGGTs in Practice” were invited to send a description of their education programs. A template was used to guide the case description. This paper concluded that many academic institutions have shown a keen interest in the VGGTs in its education scope and potential, and it can be used to reach each level of Blooms taxonomy to understand and question a range of land issues.

There has been a noticeable trend in recent years, particularly in English speaking countries, of a declining population of surveyors and the need to attract promising young surveyors into surveying (Frank, 2010). Various approaches and recruiting tools have been developed and shared during recent FIG Commission 2 events.

Developing educational and skills qualifications of surveying professionals and technicians is one of the other main concerns for FIG Commission 2. For some countries this is of more concern than others. In the United States ABET is used to allow standard recognition of educational surveying qualifications (Frank, 2007, 2009, 2010). In the United Kingdom, RICS has developed educational criteria that allow universities to assess the suitability of their curricula to the professional needs (Plimmer, 2003; Frank, 2010). With the rapidly changing surveying profession it is a continuous challenge to maintain a system of standardization. The former chair of FIG Commission 2 has worked intensively on defining educational surveying qualifications and in relation to the core surveying body of knowledge and learning and teaching methodologies (Frank, 2012).

For its new term, 2019 -2022, FIG Commission 2 will continue to build on the work carried out by the former commission chairs. FIG Commission 2 has developed for the term 2019 – 2022 the following focus areas. These will be discussed and worked out in concrete actions during the first Commission 2 meeting in 2019:



Report on Professional Surveying Education Challenges, trends, and latest approaches (methods and content of education)

Regional Capacity Development and Knowledge Sharing. Cooperation with other professions

Regional training and CPD

In addition to the specific activities above, Commission 2 will support and contribute to FIG Task Forces, Permanent Institutions and Networks, in particular to the Young Surveyors Network, the OICRF and the FIG Foundation.

5. Working groups

The work of FIG Commission 2 is organized in xx working groups. Each of the working groups represents an area of focus in professional surveying education. During the four-year term of office workshops at least one Commission 2 workshop will be organized. Ideally, each planned event will focus on one or more themes from a working group.

Working group 2.1 – Developing academic networks for knowledge sharing

Experience has shown that regional networks of academic institutions supports knowledge sharing in areas of education, research and capacity development.

Objectives

- To share knowledge and good practices in surveying curricula and programs across educational institutions and across countries – especially through existing and newly created academic networks.
- Contribute to the final Commission 2 report on professional education.
- To seek feedback from these academic networks on changes in curricula and approaches to professional education that respond to the changing nature of the surveying profession.
- To discuss and describe core competences (knowledge, skills and attitudes) for the education of future land surveyors and land professionals.
- Exploring the needs of society and endorsing universities and other educational organizations to develop mechanisms and processes that will help to meet those needs.
- **Knowledge sharing.** Promoting sharing of advances in professional education, research in surveying education and training and initiate joint projects (curriculum development, educational material development, joint courses, quality assurance etc.). Improving dissemination of information on educational theory and practice to the members across the world
- **Supporting capacity building** for surveying education in the developing world, through strengthening knowledge transfer (including with UN-GGIM, RICS and regional academic networks).
- **Cooperation with other professions.** Reinforcing cooperation with Educational Commissions

of International Organisations on the related professions.

Chair

Dr.Dimo Todorovski (Netherlands): d.todorovski@utwente.nl

Co-chairs

TBA

Contributing partner – GLTN.

Specific projects

1. The University of Twente, Faculty ITC, has been actively involved in the initiation and strengthening such networks of academic institutions. Examples are the existing Eastern Africa Land Administration Network (EALAN), as well as lastly initiated Latin America Land Administration Network (LALAN). Within the framework of these networks, short courses, tailor made trainings, seminars and regional workshops are performed in order to strengthen education and build capacities required in particular region. During these activities, existing curricula are presented with aim to update and further develop the existing one, and this is a fruitful platform for new initiatives sharing and experience exchange.
2. Leveraging off these networks this WG can conduct a questionnaire of academic members in these networks to find out the regional perspectives of curriculum needs and teaching materials etc (supporting WG2.2). Perhaps also learning styles (supporting WG2.3)
3. Collaboration with the Training and Research Cluster of the Global Land Tool Network (GLTN) on a Knowledge Base on Responsible Land Administration. Involve FIG as a partner in the development, piloting and dissemination of the GLTN Knowledge Platform on Responsible Land Administration. Under this project 6 Modules have been developed to first draft stage and the focus in 2018 is on moving them towards online publication and freely available. FIG can add value and as a GLTN partner I am sure we can discuss adding the FIG badge to the output for example. We would work with GLTN to move this forward (Cluster co-chair Eugene Chigbu of TUM).
4. Possible engagement with: Diane Dumashi as overall chair of the FIG Regional Capacity Development Network, Jennifer Whittal is the incoming chair of the FIG Africa Regional Network and is developing a Network of Academic Institutions in all of Africa, Robert Sarib for Asia/Pacific, as well as Eugene Chigbu (Co-lead of GLTN Training and Research Cluster). There is a strong opportunity to coordinate the activities of Commission 2 working Group 2.1, FIG Africa Regional Network, EALAN, NELGA, and the GLTN rollout of the Responsible Land Administration Knowledge Base.

The working group will further be involved in developing initiatives to support professional

education at other levels than the academic education, such as the level of polytechnics and vocational training institutions.

Strengthening knowledge management and organizational learning in FIG and its members will be a theme for this working group. The use of OICRF, Surveying Reference Library and Surveying Education database, as a knowledge and learning platform for FIG will be explored and further developed. This will be done together with the responsible members and the FIG Secretariat. The new FIG website is an important factor in this initiative.

Workshop

- Developing Academic Networks Workshop within FIG 2020; in Amsterdam the Netherlands.
- Similar workshop during the FIG Working Week in 2021.
- The final report presented and discussed at the Congress in 2022.

Publication(s)

- Contribute a chapter on the role of regional academic networks to the Commission 2 report on surveying education.
- Developing Latin America Land Administration Network (LALAN); for FIG 2019 (or FIG 2020)

Time table

☐ The report is the major output of this working group and will be a 4-year project.

Beneficiaries

☐ Higher education institutions, national associations, governments, international governing bodies, cadaster and land registration organizations; chartered surveyors, private surveyors and FIG Corporate Members.

Working Group 2.2 – Innovative learning and teaching / "Curriculum on the Move"

Extend the work done by Commission 2 in the previous term which focused on Europe. This align with aspects highlighted in Masum et al (2017) "Enhancing the Role of Surveyors: Bridging the Gap Between Demand for and Supply of Professional Education". the working group completed a draft by December 2017, with key papers published in a peer reviewed journal late 2018.

Objectives

- To exchange and promote good practices in teaching and learning methodologies in professional education of the surveying and land professional. The aim is to capture the very best teaching that our members are doing and not currently writing about.
- increase our understanding of the challenges and trends and innovation in professional education.
- Contribute to the final Commission 2 report on professional education.
- Exploring the needs of society and endorsing universities and other educational organizations to develop mechanisms and processes that will help to meet those needs.

- **Methods and content of education:** To support and promote advances in learning and teaching methods and content of curricula with special emphasis on the impact of technology and learning styles on education.
- **Knowledge sharing.** Promoting sharing of advances in professional education, research in surveying education and training and initiate joint projects (curriculum development, educational material development, joint courses, quality assurance etc.). Improving dissemination of information on educational theory and practice to the members across the world.
- **Continuing Professional Development.** Encourage improved surveying practice through the promotion of continuing professional development (CPD) and the practical application of research, help surveyors continuously to update their academic and professional profiles.

Chair

Mohsen Kalantari (Australia) (mohsen.kalantari@unimelb.edu.au)

Co-chairs TBC...

Other members - William Kelly (University of Glasgow)
Contributing partner – UN-GGIM Academic Network.

Specific projects

This working group will encourage members to publish and present on innovative learning, teaching and technology (both as used in industry and as used in education) applied to Surveying and Geomatics education. This includes, but is not limited to, student online peer assessments, rubrics, inter-grader reliability in marking of practical projects, personal reflective diaries, and development of 'graduate attributes' in surveying students.

FIG Commission 2 intends to support the FIG Council in designing dynamic technical sessions, use of innovative ways of reporting, organising challenging workshops and promote the online involvement and participation. This should be achieved by working together with Young Surveyors Network and the FIG Secretariat.

Workshop

Workshops during the FIG Working Weeks in 2019, 2020 and 2021.

The final report presented and discussed at the Congress in 2022.

Publication(s)

☐ Contribute chapters on surveying education trends and challenges to the Commission 2 report on surveying education.

☐ Other specific conference papers and journal papers arising from the work of this working group.

Time table

☐ The report is the major output of this working group and will be a 4-year project.

Beneficiaries

Higher education institutions, surveying professionals, Young Surveyors and potential surveyors, FIG Office and Secretariat and FIG Members; FIG Corporate Members; public in general (open access).

Working Group 2.3 – Joint Commission 2/YSN working group - Learning styles in surveying² education

Objectives

- To survey, analyse and document the learning styles of students at different ages (including young surveyors) and from different regions.
- increase our understanding of the varied ways that surveying students learn.
- Contribute to the final Commission 2 report on education.
- Exploring the needs of society and endorsing universities and other educational organizations to develop mechanisms and processes that will help to meet those needs.
- **Methods and content of education:** To support and promote advances in learning and teaching methods and content of curricula with special emphasis on the impact of technology and learning styles on education.
- **Knowledge sharing.** Promoting sharing of advances in professional education, research in surveying education and training and initiate joint projects (curriculum development, educational material development, joint courses, quality assurance etc.). Improving dissemination of information on educational theory and practice to the members across the world.

Chairs

Melissa Harrington (New Zealand) melissa.obrien@live.com.

Chethna Ben (Fiji) chethna.ben@usp.ac.fj

Franka Grubisic (Croatia) grubisicfranka@gmail.com

Mudit Kapoor (India) mkapoor@ce.iitr.ac.in

Special projects

This working group will work with the Commission 2 chair and vice chair, and YSN chair to design and implement a survey/questionnaire of their members on student learning preferences. A key focus in the first year will be designing the questions and then implementing the questionnaire in

² The term surveying includes all the roles of a surveyor listed under the FIG definition of a surveyor and the professional disciplines included under the FIG commissions. This includes programs and courses that focus on areas including surveying, geomatics, cartography, land administration and management, real estate, geodesy, property, planning.

as many regions as practical.

The questions to be asked will be carefully selected to explore a range of aspects of how people of different ages and from different regions learn. This could include study habits (increasingly online/YouTube?), the style of learning (cramming at the end/regular?), what teaching and classroom approaches were effective (blended learning, PBL, active learning), how they learn new technology, how teaching and learning technology is used and helpful for learning.

The working group will seek support from FIG to send to FIG academic members, and of the FIG regional networks and Working Group 2.1 to distribute to regional networks. This will take the scope beyond a focus on young surveyors.

Support will be needed for the data analysis of the questionnaire results. Commission 2 and the YSN will apply to the FIG Foundation to provide support for the data analysis of the questionnaire results. After the FIG Council meeting this week I will work with Melissa to make an application to the FIG Foundation for funding.

The results of the questionnaire will be supplemented by discussion at workshops, including at the events below. This increased understanding and questionnaire results and analysis will inform publications during the 4-year term, and the final Commission 2 report on education.

Workshop

Workshops during the FIG Working Week in Hanoi in April 2019, and South East Asian Survey Congress in Darwin in August 2019.

Interim results presented at Working Weeks in 2020 and 2021, and the final report presented at the Congress in 2022.

Publication(s)

- ☐ Contribute a chapter on student learning styles to the Commission 2 report on surveying education.
- ☐ Other specific conference papers and journal papers arising from the work of this working group.

Time table

- ☐ The report is the major output of this working group and will be a 4-year project.

Beneficiaries

Individuals, potential surveyors, higher education institutions, vocational schools, society, labor market, public and private sector; FIG's corporate members; young surveyors and potential surveyors.

6. Academic Forum

The Academic Forum is the platform for FIG Academic Members. Traditionally Commission 2 has a leading role in the Academic Forum. During the FIG Congress 2014 in Kuala Lumpur the Forum discussed

and prepared an initial statement on Academic responsibilities and the Voluntary Guidelines on the Responsible Governance of Tenure (VGGT). Further Academic Forums were held at subsequent FIG Working Weeks and the 2018 Istanbul Congress. For its new term, FIG Commission 2 will continue to play an instrumental part in the Academic Forum and working with the Council to explore partnership with FAO and FIG Academic Partnership program.

During the 2019 Working Week, Commission 2 will contribute to one of two joint FIG/FAO sessions with core emphasis on progress in supporting the application of the Guidelines, including FAO selected invitees as presenters of related experiences:

- i. FAO/FIG Academic Forum - Progress in supporting the application of the Guidelines, and opportunities to engage regional, sub-regional, academic and young surveyors’ networks

7. Relation to other Commissions and Task Forces

By its nature FIG Commission 2, Professional Education, has a relation to all the other technical commissions as is illustrated in figure 1. However, with some commissions it has a stronger relation than with others.

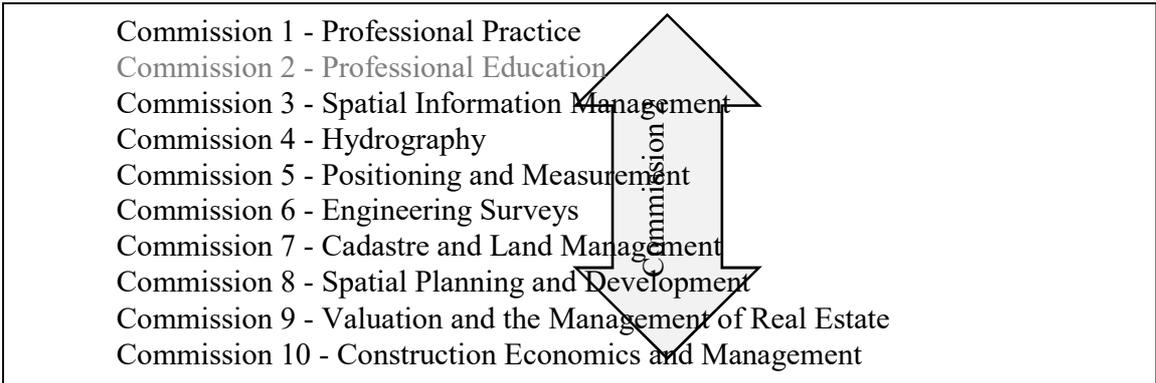


Figure 1. The position and function of FIG Commission 2 in relation to the other Commissions.

Commission 2 works closely together with Commission 1 and in particular with Working Group 1.1 - Changing Nature of Work and the Role of a Surveyor.

Commission 2 has a close connection to Commission 7 Cadastre and Land Management. The changing nature of the surveyor or land professional is best illustrated by the trends and developments in cadaster and land management.

FIG Commission 2 has a role in supporting the Young Surveyors Network, some of FIG Task Forces like Africa Task Force and the OICRF (The International Office for Cadastre and Land Records) (OICRF).

Traditionally the chair of FIG Commission 2 is a member of the FIG Foundation.

8. Continuous Commission activities

- LinkedIn Group: <http://www.fig.net/commission2/index.htm>
- Newsletter
- FIG Surveying Education database: need for member to work on it!!
- Stimulate young surveyors involvement
- Improved communication and online involvement
- Engage with corporate members/associations/UN Bodies/WB/FAO
- Increase global reach and new membership.

9. Commission Officers

Commission Chair

David Mitchell
Associate Professor
Geospatial Science, School of Science
RMIT University
Australia
E-mail: david.mitchell@rmit.edu.au
Tel: +61 3 9925 2420
Mobile: +61 408 014 824

Vice-chair and Chair Working Group 2.2

Dr. Mohsen Kalantari
Senior Lecturer in Geomatics Eng.
Melbourne School of Engineering
Associate Director, Centre for Spatial Data
Infrastructures and Land Administration
University of Melbourne
Australia
Tel.: +61 3 8344 0274
E-mail: mohsen.kalantari@unimelb.edu.au

Co-chair Working Group 2.1

Dimo Todorovski
Faculty for Geo-information Sciences and Earth Observation
University of Twente, Enschede
The Netherlands
E-mail: d.todorovski@utwente.nl

Co-Chair of Working Group 2.3

Melissa Harrington

Chair, Young Surveyors Network

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FIG Commission 3 – Spatial Information Management

Work Plan 2019–2022

1. Title

Spatial Information Management

2. Terms of Reference

- The use of Spatial Information Management SIM (geospatial data, tools, procedures, regulations, standards);
- The support of good governance (sustainable development, poverty reduction, social and economic growth, social security);
- Spatial data infrastructure SDI;
- The use of crowdsourced Volunteered Geographic Information VGI to geoscientific disciplines that make use of mapping, GIS, and SDI systems and procedures;
- The research of the methods for the sustainable development especially of urban areas and emerging countries with high index of development;
- The study and monitoring of spaces, as control of the fragility and vulnerability of the territory.

3. Mission Statement

The mission of Commission 3 is to:

- Increase awareness about successful SIM approaches and achievements by showing good practice like availability, reliability, efficiency and accessibility of spatial information for better decision making and processes;
- Support the use of spatial information and SIM-tools by surveyors and by all participants in decision-making to serve the goals of good governance;
- Share good practice on managerial processes and infrastructure required for geospatial data handling, using information and distributing knowledge;
- Share good practice and develop high-level methods and techniques for merging and managing updated spatial information at various levels according to market requirements;
- Establish and maintain geospatial data - and data-quality-standards relevant to SIM, while cooperating with international spatial data standard committees;
- Encourage the use of spatial information within e-government and e-commerce;
- Support the knowledge exchange among inter-generations in spatial sciences;
- Cooperate and coordinate with the related United Nations Committees and other geospatial information societies and organizations active in the field based on request from the Council.

4. General

Objectives, topics and scope of the previous term will be maintained and updated as appropriate. Commission delegates have expressed their interest in continuing organizing Commission annual meetings and workshops focused on the specific and identified current topics.

Specifically, Commission 3 will:

- Focus on Geospatial Information Infrastructures by contributing to improved decision making and outcomes in society through sharing knowledge and advances in geospatial information infrastructure and technology and their integration and enablement for smart cities at the local, regional and global levels,
- Investigate the opportunities and challenges and propose a framework for understanding the ways that Geospatial Big Data may be obtained, processed, presented, shared and best used together with data derived from traditional surveying methods to provide richer datasets, and to be used in ways that are complementary,
- Investigate and identify initiatives and projects that make use of user-generated spatial content. Focus will be given to collection, processing, mining, interpretation, administrative, and analysis levels. New means and technologies on how to exploit and make use of user-generated spatial content and derived information to geoscientific disciplines, such as mapping, land surveying, GIS, land administration and cadastre, navigation, etc. will be searched. User-generated spatial content enables citizens and communities to take part in processes having geospatial aspects, and having a direct contribution on their life, empowering and mandating them as pertinent stakeholders,
- Contribute to the upcoming revision of ISO19152:2022 (LADM) by further developing the 3D aspects in this international standard, relate to marine cadastre and 3D cadastre in mega cities, collect and exchange experiences of operational 3D cadastral systems, Voluntary Geographic Information (VGI) based 3D data collection, integration of 3D space and time (4D Cadastre), 3D Cadastre as input for valuation, BIM/IFC,
- Gain a better understanding of developing useful GIS tools for spatial planning, based on the different phases in the spatial planning cycle. Having appropriate and user friendly GIS tools available will create a positive spin-off in terms of enhancing information transparency and increase inclusiveness among participating stakeholders,
- Contribute significantly in meeting the UN Sustainable Development Agenda 2030 Goals, such as ‘Sustainable Cities and Communities’, ‘No Poverty’, ‘Zero Hunger’, ‘Climate Action’, by raising awareness on how society -professionals/business, governments and people- can benefit from enhancing the usability of user generated content, Volunteered Geographic Information VGI and Geospatial Big Data GBD,
- Building a close partnership with FIG Young Surveyors Network within Commission’s scope by addressing the link between the changing role of surveyors in the society based on the near future geospatial technologies and next generations. Young Surveyors in transition have expressed their interest to bring along a synergy of young professionals into Commission activities, an awareness of the new professional perspectives with good applications in industry, with along Commission events and stand-alone activities. Commission 3 will provide a platform for the continuum of the members of the new generation geospatial professionals who are aware of the society through various ways and FIG Young Surveyors Network and who are willing to take next level of experiences by contributing to FIG under Commission 3 topics.

5. Working Groups

Working Group 3.1 – Geospatial Information Infrastructure for Smart Cities

Policy Issues

Geospatial Information Infrastructure is an enabling infrastructure that can support and integrate the increasing number of geospatial related sensors in cities and communities. Geospatial information infrastructure facilitates timely information services for citizens, governments and business across cities, regions and countries. It contributes to the delivery of improved outcomes in key areas such as urban planning, transportation, health, education, environmental management and supports economic development. The key aim of the working group is to contribute to improved decision making and outcomes in society through sharing knowledge and advances in geospatial information infrastructure and technology and their integration and enablement for smart cities at the local, regional and global levels.

Chair

Prof Kevin McDougall (Australia), email: [kevin.mcdougall\[at\]usq.edu.au](mailto:kevin.mcdougall[at]usq.edu.au)

Specific topic(s)

- Geospatial information infrastructure challenges
- Integrating authoritative and crowdsourced data
- Data sharing and data openness: open source, open standards, open data.
- Managing geospatial information for smart cities and sensor integration
- Applications for geospatial information infrastructure in smart cities
- Semantic technologies, geospatial ontologies, geospatial data analytics
- Crowdsourced geospatial data, citizen geo-participation, empowerment and decision making for smart cities.
- Future ICT and geospatial technologies to support geospatial information infrastructure and smart cities

Workshop(s)

Participations in FIG Working Weeks and other major Commission events with dedicated technical sessions and/or workshops as appropriate.

Beneficiaries

Surveyors, geospatial professionals and allied professions, associations engaged with spatial data, local and regional municipalities and users of geospatial data and spatial information.

Publication(s)

- Produce a special issue on Geospatial Information Infrastructure for Smart Cities in the scientific journal ISPRS IJGI (2020/2021),
- FIG publication on Smart Cities (2022)

Working Group 3.2 – Geospatial Big Data: collection, processing, and presentation

Policy Issues

The definition of “Big Data” is complex and constantly changing, mainly based on the three Vs definition of their characteristics, such as “Big data represents the information assets

characterized by such a high **Volume**, **Variety** and **Velocity** to require specific technology and analytical methods for its transformation into value”, or “data sets characterized by huge amounts (Volume) of frequently updated data (Velocity) in various formats, such as numeric, textual, or images/videos (Variety)”.

A significant portion of big data is actually *geospatial* data, and the size of such data is growing rapidly at least by 20% every year due to the rapid technological development. Geospatial big data (GBD) collection methods include surveying, photogrammetry, remote sensing, LIDAR/Laser scanning, VGI, Mobile mapping systems, GNSS tracking, real time sensor observations, geo-sensor networks, IoTs, etc. The various types of GBD include raster data (e.g., geoimages-aerial, satellite, etc-, 3D objects), vector data (e.g., points, lines, polygons), and graph data (e.g., road networks, topological coverage, grid data).

The “Volume” characteristic of the GBD deals with issues related to data storage and massive analysis; the “Variety” deals with issues related to data management models and structures as well as indexes; while “Velocity” refers to issues such as matching the speed of data generation and processing. However, the three Vs definition is further expanded with more characteristics, such as the one called “Veracity” which refers to quality assessment of source data, data improvement, etc.

The increasing volume and varying format of collected GBD presents challenges in storing, managing, processing, analyzing, visualizing and verifying the quality of data.

The target of Working Group 3.2 will be to investigate the opportunities and challenges and to propose a framework for understanding the ways that GBD may be obtained, processed, presented, shared and best used together with data derived from traditional surveying methods to provide richer datasets, and to be used in ways that are complementary.

WG 3.2 will contribute to UN SDG 11 (Sustainable Cities) but also to SDG 1 (No Poverty) and SDG 2 and 3 (Zero Hunger) and 13 (Climate Action).

WG 3.2 will focus to motivate researchers in academia and industry, students, as well as delegates from the state sector to partner and join efforts to *improve the value of GBD for the society as well as to take advantage of this value for improving the surveying profession*. Inter-commission activity as well as collaboration with other FIG Com3 WGs in this field will be encouraged.

Chair

Prof Charalabos Ioannidis (Greece), email: cioannid@survey.ntua.gr

Specific topic(s)

Topics of interest of WG 3.2 include the following:

Topics of general interest/raising awareness

- Good practice applications of GBD in land administration, economy, health, planning, 3d modelling, climate change, disaster response, monitoring infrastructure, transportation, agriculture for the Sustainable Development Agenda 2030
- GBD in GIS (import, analysis, processing tools, presentation)
- Case studies using GBD

- Platforms for sharing GBD
- Policies/legislation

Technical topics

- Hardware and Software for GBD collection and processing
- IoT and surveying activity
- Spatial computing techniques/methodologies
- Algorithms of GBD processing
- Visualization of GBD
- GBD and mobile devices
- GBD handling methods in storing, managing, processing, analyzing, visualizing, verifying the quality of data, data security
- Cloud computing and cloud storage for efficient access and process of GBD
- Methodological/Theoretical/Technical developments in modelling, processing, analyzing, visualizing GBD
- Data mining for decision support
- Knowledge discovery from GBD
- Cluster-based systems for processing GBD

Workshop(s)

- Participation in the FIG WGs and FIG Commission 3 Annual Meetings and Workshops
- Organization of focused sessions/seminars on relevant topics
- Organization of inter-commission activity/publications during joint workshops.

Beneficiaries

Surveyors of the public and private sectors and academia, scholars, governments, business and people (society/economy/environment).

Publication(s)

- contribute to joint publications with WG 3.1

Working Group 3.3 – User-Generated Spatial Content Empowering Communities

Policy Issues

The neogeography revolution of Volunteered Geographic Information (VGI) and Participatory Mapping encapsulates the idea of communities that create, share, visualize, and analyze geographic and geospatial information and knowledge. Spatial Data Infrastructure (SDI), as well as Spatial Information Management (SIM), can benefit greatly from the use and integration of this paradigm. User-generated spatial content is becoming a legitimate and reliable spatial, environmental and sustainable infrastructure on local and global scales. It enables citizens and communities to take part in processes having geospatial aspects, having a direct contribution on their life, empowering and mandating them as pertinent stakeholders.

The emphasis of Working Group 3.3 will be on the investigation and identification of initiatives and projects that make use of user-generated spatial content as an enabler to processes,

infrastructures and services to communities. Focus will be given to collection, processing, mining, interpretation, administrative, and analysis levels. Working Group 3.3 will search and learn new means and technologies on how to exploit and make use of user-generated spatial content and derived information to geoscientific disciplines, such as mapping, land surveying, GIS, land administration and cadaster, navigation – and more.

Working Group 3.3 will aspire to motivate and work with scholars, professionals and communities, with the focus on developing countries, where this has the potential to contribute and strengthen utmost. Working Group 3.3 will aim to have joined and mutual interests and sharing of ideas and knowledge with other FIG Commissions, specifically Commission 2 (on Professional Education), Commission 7 (on Cadastre and Land Management) and Commission 8 (on Spatial Planning and Development).

Chair

Prof Sagi Dalyot (Israel), email: dalyot@technion.ac.il

Specific topic(s)

- Utilization of crowdsourced user-generated spatial content in SDI, SIM and environmental knowledge
- Working methodologies of user-generated spatial content in developing countries
- User-generated spatial content collection, analysis, and visualization
- Crowdsourced land administration management tools
- Initiatives of spatial information solutions addressing global and national challenges
- User-generated spatial content standards, uncertainty, ethics, authenticity, validity
- Applications making use of user-generated spatial content in managing the built environment
- Case studies and processes

Workshop(s)

Participations in the FIG Working Weeks and the Commission Workshops and Annual Meetings. The initiation of joint meetings and workshops with other FIG commissions and relevant international working-groups.

Beneficiaries

Citizens, communities, land surveyors, scholars, local and regional organizations.

Publication(s)

- contribute to joint publications with WG 3.1

Working Group 3.4 – 3D Cadastres (Joint Working Group with Commission 7)

Policy Issues

During the recent years 3D Cadastre has matured. The increasing complexity of infrastructures and densely built-up areas require a proper registration of the legal status (private and public), which can be provided only to a limited extent by the existing 2D cadastral registrations. Addressing this challenge has been the main goal of the International Federation of Surveyors (FIG) joint commission 3 ‘Spatial Information Management’ and commission 7 ‘Cadastre and

Land Management' Working Group on 3D Cadastres. The FIG Working Group uses the concept of 3D Cadastres with 3D parcels in the broadest possible sense: 3D parcels include land and water spaces, both above and below surface. The level of sophistication of a 3D Cadastre in a specific country will in the end be based on the user needs, land market requirements, legal framework, and technical possibilities.

In the foreword of the FIG Publication 'Best Practices 3D Cadastres', FIG Past President Chryssy Potsiou comments that "we, as geo-information professionals, vendors, providers, managers, professionals as well as academics and researchers, are expected to develop services and tools to deliver administrative, economic and social benefits. Our colleagues, representatives of business, academia and public administration; managers of geodata from all over the world; young entrepreneurs and creative minds; all are working toward the same goal, trying to increase the "value" of geodata for the people. They do so in order to get more benefit, more transparency, more safety, more environmental quality, more growth, more fairness, more efficiency in governance of urban areas, more smart cities. No reality has a more direct bearing on the subject of 3 dimensional geo-information and cadaster than the growth of large cities, especially in the developing countries of the world, and especially in the phenomenon of the mega cities."

As cities grow they grow vertically as well as horizontally thereby introducing the element of the third dimension. Recent innovative thinking has introduced the concept of a multi-dimensional multipurpose land information system. It is a logical extension of the 3D cadastre concept, by adding the time dimension to the equation. In a discussion of "cost effectiveness" one must consider time, that 4th dimension that we speak of. In time, we are usually referring to land titles history and time-sharing rights, or how the shape and size of land parcels and cadastral objects change over time, but it is also a matter of time-cost in the construction of the cadastre, as well as the time/property value relationship. As the great cities of the world become mega, the value of land and its improvements grow as well. Thus the time/value relationship and its impact on land administration become central elements, and the need for continuing research on fundamental policy issues of technical administrative, legal and financial aspects of land administration will grow.

The on-going process of improving land administration systems is crucial. It responds to the need for international research in building effective land administration infrastructures with modern information technology that will support the 2030 global policy goals for sustainable development.

Reference: Best Practices 3D Cadastres - Extended version, Editor: Peter van Oosterom, International Federation of Surveyors, Copenhagen, Denmark, March 2018 (ISBN 978-87-92853-64-6, ISSN: 2311-8423), http://www.fig.net/resources/publications/figpub/FIG_3DCad/~FIG_3DCad-final.pdf

Chair

Prof Peter van Oosterom (The Netherlands) P.J.M.vanOosterom@tudelft.nl and Prof Alias Abdul Rahman (Malaysia) alias@utm.my

Specific topic(s)

- Contribute to the upcoming revision of ISO19152:2022 (LADM) by further developing the 3D aspects in this international standard; e.g. provide a more formal taxonomy of different types of 3D parcels (spatial units), define 3D spatial profiles,
- Relate to Marine Cadastre with 3D volumetric parcels and their (international) boundary descriptions,

- Collect and exchange experiences of operational 3D cadastral systems (law, organization, technology),
- 3D Cadastre in megacities, often in Latin America (Brazil, Mexico), Asia (China, Malaysia, Korea, Singapore) and Africa (Nigeria),
- 3D Cadastre usability studies, web dissemination and 3D cartography (including VR and AR techniques),
- Deep integration of 3D space and time (4D Cadastre) for more robust foundation,
- New data acquisition techniques, including Voluntary Geographic Information (VGI) based 3D data collection,
- 3D Cadastre (and 3D Topography) as input for more fair valuation as basis for taxation, and
- 3D Cadastre as part of the full life cycle in 3D (spatial planning and development), linking BIM/IFC and 3D Cadastres.

Workshop(s)

- Collaborate with ISO TC221 (2 times per year meetings) and OGC (the DWG Land admin, 5 times per year potential sessions at OGC TC meetings) on the revision of LADM,
- Organize future 3D Cadastres workshops (planning: 2020 and 2022, at least once in South/Middle/North America),
- Participate and organize 3D Cadastres sessions at FIG working weeks (especially 2020, Amsterdam) and FIG Congress,

Publication(s)

- Conduct and analyze the new term 3D Cadastres questionnaire 2018-2022 (after 2010-2014, and 2014-2018 questionnaires),
- Produce a special issue on 3D Cadastres in the scientific journal ISPRS IJGI (2019/2020),
- Maintaining FIG 3D Cadastres website <http://www.gdmc.nl/3DCadastres/> (a.o. with relevant publications),
- Send four times per year an email newsletter to update members of working group, and
- Possibly an update of FIG publication Best Practices 3D Cadastres (2022),...

Beneficiaries

Legal experts, Surveyors of the public and private sectors and academia, scholars, governments, business (including financial sector) and general public (society/economy/environment).

Working Group 3.5 – GIS Tools for Spatial Planning (Joint Working Group with Commission 8)

Policy Issues

GIS tools hold great potential to support spatial planning practice. Ongoing developments in digitalization of data sets and communities further open up possibilities to apply GIS tools in spatial planning processes. The latter typically follow a cyclic pattern: (1) development of spatial policies, (2) policy implementation, and (3) monitoring and evaluation. Spatial policies

range from strategic visions to land use plans that at operational level determine and distribute land use types. Together with legislation and rules, these spatial policies constitute the framework for implementation of spatial policies. Programmes, projects, enforcement mechanisms and the like can be used to implement spatial policies, depending on the situational context. Finally, monitoring and evaluation is necessary to measure whether policy aims are met or need to be adapted, which may lead to the development of new spatial policies.

Due to the different nature of each phase in the cycle, GIS tools to support spatial planning practice will require different data specifications, functionality and usability features. This working group aims to gain a better understanding of developing useful GIS tools given a particular planning exercise, based on the different phases in the spatial planning cycle. Having appropriate and user friendly GIS tools available will create a positive spin-off in terms of enhancing information transparency and increase inclusiveness among participating stakeholders.

Chair

to be nominated

Specific topic(s)

- Examine current GIS tools used in spatial planning practice and consider the potential role for future applications.
- Develop guidelines based on best practices regarding data standards, functionality and usability of GIS tools.
- Encourage the use of spatial information and public participation in spatial planning by using e-government.
- Foster transparency, inclusiveness and legal certainty in decision-making by providing tools for stakeholders to access information and participate in spatial planning processes.

Workshop(s)

Participations in the FIG Working Weeks and the Commission Workshops and Annual Meetings. The initiation of joint meetings and workshops with other FIG commissions and relevant international working-groups.

Publication(s)

Website or other interactive digital platform to provide the results of the GIS tools analysis. FIG publication: GIS tools for spatial planning – Best practices and guidelines.

Beneficiaries

FIG Member associations, Governments, Citizens, Business (GIS solutions).

Working Group 3.6 – Geospatial Next (Joint Working Group with Young Surveyors Network)

Policy Issues

The Industrial Revolution 4.0 and the technologies emerging in daily life such as machine learning, AI and robotics; new challenges are at the doorstep for the societies. For millennia surveyors managed to benefit the technological advancements to answer the changing needs in

respect of geospatial data/information for the societies. Yet, output of the ongoing revolutions are expected to change professions and working cultures deeply, perish some occupations and bring new ones into daylight.

