

# **FIG Commission 3 – Spatial Information Management**

## **Work Plan 2011-2014**

### **1. Title**

Spatial Information Management (SIM)

### **2. Terms of reference**

- Management of spatial information about land and property (data, tools, methods, policies, processes, procedures, standards, regulations);
- Spatial data infrastructure – collection technology, integration processing, maintenance, visualization, standardization, and dissemination (technical, organizational, personnel, administrative, research, financial, policy, and legal aspects);
- Management and dissemination of knowledge and skills for SIM (educational, professional development and capacity building aspects);
- Impacts on organizational structure, business models, Public-Private-Partnerships, professional practice and administration;
- Management of spatial information supporting good governance (sustainable development, social and economic growth and poverty reduction, environment protection, democracy, freedom, participation in decision making, social security).

### **3. Mission Statement**

The mission of Commission 3 is to:

- Increase awareness about successful SIM approaches and achievements within the “e-Society” 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 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 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.
- 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, they key focus will be in co-operation with ISPRS (Commission IV on Geodatabases and Digital Mapping), ICA (commission on Geospatial Data Standards), GSDI, EUROGI.

### **4. General**

Commission 3 Working Groups will focus on the contribution of spatial information for sustainable development. Commission 3 delegates have expressed their strong interest in organizing Commission 3 annual meetings and workshops focused on the specifically identified needs/topics. Commission will continue peer review option at its own symposia and by producing peer reviewed proceedings and/or special issues of international professional journals.

Commission will continue to address the phenomenon of rapid urbanization and its impacts with a particular focus on identifying spatial tools and general principles, norms and standards for good governance using reliable and accessible spatial information. It will also provide guidance to interested countries to successfully address the problem of rapid urbanization. Commission will continue the successful work presented in the FIG publication no. 48 on “Rapid Urbanization and Mega Cities: The Need for Spatial Information Management”. This activity will be continued with focusing firstly on small and medium size urban areas and cities vs. mega cities, and secondly on widening its scope in order to take into account the land aspects of SDI (sub-division and ownerships, planning and zoning, lands occupancies) – legal, technical and administrative issues.

The topics of general interest to Commission 3 are:

- Web Services and Metadata;
- SIM Infrastructure and standards;
- State of the art of SDI and GSDI;
- Technical aspects, integration of information, 2D/3D/4D applications of SDI, geo-visualization of information, seamless information management and maintenance;
- SIM applications for environmental protection, disaster management and risk assessment, social and economic growth, informal/unplanned development management;
- Transferring /sharing knowledge focusing on “low-cost” methods and tools for spatial information collection and management.

## **5. Working Groups**

### **Working Group 3.1 – SIM Infrastructure**

#### Policy Issues

SIM has the role of an integrator of components for a Spatial Information Infrastructure especially for urban areas within the information society. SIM is a facilitator for IT based services for planners, administration as well as for citizens. The topics of this activity are:

- NSDI / GSDI: Spatial Data + Information Infrastructure
- Modelling, geo-visualization
- Legal aspects in SIM
- SIM and LBS as tools:
  - Making geo-database suitable for mobile phones
  - Improve basic references (geo-referencing, transport-internet)
  - Role of surveyors in LBS
  - Share current experiences and technical visions of the future.
  - Gain knowledge from industry.
  - Inform future decisions and implementations.

- Inform the big picture on drivers, trends and technologies.

#### Chair

Prof. Dr. Hartmut Mueller (Germany), E-mail: [hartmut.mueller@geoinform.fh-mainz.de](mailto:hartmut.mueller@geoinform.fh-mainz.de)

#### Deliverables

- FIG-publication on guidelines to establish an efficient SIM Infrastructure in urban areas addressing legal, institutional and technical issues (a joint publication together with WG 3.2). To be published at the FIG Congress 2014.

#### Beneficiaries

- Surveyors, associations engaged with spatial data, local and regional municipalities and users of spatial data and spatial information.

