



National Technical University of Athens
School of Rural and Surveying Engineering

FIG THE POTENTIAL OF CROWDSOURCING IN GEOSPATIAL DATA COLLECTION

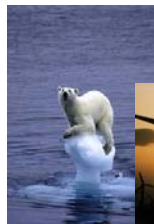
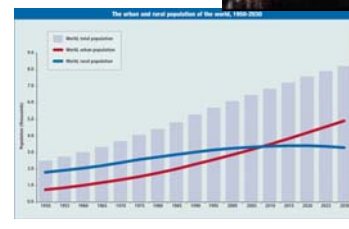
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Global Challenges and the Surveying Profession (I)

Certain challenges characterize our era, such as:

- **Democratization of nations & transition** from centrally driven economies **to the free market** and the need for **privatization of land, business, housing, enterprise** and for **property registration**
- **Political + climate migration, rapid urbanization, informal development** and the need for **e-governance & formalization**
- **Climate change** and the need for **adaptation** and **mitigation** measures (e.g., compact cities)



Global Challenges and the Surveying Profession (II)

- **Economic globalization** & the **Economic crisis** and the urgent need for **development & reforms**
- The hope for more **democracy**, **transparency** and **peace** and the need for **citizen awareness**, **citizen participation**

In order to address these challenges *we need maps*

reliable Geospatial data,
Spatial Data Infrastructures,
 reliable **Cadastral Systems/ Land Administration Systems**



Development , SDI , Cadastre

Development projects, infrastructure, land-use & planning reforms require **land takings** and **rearrangement of property rights**

Huge reforms have huge impact



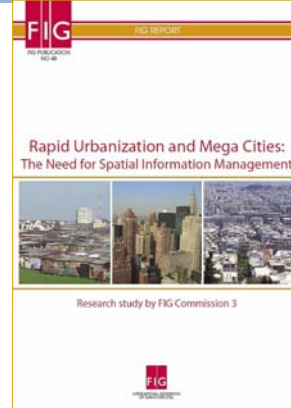


The International Federation of Surveyors

FIG Commission 3 on "Spatial Information Management (SIM)" is focused on:

- ✓ collection, analysis, visualization, standardization, dissemination of geospatial information about land and property;
- ✓ spatial data infrastructures and support of good governance;
- ✓ knowledge management for SIM; and more.

In 2010, FIG addressed the emerging problems due to the rapid urbanization and the need for the surveying community to take into consideration the use of "urban sensing" tools and techniques in order to speed up the collection of the necessary spatial information to support the creation of a public infrastructure for good government. The great potential of the available tools but also the risks of their misuse were then briefly investigated.



VGI, crowdsourcing methods (cheap, real-time, "locality")

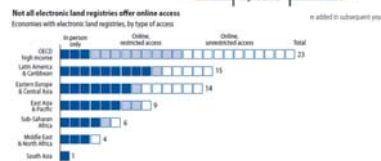
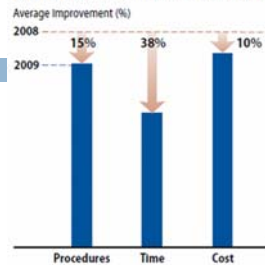
no one knows the local area better than the residents

The economic crisis & the need for development



- property registration
- Computerization
- Reducing bureaucratic procedures
- Easing access
- NSDIs
- Reducing labor costs

Top 10 reformers in registering property





39 WB funded LAM projects in Europe and Central Asia:

The largest program of land reform the world has ever seen! 30 countries -

US\$ 1.1 billion in loans and grants

Population: ~900M Land area: 27,381,300 km² Properties: ~300M



However: 49 % suffer budget overruns

50 million people live in informal settlements

Rise or Fall of the cadastre empire??

World Bank, 2011:

✓ Embrace **social media & crowd sourced technology** to provide transparent land

administration in places where corruption & inefficiency is endemic

✓ With an understanding of errors, accuracies & usefulness of various forms of spatial information

- ✓ **High technical education**
- ✓ **Be pragmatic & flexible**
- ✓ **Meet the needs of society**
- ✓ **Be confident, not conservative**

Where we are

- Comprehensive LAS exist in only 50 countries and only for the 25% of the world's 6 billion land parcels.
- The rest of the world: reduced security of tenure; poverty.
- There is a need for establishing cooperation between professionals & citizens; citizens direct involvement in capturing and maintaining information about property rights.
- However: crowdsourcing is considered as a particular threat by involved professionals (conservative mapping & cadastral agencies, surveyors & lawyers, those who benefit from the existing chaos)

Fit for Purpose approach

FIG: *Highly qualified professional surveyors' interest is gradually moving from measurement to requirement determination for data collection and to data evaluation and management.*

What needs to be done

There is a need for:

- **Better investigation** of the capacity of governmental agencies to monitor, evaluate and interpret the volumes of collected data through crowdsourcing methods
- **Raising public awareness about the benefits** citizens will enjoy
- **Raising public trust**
- **Establishing policy frameworks legally** for the appropriate use of VGI, OpenStreetMap and OpenCadastreMap techniques.

Direct citizen contribution to LA?

As the land administration activity on the one hand deals with huge amounts of data, which moreover are of a very dynamic nature, and on the other hand requires a continuous maintenance process, the role of information technology is of strategic importance.

Technical and the socio-organizational concerns

FIG Proposal

- **Bottom-up pilot projects** are expected to challenge formal systems, their constraints and inadequacies.
- **Action plan for pilot projects** to communicate the benefits to the local authorities & citizens; to investigate the appropriate tools & methods; to cooperate with the local authorities; to activate community leaders and citizens; to identify the type of information that should be collected for the various LASs; to do basic training.

Integration of community-based LASs into cadastral systems

- **Type of information:** land parcel centroid or parcel boundaries, building outline, building characteristics, floors, property rights, property rights holders' data, photos of the property, photos of supporting documents. Depending on the availability of other topographic information, other base mapping and socio-economic data should be collected as well. Pilot projects should build on the infrastructure and capacity of existing projects-if possible.
- **Next step:** investigate **how this will be done**; a **hybrid approach** is proposed.
- **land surveyors should undertake a minor but important role** in the pilot projects to increase capacity and provide guidance and training of trusted para-professionals, community leaders, citizens and land right holders.
- Compilation or completion/correction of **draft cadastral** maps (in countries that run implementation cadastral projects; in regions where cadastral maps are problematic or not updated; in regions where no cadastre or formal property rights exist- in such cases basic technical guidelines are needed; such guidelines should be provided by the authorities in cooperation with land surveyors)
- Publishing the results as a protection against errors and abuse
- Demonstration of feasibility of crowdsourcing to LA organizations and surveyors.

The publication will be finalized and presented in June at the FIG Conference.

THANK YOU