International Federation of Surveyors is a well-established society, which is aware of this wave of change approaching for a long period. This issue has been addressed in many events of the FIG, Commissions and Young Surveyors Network. To contribute these efforts, the new working group will maintain the link with the changing role of surveyor in the society based on the near future geospatial technologies and next generations within the scope of the Commission 3 Spatial Information Management.

The working group should be considered as a respond to contribute to the technological and organizational skills for the changing needs of the surveyors to exist in the dawn of the new industrial era and produce together with inter generations of geospatial professionals in Commission 3. Therefore, this working group will be able to work with various professional level groups together with the other Com. 3 Working Groups where it is possible.

Chair

Cemal Özgür Kivilcim (Turkey) kcemalozgur@hotmail.com

Specific topic(s)

The proposed working group will work to bring along a synergy of young professionals into Com. 3 activities, an awareness of the new professional perspectives with good applications in industry, with along Commission events and stand-alone activities. It should be also seen as a platform for the continuum of the members of the new generation geospatial professionals who are aware of the society through various ways and FIG Young Surveyors Network and who are willing to take next level of experiences by contributing to FIG under Commission 3 topics.

The events should be considered in digital and in physical forms. The working group could propose and organize events such as online/in demand podcasts and trainings as well as workshops/trainings. Further to this, competitions related to innovative geospatial solutions and ideas/applications may be organized through online or during events. Additional standalone events may be proposed through the term. The events should be specific to Commission 3 topics and they should be considered not to conflict with the existing ones such as organized by FIG Young Surveyors Network.

The working group require to use the social media efficiently to make sure itself and Commission 3 activities are circulated and as well as trustworthy geospatial developments may be circulated (such as from sister and regional organizations or industry specific applications) through group channels.

The working group members should seek possible support from geospatial industry and academia, as well as their affiliated organizations and national FIG members. However, support from working groups and commission 3 as well as FIG Foundation might be considered to support possible needs if needed such as participation to events of WG members with the approval of Com.3 and related authority (FIG Council and FIG Foundation).

Workshop(s)

Participation in the FIG Working Weeks and the Commission Workshops and Annual Meetings. The working group will propose and organize events such as online/in demand podcasts and trainings as well as workshops/trainings. A special session may be organized in the annual meetings of the Commission 3. Further to this, competitions related to innovative geospatial solutions and ideas/applications may be organized through online or during events. Additional standalone events may be proposed through the term. The events will be specific to Commission 3 topics and they will be considered not to conflict with the existing ones such as organized by FIG Young Surveyors Network.

Publication(s)

The working group require to use the social media efficiently to make sure itself and Commission 3 activities are circulated and as well as trustworthy geospatial developments may be circulated (such as from sister and regional organizations or industry specific applications) through group channels.

Beneficiaries

Geospatial industry, academia, FIG member associations, Young Surveyors in transition.

6. Co-operation with other Commissions and Organizations

Commission 2;

Commission 7; joint Working Group 3.4 3D Cadastres

Commission 8; joint Working Group 3.5 GIS Tool for Spatial Planning

Young Surveyors Network; joint Working Group 3.6 Geospatial Next.

7. Co-operation with United Nation Organisations, Sister Associations and other Partners

UN-GGIM - UN Committee of Experts on Global Geospatial Information Management;
World Bank;

ISPRS – International Society for Photogrammetry and Remote Sensing, Commission IV on Spatial Information Science;

ICA – International Cartographical Association;

IGU – International Geographical Union, Commission on Geographical Information Science;

8. Calendar of Events

April 2019 – Hanoi, Vietnam (in conjunction with FIG WW 2019);

September 2019 – Cluj-Naboca, Romania (Annual Workshop in conjunction with Surveyor's Week, Romania);

May 2020 – Amsterdam, The Netherlands (in conjunction with FIG WW 2020);

October 2020 – Berlin, Germany (Annual Workshop in conjunction with Intergeo 2020, Berlin);

May 2021 – Accra, Ghana (in conjunction with FIG WW 2021);

Fall 2021 – location TBD (Annual Workshop);

May 2022 – Cape Town, South Africa (in conjunction with FIG Congress 2022);

Fall 2022 – location TBD (Annual Workshop).

9. Workshops

Commission 3 is planning to organize, in addition to its activity during the annual FIG Working Weeks or Congress, also four Annual Workshops during the 2019-2022 term.

10. Commission Officers

Commission Chair

Prof Hartmut Müller

School of Technology, Mainz University of Applied Sciences

Lucy-Hillebrand-Str. 2

D-55128 Mainz

GERMANY

Tel. +49 (0) 6131 628 1438

Email: hartmut.mueller@hs-mainz.de

Vice Chair of Administration

Prof Ulrike Klein

Bochum University of Applied Sciences

Lennershofstr. 140

D-44801 Bochum

GERMANY

Tel. +49 (0) 234 32-10543

Fax. +49 (0) 234 32-14735

Email: ulrike.klein@hs-bochum.de

Vice-Chair and Chair of Working Group 3.1

Prof Kevin McDougall, Head of School

School of Civil Engineering & Surveying, Faculty of Health, Engineering and Sciences,
University of Southern Queensland

Toowoomba, Queensland, 4350

AUSTRALIA

Tel. +61 7 4631 2545

Fax. +61 7 4631 2526

Email: mcdougak@usq.edu.au

Vice-Chair and Chair of Working Group 3.2

Prof Charalabos Ioannidis

School of Rural & Surveying Engineering, National Technical University of Athens

9 Iroon Polytechniou St., Athens 15780

GREECE

Tel. +30 210 7722686

Mob. +30 6942488497

Fax. +30 210 7722677

Email: cioannid@survey.ntua.gr

Vice-Chair and Chair of Working Group 3.3

Prof Sagi Dalyot
Transportation and Geo-Information Engineering Faculty of Civil and Environmental
Engineering Rabin Bldg., Room 727
Technion – Israel Institute of Technology Haifa 32000003
ISRAEL
Tel. +972 4 8295991
Fax. +972 4 8295708
Email : dalyot@technion.ac.il

Vice-Chair and Chair of Working Group 3.4
Prof Peter van Oosterom
Professor and Head of section GIS technology, Faculty of Architecture and the Built
Environment, TU Delft
Julianalaan 134, 2628 BL Delft
THE NETHERLANDS
Tel. +31 15 2786950
Fax. +31 15 2784422
Email: P.J.M.vanOosterom@tudelft.nl

Vice-Chair and Chair of Working Group 3.5
to be added

Vice-Chair and Chair of Working Group 3.6
Cemal Özgür Kivilcim
Istanbul Metropolitan Municipality
TURKEY
Tel.
Fax.
Email: kcemalozgur@hotmail.com

Hartmut Müller
Chair, FIG Commission 3
www.fig.net/commission3
February 2019

FIG Commission 4 (Hydrography)

Work Plan 2019-2022



Commission Chair

Dr. Mohd Razali Mahmud

Faculty of Built Environment and Surveying
Universiti Teknologi Malaysia
81310 Johor Bahru
MALAYSIA
Email: razali.mahmud@gmail.com

Terms of Reference

Support for all aspects of the Hydrographic Surveying profession including, but not limited to:

- Promotion of hydrographic education, training, Continual Professional Development (CPD) and career pathways within the profession;
- Protection of the marine environment;
- Coastal Zone Management (CZM) including Ports & Harbours;
- Offshore Construction Surveying;
- Nautical charting for safe navigation/bathymetric mapping – analogue and digital including Electronic Navigational Charts;
- Data processing and management of hydrographic data;
- Review and update of standards and guidelines.

Mission Statement

Commission 4 is committed to:

- Promoting the aims and objectives of FIG to hydrographers through the active involvement of national delegates from member associations and other interested parties in the activities of the Commission;
- Fostering closer links with all sister organisations currently active within the global hydrographic community;
- Developing guidelines and standards that will assist hydrographers in the provision of their services;

- Disseminating information relevant to the profession through participation in international meetings, conferences and committees;
- Assisting international bodies such as the United Nations and the International Hydrographic Organization (IHO) in the protection of the marine environment and promotion of safe navigation.

General

Commission 4 is committed to achieving both the long term and immediate aims and objectives of FIG. Its strategy over the next four years is aligned with that of the FIG Council and will include:

- Support for the Hydrography profession internationally including development of best practice guides, certification pathways and advocacy;
- Support the International Hydrographic Organization (IHO) and associated United Nations programmes;
- Cooperation with other FIG Commissions, including joint working groups;
- Active support and participation in FIG regional events;
- Cooperation with sister organisations and other appropriate bodies;
- Cooperation with national surveying and mapping agencies; and,
- Respond to directions from FIG Council to address emerging issues as required.

Working Group 4.1 - Standards and Guidelines for Hydrography

Chair



Neil Hewitt (Australia): neil.hewitt@precisionhydrographic.com.au

Policy issues

Assist in the development and recognition of standards of competency.

Assist in the development of technical standards and guidelines.

Assess the impact of international standards on current industry practice.

Review standards from alternate reputable sources relevant to Hydrography.

Specific projects

1. Support the International Hydrographic Organization (IHO) through the work of its Hydrographic Services and Standards Committee (HSSC) by participating in HSSC working groups to review hydrographic standards and guidelines, primarily:
 - S-44 – IHO Standards for Hydrographic Surveys (the most recent version is the 5th Edition, February 2008).
 - S-100 – IHO Universal Hydrographic Data Model (January 2010).
 - C-13 – IHO Manual on Hydrography.

2. Support FIG members on the FIG/IHO/ICA International Board on Standards of Competence for Hydrographic Surveyors and Nautical Cartographers (IBSC) in reviewing and updating competency standards.
3. Promote recognition of professional pathways.
4. Represent Commission 4 on the FIG Standards Network and other international fora where appropriate.
5. Support the work of other FIG Commissions and Working Groups, and participate in Commission 4 events where possible.

Workshops

Participation in FIG Standards Network meetings and other major Commission events.

Publications

FIG Working Weeks will include technical papers and/or reports to the FIG Standards Network on emerging standards, guidelines and specific issues.

Ongoing contribution to the maintenance of the FIG Guide on Standardisation.

Timetable

Ongoing work will be reported at FIG Working Weeks during the term of this plan and according to a timetable to be developed by the Working Group Chair.

The Working Group will present a draft report at the relevant FIG Congress.

Beneficiaries

FIG Standards Network.

International Hydrographic Organization (IHO).

The United Nations.

Sister organisations and associated national surveying, mapping and charting agencies and relevant international non-governmental organisations.

FIG member associations.

The international hydrography profession including industry, government, education and academia.

Working Group 4.2 – Blue Growth & UN Sustainable Development Goal 14

Chair



Gordon Johnston (United Kingdom): gordontjohnston1@gmail.com

Policy issues

The United Nations Development Programme Sustainable Development Goal 14 (SDG 14) advances the sustainable use and conservation of the oceans and requires effective strategies and management to combat adverse effects on the oceans through overfishing, growing ocean acidification and worsening coastal eutrophication.

The Blue Growth & SDG 14 work plan is based upon the ongoing work of Commission 4. It is a diverse and wide ranging topic but the primary focus for Working Group 4.2 is the development and promotion of measures to manage our oceans and seas in a sustainable manner based upon accurate data, sound environmental principles and good management practices.

The Hydrographic Surveyor has a key role in developing an understanding of our seas and oceans for the wider social benefits and Commission 4 aims to promote this role, the benefits and offer case studies of participation and support.

Specific projects

The Working Group 4.2 shall seek to promote and engage with international government and non-governmental organisations to increase the understanding and awareness of the importance of the marine and ocean areas.

Workshops

High on the agenda will be to engage with UN-FAO and World Bank to determine how these organisations perceive the importance and benefits of managing the marine and ocean areas.

Publications

FIG Working Weeks will include Technical Papers on specific issues and presented by Working Group Members and other invited experts. In addition it is planned that additional joint events may be organised to further the work and to generate a short briefing note and relevant proceedings.

Timetable

WG 4.2 will participate in seminars, conferences and Technical Sessions at FIG events each year to support and promote the importance of surveying and surveyors for the seas and oceans.

Beneficiaries

FIG member associations.

The international hydrographic surveying profession.

National surveying, charting and mapping agencies.

Academia.

Individual hydrographic surveyors.

Working Group 4.3 – Mapping the Plastic

Chair



Simon Ironside (New Zealand): SI@eliotsinclair.co.nz

Policy issues

The effects of plastic pollution on the Earth's oceans are well documented, potentially catastrophic and increasing exponentially year on year. The UN Environment Programme has calculated that each year more than 8 million tonnes of plastic ends up in the oceans, wreaking havoc on marine wildlife, fisheries and tourism, and costing at least \$8 billion in damage to our marine ecosystems. Eighty per cent of all litter in our oceans is made of plastic. This is an intolerable but not insurmountable problem that needs immediate and far-reaching action to remedy.

Rivers have been identified as a significant contributor to and enabler of the plastic pollution problem. Working Group 4.3, a combined initiative of the FIG Young Surveyors Network and Commission 4, will focus on the dumping of plastics (and other waste) into major rivers, river systems and deltas at strategic locations around the world. Waste measurement in these water bodies using remote sensing, bathymetric, current measurement and topographical surveys of plastic waste along the banks of rivers will enable a greater understanding of the quantum of plastic waste being transported to the oceans and inform the control and regulation of land use practices with an ultimate goal of eradicating the dumping of plastics into river systems.

Specific project

A pilot project will focus on the Mekong River delta in the south of Vietnam at its outfall to the South China Sea. This project will be undertaken in conjunction with The Centre for Supporting Green Development (GreenHub), a Vietnamese, non-governmental, not-for-profit organisation and Australia's Commonwealth Scientific and Industrial Research Organisation (CSIRO).

Workshops

It is proposed that workshops will be held at all FIG Working Weeks (2019-2022).

Publications

The most appropriate way to present the outcomes of WG 4.3 surveys is yet to be finalised.

Timetable

Working Group 4.3 Chair will report at FIG Working Weeks (2019-2022).

Working Group 4.3 to present a final report at FIG Congress, 2022. It may be that WG 4.3 will extend beyond the usual four-year FIG working group cycle.

Beneficiaries

The international maritime community.

Government organisations and non-governmental organisations.

Sister organisations.

The United Nations and other national and international agencies.

FIG member associations, the hydrographic surveying profession and academia.

Working Group 4.4 – Marine Development and Administration

Chair



Dr. Abdullah Hisam Omar (Malaysia): abdullahisham@utm.my

Members : Prof Drs Dietrich Geoffrey Bengen
Dr. Hamid-Mosaku Adekunle Isa
Dr. Rizqi Abdulharis
Dr. Mohd Zaid Abdullah
Mohd Hilmi Abdullah

Policy Issues

Assist in the development of institutional policy and framework.
Assist in the development of conceptual and technical standards, guidelines and practice.
Assist in the land and sea governance for a marine cadastre.
Assist in the development of indigenous marine management systems.

Specific projects

Review of national and international hydrographic and marine administration policies, standards and guidelines.
Promotion of best practice marine development and administration.
Represent Commission 4 on the FIG Standards Network.
Development of Marine Cadastre Institutional Framework for participating countries (pilot project in ASEAN).
Strategy Selection for Marine Administration by Multi-Stakeholders.
Marine Institutional Analysis and Development (MIAD).
Technical and Legal Framework for Marine Cadastre.
Indigenous marine management study.

Workshops

Participation in FIG Working Weeks and Congresses and other Commission 4 events.

Publications

FIG Working Weeks will include technical papers and/or reports of the work of WG 4.4.
Policy, framework, guidelines and specific issues.

Timetable

Working Group 4.4 Chair will report at FIG Working Weeks (2019-2022).

Working Group 4.4 to present a final report at FIG Congress, 2022.

Beneficiaries

International Coastal and Marine Institutions, and Marine related community.

Sister organisations and other (national) agencies.

FIG member associations, the hydrographic surveying profession and academia.

Cooperation with IHO

Commission 4 supports the IHO through the work of its Hydrographic Services and Standards Committee (HSSC) and looks forward to assisting its capacity building and other initiatives through representation on the IHO Hydrography Commissions. Commission 4 offers ongoing support to the IHO on any appropriate technical initiatives.

Commission 4 currently represents FIG on the FIG/IHO/ICA International Board on Standards of Competence for Hydrographic Surveyors and Nautical Cartographers (IBSC) jointly with IHO and ICA. The role of the FIG/IHO/ICA International Board on Standards of Competence for Hydrographic Surveyors and Nautical Cartographers (IBSC) is to develop and up-date international standards of competence for Hydrographic surveyors and to review the academic programme of educational institutions that are seeking IHO accreditation of their Hydrographic training courses. The IBSC is composed of 4 representatives from FIG, 4 from IHO and 2 from the ICA. Our liaison officer with the IBSC is Gordon Johnston. Apart from Gordon Johnston, FIG is represented by Adam Greenland (New Zealand), Keith McGowan Miller (Trinidad and Tobago) and Sobri Syawie (Indonesia).

FIG and IHO cooperate under a Memorandum of Understanding (MOU) which was signed in Athens in May 2004. Our liaison is IHO Director, Mustapha Iptes.

Cooperation with Sister Associations

FIG and Member Associations

Commission 4 maintains contact with the hydrographic surveying community grouping, stream commission etc. within each FIG Member Association through their nominated hydrographic surveying representative. Each Member Association representative is automatically a member of the Commission and contributes to its work in many ways, the most effective being through membership of the Commission 4 Working Groups. The reporting of the work being undertaken by Member Associations is at the Commission 4 Annual General Meeting held during each Working Week and Congress.

FIG and the International Federation of Hydrographic Societies (IFHS)

Commission 4 and IFHS have a good relationship, being organisations primarily involved in the promotion of hydrography, and cooperate on a number of levels. The Commission lends support to and/or sponsorship of IFHS conferences and seminars that has provided financial support and resources for the updating of IFHS publications.

FIG and IFHS cooperation is based upon a MoU which was signed in Cairo, April 2005. The task has been mandated to Commission 4. FIG liaison with the IFHS is Simon Ironside.

Cooperation with the United Nations

Commission 4 will assist and participate in United Nations programmes on guidance by FIG Council and in circumstances where Commission expertise can contribute towards successful programme outcomes.

Cooperation with other FIG Commissions

Commission 4 will collaborate with other FIG Commissions where specific Commission expertise can contribute towards a comprehensive understanding and successful resolution to the problem being addressed.

Representation to FIG Networks and Task Forces

Commission 4 will appoint representatives to FIG Networks and Task Forces as required. Commission 4 is a standing member of the FIG Standards Network.

Other Activities

Commission 4 will maintain and develop its page on the FIG web site to keep Commission members, the international hydrographic community and the public involved in and informed of the Commission's work. Commission 4 will also contribute editorials, reports and articles to international Hydrographic publications including, but not restricted to, the Hydrographic Journal, Hydro International, The Hydrographic Review, Sea Technology and Lighthouse. It will also publish details of its activities at least once a year.

Calendar of Events

2019

US HYDRO Conference 2019, 18-21 March 2019, Beau Rivage Resort & Casino, Biloxi, MS, USA.

IBSC42, 25 March – 5 April 2019, FIG/IHO/ICA International Board on Standards of Competence for Hydrographic Surveyors and Nautical Cartographers, Honolulu, Hawaii, USA.

Ocean Business, 9-11 April 2019, Southampton, United Kingdom.

FIG Working Week, 22-26 April, 2019, Hanoi, Vietnam.

South East Asia Survey Congress, 15-18 August 2019, Darwin, Australia.

International Conference Geomatics & Geospatial Technology 2019, 1-3 October 2019, Kuala Lumpur, Malaysia.

10th Advisory Board on Law of the Sea Conference (ABLOS), 8-9 October 2019, Monaco.

FIG Commission 4 2019 Annual Meeting and International Seminar, November 2019, Kuala Lumpur, Malaysia.

IBSC Stakeholder Seminar on Training and Education in Hydrography and Nautical Cartography, 2019.

2020

FIG Working Week, 10-14 May, 2020, Amsterdam, Netherlands.

US HYDRO Conference 2020.

IBSC43, 2020, FIG/IHO/ICA International Board on Standards of Competence for Hydrographic Surveyors and Nautical Cartographers.

FIG Commission 4 2020 Annual Meeting and International Seminar, November 2020.

IBSC Stakeholder Seminar on Training and Education in Hydrography and Nautical Cartography, 2020.

2021

FIG Working Week, 24-28 May, 2021, Accra, Ghana.

US HYDRO Conference 2021.

IBSC44, 2021, FIG/IHO/ICA International Board on Standards of Competence for Hydrographic Surveyors and Nautical Cartographers.

FIG Commission 4 2021 Annual Meeting and International Seminar, November 2021.

IBSC Stakeholder Seminar on Training and Education in Hydrography and Nautical Cartography, 2021.

2022

FIG Working Week, Cape Town, South Africa, 2022.

US HYDRO Conference 2022.

IBSC45, 2022, FIG/IHO/ICA International Board on Standards of Competence for Hydrographic Surveyors and Nautical Cartographers.

FIG Commission 4 2022 Annual Meeting and International Seminar, November 2022.

IBSC Stakeholder Seminar on Training and Education in Hydrography and Nautical Cartography, 2022.

Commission Officers

Dr. Mohd Razali Mahmud

Faculty of Built Environment and Surveying

Universiti Teknologi Malaysia

81310 Johor Bahru

MALAYSIA

Email: razali.mahmud@gmail.com

Vice Chair of Administration & Communication

Mr. Gordon Johnston, MRICS

67 Devon Road

Cheam

Surrey SM2 7PE

UNITED KINGDOM

Tel. + 44 208 661 1650

Fax + 44 208 643 1890

Mob:+44 7966 937369

Email: gordontjohnston1@gmail.com

FIG Commission 5 – Positioning and Measurement

Work Plan 2019-2022

1. Title

Positioning and Measurement

2. Terms of Reference

- The science of measurement (instrumentation, methodology and guidelines)
- The acquisition of accurate and reliable survey data related to the position, size and shape of natural and artificial features of the earth and its environment and including variation with time consistent with internationally adopted standards and models.

3. Mission statement

The mission of Commission 5 is to:

- Focus on modern technologies, and technical developments and assist individual surveyors, engineers and GIS/LIS professionals through guidelines and recommendations, to choose and utilise those methods, technologies and instruments that are most appropriate to different applications.
- Follow technical developments through collaboration with other FIG Commissions and other international organisations; participation in appropriate meetings; and the preparation of appropriate publications.
- Support research and development and stimulate new ideas in the fields of expertise represented within the commission.
- Collaborate with manufacturers on the improvement of instrumentation and associated software.
- Present and promote the work of the Commission and its working groups on an ongoing basis at FIG Congresses, FIG Working Weeks, FIG Regional Conferences and other relevant technical meetings and in appropriate FIG and other media.

4. General

This work plan covers the development, use and integration of technologies for positioning and measurement and the associated standardisation, best practice and fundamental reference frame issues. Many of the issues are global in nature and Commission 5 along with many other Associations is well suited to tackle the technological challenges we face. There will be an ongoing cooperation with United Nations Agencies to address global problems such as sustainable development and humanitarian needs. The disciplines covered by Commission 5 will deliver solutions for the spatial aspects of these important global problems. Specific activities aimed at developing countries include examination of Low Cost Surveying Technologies, assistance with implementation of modern Geodetic and Vertical Reference Frames and associated infrastructure and contribution to appropriate Continuing Professional Development programs.

Specifically, to work closely with the International Association of Geodesy (IAG) and the United Nations Global Geospatial Information Management (UN GGIM) on the development of new models, standards and tools for implementing a Global Geodetic Reference Frame (GGRF) that includes aspects of the International Terrestrial reference Frame (ITRF) and the International Height Reference Frame (IHRF). The GGRF will serve as a global standard for all Nations to implement their respective national datums. As such. This directly impacts FIG Members who must implement these new datums and the requirements to access them.

In addition to the specific activities above, the Commission will support and contribute to FIG Task Forces and the Standards Network. The Commission will also respond to the FIG Council to address new issues as they emerge.

5. Working Groups

Working Group 5.1 – Standards, Quality Assurance and Calibration

Policy Issues

- Influence the development of standards affecting positioning and measurement instruments and methods, in collaboration with the FIG Standards Network and through participation in the relevant technical committees (TCs) of the International Standards Organisation (ISO) and other appropriate bodies.
- Acceptance controls, quality assurance and certification and their impact on the surveying profession.
- Testing and calibration of measuring instruments.
- Assist other Commission Working Groups to implement Standards from TC 172/SC 6 and ISO TC211 as appropriate.

Chair

David Martin (France), e-mail: david.martin@esrf.fr

Specific project(s)

- Guide for the expression of uncertainty in measurements (GUM) for surveying
- Connection to ISO TC211

Workshop(s)

- Participation in FIG Working Weeks and other major Commission events with dedicated Technical Sessions and/or Workshops as appropriate.
- Special Session on ISO TC211 at a FIG Working Week.

Publication(s)

- A dedicated publication regarding the implementation of the “Guide for the expression of uncertainty in measurements” (GUM) for surveying

Timetable

- Draft publications will be presented at FIG Working Weeks during the term of this plan and according to a timetable to be developed by the Working Group Chairs.
- Working group final report and outcomes will be presented at dedicated session, FIG Congress, 2022.

Beneficiaries

FIG member associations, manufacturers and users of survey equipment, governments, standardisation organisations, decision makers, GIS developers and users, surveying businesses, individual surveyors.

Working Group 5.2 – 3D Reference Frames

Policy issues

- Work to bring together all organisations involved in defining or using reference frames to develop common approaches and avoid duplication. Such organisations include FIG, the International Association of Geodesy (IAG), UN-GGIM, ISO, groups of national mapping agencies, and other influential national agencies.
- Continue the existing co-operation with IAG on the Regional Reference Frame Projects such as AFREF, APREF, EUREF, NAREF, and SIRGAS.
- Develop and expand upon the relationships with UN-GGIM's Sub-Committee on Geodesy (UN-SCOG), the UN SCOG WG's, and the various UN-GGIM regional bodies.
- Consider options for the development and implementation of 4 dimensional datums that incorporate the effects of plate tectonic and regional effects such as those due to earthquakes or local effects such as landslides.
- Provide background technical information on relevant issues written in a way that is accessible to surveying practitioners.
- Examine how surveying practitioners can access the reference frame, through less emphasis on networks of ground monuments and more emphasis on Global Navigation Satellite Systems (GNSS) base stations.
- Provide information on the maintenance of CORS networks to ensure long-term stability

Chair

Nic Donnelly (New Zealand), e-mail: ndonnelly@linz.govt.nz

Specific project(s)

- Review of Reference Frames in Practise Manual,
 - o Rob Sarib and Graeme Blick will provide primary development
 - o Support from WG 5.3 and others as required for all sections
- Connection to ISO-TC211: Geodetic Registry Network.

Workshop(s)

- Continuing Seminars on Reference Frames in Practise, 3D and vertical frames
- Participation in FIG Working Weeks and other major Commission events with dedicated Technical Sessions.
- An RFIP Workshop will be held with FIG 2019, SIRGAS 2020, FIG 2021, and FIG WW 2022.

Publication(s)

- FIG Publication on ITRF
- Publication regarding national datums (different types)

Timetable

- Draft publications will be presented at FIG Working Weeks during the term of this plan and according to a timetable to be developed by the Working Group Chairs.
- Working group final report and outcomes will be presented at dedicated session, FIG Congress, 2022.

Working Group 5.3 – Vertical Reference Frames

Policy issues

- Educate FIG member agencies on current and future status of regional and global vertical reference frames and height systems
- Educate FIG member agencies on practical aspects about the implementation of new geopotential datums including:
 - o access using geoid height models and a geometric datum
 - o redefining heights on existing bench marks to serve as secondary control
 - o ties between height systems and local and global mean sea level
- Develop and expand relationships in IAG Commission 2, UN SCOG, and WG focused on implementing vertical control based on IHRF around the world.
 - o IAG will develop an IHRF that will be a component of the UN GGRF.
 - o UN GGRF will encompass both ITRF and IHRF
 - o Time varying aspects of the geoid, vertical control and the gravity field must be addressed.

Chair

David Avalos-Naranjo (Mexico), e-mail: david.avalos@inegi.org.mx

Specific project(s)

- Solicit members for WG
- Inventory/catalogue of height systems and vertical datums in use by countries and/or FIG member agencies
- Capture planned changes and timelines for the evolution of height systems in countries and by FIG member agencies
- Provide guidelines to re-define the national vertical control, interpret and access the IHRF.

Workshop(s)

- Special Sessions regarding vertical reference systems at FIG Working Weeks, other major FIG events and at related conferences including Reference Frame in Practice Seminars.
- Splinter meetings to coordinate activities at national and international meetings including UN-GGIM, IAG (Commission2 and IGFS), and UNOOSA
- An RFIP Workshop will be held with FIG 2019, SIRGAS 2020, FIG 2021, and FIG WW 2022.

Publication(s)

- Chart of definitions of vertical datums (including tidal datums), height systems and their relationships.
- Review paper on principles of vertical reference frames and height system unification.
- FIG publication on “Reference Frames in Practise” covering practical aspects of and procedures for using vertical reference frames and height systems

- Develop a series of papers on practical aspects of implementing new national vertical datums consistent with global and regional height systems

Timetable

- Working group final report and outcomes will be presented at dedicated session, FIG Congress, 2022.

Beneficiaries

FIG member associations, government agencies, GIS developers and users, surveying businesses, individual surveyors.

Working Group 5.4 – GNSS

Policy issues

- Provide FIG input during planning and implementation phases associated with programs of modernisation and development of all GNSS
- Support and disseminate emerging positioning techniques using GNSS
- Research and dissemination regarding real time networks
- Multi-GNSS products and advancements
- Develop and expand upon the relationships between FIG, IAG, MGA, RTCM, UN-ICG, IAG and UN-GGIM.

Chair

Suelynn Choy (Australia), e-mail: suelynn.choy@rmit.edu.au

Co-Chair

Ryan Keenan (Australia), e-mail: ryan.keenan@septentrio.com

Specific project(s)

- Research and Publications on “Precise Point Positioning, Network RTK, Low-Cost GNSS, Multi-Frequency Multi-Constellation GNSS”
- Outreach of GNSS applications to other organisations
 - E.g., ICG, IAG, IHO, UN-GGIM
 - Involvement with regional GNSS training schools (e.g. UNOOSA, CSIS, AIT/GIC, University of Tokyo)
 - Other more industry driven groups (e.g. Precision Agriculture, Environment, Space, ITS etc)
 - Especially where they are related to some of the UN SDGs, which would leverage UN-GGIM and UN-GGRF activities
- Resilience in PNT (considering interference, spoofing, jamming, ionosphere).
 - Very technical topic that could benefit from simplification so that a larger section of the GNSS User community could better appreciate it.

Workshops

- Continuing seminars on Reference Frames in Practice, 3D and Vertical Frames
- Special technical session regarding these topics on FIG Working Weeks and Conferences
- Contribute to UN ICG Workshops on Applications of GNSS and MGA Conferences

Publications

- A number of papers relating to GNSS will be submitted to relevant conferences and technical journals.

Timetable

- Working group final report and outcomes will be presented at dedicated session, FIG Congress, 2022.

Beneficiaries

FIG member associations, government agencies, decision makers, GIS developers and users, surveying businesses, individual surveyors.

Working Group 5.5 – Multi-Sensor-Systems

(joint with IAG)

Policy issues

This group is a joint working group between FIG and IAG. It focuses on the development of shared resources that extend our understanding of the theory, tools and technologies applicable to the development of multi sensor systems. It has a major focus on:

- Performance characterization of positioning sensors and technologies that can play a role in augmenting core GNSS capabilities
- Theoretical and practical evaluation of current algorithms for measurement integration within multi sensor systems.
- The development of new measurement integration algorithms based around innovative modeling techniques in other research domains such as machine learning and genetic algorithms, spatial cognition etc.
- Establishing links between the outcomes of this WG and other IAG and FIG WGs (across the whole period)
- Generating formal parameters that describe the performance of current and emerging positioning technologies that can inform FIG and IAG members.

Chair

Allison Kealy (Australia), e-mail: allison.kealy@rmit.edu.au

Co-Chair

Guenther Retscher (Austria), e-mail: Guenther.Retscher@geo.tuwien.ac.at

Specific project(s)

- International field experiments and workshops on a range of multi sensor systems and technologies.
- Evaluation of UAV capabilities and the increasing role of multi-sensor systems in UAV navigation.
- Investigate the role of vision based measurements in improving the navigation performance of multi sensor systems.
- Development of shared resources to encourage rapid research and advancements internationally.

Workshops

Special Sessions at Working Weeks and Supporting Special international conferences and symposia including: Mobile Mapping Symposium, ION GNSS, IGNSS Australia, IPIN, etc.

Publications

A number of papers will be submitted to relevant conferences and technical journals. A special journal edition of papers from the Mobile Mapping Symposium in 2015 will be supported.

Timetable

- Draft publications will be presented at FIG Working Weeks during the term of this plan and according to a timetable to be developed by the Working Group Chairs.
- Working group final report and outcomes will be presented at dedicated session, FIG Congress, 2022.

Beneficiaries

FIG member associations, academic and research institutions, spatial data acquisition specialists, third party developers of LBS requiring mobile location information, GIS developers and users, surveying businesses, individual surveyors.

Working Group 5.6 – Cost Effective Positioning

Policy issues

- Educate FIG member associations and individual surveyors on when to use which surveying instrument or evaluation software taking into account economic reasons
- Design fit-for-purpose surveying systems that are cost-effective
- Support decision makers for establishing cost-effective positioning solutions

Chair

Leonid A. Lipatnikov (Russia) e-mail: l.lipatnikov@snga.ru

Co-Chair

Li Zhang (Germany) e-mail: li.zhang@iigs.uni-stuttgart.de

Specific project(s)

Developing guidelines for cost-effective use and design of survey solutions including costs for labour and investment

Workshops

FIG workshop with Commissions 3 and 7

Publications

FIG Publication on cost effective surveying techniques

Timetable

- Working group final report and outcomes will be presented at dedicated session, FIG Congress, 2022.

Beneficiaries

FIG member associations, academic and research institutions, spatial data acquisition

specialists, GIS developers and users, surveying businesses, individual surveyors mainly dedicated to developing countries.

6. Co-operation with Other Commissions and organisations

- Commission 2 and YSN regarding Education, Training and Capacity Building
- Commission 4 regarding Hydrographic Surveying on the Ellipsoid
- Commission 6 and ISPRS on Laser Scanning
- Commission 6 on Deformation Monitoring
- Commission 7 and 3 on Cost-Effective Positioning

7. Co-operation with United Nation Organisations, Sister Associations and other Partners

- United Nations Office for Outer Space Affairs (UNOOSA) and United Nations International Committee on GNSS (UN-ICG). FIG is co-chairing of the Task Force on Geodetic Reference Systems. WG-D ensures interoperability of GNSS satellite orbit reference frames, time scales and now GNSS precise positioning services.
- UN GGIM is another field of cooperation between UN and FIG Commission 5. Specifically the UN Sub-Committee on Geodesy (UN SCOG) and the regional UN-GGIM groups (e.g., UN-GGIM-AP). UN-SCOG has a number of working groups that have closely aligned interests such as the WG for Education, Training and Capacity Building (ETCB). The regional groups usually have a WG aligned to implementing regional Geodetic Reference Frames (EUREF, SIRGAS, APREF) that directly impact the work of FIG Member institutions. The UN-GGIM Academic Network also provides a link to academic organizations aligned to ETCB.
- Strong Cooperation with International Association of Geodesy (IAG), with which FIG has a Memorandum of Understanding.
- Working group 5.5 is jointly organized with IAG.
- Good cooperation with International Society for Photogrammetry and Remote Sensing (ISPRS), the Permanent Committee on GIS Infrastructure Asia Pacific (PCGIAP) and the US based Institute of Navigation (ION).
- Contribution to International Standard Organizations, especially ISO TC 211/AWG12 and TC 172/SC6.