### **Working Group 3.2 – Technical Aspects of SIM**

#### Policy issues:

New tools, techniques and policies are required to baseline and integrate the social, economic and environmental factors associated with spatially managing urban areas in general and cities/megacities in particular. Inter alia, to monitor growth and change across the urban environment and to forecast areas of risk – all within shorter timeframes than previously accepted. Moreover, they must be flexible enough to meet traditional needs such as land development, tenure and value applications, but be designed to be interoperable and integrate within the city wide SDI as it evolves. There is a need to have access to spatial data from wide range of sources, to integrated spatial information from the SDI and thus leading to a more joined-up, proactive decision making allowing the prioritising of scarce resources to tackle the most sensitive and risk prone areas. Within the list of sub-titles includes:

- Technical Aspects
  - Data collection, recording and updating, low-cost methods and tools for environmental monitoring,
  - Renewable and innovative technologies for data collection (photogrammetry, LiDAR, crowd sourcing, PDAs, cell-phones, etc.),
  - Visualization of information,
  - Standardization of information and metadata,
  - 2D, 3D, 4D spatial data recording and management to support the legal integration of informalities, the decision making, the risk-assessment and disaster management in areas with informal settlements,
  - Integration and update of spatial data-bases regarding ownership rights, value of real estate property, and state applied regulations and restrictions on the use rights, tools, and Land Information Systems

These technical aspects will be dealt in relation to legal, social, economic, educational, and policy implications

#### Chair

Prof. Dr. Ioannidis Charalabos (Greece), e-mail: [cioannid@survey.ntua.gr](mailto:cioannid@survey.ntua.gr)

#### Deliverables

- FIG-publication on guidelines to establish an efficient SIM Infrastructure in urban areas addressing legal, institutional and technical issues (a joint publication together with WG 3.1). To be published at the FIG Congress 2014.

#### Beneficiaries

- Surveyors, private and public firms and associations engaged with spatial data, and users of spatial data and spatial information.

### **Working Group 3.3 – 3D Cadastre (Joint Working Group with Commission 7)**

#### Policy issues:

The increasing complexity of infrastructures and densely built-up areas requires a proper registration of the legal status (private and public), which only can be provided to a limited extent by the existing 2D-cadastral registrations. Despite all research and progress in practise, no country in the world has a true 3D-Cadastre, the functionality is always limited in some manner; e.g. only registering of volumetric parcels in the public registers, but not included in a 3D cadastral map, or limited to a specific type of object with ad hoc semi-3D solutions; e.g. for buildings or infrastructure. The main objective of the working group is to establish an operational framework for 3D-Cadastres. The operational aspect addresses the following issues:

- A common understanding of the terms and issues involved. Concepts should be refined and agreed based on the ISO 19152 Land Administration Domain Model.
- A description of issues that have to be considered (and to what level) before whatever form of 3D-cadastres can be implemented. These will provide 'best practices' for the legal, institutional and technical aspects.

Topics to be dealt within the activity of the working group are:

- 3D-Cadastre: models, SDI and time
- 3D-Cadastre and the usability

Options for realization of a 3D cadastre model will include:

- Minimalistic 3D cadastre (no cables, pipelines etc.)
- Topographic 3D cadastre
- Polyhedral vs. Non-polyhedral Legal 3D cadastre
- Topological Legal 3D cadastre

#### Chair

Prof. Dr. Peter van Oosterom (the Netherlands), e-mail: [P.J.M.vanOosterom@tudelft.nl](mailto:P.J.M.vanOosterom@tudelft.nl)

#### Deliverables

- FIG-publication on guidelines to establish 3D-cadastres (a “primer on 3D-Cadastres”), addressing legal, institutional and technical issues. To be published at the FIG Congress 2014.
- A second workshop on 3D-Cadastres - November 2011 (Delft, 10 years after the first workshop).
- In addition at the FIG working weeks, joint commission 3 and 7 sessions on 3D-Cadastres will be organized. Depending on the need and results
- A third workshop on 3D-Cadastres could be organized in 2013 or 2014 preferably in conjunction with another FIG meeting (Working Week, commission 3/7 annual meeting, congress).

### Beneficiaries

- Surveyors, land developers, national cadastral agencies, land registry administrations, local and regional municipalities.

## **6. 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 2011-2014 term. The planned meetings are:

## **7. Co-operation with Sister Associations**

- ISPRS Commission IV on Spatial Information Systems and Digital Mapping
- ICA - International Cartographic Association
- International Geographical Union, Commission on geographical Information Science
- GSDI – Global Spatial Data Infrastructure Association

## **8. Calendar of Events**

- May 2011 - Marrakesh (in conjunction with FIGWW 2011)
- September 2011 - Paris, France (annual workshop)
- May 2012 - Rome, Italy (in conjunction with FIGWW 2012)
- September 2012 - annual workshop (location TBD)
- April/May 2013 - Abuja, Nigeria (in conjunction with FIGWW 2013)
- September 2013 - annual workshop (location TBD)
- May 2014 - Kuala Lumpur, Malaysia (in conjunction with XXV FIG Congress)
- September 2014 - annual workshop (location TBD)

## **9. Officers**

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Chair, FIG Commission 3

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