

Report to the 41th General Assembly  
FIG Congress 2018, Istanbul, Turkey  
FIG Commission 3 – Spatial Information Management

Report of Activities 2017-18 (15-18)

The activities of the FIG Commission 3 during the year 2017 is continuing in the study, research and experiences in the field of development and use of VGI, Crowdsourcing, GIS systems and SIM and SDI procedures.

Commission 3, through the coordination of the Chair Enrico Rispoli and the contribution of the four working groups, composed of professionals and academics from around the world, has achieved excellent results in participations and involvements of members.

Thanks to the cooperation of the delegates, more research have been in simple and reliable method of collecting, monitoring and managing data concerning the territory (geographical, aero photogrammetric, geomorphological, economic, land, statistics, etc.).

The technical and working sessions focused on the following matters:

- 1) SIM Infrastructure;
- 2) Technical Aspects of SIM;
- 3) 3D Cadastre;
- 4) Crowdsourcing and VGI supporting SDI.
- 5) SDI at all levels – local, regional, national and global;
- 6) SIM challenges – natural and environmental risk prevention and disaster management, mitigation, waste management, etc.;
- 7) VGI collection, dissemination, analysis, applications, maintenance and visualization;
- 8) e-Governance and SDI in supporting decision making – theory, applications and best practice;
- 9) Integration of SDIs – cadastre, land use, utilities, environment, socio-economic;
- 10) SDI interoperability – standards, technical tools, metadata, portals;
- 11) 3D/4D Cadastre;
- 12) Utilization of VGI and Crowdsourcing with SDI, SIM and environmental information;
- 13) 2D/3D/4D geospatial models, algorithms, visualization, standards and applications;
- 14) Web and mobile GIS – challenges, services and real-time capabilities;
- 15) Business models and SDI, public-private partnerships and economic aspect.

The importance of the general topics as SDI, SIM, GIS, etc. together with VGI and Crowdsourcing has drawn the attention of many delegates who have allowed to carry out interesting working

sessions during the FIG Working Week in Helsinki and during the Commission 3 Annual Meeting and Workshop.

**Talking about Finland**, FIG Commission 3 participated in Helsinki for the FIG Working Week with 5 technical sessions, 1 joint session with Commission 7 and with about 50 presentations.

All presentations were of high scientific level, well linked to both the traditional topics of Commission 3 and the topic of the FIG WW 2017 “Surveying the World of tomorrow: from digitalisation to augmented reality”. In the technical sessions of Commission 3 significant results were illustrated coming from the latest research about how we collect, compare, control and manage the data concerning the territory. The speakers, coming from professional or academic world, reported and commented on their specific research or work. Such research has been the concrete contribution to the activity of the territorial administration of the relative countries. Governments which decide and make the choices need more updated spatial data for sustainable development, environmental protection and, above all, for the prevention of disasters.

During the week, on Wednesday 31st May, the Annual Meeting of the Commission was held.

During this meeting, where also new delegates participated in, the chair of the Commission, Enrico Rispoli, presented the structure of the Commission, gave the floor to each of the chair of the Working Groups to present their plans, presented the current work plan, the results of the past events held in Cristchurch for the FIG WW 2017 and above all the results of the event in Iasi November 2016 for the Annual Meeting of Commission 3 and Workshop.

Enrico Rispoli underlined to the delegates the future commitment of the researchers participating in the working groups of Commission that will be to identify systems that facilitate the transition from the considerable amount of data to be selected and controlled to the availability of useful, accurate and of quality spatial information.

Before closing the Annual Meeting the venue of the next meeting and workshop of the Commission was discussed and it was decided to hold this meeting in Lisbon (Portugal) from 27<sup>th</sup> till 30<sup>th</sup> November 2017 organized by the Ordem dos Engenheiros (the Portuguese Engineers Association) and joint to the General Assembly of EGoS (European Association of Surveyors).

Commission 3 was involved in the **8th edition of the International Summer School “Survey to Planning and Land Protection”**

Immediately after the Working Week in Finland, Commission participated in the **8th edition of the International Summer School “Survey to Planning and Land Protection”** held in Bari and Alberobello from 24<sup>th</sup> July to 3<sup>rd</sup> August 2017. The event, which this year had as major topic the water, "in particular the water that runs through the architecture of the Pugliese and Lucanian heritage: from the rock caves to the shapes, public fountains, trulli, quarries, Sassi di Matera ", was organized by the International Committee for Architectural Photogrammetry - COIFA and saw the participation of over 70 scholarship from around 12 countries. Commission 3 supported the participation of some Young Surveyors thanks also to the contribute received by FIG Foundation.