8. Commission Officers

Commission Chair

Dr. Daniel Roman

NOAA's National Geodetic Survey

Headquarters

1315 East-West Highway

SSMC3, #8636, N/NGS

Silver Spring MD 20910

U.S.A.

Tel. + 1 240 533 9673

Fax + 1 301 713 4175
E-mail: dan.roman@noaa.gov

Vice Chair of Administration

Dr. Kevin Ahlgren
NOAA's National Geodetic Survey
Observation and Analysis Division
1315 East-West Highway
SSMC3, #8546, N/NGS3
Silver Spring MD 20910
U.S.A.
Tel. + 1 240 533 9894
Fax + 1 301 713 4327
E-mail: kevin.ahlgren@noaa.gov

Chair of Working Group 5.1

Dr. David Martin
Alignment and Geodesy Group
ESRF
6 rue Jules Horowitz
BP220
38043 Grenoble Cedex
FRANCE
Tel. + 33 4 76 88 22 45
Mobile:
Fax + 33 4 76 88 23 13
E-mail: david.martin@esrf.fr

Chair of Working Group 5.2

Mr. Nic Donnelly
National Geodetic Office
Land Information New Zealand
PO Box 5501
Wellington 6145
NEW ZEALAND
Tel: +64 4 460 0191
Email: ndonnelly@linz.govt.nz

Chair of Working Group 5.3

Mr. David Avalos-Naranjo
Research Lead for Geoid Modeling
INEGI
Aguascalientes
Aguascalientes 20276
MEXICO
Tel: +449 113 5517

Email: david.avalos@inegi.org.mx

Chair of Working Group 5.4

Dr. Suelynn Choy
School of Mathematics and Geospatial Science
RMIT University
GPO Box 2476
Melbourne
Victoria 3001
AUSTRALIA
Tel.: +61 3 9925 2650
Fax: +61 3 9663 2517
Email: suelynn.choy@mit.edu.au

Co-Chair of Working Group 5.4

Dr. Ryan Keenan
Septentrio
Business Development Manager – Asia Oceania
Melbourne
Victoria 3000
AUSTRALIA
Tel: +61 476 688 117
Skype: ryan_keenan
Twitter: DrRyanKeenan
Email: ryan.keenan@septentrio.com

Chair of Working Group 5.5

Dr. Allison Kealy
RMIT University
GPO Box 2476
Melbourne
Victoria 3001
AUSTRALIA
Tel +61 3 9925 1261
Email: allison.kealy@rmit.edu.au

Co-Chair of Working Group 5.5

Prof. Günther Retscher
Vienna University of Technology
Department of Geodesy and Geoinformation
Engineering Geodesy
Gusshausstrasse 27-29 E120-5
1040 Vienna
AUSTRIA
Tel.: +43 1 58801 12847
Fax: +43 1 58801 12894
Email: guenther.retscher@tuwien.ac.at

Chair of Working Group 5.6

Dr. Leonid A. Lipatnikov
Senior Lecturer
Siberian State University of Geosystems and Technology
Plakhotnogo st. 10, office 543
630082, Novosibirsk
RUSSIA
Tel.: +7 923 2278957
Email: l.lipatnikov@snga.ru

Co-Chair of Working Group 5.6

Dr. Li Zhang
University Stuttgart
Institute of Engineering Geodesy
Geschwister-Scholl-Strasse 24D
D-70174 Stuttgart
GERMANY
Tel. + 49 711 685 84049
Fax + 49 711 685 84044
E-mail: li.zhang@iigs.uni-stuttgart.de

Daniel Roman
Chair, FIG Commission 5
www.fig.net/commission5

April 2019

FIG-Commission 6 - Engineering surveying

The mission of commission 6 is to:

- Support and accompany the development and the implementation of projects in several domains of civil (structural, hydraulic, geotechnical and transportation), mechanical and industrial engineering as well as in highly topical domains like energy production and environmental safety.
- Promote the application of innovative and advanced methodologies and technologies during the design and construction phase as well as throughout the operation phase of the above-mentioned projects.
- Improve the collaboration between engineering surveyors and experts from neighbouring disciplines for a better sharing of knowledge and improvement of results.
- Contribute to the change of professional thinking in order to improve the awareness of our profession.

Work Plan 2019-2022

Commission 6 – Engineering Surveying

Terms of Reference

Design of accurate, robust and reliable surveying systems to be applied to at construction sites or for monitoring proposes.

Validation of surveying equipment

Quality control of measured data

Acquisition of static and/or dynamic data for better understanding the behaviour of structures

Creation and maintenance of integrated geospatial information systems for engineering applications

Improvement of advanced statistical and non-statistical methods to derive reliable information on displacements of structures and natural objects

Improvement of advanced statistical methods to derive reliable information on displacements of structures and natural objects

Increase the use of aerial and terrestrial photogrammetric techniques in construction sites, visual inspections and displacements monitoring

Integration of multi-sensor systems and data

Implementation of automated surveying systems

Contribution with spatial data for BIM, 3D and 4D visualizations, collaborative virtual environments and augmented reality

Mission statement

The mission of Commission 6 is to:

- Assist the engineering surveyors to have privileged access to the newest knowledge, either in the technology domain or the analysis techniques and methods
- Encourage the development of guidelines and good practices
- Disseminate the benefits arising from the newest engineering surveying techniques among other professionals
- Promote interdisciplinary forums for the exchange of knowledge
- Participate in FIG organizations and cooperate with other FIG Commissions as with FIG Networks
- Cooperate with sister organizations, primarily the IAG and ISPRS, including the organization of joint events

General

Nowadays we are experiencing a period of paradigm shifts, several motivated by awareness of the limitations of our planet. Our world is becoming less and less stable. The number of big disasters, whether natural or resulting from human activity (earthquakes, landslides, land subsidence, climate change consequences, etc.) is increasing. Severe weather conditions together with inadequate human interventions on the earth surface, as well as with an increase of inhabitants in several areas of the globe, are leading to a need of engineering surveys in pre, during and post disasters.

In the domain of civil engineering, rehabilitation is the new rule and sustainability in construction is an undeniable demand. Even if 2D mapping is still needed and current practise, engineers and architects look for 3D in all phases, from the design, to the construction, and throughout the operation phase. Several demand 4D models now, integrating data from several sources, sometimes in real (or quasi real) time.

The challenges are increasing. New techniques and requests in new areas of work are challenging the engineering surveyors. FIG Commission 6 will work together with engineering surveyors to provide them information about equipment and methods that will increase their expertise, making them even more valuable professionals.

Working Groups

Working Group 6.1 – Deformation Monitoring and Analysis

Deformation studies in Engineering Surveying are based on a broad knowledge of suitable sensors and their potential, modern data storage and communication solutions and advanced processing and analysis methods. Additionally, a thorough understanding of the behaviour of monitoring objects and processes (e.g., large scale structure or landslide effected area), is essential to set-up and operate an optimum monitoring system.

Nowadays deformation tasks are more and more oriented towards real-time, multi-sensor systems, which require automation of data capture and new concepts in data processing, analysis and interpretation.

WG6.1's main goals will be to support specialists in deformation studies with state-of-the art solutions and provide latest developments and future oriented concepts:

- Promoting studies on the potential of existing and new sensors to determine geometric deformation quantities from surveying and adjacent fields;
- Promoting the development of concepts for automated data storage, data transfer and data pre-processing;
- Promoting the adaptation of numerical algorithms to derive relevant deformation quantities in real-time, including concepts from time series analysis;
- Promoting a multidisciplinary collaboration between surveying, structural and geotechnical engineers to understand the behaviour of structures and geotechnical objects;
- Study of most modern concepts for data analysis like artificial neural networks, fuzzy logics and generic algorithms;
- Investigate and adopt as required modern analysis techniques (Big Data, IoT, etc.) to cope with large volume data arising from large number of low-cost sensors;
- Study the issues and investigate the challenges arising for using Unmanned Aerial Vehicles (UAVs) for deformation monitoring;
- Initiate investigations to extend the range of deformation studies to higher frequencies, which are important in Structural Health Monitoring, i.e. to be able to study oscillations and vibrations and their effects on critical structures;

Workshops/Symposia

In 2011 a new series of symposia was created, named: Joint International Symposium on Deformation Monitoring (JISDM)

These symposia are a joined initiative of FIG (leadership), IAG and ISPRS. The objective is to bring together specialists from different fields within the geodesy, photogrammetry and surveying communities, which have interest in the here mentioned fields of deformation monitoring.

Up to now these symposia are held in Hong Kong (2011), Nottingham (2013), Vienna (2016). The next JISDM will be held in Athens in May 2019. Responsible organiser for this event is Prof.

Vassilis Gikas, the vice-chair of WG 6.1. More than 150 abstracts are submitted for this outstanding meeting!!

Publications (as challenge)

Proceedings of the meetings (it is intended to have the option of peer reviewed proceedings)
Prepare reports on State-of-the-Art (guidelines) for typical deformation tasks (e.g. dams, bridges, high buildings, landslides, rock-fall, ...);
Comparison of concepts from artificial intelligence for deformation analysis;
Case studies: For a typical data set of continuous observations, which has to be defined, different analysis concepts and tools have to be applied.

Working Group 6.2 – Landslides Monitoring

Landslides, debris flows and rockfalls can endanger inhabitants and infrastructures. If we focus on landslides, they have an important societal impact in many mountainous, hilly and coastal regions in the world. Landslide failures may seriously damage the human and environmental resources of a region. However, it is still uneasy to forecast the evolution of a landslide because it depends both on its dynamics and on external triggering events, such as earthquakes and rainfall. This is why monitoring is essential to learn more on the physical processes controlling their movement (failure, propagation) and to attempt to predict their behaviour in time and space. Innovative investigation, monitoring and mapping techniques are being developed in order to improve the methods for local and regional landslide hazard assessment and/or the design of early warning systems.

WG6.2's main goals will be to support specialists in landslides monitoring studies with state-of-the art solutions and provide latest developments and future oriented concepts:

- Promoting studies on the potential of existing and new sensors to determine geometric deformation quantities from surveying and adjacent fields (remote sensing, seismology, meteorology, hydrology and geochemistry);
- Promoting the development of concepts for automated data storage, data transfer and data pre-processing;
- Promoting the adaptation of numerical algorithms to derive relevant deformation quantities in real-time, including concepts from time series analysis;
- Promoting a multidisciplinary collaboration between surveying, geological, geophysical and geotechnical engineers to understand the behaviour of landslides;
- Study of most modern concepts for data analysis like artificial neural networks, fuzzy logics and generic algorithms;
- Investigate and adopt as required modern analysis techniques (Big Data, IoT, etc.) to cope with large volume data arising from large number of low-cost sensors;
- Study the issues and investigate the challenges arising for using Unmanned Aerial Vehicles (UAVs) for deformation monitoring;

Workshops/Symposia

WG6.2 will dialog with geological, geophysical and geotechnical organizations to promote the inclusion, in their events, of sessions or even workshops related with monitoring using surveying techniques.

Publications

FIG publication on landslides monitoring by surveying methods
Technical papers at FIG Proceedings



Commission Chair
Eng. Maria Henriques
National Laboratory for Civil Engineering
PORTUGAL



Commission Vice-Chair
Corinna Harmening
Corinna Harmening@geo.tuwien.ac.at

Technische Universität Wien
AUSTRIA

Working Group 6.1 – Deformation Monitoring and Analysis



Chair: Prof. Dr. Wolfgang Niemeier
w.niemeier@tu-bs.de
Technische Universität Braunschweig
GERMANY



Co-Chair: Prof. Dr. Vassilis Gikas
National Technical University of Athens
GREECE

Working Group 6.2 – Landslides



Chair: Associate Prof. Dr. Gilbert Ferhat
gilbert.ferhat@unistra.fr
INSA Strasbourg
Earth Physics Institute / University of Strasbourg
OMIV French National Landslides Observatory
FRANCE

Photo for the webpage
<https://www.fig.net/organisation/comm/index.asp>



Photo for the webpage
<https://www.fig.net/organisation/comm/6/index.asp>



FIG Commission 7 – Cadastre and Land Management

Work Plan 2019–2022

1. Title

Evolving into prosperity – FIG Commission 7 Work Plan 2019 - 2022

2. Terms of Reference

Land is where most activities of earth occur. People define nations based on the land they were born or occupied and land today, unfortunately, is the main source of conflicts and wars around the globe.

Commission 7 of FIG focuses on the economic, social and environmental challenges for surveyors in managing land rights, restrictions and responsibilities. Throughout the history of humanity, surveyors have played a fundamental role in defining where in the geographical space land rights are. In many cases, cadastre surveyors are active participants of systems, processes and institutions to assign, transfer and protect land rights.

The cadastre, which is the inventory of lands of any jurisdiction, is the heart of a land management system. Commission 7, therefore, focuses its efforts on surveyors that work in the field of design and developed cadastre system as well as other parts of the overall land management system of a nation or sub-national jurisdiction.

Topics that are often discussed by Commission 7 activities and publications include:

- land tenure in a diversity of cultures and societies
- cadastre and land registration
- reforming the cadastre legal framework, governance arrangements and digital systems
- security of land tenure, data and information as well as policies for access to information by citizens
- Fit-For-Purpose and pro-poor land administration /low-cost models
- Models and strategies to involve the private sector in the provision of services within a land management system, such as PPPs
- new technologies for remote and in-situ data acquisition on land rights / social media and third-party data capture / crowdsourcing / role of landowners
- land use and land policy
- valuation and taxation of land / land markets
- multi-dimensional and multi-temporal cadastre
- impact of climate change and disasters on land rights
- standards in land administration
- capacity building in land administration

3. Mission statement

Fair, equitable, transparent land rights, restrictions and responsibilities are a key component of most developed societies and a focus of developing nations in order to improve social and economic conditions of their nations. Commission 7 mission is to work with surveyors and other related technical experts from all nations to provide a platform to discuss challenges, explore new technologies, generate new ideas and support the development of a stronger cadastre surveying profession across the world. The main desired outcome of the Commission 7 is supporting cadastre surveying profession on improving their relevant cadastre and land management systems in such a way that the United Nations Sustainable Development Goals (SDGs) are met.

To achieve this, the main output of Commission 7 are technical publications that are developed in a participative manner among FIG members. Other outputs include events, such as the Annual Meetings, as well as participation in key international forums such as the UN-GGIM, UN FAO, UN-Habitat and the World Bank Land and Poverty conference.

4. Overall Commission Plan

For the next four-year, Commission 7 is intended to build from existing achievements in the Commission in previous years while tackling the new challenges facing the cadastre profession. We believe at the Commission that it is time to focus on those topics that are of concern of surveyors around the world and offer a platform for discussion to ensure cadastre surveyors have the necessary tools to evolve into prosperity in the new approaches across the world for land management.

During the next 4 years, the Commission will put an effort to ensure the views of surveyors are heard by governments across the globe as well as by international organizations and donors such as the United Nation and all its agencies, The World Bank and all other multilateral development banks and donor organizations such as the European Commission, USAID, Millennium Challenge Corporation, DFID, DFAT, AFD, SDC and many more. To achieve this, commission 7 will work during events of these organizations and FIG to ensure there is constant communication between officers and agendas are coordinated.

Commission 7 proposes the development of this Work Plan under three guiding principles:

- Building from previous achievements within the Commission and FIG
- Support the overall FIG plan with high-level of coordination and communication with all FIG instances including the Presidency, Vice-Presidencies and other Commissions
- Always represent the views and needs of surveyors and when differences exist to act as an enabling platform for discussion and consensus

To achieve this Work Plan and contribute to its mission, Commission 7 has the following objectives for the period 2019 – 2022:

- to promote the importance of sustainable land management infrastructures as being essential for sustainable development and economic growth

- to facilitate the understanding of innovative and advanced technologies in cadastre and land management
- to raise awareness of the role of surveyors in land management matters to the public and among stakeholders by developing workshops and other events where open discussions are conducted
- to identify mechanisms to follow the progress of cadastre and land management systems and its contribution to achieving the SDGs
- To explore more efficient mechanisms to fund improvements and expansions of land management systems, including the participation of private surveyors in the provision of specific systems under PPP arrangements
- to produce publications that enhance the ability of surveyors to address new challenges

From an operational perspective, FIG Commission 7 proposes to have 4 Working Groups during the next four years (maximum 4 actives at any one time). These working groups are:

- Cadastre Technologies and the digital Twin
- Fit for purpose
- Cadastre template and the SDGs
- The role of the Cadastre Surveyor

5. Working Groups

Working Group 7.1 – Cadastre Technologies and Smart City (2 years)

Policy Issues

There are multiple technologies being offered for surveyors as part of their activities in the development of cadastre and land management systems. Many of these technologies are unknown to many surveyors, and there is limited understanding of the role, if any, of these technologies.

To address this, working group 7.1 will focus on exploring these new technologies with a critical eye and on building capacity within the surveying community to ensure the best use of the technology and the competitiveness of cadastre surveyors in the market.

Digital twin and Smart City, in particular, are emerging as key topics to improve transportation, energy, social safety and to decrease pollution caused by climate change and urbanization. To solve these problems, total efforts are being made on the smart city construction with all the latest technologies such as Drones, Artificial Intelligence (AI), Big Data, Robot Technology, Virtual Reality (VR) and Augmented Reality (AR) Technology for the era of the Fourth Industrial Revolution. And a smart city can be completed using the platform base called the Digital Twin.

Finally, smart cities are being built to solve the problems of cities that have reached their limits and to ensure sustainability, and eventually, smart cities will change the paradigm of urbanization around the world with the continuing growth of cities and the construction of human-centred smart cities that improve the quality of citizen's life.

Chair: JANG, Bong Bae

Specific project(s):

- The digital twin concept in Korea and opportunities in other jurisdictions
- Introduction of new technologies related to cadastre activities such as Drones (UAVs), Artificial Intelligence, Big Data, IoT, Virtual Reality, Augmented Reality and a study of their effect on cadastral surveying.
- Analysis report will be also circulated among working group 7.5 (the role of the cadastre surveyor)
- Issuing activity report of working group 7.1

Workshop(s)

- Commission 7 2019 Annual Meeting and Smart Geospatial Expo
 - Date: August 5-9, 2019
 - Venue: Novotel Ambassador Seoul Gangnam & COEX
 - Events: Opening and Closing ceremony, Seminars on Technology, Annual Conference, Technical Tour, etc.
 - Official Website: www.smartgeoexpo.kr

Timetable:

Goals	2019		2020		2021	2022
	First Half	Second Half	First Half	Second Half		
Defining Concept and Terms						
Reporting Developments and Practices						
LX Case Studies						
Study Results Presentation						
Report Writing						
Report Reviewing						
Report Publication						

- Terms: Digital Twin, Smart City, Drones (UAV), Big Data, Robot Technology, Virtual Reality, Artificial Intelligence, Internet of Things, Automatic Driving, etc.
- Report title (tentative name): New Cadastre Technologies and Smart City.

Publication(s)

- Discussion paper on emerging technologies and smart city(digital twin)
- Summary recommendations for the assessment of new technologies in land administration systems

Beneficiaries

- Private surveyors in developed and developing countries exposed to new technologies in their profession
- Providers and vendors of technologies so they understand the better use of their products
- Government and donors in the design and development of land reform projects

Working Group 7.2 – Fit-for-purpose (FFP) implementation (4 years)

Policy issues

Many people do not have tenure security. Less than 30% of land rights are documented. Linking people to polygons of land should happen in a fair way.

The Fit-For-Purpose (FFP), Land Administration approach, argues for cost-effective and time-efficient, transparent, scalable and participatory land administration.

During the previous terms, the Commission contributed to the development of the approach and underlined the importance of FFP as a mechanism to optimise resources and, therefore, expand the coverage of land administration system.

A great understanding and adoption of the concept are being achieved. However, further work is required for improving implementation mechanisms. In particular, methods and procedures are needed to identify purposes and selecting the best fit for each situation and to find ways to accommodate to legal national frameworks and to gain legal security for landowners by visible agreement by decision makers.

This working group will focus on collecting experiences and lessons from projects in the world where principles of the FFP approach were applied. The experiences and results will be discussed and shared. This will support surveyors understand better how to implement FFP in cadastre and land management systems. This working group will also work on improving the understanding of FFP in the broader surveying community and highlights where improved capacities are needed to ensure surveyors maintain the relevance of participation in land administration systems. These two tasks will help the working group to contribute to the further development of FFP.

Chair: Paula DIJKSTRA (NL)

Specific project(s)

- Review and Summary of FFP projects with experiences and results
- Workshops to discuss the role of surveyors in FFP projects
- Contributing to further development of FFP

Workshop(s)

- Vietnam during the 2019 FIG Working Week
- The Netherlands during the 2020 FIG Working Week

Timetable:

- Annually: workshop during FIG Working Week / Congress
- Annual: update during the annual meeting

Publication(s)

- FFP implementation case study report
- Contributor to international FFP publications on further development of FFP

Beneficiaries

- Cadastre surveyors are going to be a key beneficiary of this Working Group as it will ensure there is a better understanding of implementation mechanism, their role and opportunities to provide tenure security to all
- Developing countries, donors and multilateral banks will significantly benefit from lessons learned and experiences from projects where the FFP approach was applied, to gain support from communities and stakeholders

Working Group 7.3 – Cadastral Template 2.0 and the SDGs (4 years)

Policy issues

Since 2003, and by mandate of Resolution 4 of the 16th UNRCC-AP in Okinawa, Japan, Commission 7 with the support of Melbourne University has maintained a repository of information about cadastre systems across the world in the website www.cadastraltemplate.org. Commission 7 members have been instrumental in maintaining this information and today there is information for over 50 countries. The relevance of the Cadastral Template platform has been renewed by the United Nations GGIM expert meeting in New York (2018) in where a resolution was approved to support use as a supporting mechanism to track the progress on achieving the sustainable development goals.

Chair: Daniel Steudler (CH) with the support of Abbas Rajabifard (AU)

Specific project(s)

- Modernization of the technical platform
- Development of indicators relevant to SDGs
- Development of information updating mechanisms

Workshop(s)

an initial workshop in Hanoi 2019 will be conducted to present the general project plan

Timetable:

It has been agreed with the University of Melbourne the following timeframe:

- The general concept for the development of the new template under SDGs: April 2019
 - Workshop with commission 7 delegates: April 2019
- Development of a preliminary pilot: August 2019
 - Workshop with commission 7 delegates at the annual meeting in Korea
- The release of the platform for delegates to contribute
 - Amsterdam working week

Publication(s)

- Update information on the website (www.cadastretemplate.org)

Beneficiaries

- Overall FIG surveyors as the relevance of FIG and Commission 7 will be highlighted as an instrument to support the achievement of SDGs

Joint Working Group – Urban Challenges (Joint Working Group with Commission 8 and 9)

Please see work-plan Commission 8

6. Co-operation with Other Commissions and organisations

We have agreed with Commission 8 and 9 to have a multi-commission Working Group in where topics of relevance for the three Commissions will be discussed. This Working Group will have a rotating chair, and it will serve as a bridge between the Commissions to ensure information, documents and events are coordinated.

Additionally, Commission 7 is actively participating in Commission 3 working group on 3D cadastre, and this cooperation is intended to continue for the next 4 years.

7. Co-operation with United Nation Organisations, Sister Associations and other Partners

FIG Commission 7 has notably developed very strong relationships with key international bodies in the cadastre and land sector. Notably, Commission 7 has a close relationship with:

- UN-GGIM – liaison Commission member : Abbas Rajabifard
- World Bank – Liason Commission member : Daniel Paez
- UN-Habitat
- FAO
- UN Regional Commissions

8. Commission Officers

Commission Chair

Daniel Paez (CO)

Vice Chair of Administration

Paula Dijkstra (NL)

Chair of Working Group 7.1

JANG, Bong Bae (KR)

Chair of Working Group 7.2

Paula Dijkstra (NL)

Chair of Working Group 7.3

Daniel Stedluer (CH)

Chair of Joint? Working Group ?

TBA

FIG Commission 8 – Spatial Planning and Development

1. Title

Spatial planning and development

2. Terms of Reference

- Spatial planning policy, implementation, monitoring and evaluation
- Land policy instrumentation for the implementation of spatial plans
- GIS tooling in spatial planning
- Rural-urban relations and dependencies
- Participatory and inclusive planning processes
- Urbanization patterns and development strategies
- Valuation in spatial planning and land use change
- Sustainable development

3. Mission statement

In a world of limited resources, of which land is the most prominent in the domain of spatial planning, the mission of commission 8 is to provide access to planning processes for all and balance the various interests in pursue of a sustainable spatial development at all governance levels both for the short- and long-term.

4. General

Changing urbanisation patterns, increasing climate extremes, technical developments, changing social and economic demands, rural-urban dependencies, and the need for sustainable development, to mention just a few developments, all pose a pressure on land use and its spatial distribution. Spatial planning is closely related to tenure as spatial developments, planned or unplanned, affect land use, land owners and its users. From this perspective, commission 8 wants to connect scientists, professionals, and practitioners from all backgrounds to foster a sustainable development at all scales (local, regional, national, supra-national).

Different localities face different developments and will respond differently to them. This commission aims to provide a platform for the spatial planning community to share and discuss such differences, and similarities of course, and find ways to respond to them, develop principles of good governance and embed them in planning practice. These will draw on established guidelines or principles such as the Sustainable Development Goals ([SDG's](#)), the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security ([VGGT](#)), Fit-for-Purpose Land Administration ([FFP](#)) or Participatory and Inclusive Land Readjustment ([PILaR](#)).

The development of policies to guide spatial development is at the heart of the domain, but we also pay attention to ways to implement these policies. Participatory processes will provide a voice to stakeholders in the dialogue between stakeholders and governments. Furthermore, ongoing technical developments open up possibilities to support planning processes with GIS tools or e-government applications. As the saying goes, a map tells more than a thousand words. One of the challenges is to appropriately integrate GIS tools into planning processes and connect to the system of available data sets.

Additionally, it is important to have a look at the instruments (instrumentation) that governments have at their disposal to implement spatial policies and in particular land use change. Land

consolidation, land readjustment, compulsory purchase / expropriation / eminent domain, land banking, pre-emption rights, and similar land policy instruments all use or affect land rights to realise the planned spatial development. Because of their impact on land rights, land policy instrumentation should be used thoughtfully to guarantee legal certainty for involved stakeholders.

In the period 2019-2022, the focus of commission 8 will be:

- To discuss strategies for the short- and long-term in the cycle of policy development, implementation, monitoring and evaluation.
- To investigate the role of land policy instrumentation to implement planned spatial development.
- To promote and advance the use of GIS tools in participatory spatial planning processes (cooperation with commission 3).
- To investigate rural-urban relations and dependencies and raise awareness in planning issues for SMART solutions.
- To discuss urbanization patterns, development strategies and their effects on communities (cooperation with commission 7).
- To investigate valuation in spatial planning related to land use change (cooperation with commission 9).
- To foster awareness for well-balanced planning decisions to support sustainable development (ecologically, economically, socially).

5. Working Groups

Working Group 8.1 Rural – urban dependency

Introduction

Rural and urban (including peri-urban) areas are important for development, because all over the world they provide space for people to live. They face similar development challenges, although differences exist as well, and therefore have common needs in terms of development Figure 1).

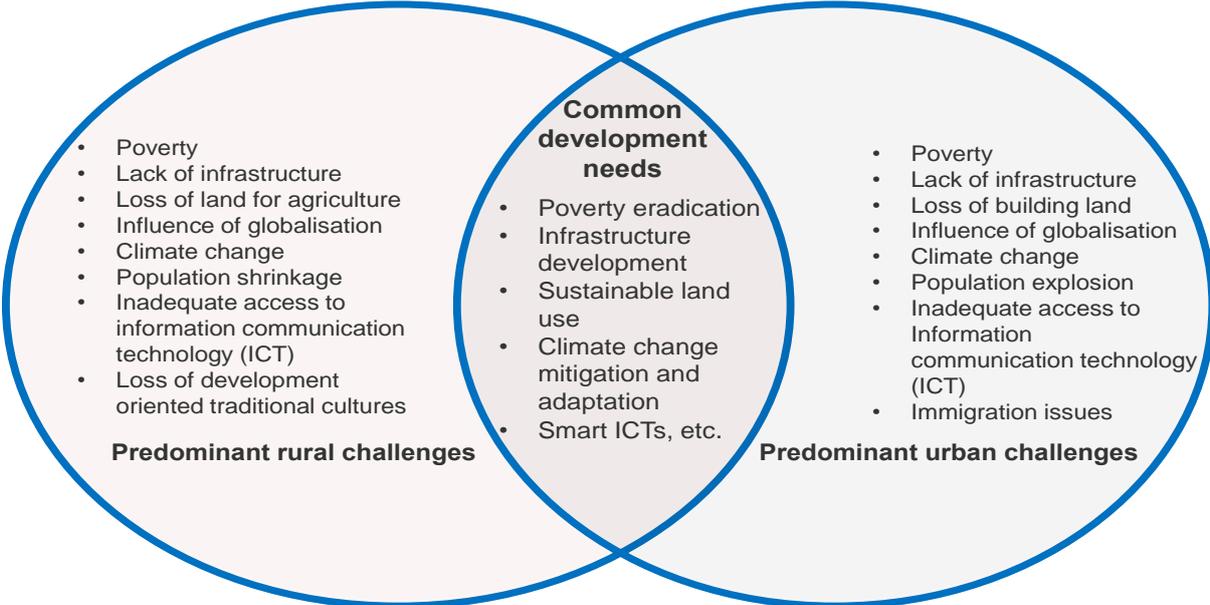


Figure 1 Challenges and common needs of rural and urban areas

Both rural and urban areas co-exist for mutual benefits because rural resources are needed in urban areas and urban resources are needed in rural areas. There has been a big focus on urban development – especially concerning the development of sustainable, green and smart cities – with less attention paid to rural development. While the focus on urbanisation is understandable, spatial planning (and development) demands a balance (and continuum) between rural and urban development. From this perspective, rural areas deserve similar attention for them to become more liveable places. With appropriate spatial planning (and development) concepts and approaches, rural and urban areas can become socially and technologically smart spatial units. However, this is only possible if they are investigated from a continuum lens – with focus on their socio-spatial interdependencies and interrelationships.

Policy Issues

- Investigate rural – urban relations and dependencies that affect sustainable spatial development.
- Identify key developments in rural areas, such as depopulation, rural land market or food security, to be addressed in a SMART way.
- Investigate approaches to urban and rural development and recommend or innovate approaches that are responsive to the urban-rural continuum of development.

Chair

Rosy Liao Rong - China Land Surveying and Planning Institute, People's Republic of China
Email: rosyliao@outlook.com

Co-chairs

Dr.-Ing. Michael Klaus - Hanns Seidel Foundation, Germany
Email: klaus@hss.de

Mr. Eugene Chigbu – Technical University Munich, Germany
Email: ue.chigbu@tum.de

Specific project(s)

- Identify factors and delineate solutions for SMART rural development to minimize the gap between urban and rural areas.

Workshop(s)

- Special session at FIG working week to discuss factors for SMART rural development

Publication(s)

- Working paper on SMART rural areas (in collaboration with GLTN).

Timetable

- 2020: Deliver working paper on SMART rural areas (in collaboration with GLTN).

Beneficiaries

United Nations (GLTN), World Bank, FIG professional Associations and member organizations, Land Administrations, Civil Society Organizations, NGO'S, governments, researchers.

Working Group 8.2 GIS tools for spatial planning (joint Working Group with commission 3)

Introduction

GIS tools hold great potential to support spatial planning practice. Ongoing developments in digitalization of data sets and communities further open up possibilities to apply GIS tools in spatial planning processes. The latter typically follow a cyclic pattern: (1) development of spatial policies, (2) policy implementation, and (3) monitoring and evaluation (Figure 2). Spatial policies range from strategic visions to land use plans that at operational level determine and distribute land use types. Together with legislation and rules, these spatial policies constitute the framework for implementation of spatial policies. Programmes, projects, enforcement mechanisms and the like can be used to implement spatial policies, depending on the situational context. Finally, monitoring and evaluation is necessary to measure whether policy aims are met or need to be adapted, which may lead to the development of new spatial policies.

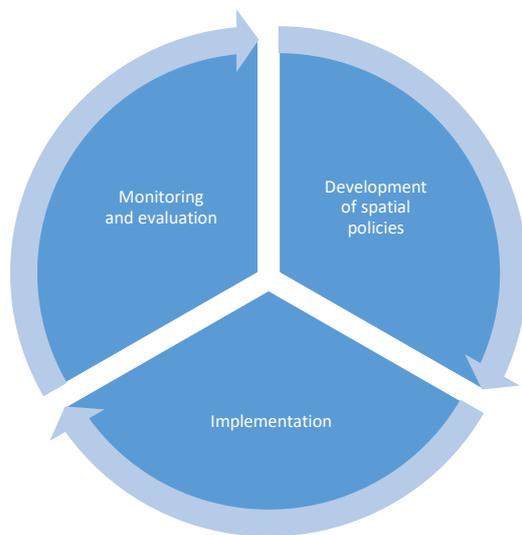


Figure 2 Spatial planning cycle

Due to the different nature of each phase in the cycle, GIS tools to support spatial planning practice will require different data specifications, functionality and usability features. This working group aims to gain a better understanding of developing useful GIS tools given a particular planning exercise, based on the different phases in the spatial planning cycle. Having appropriate and user friendly GIS tools available will create a positive spin-off in terms of enhancing information transparency and increase inclusiveness among participating stakeholders.

Policy issues

- Examine current GIS tools used in spatial planning practice and consider the potential role for future applications.
- Develop guidelines based on best practices regarding data standards, functionality and usability of GIS tools.
- Encourage the use of spatial information and public participation in spatial planning by using e-government.
- Foster transparency, inclusiveness and legal certainty in decision-making by providing tools for stakeholders to access information and participate in spatial planning processes.

Chair

Enrico Rispoli – Consiglio Nazionale Geometri e Geometri Laureati (CNGeGL), Italy
e.rispoli@cng.it

Co-chair

Adriana Czarnecka - Warsaw University of Technology, Department of Spatial Planning
Email: Adrianna.Czarnecka@pw.edu.pl

Specific project(s)

- Identification and overview of GIS tools in spatial planning
- In-depth analysis of participatory GIS tools

Workshop(s)

- Joint commission 3 and 8 workshop or symposium
- Special papers at FIG working weeks or congress

Publication(s)

- Platform to disseminate the results of the GIS tools analyses.
- Publication on GIS tools for spatial planning - Best practices and guidelines.

Timetable

- 2019 - 2020: analysis of GIS tools and guidelines
- 2020 (autumn): joint commission 3 & 8 meeting
- 2021- 2022: FIG publication & awareness raising

Beneficiaries

FIG Members associations, Governments, Citizens, Business (GIS solutions).

Working Group 8.3 Urban Challenges (joint Working Group with commission 7 and 9)

Introduction

According to the United Nations¹ urbanization prospects, by 2050 68 % of the world's population will be living in urban areas. To ensure a sustainable development and ensure access to services for all, including the vulnerable, requires considerable effort from all involved. It touches upon themes such as urban resilience (social well-being, health, services, climate), informal settlements, affordable housing and financial sustainability among others.

Policy Issues

- Scope and analyse current and future challenges for communities in small, medium, large, and megacities, in terms of urban resilience, climate change, housing and informal settlements, and fiscal health.
- Investigate principles of traditional tribal communalism and understand how those principles can be successfully reintroduced into contemporary residential development.

¹ United Nations, 2018. World Urbanization Prospects: The 2018 revision.

- Explore current practices around the globe for tackling urban housing issues and combine existing research which forecast future practices.
- Investigate critical success factors of existing high-density living arrangements (environmental, social, legal, etc).
- Contribute to the dissemination of best practices of how spatial planning can contribute to address the present and future urban challenges.
- Investigate the potential contribution of land-based finance to addressing these urban challenges.
- Develop an audit tool for the assessment of sustainable municipal finance, fiscal health and land-based value capture tools in relation to the urban challenges.
- Posit alternative future design models and provide guidance for governments, municipalities, communities and professionals on incorporating these models into current practises for sustainable, spatially informed, and sociable city-living.

Chairs

This WG will be led by a chair from each involved commission, together collaborating on the proposed activities.

Commission 8:

Erwin van der Krabben – Professor of Planning and Property Development in the Department of Planning, Radboud University Nijmegen, the Netherlands

Email: e.vanderkrabben@fm.ru.nl

Co-Chairs

Commission 8:

James Berghan – School of Surveying, University of Otago, New Zealand

Email: james.berghan@postgrad.otago.ac.nz

Claire Buxton – Licensed Cadastral Surveyor New Zealand

Email: clairelouisebuxton@gmail.com

Specific project(s)

- Vertical villages: A sense of community in high-density living environments. Building socially-based land tenure in spatial planning. Focus on urbanized areas, in particular high rise buildings.
- Ecology of community: Incorporating socially-based tenure principles into contemporary urban residential development.
- Land based financing and land value capture is one of the key elements of the new urban agenda
- Development of audit tool for municipal fiscal stress and land-based value capture tools for climate change investments

Workshop(s)

- Joint commission 7, 8 and 9 technical session at FIG working weeks, e.g. a roundtable or workshop at FIG Working Week in Amsterdam, 2020.

Publication(s)

- Articles on vertical villages and ecology of community.

- Working paper with best practices of spatial planning contributions to addressing global urban challenges
- Working paper with innovations in municipal (land-based) financial tools for sustainable urban development

Timetable

- 2019: analysis of best practices
- 2020: development of audit tool for municipal fiscal stress and land-based value capture tools for climate change
- 2020: special session commission 7, 8 and 9 at FIG 2020 or otherwise a joint meeting
- 2021: joint commission & Financing Clean Air workshop
- 2022: assessment tool and guidance documents presented at FIG Working Week, Cape Town

Beneficiaries

United Nations (UN Habitat), World Urban Forum, World Bank, FIG professional Associations and member organizations, governments, NGO'S, researchers, indigenous and urban communities globally. This project will contribute to the achievement of the 2030 Agenda for Sustainable Development, in particular, with regard to Sustainable Development Goal 11: Make cities inclusive, safe, resilient and sustainable. In particular, this project will seek to understand how high density living can be achieved to create positive socially sustainable outcomes for residents.

Working Group 8.4 Land policy instruments for spatial development

Introduction

Land, being a limited resource, requires some form of land management to foster a sustainable development. Demand for land, for instance for food production, housing, nature conservation, or infrastructure, surpasses supply. Moreover, supply of appropriate land does not necessarily meet demands regarding its spatial distribution. This working group focuses on international available land policy instruments that may support stakeholders, mostly governments, upon the implementation of spatial policies and spatial redistribution of land to foster a sustainable spatial development.

Policy Issues

- Analyse available land policy instrumentation, such as land banking, expropriation, land consolidation, land readjustment, expropriation, pre-emption rights to implement spatial objectives for a sustainable development.
- Foster the dissemination of international practice of land policy instruments and their applications.
- Establish and distribute a generic legislative framework for land consolidation.
- Develop and describe a generic process for land consolidation to foster the development of a generic and modifiable open source GIS tool to support the implementation of land consolidation in various countries.

Chair

Dr. Morten Hartvigsen – LANDNET / Food and Agriculture Organisation of the United Nations (FAO), Regional Office for Europe and Central Asia, Hungary

Email: morten.hartvigsen@fao.org

Co-chairs:

Prof. dr. Walter de Vries – Technical University Munich

Email: wt.de-vries@tum.de

Ms. Wioleta Krupowicz – Warsaw University of Technology, Department of Spatial Planning and Environmental Sciences, Poland

Email: wioleta.krupowicz@pw.edu.pl

Mr. Rodrigue Bazame – Ankara University, Real Estate Development and Management Department, Turkey

Email: Rodrigue.Bazame@ankara.edu.tr

Specific project(s)

- Develop and describe a generic process for land consolidation
- Investigate possibilities to develop a generic, modifiable open source GIS tool to support land consolidation, and ultimately have it developed.
- Compare international land policy and instrumentation practices

Workshop(s)

- Joint commission 8 & LANDNET meeting preferably in 2019 and 2021
- Special papers at FIG working weeks or congress

Publication(s)

- Joint FIG / FAO publication(s) on land consolidation
- Working paper with best practices of land policy tools across Europe & Central Asia & worldwide

Timetable

- 2019: joint commission 8 & LANDNET workshop / symposium (autumn)
- 2020: a special session at FIG 2020
- 2021: joint commission 8 & LANDNET workshop / symposium (autumn)

Beneficiaries

Governments, Citizens, stakeholder groups, FIG and LANDNET members and participants

Working Group 8.5 African Water Governance

Introduction

Resilience applies to both the industrialised and less-industrialised parts of the world and is associated with many aspects of human activity, often responding to the effects of climate change. It could be related to food, water, land, or energy scarcities. It could relate to living by the coast and the threat of sea level rise and storm surges, or in mountainous areas threatened by glacial deluge, or in arid areas with erratic rainfall, or on small or low-lying islands facing increasingly violent storms. It could also relate to living in rural areas or in urban situations. Whenever and wherever there is a threat of a natural hazard (such as flooding, drought, heatwave), then there is an associated need to be resilient to “come back” after the effects of that hazard have been endured.

Development gains can be quickly wiped out by a natural disaster directly, a surge in prices (as a consequence of a disaster), or a resource conflict. Gains could also be undermined over time by the cumulative effects of stressors such as climate change; environmental degradation; water, food, and energy scarcity; and economic uncertainty. While humanitarian responses to crises have saved lives and helped to restore livelihoods, such efforts have not always addressed underlying vulnerabilities. A resilience-building approach helps to address the damaging effects of shocks and stressors before, during, and after crises, thereby minimising human suffering and economic loss. The ability and capacity to “come back” is a measure of the individual or collective resilience. In this working group, we focus on resilience in urbanised areas in Africa from a water governance perspective and the role of surveyors.

Policy Issues

- Scope and analyse current and future challenges for communities in small, medium, large, and megacities, in terms of the resilience of water governance;
- Investigate the principles of conventional water governance and understand how those principles could be re-configured or aligned with climate change imperatives;
- Explore current practices around Africa for managing water resources and combine with climate change predictions and population growth scenarios;
- Investigate and document critical success factors when managing water resources;
- Contribute to the dissemination of good practice in managing water resources for resilience; and
- Propose alternative future scenario strategies for managing water resources and provide guidance to governments, municipalities, communities and professionals on reflecting these potential futures into current practice for sustainable, spatially-informed water governance.

Chair

Richard Pagett - Professor of Sustainable Development, European Centre for Peace and Development
United Nations University for Peace, Belgrade, Serbia

Email: secure@richardpagett.com

Co-Chair

Isaac Boateng - Senior Lecturer, Department of Construction and Wood Technology
University of Education, Winneba, Kumasi-Campus, Ghana

Email: work: isaac.boateng@uew.edu.gh

Specific project(s)

- Develop and describe a generic process for building resilience into urban water governance particularly from the perspective of the role of surveyors

Workshop(s)

- Technical session at FIG working week in Amsterdam, e.g. a round table or workshop.

Publication(s)

- Working paper with good practice of resilience planning to address African water governance challenges

Timetable

- The Working Group will be established for two years.
- 2019:
 - Scope and analyse current and future of the resilience of water governance in Africa
 - Establish how conventional water governance could be re-configured or aligned with climate change imperatives
 - Document critical success factors when managing water resources
- 2020:
 - Technical session at FIG Working Week in Amsterdam
 - Working paper:
 - Present alternative future scenario strategies for managing water resources
 - Provide guidance to governments, municipalities, communities and professionals on reflecting these potential futures into current practice for sustainable, spatially informed, water governance

Beneficiaries

United Nations, World Bank, FIG Professional Associations and member organisations, African governments, NGOs, researchers, rural, peri-urban and urban communities. This project will contribute to the achievement of the 2030 Agenda for Sustainable Development, in particular, with regard to Sustainable Development Goals 3 (Good Health and Well-being), 6 (Clean Water and Sanitation), 11 (Sustainable Cities and Communities) and 13 (Climate Action).

6. Co-operation with other commissions and organisations

Commission 8 intends to cooperate with commissions 3, 7, and 9, specifically on similar topics addressed by these commissions. Each commission will contribute to the topic from their perspectives, knowledge and expertise. Commission 8 will look at the topics through the lens of spatial planning.

Cooperation with commissions 3 and 7 & 9 is established in two working groups jointly chaired by respective commissions.

Apart from that, commission 8 will actively support the involvement of Young Surveyors into commission work. Therefore, several young surveyors are involved in particular in Working Group 8.3.

7. Co-operation with United Nation Organisations, Sister Associations and other Partners

Commission 8 will use opportunities to work together with relevant organisations and networks in the field of spatial planning. Working Group 8.4 involves among others [LANDNET](#) - a network for professionals in Central and Eastern European countries, representing the government, the private sector, NGO's, universities and other research institutes. The aim of the LANDNET is to stimulate proper and timely responses to (changing) needs of society regarding land use and land tenure in rural and peri-urban areas.

Other relevant networks, such as [AESOP](#) (Association of European Schools of Planning), and in particular their thematic group [Planning Law and Property Rights](#) (PLPR), [Food and Agriculture](#)

[Organisation](#) (FAO), [LANDac](#), [GLTN](#) or [UN-Habitat](#). Activities may relate to publications, projects, or otherwise.

8. Commission Officers

Commission Chair

Marije Louwsma
International advisor
Cadastre, Land Registry and Mapping Agency
The Netherlands
Tel. +31 88 183 4463
Mob. +31 6 23666419
Email: marije.louwsma@kadaster.nl

Chair of Working Group 8.1

Ms. Rosy Liao Rong
China Land Surveying and Planning Institute
The Ministry of Land and Resources
Beijing
The Peoples' Republic of CHINA
Tel.
Email: rosyliao@outlook.com

Chair of Working Group 8.2

Geom. Enrico Rispoli
Consiglio Nazionale Geometri e. Geometri Laureati (CNGeGL)
Piazza Colonna, 361
I-00187 Rome
ITALY
Tel. + 39 06 4203161
Email: e.rispoli@cng.it

Chair of Working Group 8.3 on behalf of commission 8

Erwin van der Krabben
Professor of Planning and Property Development
Department of Planning
Radboud University
NETHERLANDS
Tel. +31 24 3611254
Email: e.vanderkrabben@fm.ru.nl

Chair of Working Group 8.4

Morten Hartvigsen
Food and Agriculture Organisation of the United Nations (FAO)
Regional Office for Europe and Central Asia
Benczur u. 34.
H-1068 Budapest
HUNGARY
Tel. +36 30 59 8455
Email: morten.hartvigsen@fao.org

Chair of Working Group 8.5

Richard Pagett
Professor of Sustainable Development
European Centre for Peace and Development (ECPD)
United Nations University for Peace
Terazije 41 Belgrade
SERBIA
Tel. +381 11 3246 041
Email: secure@richardpagett.com

Marije Louwsma
Chair, FIG Commission 8
www.fig.net/commission8

December 2018

FIG Commission 9 - Valuation and the Management of Real Estate.

Work Plan 2019–2022

1. Title

Valuation/Appraisal and the Management of Real Estate.

2. Terms of Reference

FIG Comm 9 is focussed on the economic strand of surveying and specifically the valuation/appraisal of real estate (land and buildings). Comm 9 also looks at compulsory acquisition, sustainable land and property taxation, new technologies such as AVMS, informal land markets, new sectors such as natural-ecosystem value and international standards such as ILMS and IVSC valuation standards and methodology. Comm 9 is also engaged with numerous agencies such as World Bank, UN FAO, GLTN, and IFC.

Valuation, being the estimating of value of all kinds of real estate by valuers and appraisers for various purposes, including market value, property taxation, eminent domain, investment, redevelopment and refurbishment, and for both public and private purposes;

- Investment in real estate, investment planning and real estate investment vehicles;
- Real estate finance, development finance, land use feasibility and viability planning;
- Real estate economics, land markets and market analysis (both formal and informal);
- Land valuation, land compensation and compulsory purchase/eminent domain;
- Sustainable land and property taxation models and enabling technologies;
- Enabling the adoption of international standards such as IVSC and ILMS;
- Management of all kinds of real estate at all levels;
- Asset management for corporate private and public sectors;
- Natural capital and ecosystem valuation methodologies and practice;
- Professional practice and qualification routes – the embedding of valuation as a core global surveying skillset.

3. Mission statement

Professional valuations are vital to a healthy land/property/asset market and a stable economy, forming the basis of performance analysis, financing decisions, transactional or development advice, dispute resolution, taxation, acquisition and various statutory applications. Robust practice standards form the basis of high-quality valuations.

Key Goals

- Work with all commissions to ensure valuation/appraisal contributes to their success by providing relevant evidential benchmarking
- Ensure valuation/appraisal remains relevant through the 4th Industrial Revolution and is key to achievement of UN SDGs

- Continue to work on defining ‘Social Value’ and informal assets
- Natural and ecosystem value
- Emphasis on land acquisition, compensation, sustainable taxation, land value capture and infrastructure/urbanisation – ILMS/LADM connection
- Provide support for changing face of Valuation Education and collaboration with other bodies (IVSC, GLTN, UNFAO)

4. General

Valuation and valuation principles have come of age and are in many ways the end game for all other aspects of surveying. Accurate and standards led valuation/appraisals leads to stable land & property markets, the application of sustainable taxation systems, fair compensation during acquisition and the establishment of legitimate land rights. Good valuation is a prerequisite for any form of functioning land administration system and during the next period Comm 9 would like to bring valuation and its principles back to the core of the global surveying profession. During this period Comm 9 will be looking at numerous issues, several focussed on the economics of fungible land & real estate markets, and the effects that they can have on development, financial stability, services through taxation, informal markets and investment processes. During this period Comm 9 will seek to;

- Advance the professional practice of surveyors/valuers/appraisers and property managers working in all areas of real estate valuation and management;
- Research and publish “best practice” for the benefit of surveyors, valuers and property managers in different jurisdictions and sectors of the industry. This will benefit the global surveying community and improve our services to the wider public;
- Help embed and aid the adoption of international standards within the global surveying community;
- Actively take part in initiatives such as LADM II (and technologies such as AVM, Blockchain etc) and provide valuation expertise to other global projects;
- Develop an understanding of emerging sectors such as natural capital and ecosystem value;
- Further develop collaboration on understanding valuation in the context of unregistered and informal land markets;
- Work with Comm 7, 8 (and UN agencies) on understanding land acquisition and fair, pro-poor compensation processes;
- Help underline the centrality of ‘valuation’ to the New urban Agenda and land value capture techniques;
- Embed valuation principles within the FIG SDG taskforce;
- Facilitate and generate the exchange of information, knowledge and experience between surveyors for the benefit of the profession, our clients and the wider public;
- Publicise and promote the work of surveyors to the public, particularly to young people, governments and non-government organisations and to enhance the value and perception of the value of surveyors and the services they can deliver, especially in support of the UN Sustainable Development Goals (SDGs) and the UN Habitat New Urban Agenda (NUA);
- Co-operate and work with fellow commissions; help bring valuation knowledge to geospatial information;

- Help develop professional practice and qualification routes and embed valuation as a core global surveying skillset;
- Further develop collaboration with international agencies such as UN GGIM, UN FAO, UN Habitat, World Bank and IFC.

5. Working Groups

Working Group 9.1 Urban Challenges (joint Working Group with commission 7 and 8)

Introduction

According to the United Nations¹ urbanization prospects, by 2050 68 % of the world's population will be living in urban areas. To ensure a sustainable development and ensure access to services for all, including the vulnerable, requires considerable effort from all involved. It touches upon themes such as urban resilience (social well-being, health, services, climate), informal settlements, affordable housing and financial sustainability among others.

Policy Issues

- Analyse present and future challenges for small, medium, large, and megacities, in terms of urban resilience, climate change, housing and informal settlements, and fiscal health
- Contribute to the dissemination of best practices of how spatial planning can contribute to address the present and future urban challenges
- Investigate the potential contribution of land-based finance to addressing these urban challenges
- Develop an audit tool for the assessment of sustainable municipal finance, fiscal health and land-based value capture tools in relation to the urban challenges

Chairs

This WG will be led by a chair from each involved commission, together collaborating on the proposed activities.

Commission 9:

James Kavanagh – Director land & resources, RICS, London, UK

Email: jkavanagh@rics.org

Co-Chairs

Commission 8/9:

Tony Mulhall – Asst Director land & resources, RICS, London, UK

Email: tmulhall@rics.org

Specific project(s)

- Building socially-based land tenure in spatial planning. Focus on urbanized areas, in particular high-rise buildings.
- Land based financing and land value capture is one of the key elements of the new urban agenda

¹ United Nations, 2018. World Urbanization Prospects: The 2018 revision.

- Development of audit tool for municipal fiscal stress and land-based value capture tools for climate change investments

Workshop(s)

- Joint commission 7, 8 and 9 technical session at FIG working weeks

Publication(s)

- Working paper with best practices of spatial planning contributions to addressing global urban challenges
- Working paper with innovations in municipal (land-based) financial tools for sustainable urban development

Timetable

- 2019: analysis of best practices
- 2020: development of audit tool for municipal fiscal stress and land-based value capture tools for climate change
- 2020: special session commission 7, 8 and 9 at FIG 2020 or otherwise a joint meeting
- 2021: joint commission & Financing Clean Air workshop

Beneficiaries

United Nations (UN Habitat), World Bank, FIG professional Associations and member organizations, governments, NGO'S, researchers.

Working group 9.2

Valuation of Informal land & property

Introduction

FIG, UN Habitat GLTN and FIG have been collaborating for several years on understanding the global 70% (in most cases much higher on a national basis) of the land & real estate market that operates on an unregistered and informal basis. GLTN and RICS both launched complimentary research and guidelines at FIG Istanbul 2018

http://www.fig.net/news/news_2018/05_Guide_Valution_unregistered_Land.asp
<https://gltn.net/2018/09/05/rics-research-valuation-of-unregistered-land-2018/>

Comm 9 would like to bring this initiative to professionals and practitioners by helping produce a field-based protocol for the valuation of unregistered land. Valuing unregistered land highlights important strengths but also challenges to current valuation practice. The previous output found that valuers/appraisers have shown industry and innovation in adapting valuation methods and in this sense, local valuation practices have been quite resilient. However, there are also challenges specific to the valuation of unregistered land. Undervaluation is a major challenge, as is overvaluation in some instances. Overall, most of the conflicts associated with compensation for the expropriation of unregistered lands arise from the top-down nature of the valuation process, a narrow view of 'value' as limited to only legally created structures, and an overly strong reliance on asocial valuation techniques for establishing value. The reports also highlighted the chronic lack of professional and technical capacity in this sector. Another major finding was that various forms of proof of tenure (tax and utility bills, affidavits from neighbours, occupation proof etc) are admissible in all three markets during lending and dispute resolution processes, this a major insight into how informal land markets operate outside of formalised titling and registration systems.

Policy Issues

The potential output has enormous ramifications for practice and could be extremely influential. It is important to maintain the collaborative nature of the initiative and to include other significant organisations such as the International Financial Corporation (IFC), ILMS coalition and International Valuation Standards Council (IVSC).

It is also important that this output is directly connected to:

FIG Pub 67 - Property Taxation for Developing Economies

<http://www.fig.net/resources/publications/figpub/pub67/figpub67.asp>

FIG Pub 54 - Compulsory Purchase and Compensation

<http://www.fig.net/resources/publications/figpub/pub54/figpub54.asp>

FAO Valuation of land rights – VGGT technical guide -

<http://www.fao.org/tenure/resources/collections/governanceoftenuretechnicalguides/en/>

Chair

Tbc

Specific project(s)

The valuation of unregistered land – a due diligence/best practice protocol for use by professional valuers

Workshop(s)

Workshops will be focussed on: World Bank Land Conferences, FIG Accra 2021 working week, UNFAO Oct events, GLTN partner meetings.

Publication(s)

The valuation of unregistered land – a due diligence/best practice protocol for use by professional valuers

Timetable

Key milestones: FIG working weeks, aiming for FIG Cape Town 2022

Beneficiaries

Developing world nations, world bank, UN, professional surveyors and valuers, investors, acquiring authorities

Working group 9.3

Ensure valuation/appraisal remains relevant through the 4th Industrial Revolution and is key to achievement of UN SDGs

Introduction

Comm 9 has an important role to play in bringing economic and valuation issues to bear with regards to technology advances such as Automated Valuation Models (AVMs), Blockchain, GIS and technology enabled taxation systems. This workgroup will also lead on the Comm 9 involvement with the FIG taskforce on Sustainable Development Goals (SDGs). Valuation/appraisal is central to the achievement of several SDGs and is a major enabling element of the New Urban Agenda.

Policy Issues

Valuers need to be aware of the impact of technologies such as big data and automated valuation and are strongly recommended to increase their understanding. In certain cases, such as with low-risk valuations, the AVM may completely replace the valuer. In many instances however, the valuer and the AVM will need to work hand in hand, with the professional valuer ensuring that data used by the AVM is properly checked using forecasts, then the results are analysed and interpreted, and reported on in an understandable way for the client. The valuer will need to embrace technology or be overtaken by it. It is hoped that the use of AVMs will ultimately make it possible for professionals to spend more time working on complex valuations

Chair

Ben Elder – Director for Valuation

Email : belder@rics.org

Specific project(s)

Comm 9 direct involvement with FIG taskforce on SDGs
Potential FIG output on the use of Blockchain within valuation systems
LADM II – valuation expertise and input

Workshop(s)

Tbc but probably connected to FIG working weeks

Publication(s)

A proposed new FIG Pub on valuation and technology

Timetable

FIG Cape Town 2022

Beneficiaries

FIG commissions, valuers, professional surveyors, investment vehicles, sovereign wealth funds, world bank, UN agencies, national valuation agencies

6. Co-operation with Other Commissions and organisations

Commission 9 will support and contribute to FIG task forces, and, in particular, to the SDG Task Force, the Young Surveyors Network, the United Nations organizations, UNECE, WPLA, REAG, FAO, UNHABITAT, GLTN, and the World Bank. It is envisaged that such international organisations will be particularly interested in the work of the Working Group 9.1 and 9.2. The possibility of joint events will be investigated.

7. Co-operation with United Nation Organisations, Sister Associations and other Partners

Commission 9 is co-operating with FAO, UNECE, UN GGIM, GLTN and UN-HABITAT on Commission 9 related issues. Commission 9 will investigate co-operation opportunities with a range of relevant international organisation, including the International Financial Corporation (IFC), ILMS coalition and International Valuation Standards Council (IVSC), the International Property Taxation Institute (IPTI), International Association of Assessing Officers (IAAO) and the Lincoln Institute of Land Policy.

8. Commission Officers

Commission Chair

Ben Elder FRICS – Director of Valutaion, RICS, UK
belder@rics.org

Vice Chair of Administration

James Kavanagh – Director Land & Resources
jkavanagh@rics.org

Chair of Working Group 9.1

James Kavanagh – Director Land & Resources
jkavanagh@rics.org

Chair of Working Group 9.2

Chair of Working Group 9.3

Ben Elder FRICS – Director of Valutaion, RICS, UK
belder@rics.org

Ben Elder
Chair, FIG Commission 9
www.fig.net/commission9

Feb 2019

FIG Commission 10 – Construction Economics and Management

Work Plan 2019–2022

1. Title

Construction Economics and Management

(including quantity surveying, building surveying, cost engineering and management; estimating and tendering; commercial management including procurement, risk management and contracts; project, construction and programme management including planning and scheduling)

2. Terms of Reference

2.1. Cost Engineering (CE), Cost and Commercial Management (CM) and Quantity Surveying (QS)

Functions:

- To provide independent, objective, accurate, and reliable capital and operating cost assessments usable for investment funding and project control across buildings and infrastructure; and
- To analyse investment and development for the guidance of owners, financiers and contractors across buildings and infrastructure.

CE, CM and QS duties and responsibilities include:

- estimates of capital or asset costs including development costs;
- estimates of operating and manufacturing costs through an asset's life cycle;
- use of new technologies (e.g. BIM) to optimise the economic solution;
- risk assessment and analysis;
- trending of scope and cost changes;
- decision analysis;
- financial analysis (e.g., net present value, rate of return, etc);
- project cost control;
- appraisals of existing assets;
- project analyses, databases, and benchmarking;
- planning and scheduling;
- siting studies, etc.;
- productive and investment needs assessment;
- facility management needs assessment;
- project feasibility and budget assessment;
- cost management;
- procurement management;
- contract administration;
- whole-life appraisals;

- quality audits;
- tax advice;
- value management; and
- dispute resolution.

These are typical functions of the CE or QS but not all practitioners in the field perform all of these functions. Many specialize in a limited number of these functions.

2.2. Project and Construction Management (PM/CM)

Function: To set project objectives in line with the purpose(s) set up by general management and to manage the resources necessary to meet the project objectives.

PM/CM should:

- set a project vision and project organisation structure;
- ensure that a realistic reference (scope, cost, time) is set up for further control and is in line with the client objectives;
- ensure that appropriate management tools are set up to help the team control the project;
- create a problem-solving, collaborative atmosphere within the team;
- make decisions on what should be done in case of variance; and
- ensure that the project objectives remain in line with business needs.

PM/CM delivers the project by:

- managing resources;
- delegating tasks;
- making decisions;
- receiving information;
- setting goals;
- motivating people;
- understanding design, methodologies and cost engineering and quantity surveying;
- managing the schedule and make decisions in case of variance;
- managing quality and work methodology.

3. Mission statement

The mission of Commission 10 is:

- The promotion of the practice of QS/CM/CE and PM/CM globally.
- The promotion of “best practice” for QS/CM/CE and PM/CM globally.
- The promotion of dialogue between member organizations engaged in QS/CM/CE, and PM/CM.
- Fostering of research appropriate to the better understanding of project and cost management practice around the world.

- The promotion of cooperation among FIG Members organisations involving QS/CM/CE and PM/CM for their mutual well-being and that of their individual members.
- The advancement of QS/CM/CE, PM/CM, by education and research and continuing professional development
- To secure uniformity in education, standards and methodology by QS/CM/CE, PM/CM throughout the world
- To facilitate and assist in development of formal education framework and competencies in the profession of QS/CM/CE or PM/CM among member organisations that may not have a formal education or professional development in QS/CM/CE or PM/CM
- To achieve the above mission objectives, FIG Commission 10 will collaborate with other international or regional organisations such as RICS, ICEC, PAQS, CEEC, AAQS, PMI and other similar organisations and promote the use of international standards such as ICMS (www.icms-coalition.org).

4. General

This work plan covers the development of the profession of QS/CM/CE and PM/CM and framework for best practices and standards. Commission 10 intends to leverage on FIG's network of members organisations to promote the profession of QS/CM/CE and PM/CM which are either non-existent or lacking in many countries especially the under-developed and developing countries. There are also developed countries that do not the profession of QS/CM/CE or PM/CM. Specific activities aimed at these countries include development of standards, such as ICMS, to appropriate Continuing Professional Development programmes.

5. Working Groups

Working Group 10.1 – International Construction Measurement Standards

Policy Issues

Following initial publication in 2017, the second edition of ICMS, incorporating life cycle costs, will be published in 2019. This is a seminal moment for the profession and the standards require wide professional support to encourage their worldwide adoption.

The standards can be used through the project life cycle from benchmarking, cost prediction, procurement and facilities management.

Chair

Alan Muse (amuse@rics.org)

Specific project(s)

To integrate ICMS into working practice, mapping to existing national cost classifications needs to take place and FIG can be advocate for this process.

Workshop(s)

We propose an ICMS Workshop in the Spring of 2019 in London, in collaboration with the members of the ICMS Coalition, and subsequent feedback from FIG member bodies on projects to map the international classification to local standards.

Publication(s)

International Construction Measurement Standard, 2nd Edition, incorporating life cycle costs.

Timetable

The publication of the 2nd edition is planned for mid -2019.

Beneficiaries

FIG member associations, governments, standardisation organisations, decision makers, surveying businesses, individual surveyors, contractors, consultants, financial institutions, aids agencies.

Working Group 10.2 – Digital Construction

Policy issues

Technology is advancing rapidly in construction. As well as the efficiencies and potential greater integration of design, cost and operational information using BIM, blockchain and artificial intelligence offer opportunities in data analysis and manipulation, payment transactions and information exchange processes.

Professions in construction need to engage with the technologists to both improve the technology solution and ensure key workflow processes are maintained.

Chair

Mercy T. Iyortyer

Specific project(s)

To be developed

Workshop(s)

To be developed

Publication(s)

BIM Level 3/Blockchain

Timetable

To be developed

Beneficiaries

FIG member associations, governments, academicians, developers/builders, decision makers, surveying businesses, individual surveyors, contractors, consultants, financial institutions.

Working Group 10.3 – Education and Research

Policy issues

The profession of QS/CM/CE is new or non-existent in some countries, both developed and developing countries. Commission 10 hopes to use its network and platform to influence policy makers to consider the use of QS/CE for developmental projects and as such the need to build competencies and human capital in this specialised field.

Engagement with institution of higher learning within each of the relevant countries is essential to ensure the success and sustainability of this initiative.

Chair

Professor Anil Sawhney (asawhney@rics.org)

Specific project(s)

To be developed

Workshop(s)

To be developed

Publication(s)

To be developed

Timetable

Beneficiaries

FIG member associations, governments, institutions of higher education, decision makers, surveying businesses, individual surveyors, contractors, consultants, financial institutions.

6. Co-operation with Other Commissions and organisations

Commission 10 intends to co-operate with Commission 1 on Professional Practice and Commission 2 on Professional Education. Further Commission 10 intends to collaborate with other professional organisations involved in QS/CM/CE, PM/CM, such as RICS, ICEC, PAQS, CEEC, AAQS, PMI and other similar organisations.

7. Co-operation with United Nation Organisations, Sister Associations and other Partners

Through its involvement in ICMS, Commission 10 will work closely with the United Nations Global Compact, world's largest corporate sustainability initiative. The ICMS Coalition will also continue to engage with the World Bank and IMF to seek their support and adoption of ICMS.

8. Commission Officers

- **Commission Chair**

Alan G. Muse
RICS
Parliament Square
London
SW1P 3AD
United Kingdom
Telephone: +44 (0)20 7334 3803
Mobile: +44 (0)7854 682044
Email: amuse@rics.org

- **Vice Chair of Administration**

Mercy T. Iyortyer
Managing Partner
MTI Partnership
Nigeria
Official email: Miyortyer@gmail.com
Mtipartnership@yahoo.com
Personal Tel: +234 803 332 3243
Official Tel: +234 807 090 6630

- **Chair of Working Group 10.1**

Alan Muse (amuse@rics.org)

- **Chair of Working Group 10.2**

Mercy Iyortyer

- **Chair of Working Group 10.3**

Professor Anil Sawhney

Alan Muse
Chair, FIG Commission 10
www.fig.net/commission10

January 2019



OFFICE INTERNATIONAL DU CADASTRE ET DU RÉGIME FONCIER
INTERNATIONAL OFFICE OF CADASTRE AND LAND RECORDS
INTERNATIONALES AMT FÜR KATASTER UND GRUNDBUCHWESEN

OICRF Annual Report 2018

OICRF - the International Office for Cadastre and Land Records - is a permanent body of FIG. OICRF serves as a documentation and study centre for land administration.

The OICRF Land Administration Library in 2018

OICRF maintains a digital library that contains almost 18.000 publications. OICRF contents are available in different languages. All of the available documents and the most recent publications can be accessed electronically at www.oicrf.org. The OICRF website is under further development.

New OICRF Librarian: Ms Sylvia Huigen

Our OICRF Librarian, Ms Anne Burghout, retired in 2018. Ms Burghout brought thousands of documents, papers, reports, etc to the collection. She was involved since the start of the digitization of the OICRF Library. This digital library was presented during the XXI international congress of surveyors held in Brighton, UK in July 1998. We like to bring words of thanks for her dedicated support. Anne: you did a great job – Thanks!

Ms Sylvia Huigen joined the OICRF team as our new librarian. Success Sylvia!

Standardisation in Land Administration

OICRF is strongly involved in the development of standards related Land Administration. This concerns the ISO 19152 Land Administration Domain Model (LADM) and the Social Tenure Domain Model (STDM). A New Working Item Proposal on the development of Edition II of the LADM was submitted by the FIG Standards Network in April 2018 and accepted in the Copenhagen meeting of the ISO Technical Committee 211 in May/June 2018. A first Working Draft of Edition II has been discussed in November 2018 with TC211 in Wuhan.

Attention is given to operationalization of LADM in cooperation with the Open Geospatial Consortium. A OGC White Paper has been accepted and published, see: <https://docs.opengeospatial.org/wp/18-008r1/18-008r1.html>

The World Bank is supporting those developments. And also the Expert Group on Land Administration and Management of UN-GGIM strongly supports those developments.

The developments will be documented in comparative studies.

Contact

OICRF does its utmost to provide the best possible service for anyone who requests information. This is made possible by the support of our host: Cadastre, Land Registry and Mapping Agency of the Netherlands.

Prof Christiaan Lemmen
OICRF director

Ms Pauline van Elsland
OICRF secretary

OICRF Comparative Studies in 2018

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IIHSM Annual Report for 2018-19

Your officers Jim Smith, David Wallis and myself met twice this year in UK, during last year. We are all getting older and have medical restrictions for travelling so a new generation is welcome to join us and to prepare future events. Anyone interested in joining should contact Jan De Graeve. John Brock organized the latest history days and has been our representative to the General Assembly of FIG.

In 2018/9 we celebrated here in Belgium the “Surveyor of the Year” Aime Laussedat as the father of Photogrammetry. 2020 is the year of Simon Stevin (born in Brugge 1548 and died in 1620 in den Haag) for whom we are preparing a full day of historic papers just prior to the FIG conference. Local authorities will be invited to participate.