### **Commission 3 Annual Meeting and Workshop 2017**

Coming back to **Commission 3 Annual Meeting and Workshop 2017** - The European city of Lisbon was fabulous, as expected.

More than seventy members from five Continents and so many different Countries participated in, from the field of surveying to academics and universities, expertises and Young Surveyors.

The opening ceremony that took place on 27th in the afternoon, saw the presence of important institutional, national and international representatives; to mention some of them:

- Senhora Célia Ramos - Secretary of State for Spatial Planning and Nature Conservation in the Committee on Environment, Spatial Planning, Decentralization, Local Government and Housing;
- Chryssy Potsiou, President of the International Federation of Surveyors, always present at FIG Commission 3 events with high scientific contributions;
- Enrico Rispoli – President of FIG Commission 3 and Board Member CNGeGL;
- Bob Foster, Honorary President of FIG;
- Eng. Carlos Loureiro, Vice-President of the Association of the Ordem dos Engenheiros;
- Teresa Sà Pereira, Chair Colegio Nacional of the Ordem dos Enghenheiros;
- Maurice Barbieri – President of the Council of European Geodetic Surveyors
- Nikolaos Zacharias – President of the Euroorean Group of Surveyors.

President Potsiou, congratulated FIG Commission 3 chair Enrico Rispoli and Vice chair of Administration Maria Scorza, as well as the Portuguese Engineers Association and its President Carlos Mineiro Aires and chair Maria Tereza Sa Pereira, for setting the themes, exploring the background and defining the goals of the workshop and for bringing together such important experts in the same place. She also congratulated the planners and the organizers of this event, all the distinguished members of both the organizing and the scientific committees for their valuable contributions.

The FIG President in her speech referred to the value of geospatial information and its importance in implementation of the Sustainable Development Agenda by 2030. She also stated that in order to achieve this vision it will be necessary to improve our capacity in collecting and providing the necessary information reliably, affordably and timely, and she suggested that crowdsourcing is a developing methodology with a potential to support our efforts. She said that “the principle of crowdsourcing is, apparently, that more heads are better than one, and that every person has something of value to contribute”, and that “much of what we read about crowd sourcing has to do with so-called ideation meaning that the technique is applied in a search for new ideas, e.g., to support the Sustainable Development Goals (SDGs). It is used for problem solving. Crowdsourcing is often used in micro-tasking, that is, in breaking work up into very small tasks and sending the work out to the crowd.” President Potsiou clarified that “The theory is that work may be done faster and cheaper and with fewer errors when validation systems are in place. When used in the context of surveying the issue of validation is critical, and assumes a certain amount of preparation and training of volunteers as well as control of crowdsourced data prior to their integration with official databases. It may involve the collection of information that is required to be neither positionally nor dimensionally precise, yet important enough to achieve the SDGs, including cadaster and first registration where missing; and as long as positioning and validation improve, the use of crowdsourced information will be extended.”

The topic proposed by Commission 3 – 2017 in Lisbon for Commission 3 Workshop “Volunteered Geographic Information: Emerging Applications in Public Science and Citizen Participation” was a theme followed with interest by the members who took part fully in all the sessions.

The event, this year organized by Commission 3 in cooperation with the Ordem dos Engenheiros (the Portuguese Engineers Association) and the EgoS European Group of Surveyors, was full of new research and experience on development and use of VGI, GIS, SIM, SDI, 2D/3D/4D geospatial models, algorithms, visualization, systems and procedures.

The technical sessions saw 8 Keynote Speakers and over 20 Papers (3 were peer reviews) from authors coming from Algeria, Australia, Germany, Greece, Hungary, Indonesia, Israel, Italy, Malta, Nigeria, Benin, Portugal, Romania, Sierra Leone, Spain, Switzerland, Turkey, United Kingdom, USA.

These papers explained how spatial information management is having great development, especially in relation to the ways in which geographic and territorial data are collected, processed and disseminated for public, commercial, historical and touristic use.

All the papers aroused the interest of important scientific journal in the field of surveying that promoted our event and asked to publish the proceedings. These journals are:

- 1) ISPRS International Journal of Geo-Information that has created a special edition website for our event and for more information you will find some flyers;
- 2) Cambridge Scholars Publishing that with the proceedings wants to create a Manual/Book.

This year the FIG Commission 3 Workshop elaborated better the fields where crowdsourcing is of great value for the surveying profession in order to obtain affordable geospatial data reliably and timely, as well as it will investigate what are the validation systems available to the surveyor in such an operation.