At the end of 2018 Jim Smith and Jan De Graeve finalized their “OPUS MAGNUS” *Notes on the history of the size and shape of the earth* of 2250p covering all times and civilizations worldwide up to the 1950s, in five volumes. The result of 35 years of intermittent reading and research, the list of consulted works exceeds 80p. It is hoped that this will be made available by our colleagues in the Republic of South Africa, as most of the documentation is based upon R S Webb’s notes, discovered in 1984 in the library of the then Trig Survey of South Africa it now has a different title) transcribed and greatly extended since. See also the biography Jim published as *R S Webb (1892-1976) From Shropshire to Paarl via Geodesy and Lesotho*. Jim has also produced a research document of 500p. on *Meridian Arcs in East and South Africa with emphasis on the Arc of the 30th meridian*,

This year the Struve committee met in Russia. Our colleague Vitali Kaptjug, previous secretary to the Russian Academy of Science, had prepared the research and rediscovery of the 2 points on the island of Hogland not really accessible for tourists, joining Scandinavia to Estonia. You will remember that FIG endorsed our project to see the Struve Meridian Arc inscribed as a World Heritage Monument of UNESCO. IIHS&M was at the origin of the research, the coordination and final adoption of the project by all the ambassadors to UNESCO in Durban 2005.

Personally I have worked hard to recreate and try to replicate the scientific library of Gerard Mercator with original 16th century books. This is an ongoing project to try and determine how G Mercator invented his projection with increasing latitudes

Jim and I have promoted the Struve meridian Arc, as officers of IIHS&M, we coordinated the work of all ten countries, we chaired the work over many years and did most of the preparation work, the research, the basic texts and the Finnish delegation then finalized the document; to present for signature to the 10 delegations and together we presented the official demand in Paris at the UNESCO in 2004, without any financial support.

After my intervention with the responsible ambassador who presented the dossier in the Durban meeting in RSA, the UNESCO ambassadors unanimously voted for the Struve Meridian Arc and put it on the World Heritage List in 2005.

Since then Jim and I have worked on the enhancement of the Arc through Africa. We presented the approved project to the UNESCO delegates to the 10 countries, some of whom do not see

the interest of the extension through Africa, although Struve himself had made this proposal as had Gill and preparatory explorations were carried out in Turkey and Greece. Work continues with the African and European countries concerned. A few copies of the two Struve volumes in English are still available. Enquiries to Jan De Graeve via **32 479 99

At the FIG Congress in Istanbul in May 2018 John Brock presented a paper titled: "The Distance Slabs of the Antonine Wall – The Surveyors' Record Carved in Stone!" in one of two History Sessions at which there were four other speakers talking about various historical matters from the USA to Copernicus and Turkey. In Norway he attended the FIG 7.18 Commission 7 event at Bergen then made a visit to the FIG Office in Copenhagen.

In September John Brock was at the Surveyors Rendezvous in New Orleans, USA which is held by the Surveyors Historical Society of the USA, then in October attended the IMCOS (International Map Collectors Society) Seminar in Manila and Hong Kong where many historical papers on mapping and surveying history were given at the Ayala Museum in The Philippines and Hong Kong Maritime Museum respectively.

2019 started with a presentation on the Antonine Wall Distance Slabs at the Association of Public Authority Surveyors (APAS) held at Cypress Lakes Resort in the Hunter Valley Wine District (near Newcastle).

On Sunday June 9th there is to be a full day History Seminar at Medlow Bath in the Blue Mountains, called Majestic and Magical Mountains History where eminent speakers will make presentations about surveyors of the mountains regions of NSW and Gallipoli.

In 2020 John Brock has been invited to co-organise a one (or two?) Day History Seminar for the FIG WW in Amsterdam by the LOC so planning is well in hand. There are also intentions to have history sessions at the Working Week in Ghana in 2021. It is also hoped to have an event in Cape Town for the FIG Congress in 2022.

Coming events

2019 FIG Hanoi. History session on the Wednesday has four papers listed.

2019 July. ICC meeting in Tokyo – JB to give a paper on Ino Tadataka: Japan's Most Famous Surveyor!

2019 June 9. Full Day History seminar. Blue Mountains, Australia

2020 FIG Working Week. Amsterdam. History session.

2021 FIG Working Week. Ghana. History session

2022 FIG Congress Cape Town. History session

2028 For the 150th anniversary of FIG there is a proposal for a compilation on the history of FIG. For those with a long memory a similar publication was done for the 100th anniversary. Anyone who has relevant information of any sort please watch for further details.

J De Graeve. Director of IIHSM.

2019 GENERAL ASSEMBLY

FINANCIAL ISSUES (INCLUDING 2018 ACCOUNTS, 2019-22 BUDGETS AND 2021 SUBSCRIPTIONS)

1. Introduction

This paper provides the General Assembly with an update on FIG's financial progress in 2018, the Council's amended proposed budgets for 2019-21 and an indicative budget for 2022, and other financial matters.

The General Assembly is asked to:

- Adopt the audited 2018 Accounts at Annex A, noting that the audited accounts are in the form of the template approved at the 2009 General Assembly (and provided again at Annex B)
- Endorse the budgets for 2019-22, at Annex C to the General Assembly agenda.
- Approve member association subscription levels for 2021, set out in section 5 of this paper.

2. A commentary on FIG income and expenditure for 2018

FIG Finances follow three key measures:

- Key measure 1: there must be a surplus of regular income over regular expenditure each year;
- Key measure 2: there must be an overall surplus over the 4-year Council period;
- Key measure 3: the general reserve must remain within the level of 90-100% of regular expenditure.

2018 was the fourth and final year for the current Council. Council and FIG Office have continued to act prudent and with cost containment measures, however a final year has often more costs than the other years because many activities will be finalised. This year several publications were published and a FIG 140th anniversary and Hand Over event was held. There was a budgeted deficit of €12,750, however the final result is positive and shows a surplus of € 3,024.

Key measures 1 and 2 were held and key measure 3 is above the desired level which gives a small extra reserve. There was a surplus of regular income over regular expenditure of €1,837 (Key measure 1) despite a budget deficit of €10,750.

As always, expenditure was monitored closely. Key measure 2 is 124% seen over the period 2017, 2018 (actual results) 2019 and 2020 (budgets). Key measure 3 is 117%. General reserve as % of annual total expenditure was 148%.

The finances are solid and are prepared for possible less healthy years.

Income 2018

Income from membership subscriptions was almost €20,000 lower than budget but almost identical with 2017. Membership fees from Member Associations, Affiliate and Academic members were as expected, but we did not see the expected increase in Corporate membership. Write offs are still high, in total €31,528. This means that we have had several expulsions and members who have not paid their membership fee in full. The positive aspect is that there are less members in arrears. The provision for doubtful debt was kept unchanged.

Financial income was in 2018 lower than expected due to the prevailing low interest rate regime, which is expected to persist. We have had to accept negative interest rates in 2018 on bank accounts.

In total the regular income for 2018 was €10,000 lower than budgeted, however there was an overall increase in income of €22,000 compared to 2017. This increase can be explained in the currency difference which in 2017 was negative and in 2018 positive and because 2018 was a congress year, and it is expected that there is a higher income from a Congress than from Working Weeks.

Arrears 2018

Arrears at the end of 2018 were €49,000 (€51,000 in 2017). Compared to previous years it is a significant decrease (from around €150,000), but still too high. Almost €45,000 belong to arrears from 2018. This is an increase from 2017 but can be explained in an increased number of academic members who have not yet paid their membership fee. Academic members are only invoiced once per 4 years, and they were invoiced in 2018.

Expenditure 2018

Total regular expenditure was €432,123 which is €23,377 below budget, and €85,463 more than the 2017 expenditure (€346,660). The 2017 expenditure was extraordinarily low due to a savings in administration costs, especially office costs which resulted in a high overall surplus of the year 2017. 2018 was a congress year which added extra costs on e.g. publications, a hand-over event which was also a celebration of FIG 140th anniversary and normal office costs.

The grants to Commission chairs were paid in line with the levels agreed by the General Assembly. All requests from Task Force and Network chairs for support and from Commission chairs for specific support were carefully reviewed prior to any decision. There were no applications for support for poor Member Associations.

Council and executive management costs were as budgeted. The costs are 38,000 higher than 2017 which is due to the fact that this is the fourth and final year of the council. It must also be mentioned that the 2017 costs were extraordinarily low. Again in 2018 this has been obtained through continuing care and control of travel and meeting costs. Some of the travels were partially covered by external sources. It is important also to note that, in many instances, travel by Council members were partially covered by Council members' employers, member associations or by the event hosts. FIG is very grateful for this support, which allows Council members to maintain close contact with its membership and partners during the year.

Final result

The result of regular income over regular expenditure (key measure 1) showed a positive result of €1,837 which is €12,500 over budget, since there was a budgeted deficit of €10,750.

The final result 2018 which also includes projects and development costs and income shows a surplus of €3,024 which is €15,744 over budget (€-12,750). Events income was €7,000 lower than expected and developmental costs were €10,000 lower.

FIG Office continued the IT developmental work that was commenced in 2013, but at a lower speed in 2018 than expected.

At the end of year, FIG's total reserve stood at € 604,688 and the general reserve (total reserve deducted IT and Events reserves) amounts to € 504,688 which is 114% of regular annual expenditure.

3. Budgets 2019-22

Annex C to this paper presents proposed revised budgets for 2019, 2020 and 2021 and a proposed budget for 2022. This is to adhere to the requirement for a 4-years ahead budget (decision at the 2009 General Assembly).

Key considerations in constructing the budget

Council's overriding consideration when preparing the budget was to be as realistic as it has to be, particularly with its forecast since it is a 4-year forward budgeting process. In this regard Council is very mindful of the two, ongoing risks to the budget:

- Council has (as described below) reviewed risks from events, and developed models to address these risks, however still there will be a risk to include a conference income in the regular income
- There are potential risks around the level of income from subscriptions in the on-going economic situation. The level of arrears has decreased which is a positive development, but the remaining amount shows that it remains a significant area of concern.

Budgets

Council seeks to ensure a sustainable, effective and efficient Federation. Budgets have therefore been revised to reflect the current realities. When income is forecasted to decline, this has to be balanced by corresponding efforts to reduce operating and developmental costs.

The key changes to the budgets approved at the 2017 General Assembly are:

- Subscriptions are held close to the 2018 final result in light of resignations and 2019 invoiced figures although membership development is an important focus of the FIG office especially;
- An expected increase in the number and income of Corporate Members is included in the budget and Council will continue to have a special focus on Corporate Members and the mutual benefits;
- In the light of the increase in subscription rate from 2019 for Member Associations FIG Council expects to keep this level throughout the coming four years.

- In 2019 there was an increase in subscription fee for Affiliate Members for 2019 and onwards, and Council expects to keep this level in the coming years.
- Financial income has been decreased since FIG will now have to pay negative interest rate on accounts
- Council and executive management costs are reviewed in the light of activities anticipated for the year;

As in previous years, every effort has been made to base the budget on information available as well as to forecast income and expenditures realistically. This is particularly important given the overall economic situation.

Council remains cognizance of the three key financial measures when preparing the budget:

- Key measure 1: there must be a surplus of regular income over regular expenditure each year;
- Key measure 2: there must be an overall surplus over the 4-year Council period;
- Key measure 3: the general reserve must remain within the level of 90-100% of regular expenditure.

Staffing

Current staffing of the FIG Office is:

- Director (Louise Friis-Hansen) responsible for general management, developmental/strategic tasks, oversight of administration, finances, events, membership matters (particularly in relation to corporate members), council/commission matters, IT, communication and Foundation secretariat duties
- FIG Events and Support Manager (Claudia Stormoen Pedersen, full time), Claudia will be on maternity leave from April 2019 and at least until January 2020.
- Finances and Administration (Maria Bargholz, part time – 20 hours/week) responsible for financial administration as well as general FIG and events administration.
- Assisting FIG Events and Support Manager Martine Eelderink, the Netherlands, was in the office October 2017 – June 2018 replacing Claudia Stormoen during her maternity leave.
- Assisting FIG Events and Support Manager Katja Lambertsen – January 2019 - June 2019

Claudia Stormoen was on maternity leave August 2017 - April 2018 and Martine Eelderink replaced her in the office working with FIG events planning as a preparation for FIG Working Week 2020 in Amsterdam, the Netherlands.

From April 2019 Claudia will be on maternity leave again. To organise the FIG Working Week 2019 Katja Lambertsen has been temporarily engaged Jan – June 2019. Unfortunately, it will most likely not be possible to keep Katja longer due to the limited financial resources of the federation.

Organisation of events

The Council and FIG Office work closely together with a Local Organising Committee to organise the yearly FIG event ensuring that FIG's annual event remains not only the flagship event of FIG but a global forum for FIG's membership, partners and stakeholders. Over the past years, FIG has developed the following operating models for its annual events:

- FIG will handle the overall programme, the technical programme, keynote speakers, international registrations, (local registration if in EUR or USD), the website, and international exhibitors; and
- The local organisers will handle the contact with the venue; hotels; the local exhibition; local registrations (if other currency from EUR and USD); social events; technical tours; and social tours.

FIG will be reimbursed a fixed sum for its handling, coordination and organization workload for each event. We believe that the models and arrangements provide a sound basis for future conferences, and provide an appropriate balance between FIG and local input and expertise.

FIG Office spends a considerable amount of time on the organisation and preparations of FIG events. FIG Office and Council have evaluated that it is a rewarding investment and gives a possibility to get closer to the individual persons that are related to FIG members.

IT Development

Throughout the later years major IT projects have been finalised:

- FIG Membership database phase I. A database for all members was established in 2016, and now members are asked to update membership and delegate through customised links
- Peer review database and handling system that can handle most processes electronically
- Improvements and integration of abstract and registration databases for handling of FIG Conferences
- Automatisation of many of the processes in connection to FIG conferences that have previously been done manually
- Improvement of online payment system
- Conference management related features and FIG Conference Web App
- Introduction of a new mass mailing system.
- Update systems to follow the EU General Data Protection Regulation (GDPR)

Projects under progress:

- Development and update of navigation and content of the web site
- FIG Membership database phase II: a database for individuals who have a connection with FIG either through the newsletter, participant at FIG Conferences or in any other way related to FIG. The database is connected with the registration and abstract databases as well as the membership database.
- Improvements of FIG Conference Web App
- Further enhancements to follow the EU General Data Protection Regulation (GDPR)

4. FIG Reserves

As is shown in Annex C, the FIG general reserve at the end of 2018 was 117% of regular annual expenditure. This is above the 90-100% agreed by the 2009 General Assembly. As a 4-year average the general reserve is 124% (the reserve percentage is calculated using an average of four years' regular annual expenditure, as agreed at the 2012 General Assembly).

Last year the events reserve was increased to €50,000 to have a reserve in case a conference does not meet the financial expectations for one reason or another. In essence, this recognises the risk of organising events, particularly in the current economic climate. Council suggests to keep this reserve unchanged.

Council suggests to maintain the IT reserve at the €50,000 level.

The reserves are held in low risk investments and on bank accounts, in line with the policy agreed by the General Assembly. Any transfer of the reserves requires approval by two persons, one of whom being the Council member responsible for finance and administration.

5. Subscriptions 2021

The 2018 General Assembly approved membership fees as follows:

Year	Per capita fee	Minimum fee	Maximum fee
2020	€4.80 per member up to a maximum of 5,500 members Member associations from countries listed by the World Bank as low-income economies or lower-middle-income economies shall pay €2.40 member up to a maximum of 5,500 members.	25 members or €50 (whichever is greater)	5,500 members (€26,400)

In the light of the budget and the current development the General Assembly decided in 2017 to increase the membership fee for 2019 and onwards. The last time fees for member associations were increased was in 2012. Council is conscious of the economic condition that members are operating under and in particular member's challenges with their national membership and budgets. Council wishes to respect this as well and both Council and FIG Office will continue to be prudent in its financial management. Council proposes to keep the 2020 rates also in 2021.

Year	Per capita fee	Minimum fee	Maximum fee
2021	€4.80 per member up to a maximum of 5,500 members Member associations from countries listed by the World Bank as low-income economies or lower-middle-income economies shall pay €2.40 member up to a maximum of 5,500 members.	25 members or €50 (whichever is greater)	5,500 members (€26,400)

In 2018, Council agreed to increase the membership fees for Affiliate Members from 2019 to € 790 EUR (from 760) which was a 6% increase. Council has kept the Academic member fee and Corporate member fee unchanged. Academic members were in 2018 invoice for a 4-year term, 2018-2021. Next time Academic members will be invoiced will be in 2022.

6. Conclusion

Council continues to monitor and manage its finances prudently and believes that the budget proposed is realistic. It is positive to show a small positive result despite a budgeted deficit and especially in a congress year. Council will allow appropriate decisions to be made on levels of operational and developmental expenditure, to ensure the continuing sustainability, efficiency and effectiveness of FIG. Council thanks all members who have paid the annual membership fees promptly.

Rudolf Staiger
Vice President

The International Federation of Surveyors - FIG

Kalvebod Brygge 31-33

DK-1780 Copenhagen V

(Registration No. 21 33 60 76)

Financial Statements for 2018

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Statement of the Management and the Council

Today the management have discussed and approved the Financial Statements for 1 January - 31 December 2018.

The Financial Statements have been presented in accordance with the generally accepted accounting principles of associations.

In our opinion the Federation and Foundation's financial statements give a true and fair view of the Federation and Foundation's financial position at 31 December 2018.

We recommend the Financial Statements to be approved at the annual general assembly.

Copenhagen, 5 February 2019

FIG Director

Louise Friis-Hansen

Council

Rudolf Staiger
President

Jixian Zhang
Vice President

Diane Dumashie
Vice President

Mikael Lilje
Vice President

Orhan Ercan
Vice President

The annual financial report is submitted for approval at the general assembly on / 2019

Rudolf Staiger

Independent Auditor's Report

To the members of The International Federation of Surveyors - FIG

Opinion

We have audited the financial statements of The International Federation of Surveyors and FIG Foundation for the financial year 1 January 2018 to 31 December 2018, which comprise income statement and balance sheet including summary of significant accounting policies. The financial statements are prepared in accordance with generally accepted accounting principles of associations.

In our opinion, the financial statements give a true and fair view of the financial position of the association at 31 December 2018, and of the results of the association operations for the financial year 1 January 2018 to 31 December 2018 in accordance with generally accepted accounting principles of associations.

Basis for opinion

We conducted our audit in accordance with International Standards on Auditing and the additional requirements applicable in Denmark. Our responsibilities under those standards and requirements are further described in the "Auditor's responsibilities for the audit of the financial statements" section of our report. We are independent of the company in accordance with the International Ethics Standards Board for Accountants' Code of Ethics for Professional Accountants (IESBA Code) and the additional requirements applicable in Denmark, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Statement on management and council's review

Management and the council is responsible for management and council's review.

Our opinion on the financial statements does not cover management's review, and we do not express any form of assurance conclusion thereon.

In connection with our audit of the financial statements, our responsibility is to read management's review and, in doing so, consider whether management and council's review is materially inconsistent with the financial statements or our knowledge obtained during the audit, or otherwise appears to be materially misstated.

Moreover, it is our responsibility to consider whether management and council's review provides the information required under the accounting principles of associations.

Based on the work we have performed, we conclude that management and council's review is in accordance with the financial statements and has been prepared in accordance with the requirements of the accounting principles of associations. We did not identify any material misstatement of management and council's review.

Independent Auditor's Report - Continued

Management's and council's responsibilities for the financial statements

Management and the council is responsible for the preparation of financial statements that give a true and fair view in accordance the generally accepted accounting principles of associations, and for such internal control as management determines is necessary to enable the preparation of financial statements and that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management and council is responsible for assessing the association's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting in preparing the financial statements unless management and council either intends to liquidate the association or to cease operations, or has no realistic alternative but to do so.

Auditor's responsibilities for the audit of the financial statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with International Standards on Auditing and the additional requirements applicable in Denmark will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit conducted in accordance with International Standards on Auditing and the additional requirements applicable in Denmark, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the company's internal control.

Independent Auditor's Report - Continued

- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting in preparing the financial statements and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the company to cease to continue as a going concern.
- Evaluate the overall presentation, structure and contents of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that gives a true and fair view.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Roskilde, 5 February 2019

Beierholm Statsautoriseret Revisionspartnerselskab

CVR no. 32895468

Carsten Johnsen

State Authorized Public Accountant

MNE no. 29490

Federation Information

Federation

The International Federation of Surveyors - FIG
Kalvebod Brygge 31-33
DK-1780 Copenhagen V

Telephone: +45 38 86 10 81

Internet: www.fig.net

E-mail: fig@fig.net

Registration No. 21 33 60 76

Registered in: Copenhagen

Financial year: 1 January to 31 December

Council

Rudolf Staiger
Jixian Zhang
Diane Dumashie
Mikael Lilje
Orhan Ercan

FIG Director

Louise Friis-Hansen

Auditor

Beierholm
State Authorized Public Accountant
Ringstedvej 71
DK-4000 Roskilde
Denmark

Accounting policies

This Annual Financial Statements has been prepared in accordance with generally accepted accounting principles of associations.

The accounting policies applied for the Financial Statements are consistent with those applied last year.

Recognition and measurement overview

Income is recognised in the income statement when earned, where as costs are recognised by the amounts attributable to this financial year. Value adjustments of financial assets and liabilities are recognised in the income statements as financial income or financial expenses. Also depreciations are recognised in the income statement.

Assets are recognised in the balance sheet when it is probable as a result of a prior event that future economic benefits will flow to the Federation, and the value of the asset can be measured reliably.

Liabilities are recognised in the balance sheet when it is probable that future economic benefits will flow out of the Federation, and the value of the liability can be measured reliably.

On initial recognition, assets and liabilities are measured at cost. Measurement subsequent to initial recognition is effected as described below for each financial statement item.

Anticipated risks and losses that arise before the time of presentation of the Financial Statements and that confirm or invalidate affairs and conditions existing at the balance sheet date are considered at recognition and measurement.

Income Statement

Income and expenses

Items of income or expenses are stated within the period to which they relate irrespective of the payment date.

Balance Sheet

Deposits

Deposits are measured at nominal value.

Receivables

Receivables are measured at amortised cost, usually equalling nominal value less provisions for bad debts.

Prepayments comprise costs incurred relation to the subsequent financial year.

Accounting policies

Stocks

Stocks are measured at cost price.

Investments funds

Investment funds are measured at quoted market price.

Reserves

Reserves are measured at amortized cost, which corresponds to nominal value. Reserves includes provision to future events and IT investments.

Current liabilities

Current liabilities are measured at amortized cost, which corresponds to nominal value.

Foreign currency translation

On initial recognition, foreign currency transactions are translated applying the exchange rate at the transaction date. Exchange differences that arise between the rate at the transaction date and the one in effect at the payment date or the rate at the balance sheet date are recognised in the income statement as financial income or financial expenses.

Receivables, payables and other monetary items denominated in foreign currencies that have not been settled at exchange rate on the balance sheet date and the transaction date is recognised in the income statement as financial income or financial expenses.

Income Statement for 1 January - 31 December 2018 for The International Federation of Surveyors - FIG

	2018	2017
	<i>EURO</i>	<i>EURO</i>
Regular Income		
Member associations.....	271.297	271.114
Affiliate members.....	31.100	29.260
Corporate members.....	81.350	80.025
Academic members.....	10.625	12.312
Less bad debts.....	(31.528)	(50.034)
Less change in provision for doubtful debts.....	0	20.000
	362.844	362.677
Financial income.....	(953)	4.366
Less banking costs.....	(737)	(766)
Currency differences.....	10.697	(12.155)
Advertising income.....	0	849
Events, fees charged for services.....	60.000	56.000
	431.851	410.971
Total Regular Income		
Regular Expenditure		
<i>Administration</i>		
Office costs.....	(145.261)	(115.324)
Outsourced office costs.....	(36.722)	(38.424)
	(181.983)	(153.748)
Marketing and publications.....	(32.273)	(12.821)
Council and executive management.....	(184.866)	(147.089)
<i>Commission support</i>		
Regular grants.....	(30.000)	(30.000)
Regular grants, Young Surveyors Network.....	(3.000)	(3.000)
	(33.000)	(33.000)
	(432.122)	(346.658)
Total Regular Expenditure		
	(271)	64.313
Regular income/Regular Expenditure		

Income Statement for 1 January - 31 December 2018 for The International Federation of Surveyors - FIG

	<u>2018</u>	<u>2017</u>
	<i>EURO</i>	<i>EURO</i>
Result brought forward	(271)	64.313
Projects, events - funds received by FIG		
Congress/Working Week.....	2.072	10.000
Other projects.....	11.053	7.008
	13.125	17.008
Development spend		
IT and web development.....	(5.160)	(5.880)
Task Force support.....	(3.626)	(3.517)
Specific grants for Commissions.....	(3.152)	(7.381)
	(11.938)	(16.778)
Final Result (Deficit)	916	64.543
The Final Result is recommended distributed as follows		
Transferred to Event reserve.....	0	25.000
Transferred to IT reserve.....	0	0
Transferred to Equity.....	916	39.543
	916	64.543

Balance Sheet at 31 December 2018 for The International Federation of Surveyors - FIG

	2018	2017
	<i>EURO</i>	<i>EURO</i>
Assets		
Current assets:		
Receivables:		
Receivables from members.....	9.661	10.506
Other receivables.....	0	2.741
Receivable VAT.....	14.827	2.721
Prepaid expenses.....	2.274	2.722
Deposit.....	0	3.826
Investments funds.....	213.549	215.659
Cash at hand and bankaccounts.....	757.841	779.298
Total current assets	998.152	1.017.473
Total assets	998.152	1.017.473
Equity and liabilities		
Equity:		
Equity at the beginning of the year.....	501.663	462.120
Retained earnings.....	916	39.543
Total equity	502.579	501.663
Reserves:		
Event reserve.....	50.000	50.000
IT reserve.....	50.000	50.000
Total reserve	100.000	100.000
Liabilities:		
Deferred income.....	33.040	4.560
Projects in progress.....	6.489	18.466
Account payable, The FIG Foundation.....	236.568	257.608
Other debt.....	119.476	135.176
Total liabilities	395.573	415.810
Total equity, reserves and liabilities	998.152	1.017.473

Income Statement for 1 January - 31 December 2018 for the FIG Founda

	2018	2017
	<i>EURO</i>	<i>EURO</i>
Donations		
Personal donations.....	1.032	1.374
Other donations.....	10.000	10.642
FIG Conferences.....	21.650	24.320
Financial income.....	<u>(1.980)</u>	<u>641</u>
Total Income	30.702	36.977
Expenses		
Grants.....	<u>(51.898)</u>	<u>(15.190)</u>
Total Expenses	(51.898)	(15.190)
Final Result (Deficit)	<u><u>(21.196)</u></u>	<u><u>21.787</u></u>

Balance Sheet at 31 December 2018 for The FIG Foundation

	2018	2017
	<i>EURO</i>	<i>EURO</i>
<u>Assets</u>		
Current assets:		
Receivables:		
Account receivable, FIG.....	236.568	257.608
Other receivables.....	0	1.155
Cash at hand and bankaccounts.....	3.181	3.181
Total current assets	239.749	261.944
Total assets	239.749	261.944
<u>Equity and liabilities</u>		
Equity:		
Equity at the beginning of the year.....	260.945	239.158
Retained earnings.....	(21.196)	21.787
Total equity	239.749	260.945
Liabilities:		
Other debt.....	0	999
Total liabilities	0	999
Total equity, reserves and liabilities	239.749	261.944

FIG FINANCIAL PROGF 31.12.18		Version of		31.12.18	
	2017	2018	2018		
	Result	Budget	Result	Variance	Notes
		€	€	€	
REGULAR INCOME					
Subscriptions					
Member associations	271,113	270,000	271,297	1,297	
Affiliate members	29,260	30,000	31,100	1,100	
Corporate members	80,025	90,000	81,350	-8,650	
Academic members	12,312	12,000	10,625	-1,375	
Less bad debts	50,034	20,000	31,528	11,528	
Less change in prov	20,000	-	-	-	
	<u>362,676</u>	<u>382,000</u>	<u>362,844</u>	<u>-19,156</u>	
Financial income / expenses					
Financial income	4,366	3,000	1,156	-1,844	
Less banking costs	766	250	737	487	
Currency diff.	-12,155	-	10,672	-	
Advertising income	849	500	25	-475	
Events - fees charged for services	56,000	60,000	60,000	-	
TOTAL REGULAR INCOME	410,970	444,750	433,960	-10,790	
REGULAR EXPENDITURE					
Administration					
Office costs					
	115,325	167,500	145,261	-22,239	
Outsourced office costs					
	38,424	49,000	36,722	-12,278	
Total administration	153,749	216,500	181,983	-34,517	
Marketing and publications	12,821	20,000	32,273	12,273	
Council and executive management					
	147,090	186,000	184,867	-1,133	
Commission support					
Regular grants	30,000	30,000	30,000	-	
Regular grants - You	3,000	3,000	3,000	-	
	33,000	33,000	33,000	-	
Total regular expenditure	346,660	455,500	432,123	-23,377	
Surplus/deficit of regular income over regular expenditure	64,310	-10,750	1,837 xx	12,587	
[Key measure 1 - this to be positive]					
PROJECTS AND DEVELOPMENT					
Events - funds received by FIG					
Congress/Working V	10,000	15,000	2,072	-12,928	
Regional Conference	-	-	-	-	
Other events	7,008	5,000	11,053	6,053	
	17,008	20,000	13,125	-6,875	
Development income					
Development spend					
Task Force support	3,517	5,000	3,626	1,374	
IT and web - develop	5,880	10,000	5,160	4,840	
Support for poor Member Associations		2,000		2,000	
Specific grants for C	7,381	5,000	3,152	1,848	
	16,778	22,000	11,938	10,062	
Projects and dev	230	-2,000	1,187	-	
Other projects					
Net result					
RESULT					
Overall surplus/deficit in the year	64,540	-12,750	3,024	15,774	
[Key measure 2 - this to be positive in total over the term of the 4 year budget period]					
Reserves at start of year					
Events Reserve	50,000				
IT Reserve	50,000				
General Reserve	501,664				
General Reserve as %	145%				
General reserve as %	138.03%				
Reserves at end of year - estimate					
Events Reserve			604,688		
IT Reserve			50,000		
General Reserve			504,688		
Overall general Reserve as % of annual expenditure			117%		
General Reserve as % of annual expenditure			114%		
Notes					

Developmental spend																	
Task Force support	5,007	k	5,000	3,517	k	5,000	3,626	5,000	5,000	5,000	5,000	5,000	5,000	5,000			
IT and web - developmental activ	11,815	g	10,000	5,880	g	10,000	5,160	10,000	10,000	10,000	10,000	10,000	10,000	10,000			
Support for poor Member Associations			2,000			2,000		2,000	2,000	2,000	2,000	2,000	2,000	2,000			
Specific grants for Commissions			5,000	7,381		5,000	3,152	5,000	5,000	5,000	5,000	5,000	5,000	5,000			
	16,822		22,000	16,778		22,000	11,938	22,000	22,000	22,000	22,000	22,000	22,000	22,000			
RESULT																	
Overall surplus/deficit in the year - norma	37,473		3,250	64,543		-12,250	3,024	-2,250	6,750	3,750	3,750	3,750	750	10,250	750	-6,250	-12,750
[Key measure 2 - this to be positive in total over the term of the 4 year budget period]																	
Exceptional items																	
Total reserves at year end																	
General reserve	537,121		540,371	601,664		589,414	604,688		593,164	593,164		593,914	603,414	594,664	588,414	575,664	
Events reserve	462,121		485,371	501,664		489,414	504,688		493,164	493,164		493,914	503,414	494,664	488,414	475,664	
IT Development Reserve	25,000		25,000	50,000		50,000	50,000		50,000	50,000		50,000	50,000	50,000	50,000	50,000	
	50,000		30,000	50,000	n	50,000	50,000		50,000	50,000		50,000	50,000	50,000	50,000	50,000	
Total reserves as a % of regular	134%		129%	150%		147%	153%		143%	135%		143%	137%	137%	133%	130%	
General reserve as a % of regula	115%	l	116%	125%	l	122%	128%		119%	112%		119%	155%	154%	110%	108%	
General reserve as a % of regula	122%		119%	145%		107%	117%		116%	116%		115%	117%	115%	110%	102%	
[Key measure 3 - this to be within the range 90-100%]																	

Notes:

- a Decrease in number of members in particular, member associations; application of new subscription framework for academic members; level of subscription held at 2014 level
 - b Estimate based on anticipated expulsions; global financial situation requires to keep expulsions higher
 - c Interest rates forecast to remain lower
 - d Provided for 'old' banking fees not paid that are written off
 - e As agreed based on revised model for events organization
 - f Based on estimated level of engagements and activities for the year
 - g Major platform change plus subsequent enhancements to the system
 - j Provision of returns for administrative backstopping for collaborative activities
 - k A provision to support task force activities
 - l Currently required to be in 90-100% range
- Note that the formula allows for the cycle of expenditure over a 4-year period as the reserve is divided by the annual average expenditure over 4 years (2011-14 for those years; 2013-16 for 2015 and 2016)
- m Reserve introduced in 2012
 - n IT reserved introduced in 2013, increased in 2014 and decreased in 2015

xx Savings in office salary costs

Bid Proposal to host 2023 FIG Working Week



Preserving Our Heritage — Conquering New Frontiers



Submitted by
National Society of Professional Surveyors
USA



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November 15, 2018

Chryssy A. Potsiou, Ph. D.
President
International Federation of Surveyors, FIG
Kalvebod Brygee 31-33, DK-1780
Copenhagen
Denmark

Re: Support of NSPS bid to host 2023 FIG Working Week in Orlando, Florida, USA

Dear Dr. Potsiou:

As president of the National Society of Professional Surveyors (NSPS), I offer my unconditional support of the NSPS bid to host the 2023 FIG Working Week in Orlando, Florida.

The Orlando area will provide a magnificent premier venue providing excellent accommodations and amenities for FIG Congress attendees. This central Florida location offers a unique opportunity to bring fellow professionals from nearby Central and South America while offering easy access from the rest of the world. It is certainly time to hold the FIG Congress here as an FIG annual conference has not been held in the Western Hemisphere since the 2002 FIG Congress in Washington, DC.

In 2022 the rollout of the updated and modernized National Spatial Reference System (NSRS) will be launched by NOAA's National Geodetic (NGS), replacing both the 1983 North American Datum (NAD83) and 1988 North American Vertical Datum (NAVD88). The opportunity in 2023 to introduce and educate surveyors and geospatial professionals from the U.S. and share with the global community this new datum is exciting.

Warm regards,

Jan S. Fokens, P.S.
NSPS President



LOCAL COORDINATING COMMITTEE 2023 FIG WORKING WEEK

CHAIR: Curtis SUMNER, Executive Director- National Society of Professional Surveyors, USA (NSPS)

Daniel ACUÑA, Past President- National Association of Surveyors of Costa Rica (CIT)

Richard ALLEN, Chief Surveyor- City of Orlando, Florida USA

Tim BURCH, Secretary- NSPS

Allen CHEVES, Publisher- Cheves Media

Tracy DOUGLAS, Vice President of Marketing NAFTA- Leica (Hexagon) *

Robert FOSTER, Past President- American Congress on Surveying and Mapping / FIG Honorary President

John HAMILTON, President- American Association for Geodetic Surveying / NSPS Delegate- FIG Commission 6

William HAZELTON, Past President- Surveying and Geomatics Educators Society (SaGES)

John HOHOL, Head of NSPS Delegation to FIG

Brent JONES, Global Manager Land Records/Cadastre- Esri *

Dan KVAAL, NSPS Young Surveyors Network

Aidan MERCER, Director Industry Marketing AEC- Bentley Systems *

William MUSCATELLO, County Surveyor- Orange County, Florida USA

Steven NYSTROM, NSPS Delegate to FIG Commission 9 / FIG Commission 9 Chair

Dan ONTIVEROS, USDI Bureau of Land Management (BLM) surveyor- retired

Melissa ROBERT, FIG Young Surveyors Latin America Network

Dan ROMAN, Chief Geodesist- National Geodetic Survey / NSPS Delegate- Incoming Chair FIG Commission 5 **

Alysen TIERNEY, NSPS Young Surveyors Network

Chris TREVILLIAN, Marketing Manager Geospatial Optical Imaging and 3D Laser Scanning- Trimble *

Janet WILKINS- Chief Cadastral Surveyor- USDI Bureau of Land Management

* FIG Platinum Corporate Member

** FIG Affiliate Member

INTRODUCTION

The National Society of Professional Surveyors (NSPS), the FIG Member Association representing the surveying profession in the United States of America, is pleased to have the opportunity to bid to host the 2023 FIG General Assembly and Working Week.

The last time an FIG annual conference was held in the Western Hemisphere (North/South America) was 2002, in Washington, DC USA for the XXIV FIG Congress. 2023 represents 21 years since the FIG Congress was held here.

Since 2002 FIG annual conferences have been held 5 times in Africa, 5 times in Asia, 8 times in Europe and 2 times in Oceania (Australia and New Zealand) but zero in North or South America. It is definitely time to hold an FIG conference in our part of the world!

Latin America is underrepresented in FIG and we hope to rectify this by working to attract surveyors from Central and South America. We will work with their associations as well as the FIG Corporate Member community to reach out to attract those surveyors. We plan to provide a Spanish language technical program track to attract Spanish-speaking surveyors. In addition, we plan to provide interpretation services for the Opening Ceremony and Plenary Sessions in both Spanish and French as we know our Francophone colleagues have been requesting this service.

In 2022 FIG Affiliate Member US National Geodetic Survey will rollout the modernization of their National Spatial Reference System (NSRS) replacing current horizontal and vertical datums (NAD 83 and NAVD 88) with four plate-based reference frames and a single geopotential datum. The 2023 FIG Working Week will be an excellent venue to showcase the international coverage and collaboration of this modernization effort.

Our proposed choice as the venue for the 2023 FIG Working Week is the Swan and Dolphin Resort in Walt Disney World in Florida. Everything will be under one roof — meeting rooms, exhibition and sleeping rooms are within easy access of each other, just minutes away.

With 70+ million annual visitors (2017) and with over 11,000 conferences held annually Orlando has been voted the Most Affordable Travel Destination in the United States. Orlando is also known as the Theme Park Capital of the World®. Orlando International Airport (MCO), with over 46,000,000 passengers has been named 2018 Global Airport of the Year and voted No. 1 in customer satisfaction for the second straight year. MCO is known for offering low-cost airfares to locations worldwide with 54 nonstop and 398 one-stop international destinations featuring a total of 150 nonstop destinations.

MOTIVATION

The National Society of Professional Surveyors (NSPS) has been making a concerted effort to encourage its members to learn about and become engaged with FIG.

Since the FIG Congress was held in 2002 in Washington, DC there has not been another FIG annual event held in the Western Hemisphere (North/South America). FIG working weeks have been held in the African, Asian, European and the Pacific regions and FIG congresses have been held in the Asian, European and Pacific regions. In 2023 it will have been 21 years since the 2002 FIG Congress. It is definitely time to hold an FIG congress in our region.

In 2022 the US National Geodetic Survey (an FIG Affiliate Member) will roll-out their new datum replacing the North American Datum of 1983 (NAD 83) and the North American Vertical Datum of 1988 (NAVD 88). This significant event, the first adjustment in 34+ years will be of interest and affect many in the international surveying and geodetic community.

A key objective is to increase the participation and involvement of Latin America surveyors in FIG. By working with associations and agencies in Latin America along with FIG Corporate Members our goal is to attract Latin American surveyors to attend and participate in the 2023 FIG Working Week. Our venue in Florida provides close and easy access.

In addition to professional surveyors we are reaching out to attract geospatial professionals from other user communities in the US including the appraisal, assessor, transportation, remote sensing and GIS communities.

With the primary US government surveying agencies participating (Bureau of Land Management, Fish and Wildlife Service, National Geodetic Survey and NOAA Office of Coast Survey) it will provide an excellent opportunity to network with fellow global professionals.

The key outcome will result in more surveying professionals from the Americas becoming knowledgeable about and participating in FIG, especially its technical commissions.

The suggested theme is “Preserving Our Heritage— Conquering New Frontiers”

NSPS has organized and hosted surveying and mapping conferences the past three years with programs attracting surveyors, mappers, educators, government agencies, students, related geospatial professionals. The conferences have included exhibitions, reports by government agencies, surveying student competitions; with visits to federal government representatives as part of an organized lobby day to communicate and discuss issues important to the American surveyors.

Several federal and local agencies are supporting our bid as mentioned, including Congress Sponsors USDI Bureau of Land Management and NOAA National Geodetic Survey. Other agencies include, USDI Fish & Wildlife Service, NOAA Office of Coast Survey, Orange County (Florida) and the City of Orlando (Florida). Also Visit Orlando, the local convention and tourism authority, is supporting the bid.

A plethora of dining, recreation and entertainment choices are available onsite or within minutes of the venue with many low-cost, affordable options.

A wide choice of interesting technical and social tours will be organized to ensure worthwhile and memorable experiences during the congress.

The proposed venue, the Swan and Dolphin Hotel Resort, is located in the center of Walt Disney World and over the past two years (2016 and 2017) has hosted 43 national and international conferences equal in size to an FIG Congress or larger, with the largest group having 15,000+ attendees.

With over 70 million visitors annually (2017) Orlando is also the largest convention venue in the United States. Its main convention center (second largest in the USA after Las Vegas) hosts over 200 events with almost 1.5 million attendees. Including other hotel and convention facilities a total of over 11,000 conferences/conventions/meetings annually are held.

PROPOSAL DETAILS

1. City: ORLANDO, FLORIDA

2. Venue: Swan and Dolphin Resort — Walt Disney World — Lake Buena Vista, Florida
28.3679° N, 81.5603° W

3. Dates: **27 May - 3 June 2023 (preferred)**
11 June - 18 June
8 April - 16 April

4. Accommodations*: In venue— Swan and Dolphin Resort
Guaranteed 2023 rates from \$155 to \$209 (€135 to €183)

5. Transportation: Orlando International Airport (MCO)
91 US non-stop destinations
59 international non-stop destinations
398 additional one-stop direct international destinations
Special Dolphin transportation nonstop \$33 (€29) per person roundtrip**
Other options: Taxi = approximately \$75 (€66) each way, \$150 (€132) round-trip**
Shuttle (direct nonstop) = \$55 (€48) per person each way,
\$110 (€96) per person roundtrip**

* All accommodations include:

- Free local and domestic (USA) telephone calls
- Unlimited 24-hour access to Resort's Health Club
- In-room high speed wireless internet access
- Two bottles of water, refreshed daily
- Starbucks Coffee and Tazo Tea in guest sleeping rooms
- Daily discount breakfast coupon
- Complimentary beverage coupon
- \$25 (€21) off Spa Services of \$100 (€87) or more in Mandara Spa (one per day)
- Complimentary transportation to and from all Disney Parks and Attractions
- Special discounted theme park tickets
- Exclusive Disney Extra Magic Hours Benefits

** Current prices

Exchange rate: \$1 = €0.8752 €1 = \$1.11426 (10 December 2018)

PROPOSED DATES

27 May - 3 June (preferred)

11 -18 June

8 -16 April

2023

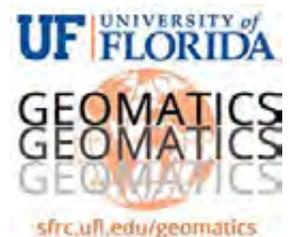
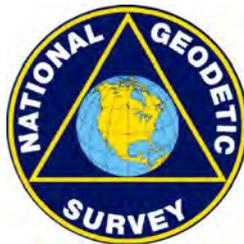
PROPOSED VENUE

Swan and Dolphin Resort

Walt Disney World

Lake Buena Vista, Florida USA

Supporting Organizations



SUPPORTING ORGANIZATIONS



The National Society of Professional Surveyors (NSPS) is the United States of America FIG Member Association representing the surveying profession in the United States through affiliation agreements with state surveying associations. Established in 1983 and incorporated in 1991 NSPS merged with the American Congress on Surveying and Mapping (ACSM) in 2012. In 2016 ACSM, an FIG member since 1959, celebrated the 75th anniversary of its founding.



The American Association for Geodetic Surveying (AAGS) aims to lead the community of geodetic, surveying, and land information data users through the 21st century. Through its affiliation with NSPS, AAGS is an active participant in FIG activities.



The Canadian Institute of Geomatics, founded in 1882, is the Canadian Not-for-Profit association that represents the interests of all groups in the geomatics community and is the Canadian member to the International Federation of Surveying (FIG)



The Pan American Association of Surveying and Topographic Professionals, founded in 1999, is composed of 10 national associations representing the surveying and topographic professionals in Latin America and Spain.



The International Right of Way Association (IRWA) is a professional member organization comprised of global infrastructure real estate practitioners. Since its inception in 1934, IRWA has served professionals who acquire, manage and transfer the land rights needed for building and maintaining energy and transportation infrastructure. IRWA's nearly 10,000 members hail from over 15 countries around the world. Through a memorandum of understanding since 1997 IRWA's International Surveying and Engineering Community of Practice (ISE CoP) has been working with the National Society of Professional Surveyors.



The Florida Surveying and Mapping Society (FSMS), an affiliate of the National Society of Professional Surveyors, is the professional membership society representing the Surveying & Mapping Profession in the state of Florida, including: Photogrammetry, Imagery, Remote Sensing, Base Mapping, GIS/LIS, Cartography, Geodesy, Geomatics, GPS, Geographic Information and Geospatial Data.



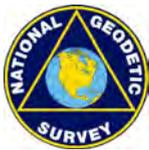
The Surveying and Geomatics Educators Society (SaGES), consists of educators and professionals from across the globe with the aim of creating the next generation of geospatial professionals.



The University of Florida Geomatics Program and is the leading STEM (Science, Technology, Engineering, Math) program in southeastern United States. Degree programs cover a broad spectrum of geospatial subject areas including professional surveying, geographic information systems, global positioning systems (GPS), photogrammetry, cartography, geodesy, mapping, geographic information sciences (GIS), remote sensing, integrated land studies, land development, and environmental assessment.



Participating in FIG for over 30 years the Bureau of Land Management (BLM) is an agency within the United States Department of the Interior that administers more than 247.3 million acres (1,001,000 km²) of public lands in the United States (one-eighth of the landmass of the country). The BLM is also the official record keeper for over 200 years' worth of cadastral survey records and plats as part of the Public Land Survey System.



A long-time partner of the National Society of Professional Surveyors, the National Oceanic and Atmospheric Administration's National Geodetic Survey (NGS) defines, maintains and provides access to the official reference system, the National Spatial Reference System (NSRS). The NSRS serves as the foundation for surveying, mapping and positioning activities in the United States and its territories.



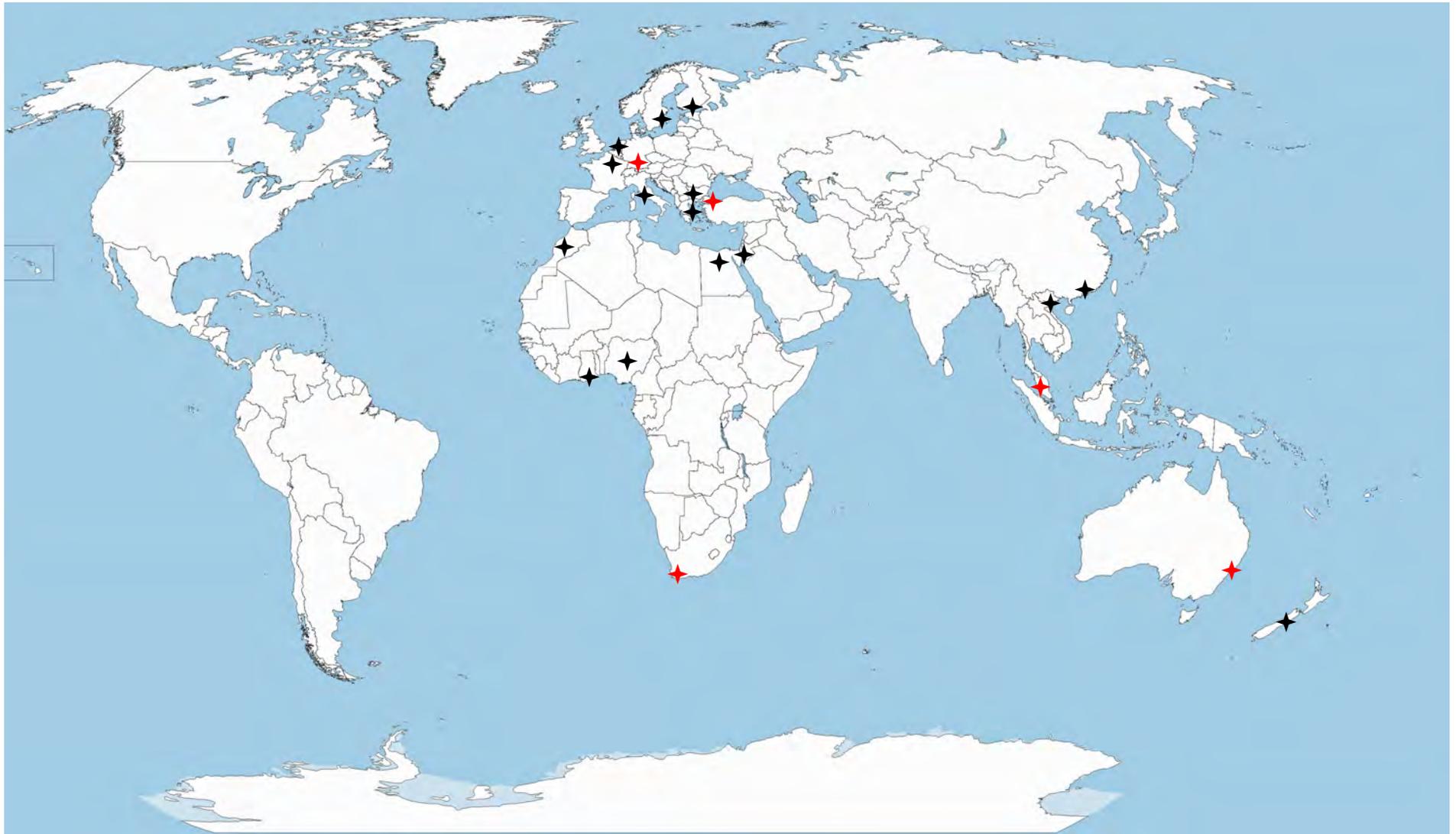
The National Oceanic and Atmospheric Administration's Office of Coast Survey (OCS) is a partner of the National Society of Professional Surveyors (NSPS). OCS serves as the authority for all nautical mapping and charting for the exclusive economic zone of the United States.



The Division of Realty, National Wildlife Refuge System, U.S. Fish and Wildlife Service (USFWS) professional land surveyors have long supported the work and mission of NSPS. USFWS surveyors perform surveying work in all 50 states and multiple insular territories of the United States. The majority of this work is to identify and mark the boundaries of land and water, and interests in land and water, managed by the USFWS to in order to conserve, protect and enhance fish, wildlife, plants and their habitats for the continuing benefit of the American people.

FIG Working Week and **FIG CONGRESS** locations: 2003-2022

Last held in the Western Hemisphere (North/South America): 2002 FIG Congress in Washington, DC, USA



2003 Paris	2007 Hong Kong	2011 Marrakech	2015 Sofia	2019 Hanoi
2004 Athens	2008 Stockholm	2012 Rome	2016 Christchurch	2020 Amsterdam
2005 Cairo	2009 Eliat	2013 Abuja	2017 Helsinki	2021 Accra
2006 MUNICH	2010 SYDNEY	2014 KUALA LUMPUR	2018 ISTANBUL	2022 CAPE TOWN

Africa: 5

Asia: 5

Europe: 8

Oceania: 2

North/South America: 0

Useful apps for your visit to Orlando

The Orlando International Airport (MCO) app provides you all the info needed when traveling through MCO.

The MCO app includes a wide variety of features including:

- Flight status
- Security waiting times
- Customized navigation and directions
- Airport terminal layout and map
- Location of airline counters and gates
- Restaurant and shopping information and locations
- Ground transportation and parking options
- Airport amenities

Orlando Airport (MCO) app



Now you can learn all about the Walt Disney World Swan and Dolphin right on your iOS or Android device while traveling or on the go. With this app you can view hotel videos, browse resort photography, learn about fabulous restaurants and lounges and so much more.

Swan and Dolphin app



Visit Orlando app

Download the free Visit Orlando app for your personalized Orlando experience.

AROUND ME: An interactive map experience to locate points of interest in a traditional map view or via an Augmented Reality view.

PERSONAL CONCIERGE: Click-to-dial one of Orlando's Destination Specialists.

TICKETS, DEALS AND DISCOUNTS: Purchase discounted tickets and access all our current deals.

ALL APPS AVAILABLE FREE FROM APPLE APP STORE OR GOOGLE PLAY STORE





TENTATIVE AGENDA
2022 FIG General Assembly and XXVII FIG Congress
Walt Disney World Dolphin

26 May - 6 June 2023

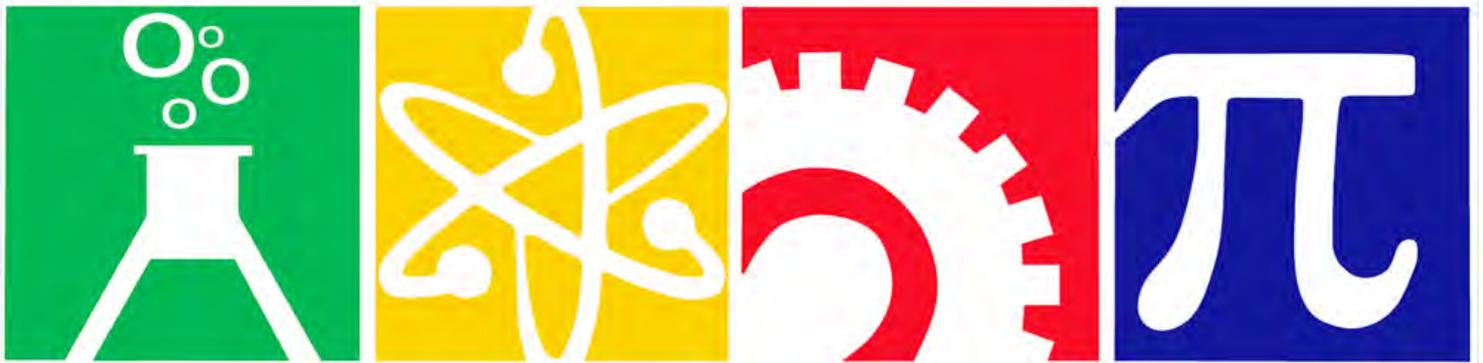
Time	Function	Room/Space	Set-up / Notes
Day 1 - Friday, 26 May 2023			
8:00am - 24 hrs	Decorator Move-in	Atlantic ABC	1000
8:00am - 24 hrs	Office	Europe 1	15
8:00am - 24 hrs	Speaker Ready Room	Bay Room	
8:00am - 24 hrs	AV Storage/Office	Asia 5	
8:00am - 24 hrs	Registration Set-Up	Convention Foyer	
7:00am - 6:00pm	Council Meeting	Australia 2	U Shape / 25
6:00pm - 8:00pm	Council Dinner	Shula's or Bluezoo	30
Day 2 - Saturday, 27 May 2023			
8:00am - 24 hrs	Exhibitor Move-in	Atlantic ABC	
8:00am - 6:00pm	ACCO Meeting	Australia 2	U Shape / 30
6:00pm - 8:00pm	ACCO Dinner	Shula's	Crescent / 40
Day 3 - Sunday, 28 May 2023			
8:00am - 24 hrs	Exhibitor Move-in	Atlantic ABC	
8:00am - 24 hrs	Office	Europe 1	15
8:00am - 24 hrs	Speaker Ready Room	Bay Room	
8:00am - 24 hrs	AV Storage/Office	Asia 5	
7:00am - 6:00pm	General Assembly	Southern I	Classroom / 200 Theater / 150-200
7:00am - 24 hrs	General Session Set-Up	Pacific BC	Theater / 50
6:00am - 6:00pm	Commission Annual Meetings	Europe 2 Europe 3 Europe 4 Europe 5 Europe 6 Europe 7 Europe 8 Europe 9 Europe 10 Europe 11	Theater / 50
6:00am - 24 hrs	Commission Meeting Rooms	Oceanic 4 Oceanic 5 Oceanic 6 Oceanic 7 Oceanic 8	Conference / 20-25
4:00pm - 8:00pm	Reception	Pacific A	Reception / 1000
Day 4 - Monday, 29 May 2023			
8:00am - 24 hrs	Exhibits	Atlantic ABC	
8:00am - 24 hrs	Office	Europe 1	15
8:00am - 24 hrs	Speaker Ready Room	Bay Room	
8:00am - 24 hrs	AV Storage/Office	Asia 5	

Time	Function	Room/Space	Set-up / Notes
Day 4 - Monday, 29 May 2023			
6:00am - 24 hrs	Meeting Rooms	Oceanic 1 Oceanic 2 Oceanic 3 Europe 3 Europe 4	Conference / 20-25
6:00am - 24 hrs	Commission Meeting Rooms	Oceanic 4 Oceanic 5 Oceanic 6 Oceanic 7 Oceanic 8	Conference / 20-25
6:00am - 24hrs	Breakouts	Europe 4 Europe 5 Europe 6 Europe 7 Europe 8 Europe 9 Northern E1 Northern E2 Northern E3 Northern E4 Southern III Southern IV Southern V	
8:00am - 24hrs	Office	Europe 1	15
8:00am - 24hrs	Speaker Ready Room	Bay Room	
8:00am - 24hrs	AV Storage/Office	Asia 5	
7:00am - 24hrs	General Session	Pacific BC	Theater / 2000
12:00pm - 1:00pm	Lunch in the Hall	Atlantic BC	
Day 5 - Tuesday, 30 May 2023			
8:00am - 24hrs	Exhibits	Atlantic ABC	
8:00am - 24hrs	Office	Europe 1	15
8:00am - 24hrs	Speaker Ready Room	Bay Room	
8:00am - 24hrs	AV Storage/Office	Asia 5	
6:00am - 24hrs	Meeting Rooms	Oceanic 1 Oceanic 2 Oceanic 3 Europe 3 Europe 4	Conference / 20-25
6:00am - 24 hrs	Commission Meeting Rooms	Oceanic 4 Oceanic 5 Oceanic 6 Oceanic 7 Oceanic 8	Conference / 20-25

Time	Function	Room/Space	Set-up / Notes
Day 5 - Tuesday, 30 May 2023			
6:00am - 24hrs	Breakouts	Europe 4 Europe 5 Europe 6 Europe 7 Europe 8 Europe 9 Northern E1 Northern E2 Northern E3 Northern E4 Southern III Southern IV Southern V	
Day 5 - Tuesday, 30 May 2023			
7:00am - 24hrs	General Session	Pacific BC	Theater / 2000
12:00pm - 1:00pm	Lunch in the Hall	Atlantic BC	
4:00pm - 10:00pm	Commission Dinners		
Day 6 - Wednesday, 31 May 2023			
8:00am - 24hrs	Exhibits	Atlantic ABC	
8:00am - 24hrs	Office	Europe 1	15
8:00am - 24hrs	Speaker Ready Room	Bay Room	
8:00am - 24hrs	AV Storage/Office	Asia 5	
6:00am - 24hrs	Meeting Rooms	Oceanic 1 Oceanic 2 Oceanic 3 Europe 3 Europe 4	Conference / 20-25
6:00am - 24 hrs	Commission Meeting Rooms	Oceanic 4 Oceanic 5 Oceanic 6 Oceanic 7 Oceanic 8	Conference / 20-25
6:00am - 24hrs	Breakouts	Europe 4 Europe 5 Europe 6 Europe 7 Europe 8 Europe 9 Northern E1 Northern E2 Northern E3 Northern E4 Southern III Southern IV Southern V	
7:00am - 24hrs	General Session	Pacific BC	Theater / 2000
12:00pm - 1:00pm	Lunch in the Hall	Atlantic BC	

Time	Function	Room/Space	Set-up / Notes
Day 7 - Thursday, 1 June 2023			
8:00am - 24hrs	Exhibits	Atlantic ABC	
8:00am - 24hrs	Office	Europe 1	15
8:00am - 24hrs	Speaker Ready Room	Bay Room	
8:00am - 24hrs	AV Storage/Office	Asia 5	
6:00am - 24hrs	Meeting Rooms	Oceanic 1 Oceanic 2 Oceanic 3 Europe 3 Europe 4	Conference / 20-25
6:00am - 24 hrs	Commission Meeting Rooms	Oceanic 4 Oceanic 5 Oceanic 6 Oceanic 7 Oceanic 8	Conference / 20-25
6:00am - 24hrs	Breakouts	Europe 4 Europe 5 Europe 6	
Day 7 - Thursday, 1 June 2023			
		Europe 7 Europe 8 Europe 9 Northern E1 Northern E2 Northern E3 Northern E4 Southern III Southern IV Southern V	
7:00am - 24hrs	General Session	Pacific BC	Theater / 2000
12:00pm - 1:00pm	Lunch in the Hall	Atlantic BC	
4:00pm - 10:00pm	Gala Dinner	Southern III-V	Rounds / 400
Day 8 - Friday, 2 June 2023			
8:00am - 11:00am	President's Meeting	Southern I	Hollow Square / 80
8:00am - 24hrs	Office	Europe 1	15
8:00am - 24hrs	Speaker Ready Room	Bay Room	
8:00am - 24hrs	AV Storage/Office	Asia 5	
10:00am - 4:00pm	General Assembly	Southern III	Classroom / 200 Theater / 150-200
4:00pm - 10:00pm	Farewell Reception	Southern IV & V	Reception / 200
Day 9 - Saturday, 3 June 2023			
7:00am - 6:00pm	Council Meeting	Australia 3	U-Shape / 25
8:00am - 11:59pm	Office	Europe 1	15
8:00am - 11:59pm	Speaker Ready Room	Bay Room	
8:00am - 11:59pm	AV Storage/Office	Asia 5	

STEM
(SCIENCE, TECHNOLOGY, ENGINEERING, MATHEMATICS)



STEM Science, Technology,
Engineering, Mathematics

STEM has become an important initiative to encourage students to become interested in its related careers.

Florida has a very dynamic STEM program at both the state and local level.

We will collaborate with the Central Florida STEM Education Council to invite young STEM students to visit the FIG Congress exhibition and interact with FIG Young Surveyors to learn about all the great opportunities that a surveying profession offers and how they can make a difference in the world and solve problems that affect people's lives.

This will also help ensure a sustainable environment for future FIG activities.



CENTRAL FLORIDA
STEM
EDUCATION COUNCIL

www.centralfloridaSTEM.org
"Building a Brighter Future Today!"

ADVOCATE COMMUNICATE COORDINATE

MISSION: TO COLLABORATIVELY ADVOCATE, COMMUNICATE, AND COORDINATE SCIENCE TECHNOLOGY ENGINEERING AND MATHEMATICS (STEM) K-12 EDUCATION EFFORTS IN THE CENTRAL FLORIDA REGION.

WALT DISNEY WORLD

Swan and Dolphin Resort

At the very heart of the Walt Disney World® is the award-winning Walt Disney World Swan and Dolphin Resort, a world-class meeting destination. This ideal location allows guests' access to Epcot® and Disney's Hollywood Studios™ by water or walkway and places them just minutes from Magic Kingdom® Park and Disney's Animal Kingdom® Theme Park via bus. Disney's BoardWalk is accessible via walkway and contains shops, restaurants, and nightclubs featuring live entertainment ranging from a dance hall to piano bar.

A \$175 million redesign was recently completed in September, 2017 which is the most extensive transformation in its 25 years of existence.

- Largest convention venue in Walt Disney World— hosting groups up to 15,000 attendees
- Over 30,565 square meters of indoor meeting space
- 84 meeting rooms
- 10,265 square meters of contiguous convention/exhibit space
- Over 11,909 square meters of beautifully landscaped outdoor function space
- 2,267 guest rooms including 168 suites—totally reimagined in 2017 with new furniture and the latest technology
- 17 distinctive restaurants and lounges
- Mandara Spa
- Advance tee times on nearby championship Disney golf courses
- 2 health clubs, tennis, jogging trails
- 5 swimming pools, white sand beach





All accommodations include free local and domestic (USA) telephone calls, unlimited 24-hour access to Resort's Health Club, in-room high speed wireless internet access, two bottles of water refreshed daily, Starbucks Coffee and Tazo Tea in guest sleeping rooms, daily discount breakfast coupon, complimentary beverage coupon, \$25 (€21) off Spa Services of \$100 (€85) or more in Mandara Spa (one per day), complimentary transportation to and from all Disney Parks and Attractions, special discounted theme park tickets, exclusive Disney Extra Magic Hours benefits.



PROVEN REPUTATION

The recipient of every major meetings industry award, including the prestigious Hall of Fame Award from Meetings and Conventions magazine, the Walt Disney World Dolphin has earned its coveted reputation for a level of service and professionalism found only in the most elite convention resorts.



CULINARY EXPERTISE

The Walt Disney World Dolphin provides a premier culinary experience with an award winning team, comprised of chefs from all over the world. Our renowned catering staff has earned national recognition for exceptional service and our signature Visionary Innovative Banquet Events (VIBE). Laurent Branlard, executive pastry chef at the Walt Disney World Swan and Dolphin, is also the world pastry champion – not once, but two times over! In addition, Chef Branlard served as captain of “Team USA” for the World Pastry Championship.





DINING AND ENTERTAINMENT

The Walt Disney World Dolphin provides accessibility to a diverse selection of 17 world-class restaurants and lounges throughout the Walt Disney World Swan and Dolphin, offering unrivaled cuisine to please every palate. Our award-winning dining options feature celebrity chef restaurants, steak, seafood, sushi, Italian, Disney character dining, and casual chic poolside venues.

The resort also offers 12 private dining rooms available in signature restaurants for group events:

- ◆ Todd English's bluezoo has three private dining rooms for groups up to 54 guests.
- ◆ Shula's Steak House has four private dining rooms with "reveal walls" for groups up to 80 guests.
- ◆ Il Mulino New York Trattoria has five private dining rooms for groups up to 113 guests.