VGI, another theme of the workshop, in the age of the internet of things, is a capability and also an inescapable tool in the present and future for better and faster geospatial knowledge and, more than a threat for the surveyors community, it will have to be a source for their professional activity .

The integration of VGI in Spatial Data Infrastructure (SDI) is a big challenge for our community.

The three days workshop and meeting was a great opportunity to meet with professional and academic colleagues in the field of surveying and to follow the reports of international members about the latest and curious news.

As usually Commission 3 does, also this year was elected the best paper between the peer reviews ones (many papers deserved in the same way and over 35 participants voted) and also one paper was chosen as FIG paper of the month.

- The best paper elected was “VGI in 3D Cadastre: A Modern Approach” by Maria Gkeli, Charalabos Iannodis and Chryssy Potsiou;
- while the paper chosen as FIG article of the month was by Prof. Josè Antonio Tenedorio “How can 3D models and augmented reality visualization based on mobile platform enhance the value of urban heritage?”

Many papers have received special mention for the interesting content and also for the innovative style of illustration on the panel.

Joining FIG Commission 3 activities in Lisbon has been an excellent chance for increasing the international participation and this fact has helped every participant to exchange and enhance their experiences enabling all people to exchange new ideas and initiating new common projects. All

these will help the development of the Commission 3 activities and geodetic profession role in the society.

During the Workshop a **Meeting** was held between CLGE (Council of European Geodetic Surveyors) represented by the President Maurice Barbieri, SOGEI (Italian Society of Information and Communication Technology) represented by Ing. Roberto Capua and Commission 3 represented by the President Enrico Rispoli. This meeting was about the launch of a project regarding the European Global Navigation Satellite System within the proposal Horizon 2020 and will involve also another Italian Company which is GEOWEB (Italian Company providing Telematic Services for Users), and currently Corporate Member of FIG. A webinar between the partners above followed in the month of December 2017 and since January 2018 the project will be put into practice.

During the workshop, a very important exhibition took place for celebrating the “150 years of the Border Treaty: military missions of sovereignty and border representations”.

The exhibition, which was presented at the end of the Opening Ceremony, was very interesting and was about the history of demarcation of boundaries of Spain and Portugal: “With a centuries-old border dating to the Treaty of Alcanices (1297), Portugal and Spain began to more rigorously define and demarcate their border in the middle of the nineteenth century. The efforts involved Army officers, who always led, on the Portuguese side, the technical delegations established by the Ministry of Foreign Affairs. Initially comprising only two representatives of each country, the Commission expanded over time. Even today, the Centro de Informação Geoespacial do Exército [Army Center of Geospatial Information] continues to assume responsibility for its maintenance in tandem with its Spanish counterpart”. The exposition was guided by Prof. Dr. Maria Helena Dias and the President of the Army Geospatial Information Centre, Colonel José Rodrigues.

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As a result of this important scientific event, Commission 3 expects the presentation of numerous papers for the sessions of the upcoming Working Week and FIG Congress which will take place on 6-11 May 2018, in Istanbul, Turkey.

### **Planned activities of Commission 3 in 2018:**

- participation in the Congress and FIG WW 2018 in Istanbul;
- 9th edition of the International Summer School;
- organization of the Commission Annual Meeting and Workshop that will be held in autumn 2018 (date and venue tbd);
- FIG Commission 3 Publication on New Trends in Spatial Information: Surveyors’ Role in the Era of Crowdsourcing and VGI - Possible Uses within the Surveying, Mapping and Geo-Science Communities.

Last but not at least, Commission 3 also this year under the presidency of Enrico Rispoli will continue its policy of supporting Young Surveyors for their involvement within FIG activities thanks to the contribute of FIG Foundation.

**Warm thanks** to the Vice Chairs of the Working Groups of Commission 3 for their contribution:

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| - Vice Chair and Chair of Workin Group 1 | Prof. Dr. Hartmut Müller - Germany            |
| - Vice Chair and Chair of Workin Group 2 | Prof. Dr. Ioannidis Charalabos - Greece       |
| - Vice Chair and Chair of Workin Group 3 | Prof. Dr. Peter Van Oosterom – The Netherland |
| - Vice Chair and Chair of Workin Group 4 | Prof. Dr. Sagi Daylot - Israel                |
| - Commission Vice Chair                  | Dott.ssa Maria Grazia Scorza – CNGeGL - Italy |

Warm thanks to the President of FIG, Chryssy Potsiou, for her support and to the President of FIG Foundation, John Hohol.

Warm thanks to FIG Office and its staff for the excellent work in supporting Commission 3.

Enrico Rispoli  
Chair Commission 3