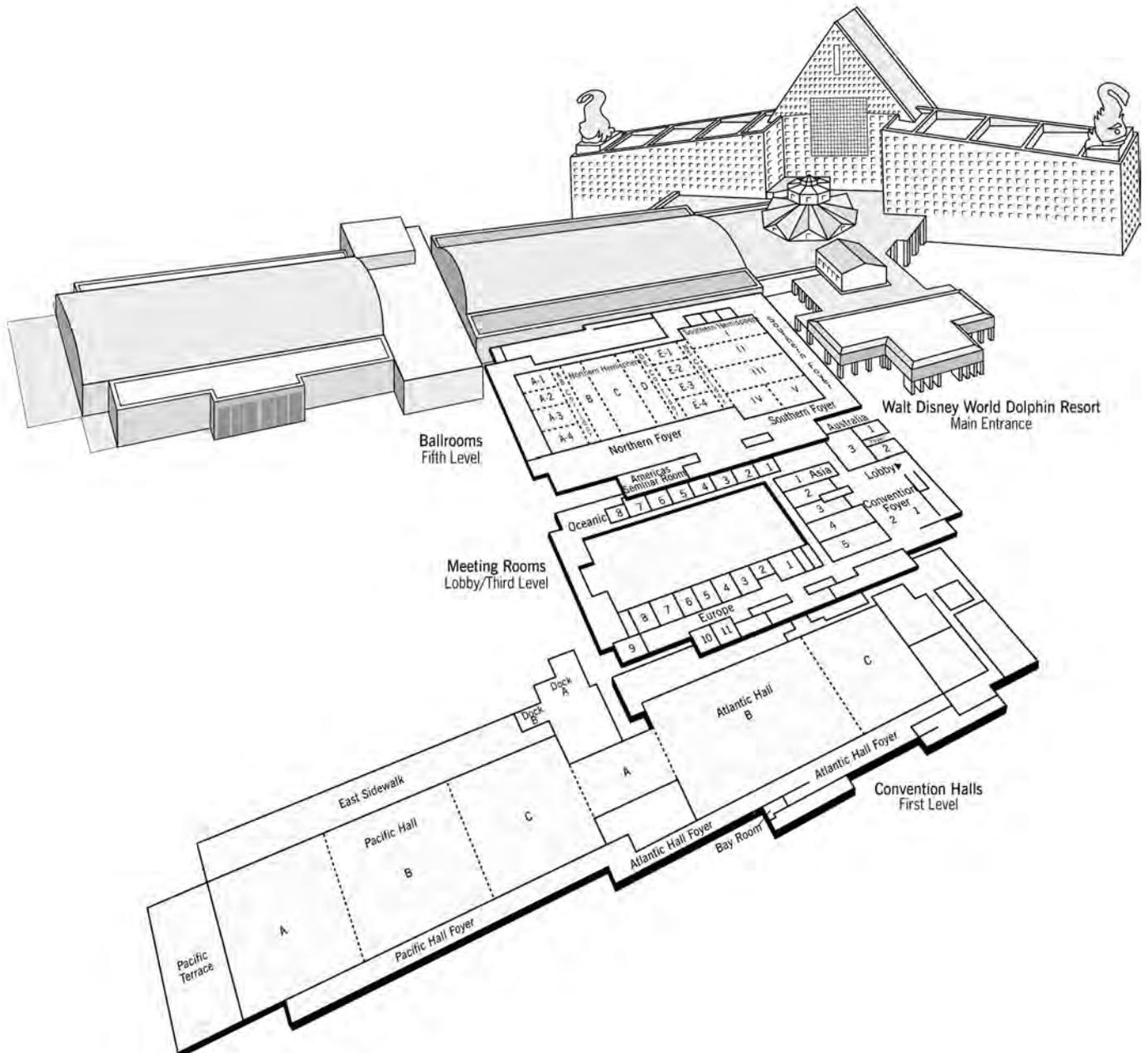
COUNTLESS ACTIVITIES

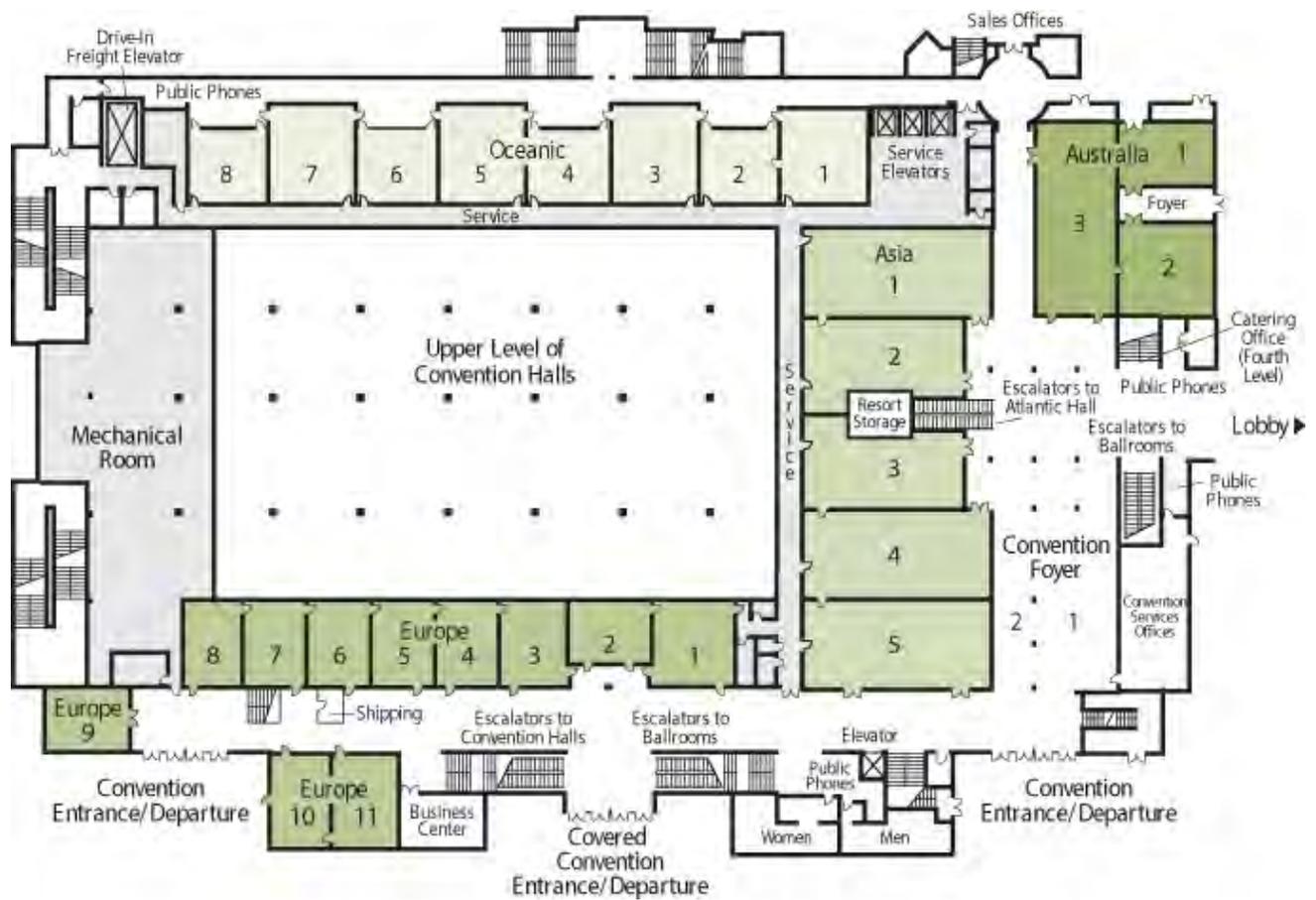
At the end of the conference day, all the wonder of the Walt Disney World® Resort is right outside the door. From here, your attendees can either walk or hop aboard a complimentary water taxi to Epcot® and Disney's Hollywood Studios™, or be whisked away by complimentary shuttle to the Magic Kingdom® Park and Disney's Animal Kingdom® Theme Park. Your attendees may also enjoy all of the amenities our resort has to offer:

- ◆ Mandara Spa
- ◆ Advance tee times on nearby championship Disney golf courses
- ◆ Two health clubs featuring Westin WORKOUT®; Whirlpools and saunas
- ◆ Five swimming pools, including a grotto pool with waterfalls and a water slide
- ◆ Four lighted tennis courts; Jogging trails
- ◆ White sand beach; Swan paddle boat rentals
- ◆ Two game rooms; Supervised children's activity center; Beachside playground
- ◆ 36 holes at Disney's Fantasia Gardens Miniature Golf courses

WALT DISNEY WORLD DOLPHIN RESORT

Meeting Space Aerial View





MEETING ROOM	M ²	LENGTH	WIDTH	CEIL. HT.	LOW PT.	THEATRE	SCHOOL	H/S	U-SHAPE	CONF.	BANQUET	RECEPT.
Oceanic 1	104	11	9	4	3	104	70	42	33	30	70	160
Oceanic 2	72	9	8	4	3	78	44	30	27	24	50	100
Oceanic 3	105	11	8	4	3	104	74	42	33	30	70	160
Oceanic 4	79	9	9	4	3	84	48	36	27	24	50	100
Oceanic 5	103	11	9	4	3	104	74	42	33	30	70	160
Oceanic 6	79	9	9	4	3	84	48	36	27	24	50	100
Oceanic 7	104	11	9	4	3	104	74	42	33	30	70	160
Oceanic 8	79	9	9	4	3	84	48	36	27	24	50	100
Asia 1	208	21	10	3	3	239	160	72	63	60	160	300
Asia 2	165	18	8	4	3	169	104	60	51	48	110	260
Asia 3	164	18	8	4	3	162	104	60	51	48	110	260
Asia 4	210	21	10	3	3	228	159	72	63	54	160	300
Asia 5	212	21	9	3	3	222	141	72	63	60	130	300
Europe 1	81	9	9	4	3	70	48	36	27	24	50	100
Europe 2	75	10	8	3	3	64	44	36	27	24	50	100
Europe 3	69	9	8	4	3	72	40	36	27	24	50	75
Europe 4	65	10	7	4	3	60	48	36	30	24	40	75
Europe 5	68	10	7	4	3	66	45	36	30	24	50	75
Europe 6	65	9	7	4	3	60	42	36	30	24	50	75
Europe 7	64	9	7	4	3	66	42	36	30	24	50	75
Europe 8	66	10	7	4	3	65	45	30	30	24	50	75
Europe 9	60	9	6	4	3	68	43	30	24	24	50	75
Europe 10	68	10	7	4	3	65	45	30	30	24	50	75
Europe 11	70	10	7	4	3	65	45	30	30	24	50	75
Australia 1*	65	10	6	3	3	-	-	-	-	16	-	-
Australia 2	105	11	10	3	2	106	61	42	30	24	70	120
Australia 3	203	23	9	4	3	234	140	78	69	66	140	300

Convention Halls

First Level

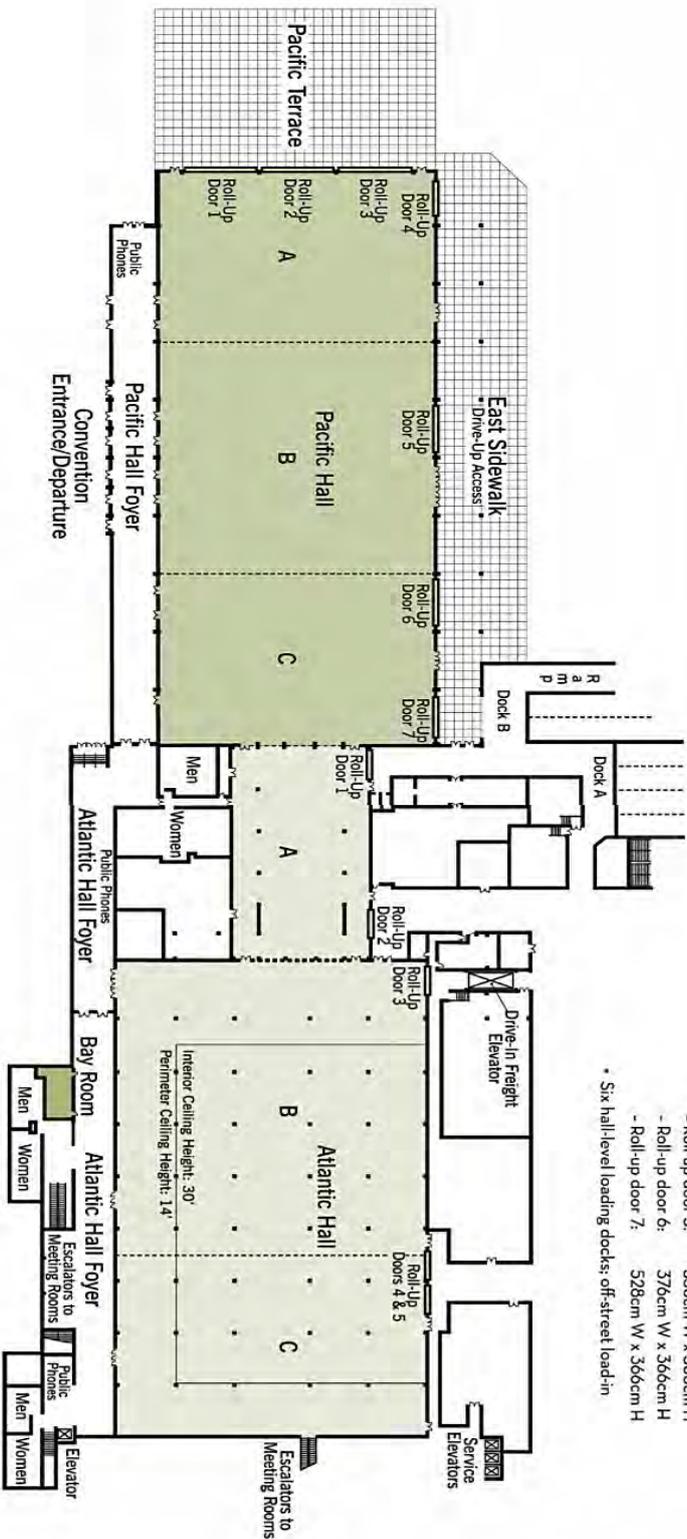
MEETING ROOM	M ²	LENGTH	WIDTH	CELL HT.	LOW PT.	89' x 109'	109' x 109'	THEATRE	SCHOOL	SCHOOL	BANQUET	RECEPT.
Atlantic/Pacific Halls	10,265	-	-	-	-	673	556	-	-	-	6,810	15,000
Atlantic Hall	5,627	-	-	-	-	341	301	-	-	-	3,450	8,770
Atlantic A	864	38	23	4	4	28	28	660	405	580	1,570	
Atlantic B	2,959	55	53	9	4	178	150	-	-	1,920	4,400	
Atlantic C	1,805	53	34	9	4	111	95	-	-	1,120	2,800	
Atlantic B/C	4,763	89	53	9	4	313	263	-	-	2,920	7,200	
Pacific Hall	4,638	97	47	8	7	332	255	6,100	3,595	3,560	7,500	
Pacific A	1,391	47	29	8	7	98	78	1,800	1,040	1,020	2,000	
Pacific B	1,855	47	39	8	7	122	117	2,200	1,348	1,410	3,500	
Pacific C	1,391	47	29	8	7	85	78	1,800	1,016	1,020	2,000	

Numbers shown assume maximum capacities and are subject to change upon specific program requirements. Atlantic Hall Foyer is 1113 m² with 1,198 reception capacity. Pacific Hall Foyer is 590 m². Please refer to Outdoor Function Space section for Pacific Terrace specifications.

* Based on rounds of 8.

FEATURES:

- Both Atlantic and Pacific Halls are fully carpeted
- Electricity, telephone, networking, water and compressed air utilities are built into the Atlantic Hall columns; majority at 914cm centers
- Electricity, telephone and networking utilities are built into the Pacific Hall floor; majority at 914cm centers
- Programmable lighting
- Fully scalable DS-3 class Internet service, delivered via our fiber-optic and Ethernet backbone, available throughout the convention halls and foyers
- Wireless access available throughout the convention halls and foyers
- Drive-in freight elevator: 701cm L x 305cm W x 365cm H; load limit: 5,443 kgs.
- Atlantic Hall roll-up doors
 - Roll-up doors 1-2: 389cm W x 279cm H
 - Roll-up door 3: 284cm W x 345 cm H
 - Roll-up doors 4-5: 411cm W x 320cm H
- Pacific Hall roll-up doors
 - Roll-up doors 1, 3: 1026cm W x 640cm H
 - Roll-up door 2: 1,310cm W x 640cm H
 - Roll-up door 4: 541cm W x 487cm H
 - Roll-up door 5: 536cm W x 366cm H
 - Roll-up door 6: 376cm W x 366cm H
 - Roll-up door 7: 528cm W x 366cm H
- Six hall-level loading docks; off-street load-in



DOLPHIN CONVENTION CENTER ATLANTIC EXHIBIT HALLS



ATLANTIC HALL A



ATLANTIC HALL C



ATLANTIC HALL B



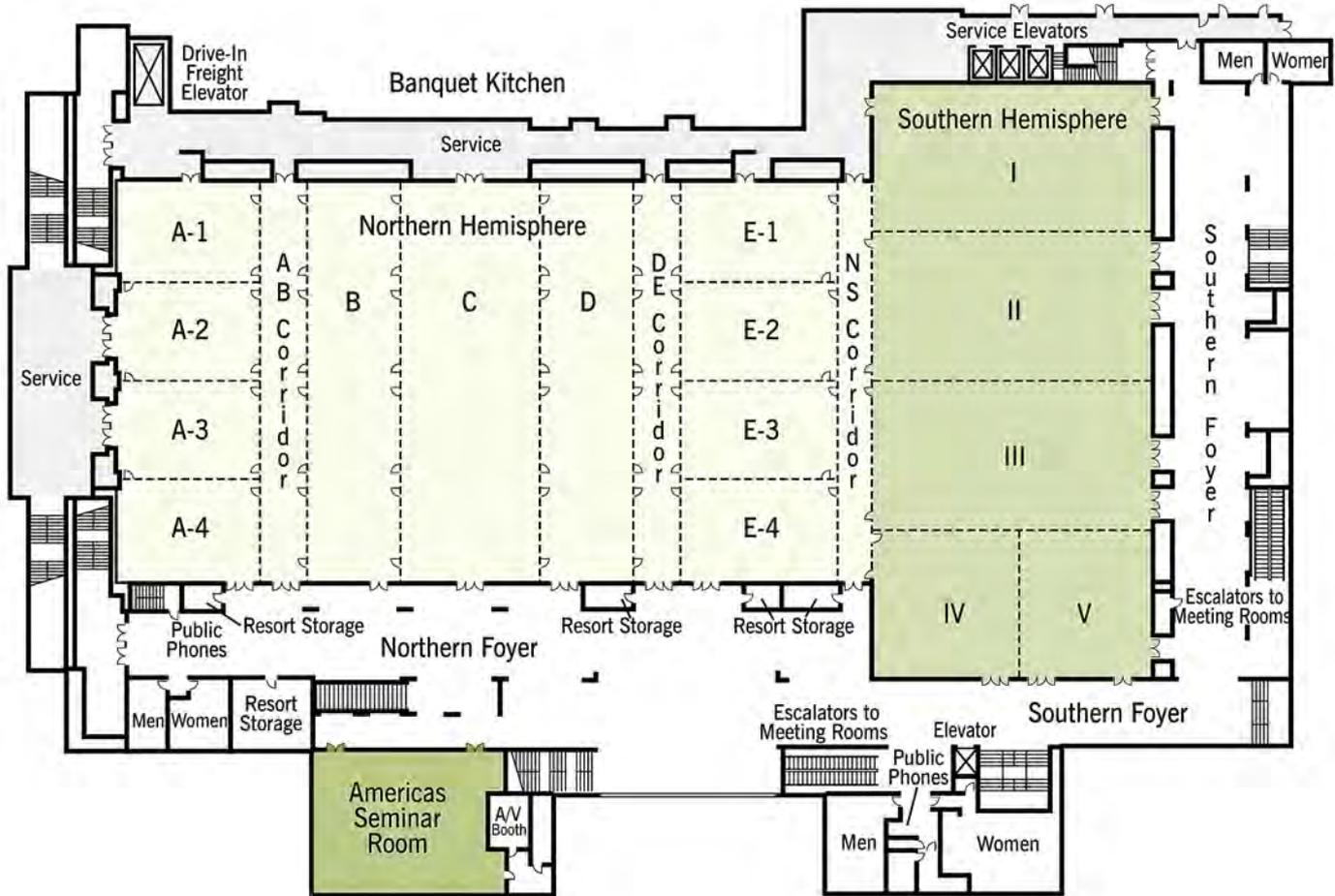
ATLANTIC HALL B



ATLANTIC HALLS B & C

Note: all halls are carpeted

Fifth Level

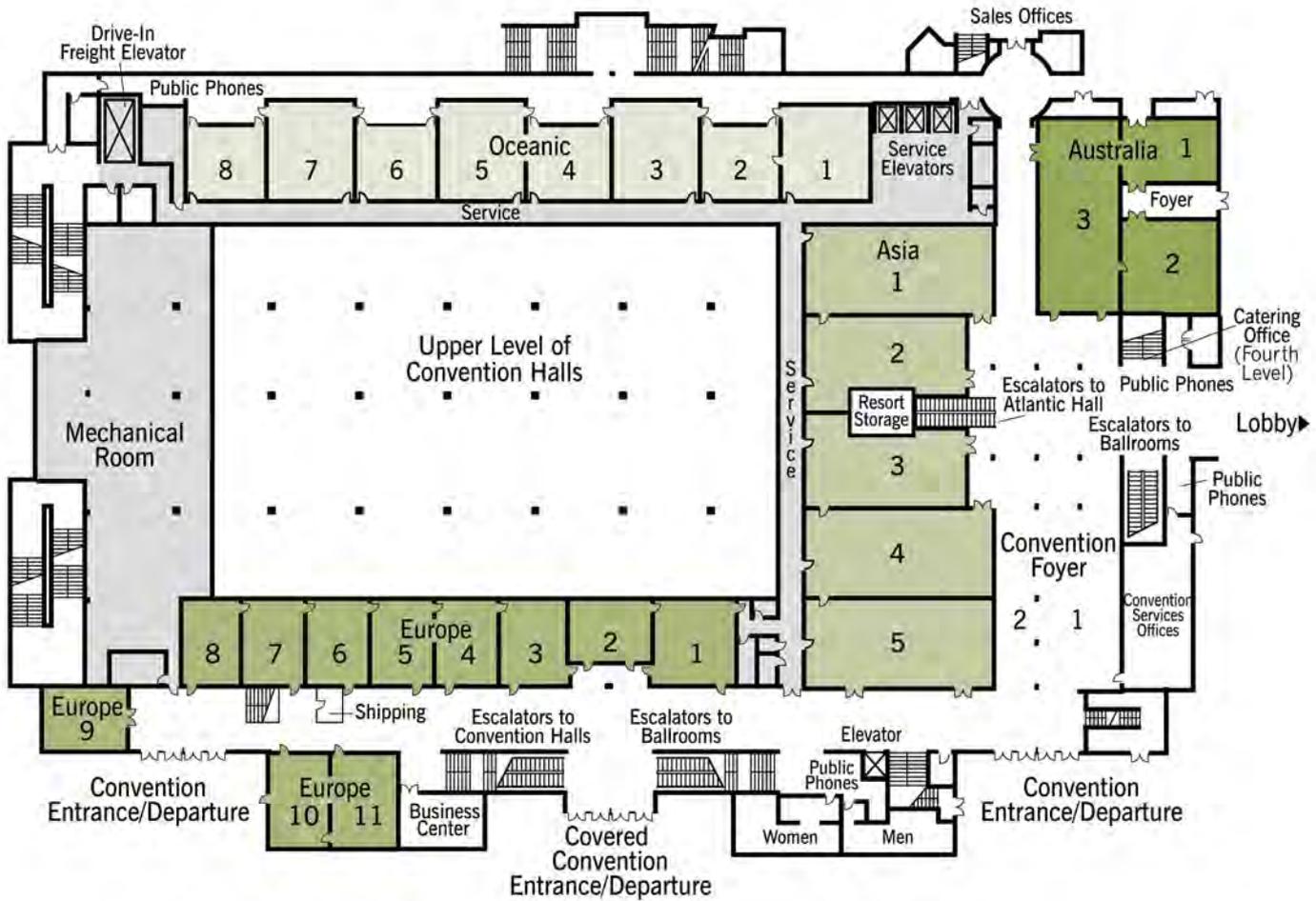


FEATURES:

- 929 square meter sound booth running along the side of both ballrooms
- Programmable lighting and hang points in ceiling
- Extensive ventilation system permitting indoor pyrotechnics
- Drive-in freight elevator: 701cm L x 305cm W x 366cm H; load limit: 5,443 kgs.
- Fully scalable DS-3 class Internet service, delivered via our fiber-optic and Ethernet backbone, available in the ballrooms and foyers
- Wireless access available throughout the ballrooms and foyers
- Salon B and Salon D in the Hemispheres Ballroom cannot stand alone
- Built-in A/V booth in Americas Seminar Room
- Complimentary house phone in Americas Seminar Room
- Convention network infrastructure managed by on-site technicians
- On-site audio/visual services department

MEETING ROOM	M ²	LENGTH	WIDTH	CEIL. HT.	LOW PT.	THEATRE	SCHOOL	H/S	U-SHAPE	CONF.	BANQUET	RECEPT.
Hemispheres Ballroom	5,039	107	61	8	7	6,457	4,047	-	-	-	3,700	9,470
Northern Hemisphere	3,117	74	42	8	7	4,347	2,684	-	-	-	2,520	5,840
Salon A	620	42	15	7	7	680	432	-	-	-	440	1,080
Salon A1	155	15	11	7	7	208	112	54	45	36	120	285
Salon A2	155	15	10	7	7	208	112	54	45	36	120	285
Salon A3	155	15	10	7	7	208	112	54	45	36	120	285
Salon A4	155	15	11	7	7	208	112	54	45	36	120	285
Salon B	403	42	10	8	8	-	-	-	-	-	-	-
A/B Corridor	204	42	5	8	7	-	-	-	-	-	-	-
Salon B + A/B Corridor	607	42	14	8	7	814	480	-	-	-	460	1,130
Salon C	603	42	14	8	8	814	460	-	-	-	460	1,130
Salon D	403	42	10	8	8	-	-	-	-	-	-	-
D/E Corridor	206	42	5	8	7	-	-	-	-	-	-	-
Salon D + D/E Corridor	609	42	14	8	7	814	460	-	-	-	460	1,130
Salon B/C/D	1,410	42	34	8	8	2,030	1,012	-	-	-	990	2,520
Salon B/C	1,007	42	24	8	8	1,482	800	-	-	-	660	1,650
Salon C/D	1,007	42	24	8	8	1,482	800	-	-	-	660	1,650
Salon E	678	42	16	7	7	844	472	-	-	-	480	1,280
Salon E1	171	16	11	7	7	210	126	60	51	42	120	285
Salon E2	168	16	10	7	7	210	126	60	51	42	120	285
Salon E3	168	16	10	7	7	210	126	60	51	42	120	285
Salon E4	171	16	11	7	7	210	126	60	51	42	120	285
N/S Corridor	167	42	4	7	7	-	-	-	-	-	-	-
Salon E + N/S Corridor	845	42	20	7	7	1,110	600	-	-	-	550	1,350
Southern Hemisphere	1,754	60	28	7	7	2,410	1,260	-	-	-	1,200	3,000
Salon I	438	28	15	7	7	504	320	108	93	78	310	775
Salon II	445	28	16	7	7	528	320	108	93	78	320	775
Salon III	443	28	15	7	7	528	320	108	93	78	320	775
Salon IV	215	15	14	7	7	231	135	66	51	36	150	375
Salon V	212	15	14	7	7	220	135	66	51	36	150	375
Salon IV/V	428	28	15	7	7	480	300	108	93	78	310	775
Americas Seminar Room	262	19	14	4	3	300	197	78	60	48	190	475

Lobby/Third Level



FEATURES:

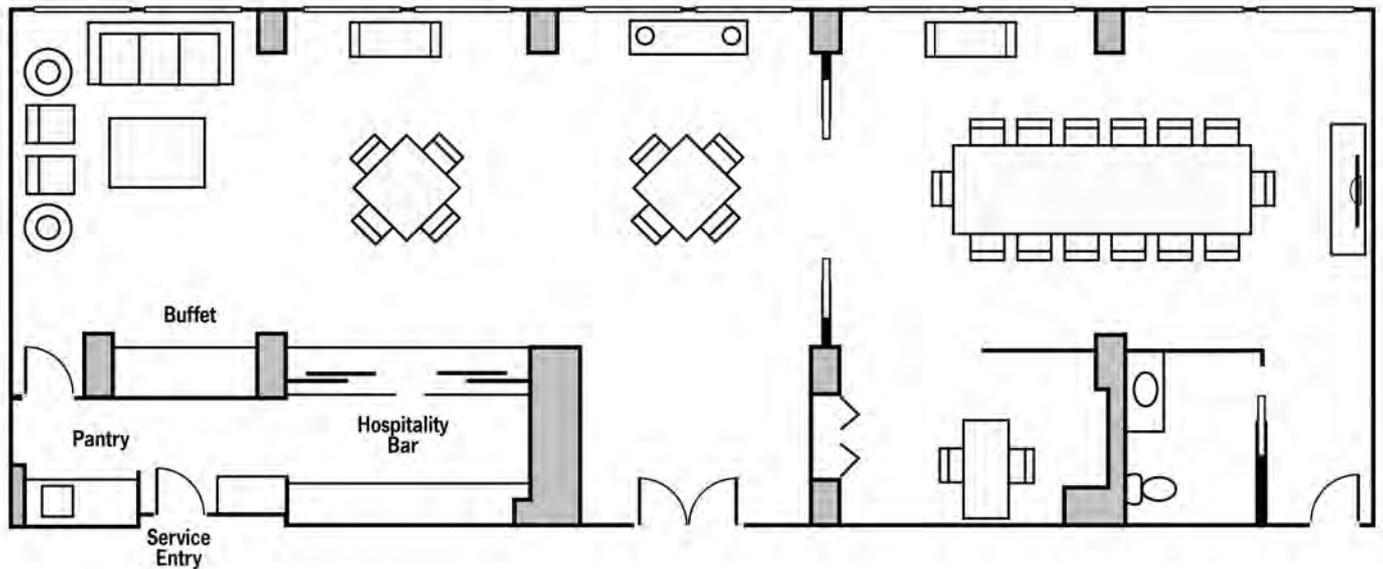
- Both fluorescent and incandescent adjustable lighting
- Simultaneous recording of presentation through a central audio mixer
- Each room includes four solid walls with bulletin board wall to maximize sound proofing, built-in A/V screen, and patches for microphone and video
- Drive-in freight elevator: 701cm L x 305cm W x 366cm H; load limit: 5,443 kgs.
- Fully scalable DS-3 class Internet service, delivered via our fiber-optic and Ethernet backbone, available in all meeting rooms and foyers
- Wireless access available throughout all meeting rooms and foyers
- Complimentary house phone in meeting rooms
- Australia Boardroom
 - Projection display system and upgraded A/V system with touchpad control
 - Warm, modern décor with luxurious blonde wood paneling
 - Executive board table for 16 with over-sized ergonomic leather chairs
 - Private entry area
 - Connected his/hers lavatories

Premier Hospitality Suite

MEETING ROOM	M ²	LENGTH	WIDTH	CEIL. HT.	LOW PT.	CONF.	RECEPT.
Premier	102	20	51	2	2	14	65

Numbers shown assume maximum capacities and are subject to change upon specific program requirements.

Twelfth Level



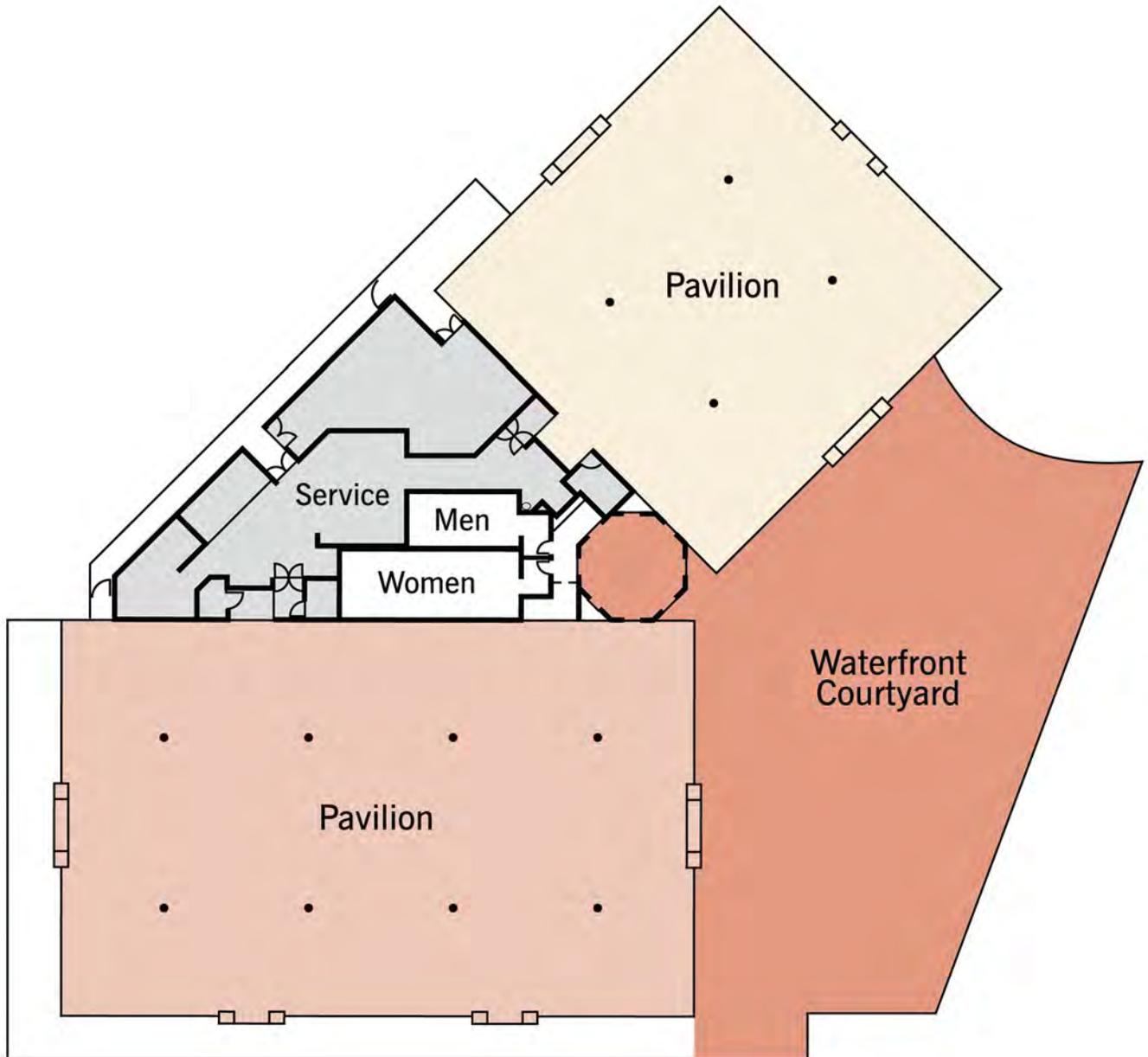
FEATURES:

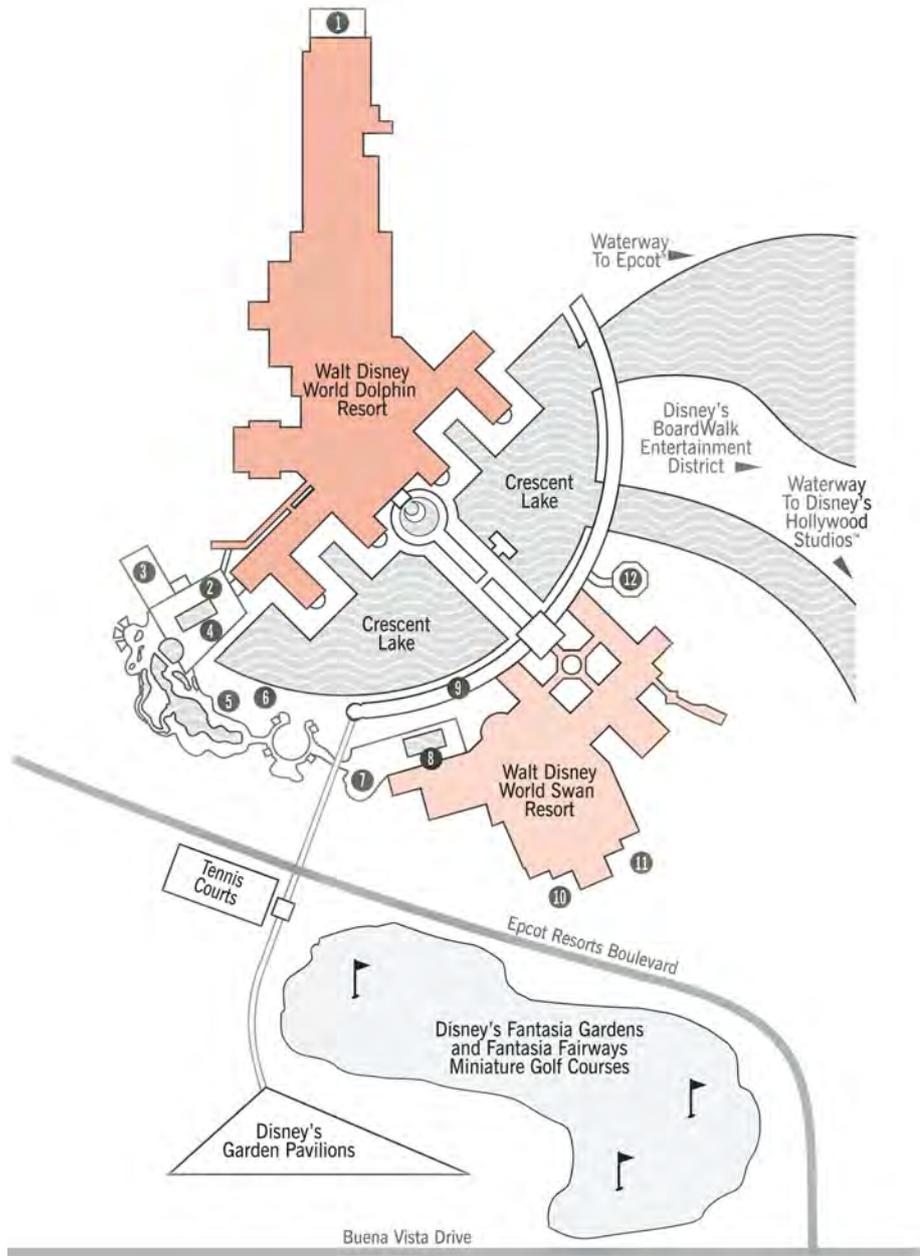
- 102 square meters with a reception capacity for 65
- Italian tile entry
- Conference table for 14
- 132cm widescreen flat-panel LCD monitor/HDTV
- Wireless Crestron A/V touchpad control system
- Full room audio system with integrated ceiling speakers
- Room divisible by hand-carved Italian teak wood doors
- Semi-private office
- Upscale residential furnishings
- Modern European lighting fixtures
- Gallery quality art
- Granite buffet counter
- Hospitality bar
- Full pantry
- Separate service entrance
- Inspirational views overlooking Crescent Lake

Disney's Garden Pavilions

NAME	M ²	BANQUET	RECEPT.
Disney's Garden Pavilions	2,676	1,540	2,600
Dancing Hippos (covered)	752	560	800
Sorcerer's Apprentice (covered)	1,204	980	1,000
Waterfront Courtyard	720	—	800

Numbers shown assume maximum capacities and are subject to change upon specific program requirements.





NO.	NAME	M ²	BANQUET	RECEPT.
1	Pacific Terrace*	1,505	1,300	1,620
2	Dolphin Lap Pool Deck	557	250	300
3	Cabana Deck*	697	400	500
4	Dolphin Lap Pool	325	150	200
5	Grotto Pool	372	200	350
6	White Sand Beach	2,230	850	1,000
7	Swan Terrace*	725	350	500
8	Swan Lap Pool Deck	325	300	500
9	Lake Terrace*	1,605	600	1,000
10	Osprey Terrace 1	260	160	180
11	Osprey Terrace 2	260	160	180
12	Crescent Terrace	372	120	200

Numbers shown assume maximum capacities and are subject to change upon specific program requirements.

* Tents available.



RESTAURANTS

- 1 Shula's Steak House
- 2 Phins Bar
- 3 Cabana Bar & Beach Club
- 4 Picabu
- 5 The Fountain
- 6 Todd English's bluezoo
- 7 Fresh Mediterranean Market
- 8 FUEL

OTHER

- 9 Concierge
- 10 Disney Planning Center
- 11 Business Center
- 12 Lobby/Front Desk
- 13 Shopping
- 14 Fitness Center
- 15 Camp Dolphin
- 16 Guest Laundry
- 17 Game Room/Arcade
- 18 Mandara Spa

OUTDOOR

- 19 Disney Shuttle Bus
- WT Disney Water Taxi
- 20 Grotto Pool & Beach
- WP Whirlpools
- 21 Childrens Playground
- 22 Cabana Beach Hut
- 23 Pacific Terrace
- 24 Cabana Deck
- 25 Lap Pool
- 26 Spring Pool
- 27 Kiddie Pool
- SA Smoking Area

RESTAURANTS

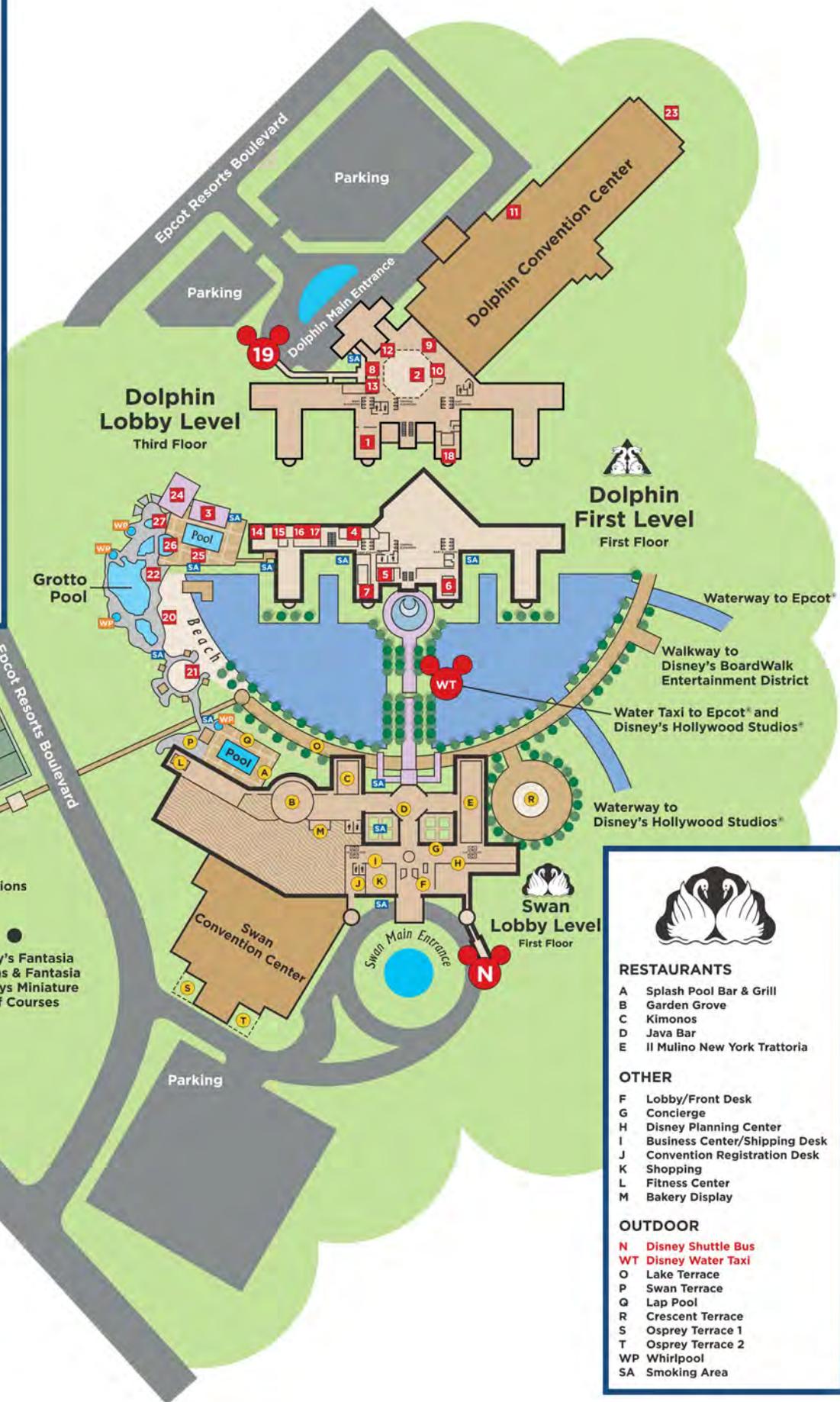
- A Splash Pool Bar & Grill
- B Garden Grove
- C Kimonos
- D Java Bar
- E Il Mulino New York Trattoria

OTHER

- F Lobby/Front Desk
- G Concierge
- H Disney Planning Center
- I Business Center/Shipping Desk
- J Convention Registration Desk
- K Shopping
- L Fitness Center
- M Bakery Display

OUTDOOR

- N Disney Shuttle Bus
- WT Disney Water Taxi
- O Lake Terrace
- P Swan Terrace
- Q Lap Pool
- R Crescent Terrace
- S Osprey Terrace 1
- T Osprey Terrace 2
- WP Whirlpool
- SA Smoking Area





THE WALT DISNEY WORLD SWAN AND DOLPHIN HOTELS
GREEN PRACTICES
AND ARE DESIGNATED MEMBERS OF THE
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
FLORIDA GREEN LODGING PROGRAM

ALL DEPARTMENTS/OPERATIONS

- Recycling of paper, cardboard, plastic and aluminum
- Recycle print cartridges
- All registration on arrival is paperless
- White copy/printing paper is minimum 30% post consumer content
- Colored copy/printing paper is minimum 30% post consumer content
- Lighting/computer equipment in all areas turned off when not in use
- Computer monitors programmed to turn off after period of inactivity
- Audio Visual equipment turned off daily and when not in use
- Recycled room key
- Use of post consumer content for office supplies
- Use of e-mail instead of paper for communication and documentation
- All administrative areas recycle
- All public areas option for guest participation in recycling
- Mandatory reports are reduced to as needed: old reports are reused and recycled
- Recycling programs for light bulbs and batteries are in place
- Non-smoking facility

AUDIO VISUAL (PRESENTATION SERVICES)

- Business center office equipment turned off after business hours
- Flipchart pads are made from post consumer recycled material

HOUSEKEEPING

- Bed linens changed only upon guest requests (part of water/energy conservation efforts)
- Towels replaced only upon request allowing guests option to re-use existing towels
- Environmentally friendly cleaning products are used

STEWARDING

- Dish washing machines shut down between washes when business levels are low

PURCHASING

- Double-sided paper to all network printers
- All ink/printer cartridges are recycled
- Pallets are picked up for re-use or repair instead of dumping
- Paper products are 30%-40% recyclable



THE WALT DISNEY WORLD SWAN AND DOLPHIN HOTELS GREEN PRACTICES

BANQUET/RESTAURANTS/OUTLETS

- All light panels in meeting rooms are on dimmers, allowing users to select the most setting based on the event
- Lighting in all rooms are shut off when not in use
- Air conditioning is maintained by the status of room
- Single stream waste generated from meetings: paper, aluminum, plastic bottles, cardboard in partnership with Reedy Creek company
- Reusable items left by groups donated when applicable
- Biodegradable corn based beverage ware (upon request) in banquet areas
- Food not consumed for meetings is provided to hotel associates free of charge donated to charities
- Whenever possible the use of single use containers is avoided
- Organic foods are an option if the guest desires it in Banquets & Room Service (advance notification)
- Vegetarian options are available in the hotel for meetings and restaurants
- Local food products can be offered by options are limited due to short growing season limiting carbon off-set for shipping
- Gas, lights, computers are turned off
- Kitchen grease is picked up by recycling agency

ENGINEERING

- Energy management system to control all mechanical, HVAC, chiller and boiler systems, and pumping station for efficiency
- 1.6 gallon (6.06 liter) per flush toilet in all rooms and guest areas. Automated flush
- Low flow faucet aerators installed throughout the building and all guest rooms. Automated faucets
- Motion-controlled lighting devices being installed in all administrative areas
- Use of environmentally friendly paints
- Pest control company held to use of IPM integrated products (environmentally friendly)
- MERV 8 rated air conditioning filters utilized in guest rooms

SALES/CATERING/CONVENTION SERVICES

- Recycle containers are present throughout the convention center public foyers
- 5 gallon (18.93 liters) Zephyrhills spring water dispensers are deployed in all meeting rooms with biodegradable corn based cups
- Pads, pens and candy are provided in meetings only when specifically requested
- Utilize e-mail instead of direct mail when possible
- Scan and e-mail instead of fax
- Utilize office products derived from post consumer content

ORLANDO INTERNATIONAL AIRPORT (MCO)



ORLANDO INTERNATIONAL AIRPORT 2023 International Federation of Surveyors



ORLANDO
HERE

ORLANDO INTERNATIONAL AIRPORT (MCO)



MORE TOURISM DEVELOPMENTS OPENED IN 2017 HELPING TO INCREASE PASSENGER DEMAND & TRAFFIC



Ninjago World—Legoland Florida



Orlando City Soccer Stadium—Downtown Orlando



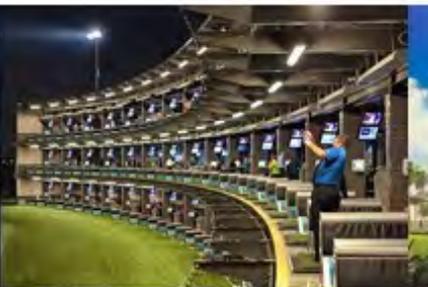
Pandora: The World of Avatar—Walt Disney World Resort



Volcano Bay Water Park—Universal Orlando Resort



Race Through New York—Universal Orlando Resort



Top Golf Orlando—Orlando



Multipurpose Sports Venue (8,000 seats)—Walt Disney World Resort (Late '17)



WITH MORE INNOVATIVE TOURISM DEVELOPMENTS ON THE HORIZON

A total of \$15 Billion in community wide investments*



Fast & Furious: Super Charged: Universal Orlando Resort (Spring '18)

Infinity Falls- SeaWorld Orlando (Summer '18)

Aventura Hotel (1,000 Rooms): Universal Orlando Resort (Summer '18)

Toy Story Land- Walt Disney World Resort (Summer '18)



Margaritaville Resort- Orlando (Late '18)

New Harry Potter Thrill Ride: Universal Orlando Resort (2019)

Star Wars: Galaxy's Edge- Walt Disney World Resort (2019)

Skyplex- International Drive (2020)

Super Nintendo World- Universal Orlando Resort (2021)



WITH MORE INNOVATIVE TOURISM DEVELOPMENTS ON THE HORIZON

A total of \$15 Billion in community wide investments*



New Disney Cruise Ships- Disney Cruise Line (2021-2023)



Mickey & Minnie's Runaway Railway- Walt Disney World Resort (2021)



Ratatouille: The Adventure- Walt Disney World Resort (2021)



Guardians of the Galaxy- Mission: BREAKOUT!- Walt Disney World Resort (2021)



Space Restaurant- Walt Disney World Resort (2021)



Tron Lightcycle Power Run- Walt Disney World Resort (2021)



Star Wars themed Hotel- Walt Disney World Resort (TBA)



Sesame Place- SeaWorld Orlando (2022)



PORT CANAVERAL: 2ND BUSIEST CRUISE PORT IN THE WORLD

Direct and easy access from Orlando International Airport: 50 Minutes Airport to Cruise Port

RESIDENT CRUISE SHIPS



Carnival Cruise Lines
Magic

Sunshine

Liberty

Disney Cruise Lines
Dream

Fantasy



Norwegian
Epic

Royal Caribbean Cruise Lines
Majesty of the Seas

Oasis of the Seas

4.2 MILLION CRUISE PASSENGERS IN 2016

4.5 MILLION CRUISE PASSENGERS EST. FOR 2017



ACCOLADES

Orlando Consistently Top Ranking as a Place to Live and Work



#1 IN THE U.S.
For
JOB GROWTH
IN 2016

Forbes 2017



TOP 10
AMERICAN CITY
of the
FUTURE
3 years in a row

fDi Magazine



BEST
PERFORMING
CITY

*Orlando
Kissimmee
Sanford*

Milken Institute



2nd MOST
COMPETITIVE
U.S. LOCATION
for
BUSINESS

KPMG



TOP 10
BEST CITY
for
COLLEGE
GRADS

CareerBliss.com



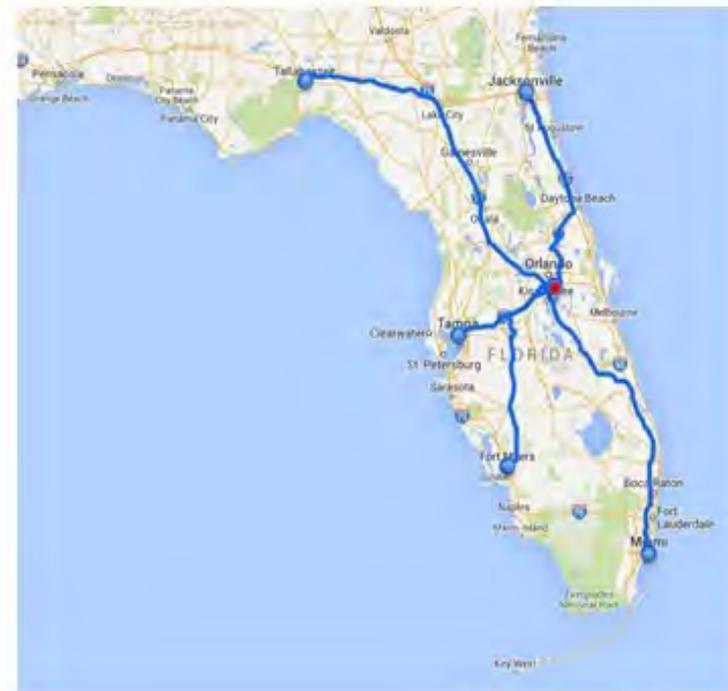
TOP 10
CITY
AMERICANS are
MOVING TO

Forbes 2017



ORLANDO MCO IS CENTRALLY LOCATED WITHIN FLORIDA

<u>City</u>	<u>Distance (kilometers)</u>	<u>Drive Time (hr:min)</u>
Tallahassee	433	3:53
Jacksonville	256	2:22
Tampa	138	1:21
Ft. Myers	254	2:58
Miami	369	3:19
Key West	623	6:12





MCO PASSENGER TRAFFIC RECAP

Traffic Category	12-Months Ended December	% Change
Domestic	39,963,025	↑ 4.86%
International	6,298,109	↑ 8.87%
Total	46,261,134	↑ 5.54%

August 31, 2018: 46,261,134
A New Record!

MCO HAS MORE DOMESTIC SCHEDULED SERVICE THAN ANY OTHER FLORIDA AIRPORT

59 INTERNATIONAL DESTINATIONS + 398 ONE-STOP CONNECTIONS





MCO's FUTURE: NORTH TERMINAL IMPROVEMENTS

Expanded ticket lobbies: Early 2018

- Bumping out check in hall walls to closer to curb
- New welcome experience

New LED screens behind check-in counters: Early 2018

- Airline Branding
- Flight Information
- Interactive Entertainment

• Airside 4 enhancements

- 4 domestic gates converted to swing: Summer 2017
- Larger FIS: Summer 2018

• Baggage Handling System improvement

ORLANDO
HERE



MCO's FUTURE: LOOKING TO THE SOUTH

- South Airport APM: Winter 2017
 - South Airport Automated People Mover
 - 2,400 parking spaces
- Intermodal Terminal Facility: 2018
 - Up to three regional rail systems
 - Ground transportation facility
- South Terminal: Fall 2020
 - 20 Gate Expansion
 - Domestic & International Capable



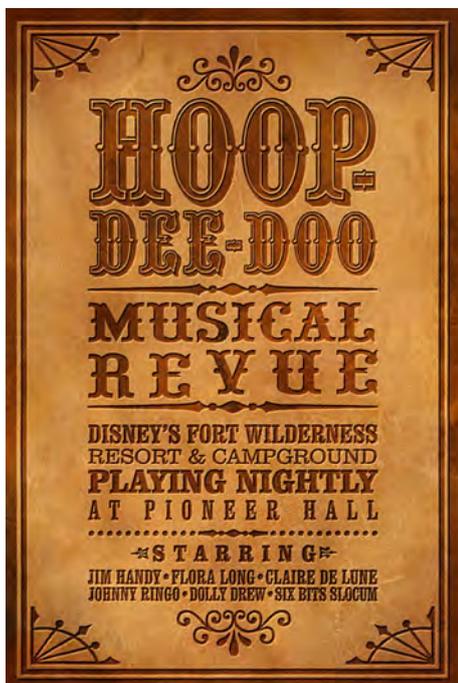
ORLANDO
HERE

FIG FOUNDATION DINNER

We plan a fun evening for the FIG Foundation Dinner we know everyone will enjoy.

Ever since 1974 many thousands have been entertained while enjoying a western-themed meal.

Held in Pioneer Hall in Disney's Fort Wilderness the Hoop-Dee-Do Musical Revue is a fun, rollicking, Western themed vaudeville dinner show.



GALA DINNER

The 2023 Working Week Gala Dinner will provide many wonderful memories of your visit to the United States, Florida, Orlando and Walt Disney World. A special program featuring wonderful cuisine and outstanding special entertainment is being planned. As details are finalized more information will be provided.

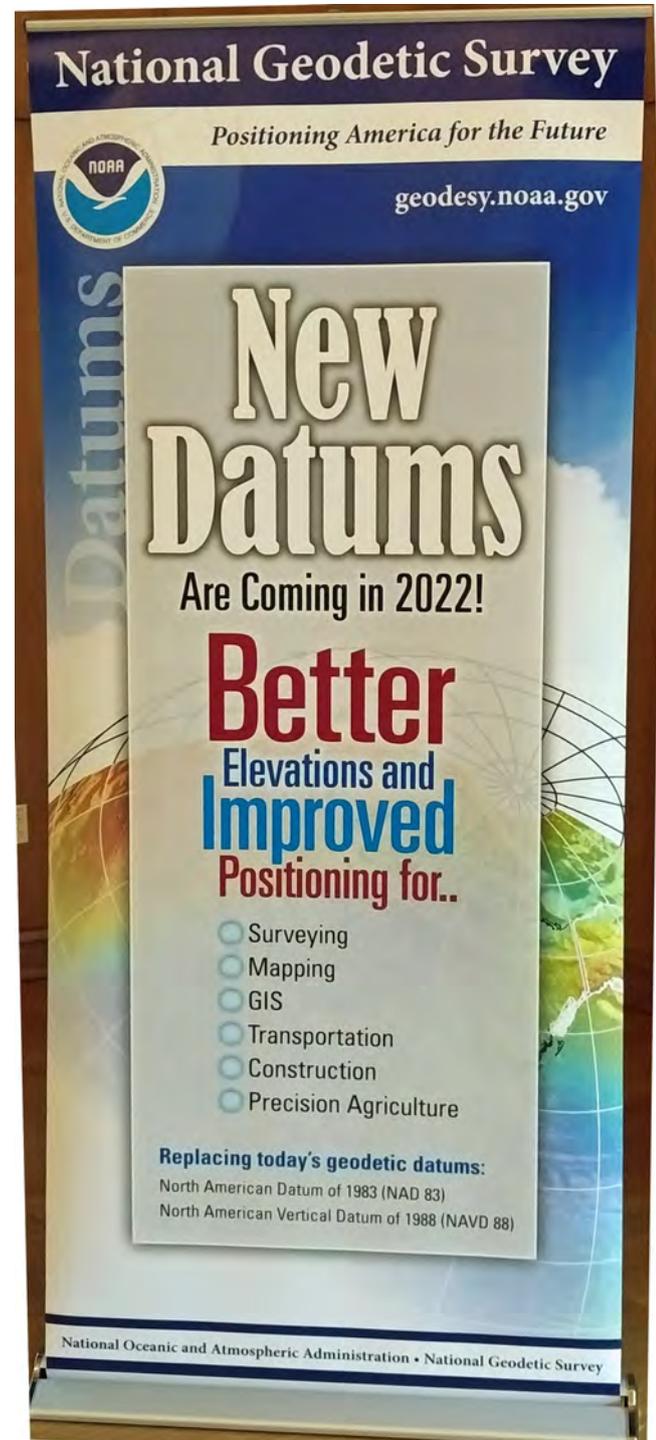


NATIONAL GEODETIC SURVEY 2022 DATUM

In 2022 the National Oceanic and Atmospheric Administration's (NOAA) National Geodetic Survey (NGS) will be replacing the datums of the National Spatial Reference System (NSRS), including the North American Datum of 1983 (NAD 83) and the North American Vertical Datum of 1988 (NAVD 88).

Because of this important event the 2023 FIG Working Week is an excellent venue to showcase international coverage and collaboration of this modernization effort. NGS (an FIG Affiliate Member) will be an important component in the technical program and will help draw many surveyors and other geospatial professionals to the FIG Working Week.

NGS, the National Society of Professional Surveyors (NSPS), and the American Association for Geodetic Surveying (AAGS) formed a joint committee and developed new template legislation to aid states in transitioning their legislation to new wording.



TECHNICAL TOURS

A wide variety of technical tours will be offered:

- Exclusive behind-the-scene tours of the amazing Kennedy Space Center- home of the American space program
- Exclusive behind-the-scene tours of the Walt Disney World surveying and GIS departments highlighting their past accomplishments and current activities, including “backstage” visit to key areas showcasing the role of surveying in the world’s largest private construction project and creating Disney Magic
- Tour of the Orange County Surveying/GIS Department
- Tour of the City of Orlando Surveying/GIS Department
- Tour of major private surveying company facilities
- Tour of National Oceanic and Atmospheric Administration (NOAA) Aircraft Operations Center—the center is the main base for NOAA’s nine specialized environmental data-gathering aircraft, including the agency’s three “hurricane hunter” planes.
- US Interstate 4 Ultimate road construction project highlighting the latest in machine-control surveying
- City of Orlando storm water inventory and lidar project showcasing city-wide drainage modeling
- Tours of Orlando-headquartered geospatial companies: Certainty 3D, Faro, Riegl USA.



Kennedy Space Center

TECHNICAL TOURS

Special organized behind-the-scenes tours featuring exhibits, displays, historic spacecraft and IMAX theatres showcasing from the dawn of space exploration to current and ongoing missions including Space Shuttle Atlantis, Apollo Spacecraft, Saturn V Rocket, Race to the Moon, Journey to Mars, Astronaut Training Simulators, Hubble Space Telescope Theatre.





SOCIAL TOURS



A wide variety of social tours will be offered:

- Walt Disney World
- Orlando Science Center
- Gatorland - Alligator Capital of the World
- Airboat Tours
- Tupperware Museum
- Fantasy of Flight
- Bok Tower Gardens
- Frank Lloyd Wright Sharp Family Tourism and Education Center
- Orlando Premium Outlets
- Legoland
- SeaWorld
- Universal Studios
- Wonderworks



POST WORKING WEEK TOURS

A wide variety of post-congress tours will be available including:

- 3 and 7 day Bahamas and Caribbean cruises
- Visit to St. Augustine, Florida—the oldest city in the United States
- Visit to Key West, Florida including visit to Ernest Hemingway home and museum
- Deep-sea fishing charter
- Tour of Washington, DC



PROPOSED BUDGET - 2023 FIG WORKING WEEK

INCOME		2200 ATTENDEES			
				USD	EUR
Registration Fees					
Early (€580)	1700	\$	690.00	\$ 1,173,000.00	€ 1,028,397.25
Regular (€680)	0	\$	820.00	\$ -	€ 0.00
On-site (€800)	0	\$	940.00	\$ -	€ 0.00
Daily (€350)	0	\$	410.00		€ 0.00
Complimentary (€0)	100	\$	-	\$ -	€ 0.00
Accomp Persons (€300)	250	\$	360.00	\$ 90,000.00	€ 78,905.16
Students (€250)	150	\$	300.00	\$ 45,000.00	€ 39,452.58
	2200			\$ 1,308,000.00	€ 1,146,754.99
Social Events					
Foundation Dinner	300	\$	100.00	\$ 30,000.00	€ 26,301.72
Gala Dinner	300	\$	125.00	\$ 37,500.00	€ 32,877.15
Tours				\$ 25,000.00	€ 21,918.10
Exhibition Income					
Exhibit booths	80	\$	3,000.00	\$ 240,000.00	€ 210,413.76
Sponsors					
Working Week Sponsors				\$ 150,000.00	€ 131,508.60
Advertisements					
Program, inserts, bag, lanyard				\$ 60,000.00	€ 52,603.44
TOTAL INCOME				\$ 1,850,500.00	€ 1,622,377.76
EXPENSES					
Printed Material				\$ 30,000.00	€ 26,301.72
Marketing/Promotion				\$ 100,000.00	€ 87,672.40
Site Visits				\$ 40,000.00	€ 35,068.96
Conference Venue (Onsite Food & Beverage)				\$ 700,000.00	€ 613,706.80
Interpretation Services				\$ 20,000.00	€ 17,534.48
Decorator/Conference Management				\$ 140,000.00	€ 122,741.36
AV Costs				\$ 250,000.00	€ 219,181.00
Foundation Dinner				\$ 24,000.00	€ 21,041.38
Gala Dinner				\$ 30,000.00	€ 26,301.72
Conference Materials				\$ 60,000.00	€ 52,603.44
Reception				\$ 40,000.00	€ 35,068.96
Tours				\$ 25,000.00	€ 21,918.10
Welcome Reception				\$ 67,500.00	€ 59,178.87
Invited Guests				\$ 60,000.00	€ 52,603.44
FIG Foundation Fee				\$ 37,927.10	€ 33,000.00
Registration	1900	\$	32,755.22		€ 28,500.00
Foundation Dinner	300	\$	5,171.88		€ 4,500.00
Registration Handling Fee	1700	\$	45.96	\$ 78,136.08	€ 68,000.00
Miscellaneous				\$ 40,000.00	€ 35,068.96
TOTAL EXPENSES				\$ 1,742,563.18	€ 1,527,746.96
NET INCOME				\$ 107,936.82	€ 94,630.80



AAGS

*Geodetic Surveying —
Connecting the Geospatial
Community*

American Association for Geodetic Surveying

5119 Pegasus Court, Suite Q

Frederick, MD 21704

240-439-4615 (Phone) • 240-439-4952 (Fax)

www.aagsmo.org

November 20, 2018

Dr Chryssy A. Potsiou
FIG President
International Federation of Surveyors
Kalvebod Brygge 31-33
DK-1780 Copenhagen V
DENMARK

Re: Support of bid to host 2023 FIG Working Week in Orlando, Florida, USA

Dear Dr. Potsiou:

The American Association for Geodetic Surveying (AAGS) is enthusiastically supporting the National Society of Professional Surveyors (NSPS) bid to host the 2023 FIG Working Week in the United States. The AAGS has a long history of association with the NSPS, both of which were previously part of the American Congress on Surveying and Mapping (ACSM). AAGS has provided a significant number of speakers and workshop presenters over the years when ACSM held yearly conferences, and we would of course follow that path if the FIG were to select the NSPS bid for 2023. Our members are typically technical experts, academics, and government scientists who could provide support for various topics at a congress, including hosting sessions and other duties required when hosting a large international conference,

The AAGS has recently concluded affiliation agreements with fifteen state survey societies (including Florida), and also has an affiliation with the Young Surveyors Network. We would leverage these agreements to provide additional support for the conference.

The proposed location in Orlando also has the benefit of numerous direct flights to South American countries, and we would envision a more robust participation from these countries, many of which have not been active participants in recent working weeks and congresses. And of course the Orlando area has a number of additional attractions for travelers, with destinations as varied as Disney World, Universal Studios, and the Kennedy Space Center nearby.

I have attended ten of the last twelve FIG Working Week/Congresses as a delegate on behalf of NSPS and AAGS, and the AAGS and myself look forward to participating in hosting a successful conference in the United States. Please feel free to contact me if you have any questions

Sincerely,

John Hamilton, PLS
AAGS President (2017)

November 18, 2018
Chryssy A Potsiou, Ph.D.
President
International Federation of Surveyors, FIG
Kalvebod Brygge 31-33, DK-1780
Copenhagen
Denmark

Dear Dr. Potsiou,

I have recently learned that the National Society of Professional Surveyors intends to place a bid to hold the FIG Working Week in Orlando, Florida in 2023. Hosting this conference would be an extraordinary honor. As Mayor of Orlando, I am writing to express my enthusiastic support for your organization to hold its Congress in Orlando.

Orlando is a vibrant city with a population of over 277,000 and a metropolitan area population of nearly two and half million residents. This, coupled with our large tourist population, allows Orlando to reach many different segments of the world's population. Orlando is a major travel destination for South America, especially the country of Brazil. Travelers from all over the world come to visit our theme parks, Walt Disney World and Universal Studios Orlando. We are proud to host events of every size, including world class conventions, such as the FIG Congress. Orlando was particularly proud to host the 1994 FIFA World Cup and has been asked to submit a bid for the 2026 World Cup.

The Orlando region offers great amenities for any gathering, from the previously mentioned theme parks to the natural beauty of the area that offers some of the most diverse ecosystems in the world. The beaches on either coast can be reached within an hour's drive. There is plenty to do in the area from golfing and boating to catching an Orlando City soccer game. The City has a vibrant night life and offers something for everyone for those attending the Congress and their families traveling with them.

The City is located in close proximity to Orlando International Airport and to Walt Disney World where the event is planned to be held, with supporting events throughout the City and region. Orlando is the number one family destination in the world and has the second-largest hotel market in the United States. As of 2016 Orlando was the No. 4 destination in the country for international travel and had an average of 550,000 visitors on any given day. Every year a new record is reached in the number of visitors to this great city. In 2016 the City held 122 major conventions with over 1.25 million delegates and was ranked as the No. 1 spot for events in the country by event management industry leader Cvent.

Surveyors and those in the Geospatial profession are an integral part not only of our community, but of the world over. Surveyors lay the ground work of all that is constructed and provide valuable information in making determinations about how to address problems and create viable solutions. They lay out the projects to be constructed and then locate them after completion as part of our infrastructure inventories. This crucial data is an invaluable part of protecting people and property, and its importance is found in every facet of government.

On behalf of the City of Orlando, I hope you will allow us the opportunity to be the host city of the General Assembly of the International Federation of Surveyors FIG in 2023. We hope to see you soon in the City Beautiful!

Sincerely,

A handwritten signature in blue ink that reads "Buddy Dyer". The signature is written in a cursive, flowing style.

Buddy Dyer
Mayor of Orlando



Orange County Mayor
Teresa Jacobs

P.O. Box 1393
201 South Rosalind Ave, 5th Floor
Orlando, FL 32802-1393
Phone: 407-836-7370
Fax: 407-836-7360
Mayor@ocfl.net

November 8, 2018

Dr. Chryssy A. Potsiou, President
International Federation of Surveyors, FIG
Kalvebod Brygge 31-33, DK-1780
Copenhagen, Denmark

Dear Dr. Potsiou,

As Mayor of Orange County, I am proud to extend my support for the National Society of Professional Surveyors' effort in bringing the FIG Working Week to Orlando, Florida in 2023.

Our region has a long history of hosting and producing quality events and we are thrilled by the possibility of bringing the 2023 FIG Working Week to our community. As a premier meeting, conference and vacation destination, we are home to some of the best event venues in the nation, including the Dr. Phillips Center for the Performing Arts, Camping World Stadium and the Orange County Convention Center - the second largest in the country.

Additionally, from world renowned theme parks, an endless array of attractions and a vast array of shopping and dining options to top notch hotels and gorgeous natural parks, there is truly something for everyone. I am confident that your participants will have a quality experience and professionally run event, one that your organization will be proud of and remember for years to come. With 70 million visitors last year alone and more than 1.2 million residents, it will be easy to see why Orange County is the best place to live, work, visit and raise a family.

Furthermore, Central Florida is an epicenter for diversity and inclusiveness, serving as home to citizens who represent a wide variety of ethnic backgrounds, cultures and lifestyles. We are so proud of this culture and reputation and also view it as one of our greatest strengths.

For all of the reasons listed and everything that our region has to offer, I extend my full support for the efforts to bring the 2023 FIG Working Week to Orlando. Our community stands ready and prepared to exceed your expectations.

Sincerely,

A handwritten signature in blue ink that reads "Teresa Jacobs".

Teresa Jacobs

MAP OF WALT DISNEY WORLD

WALT DISNEY World[®]
RESORT



PROPOSED 2023 FIG WORKING WEEK SCHEDULE

FRIDAY	SATURDAY	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
Council Meeting	ACCO Meeting	8:00-9:00 Registration	8:00-18:00 Registration	8:00-17:30 Registration	8:-18:30 Registration	8:-16:00 Registration	8:00-14:00 Registration	
NSPS Committee Meetings	NSPS BOD Meeting	Young Surveyors Meeting History Workshop Symposia NGS Seminar APPAT	9:00-13:00	9:00-10:30 Opening Ceremony	7:00-8:45 FIG Foundation BOD Meeting		8:30-10:30 FIG President's Meeting	
	SaGES		General Assembly 1	10:30-11:00 Coffee Break	9:00-10:45 Plenary Session 2	9:00-10:45 Plenary Session 3		
				11:00-12:30 Plenary Session 1	10:45-11:30 Coffee Break	10:45-11:30 Coffee Break	10:30-11:00 Coffee Break	
Lunch	Lunch			12:30-14:00 Lunch	11:30-13:00 Technical Sessions	11:30-13:00 Technical Sessions	11:00-13:00 General Assembly 2	
Council Meeting	ACCO Meeting			13:00-14:00 Lunch	14:00-15:30 Technical Sessions	13:00-14:30 Lunch	13:00-14:00 Lunch	
				14:00-17:00	15:30-16:00 Coffee Break	14:30-16:00 Technical Sessions	14:30-16:00 Technical Sessions	14:00-16:30 General Assembly 2
				General Assembly 1	16:00-17:30 Technical Sessions	16:00-16:30 Coffee Break	16:00-16:30 Coffee Break	Closing Ceremony
						16:30-18:00 Technical Sessions	16:30-18:00 Technical Sessions	16:30-17:30 Farewell Reception FIG 2023
						17:30-18:30 Commission Annual Meetings		
				18:00-20:00 Welcome Reception	20:00-23:00 FIG Foundation Dinner	19:00-23:00 Commission Dinners/Free Evening	19:30-23:30 Gala Dinner	
			8:00-18:00 Exhibit Install	9:00-18:00 Exhibition Open	9:00-18:00 Exhibition Open	9:00-16:30 Exhibition Open		
				Lunches/ Breaks in Exhibit Hall	Lunches/ Breaks in Exhibit Hall	Lunches/ Breaks in Exhibit Hall		