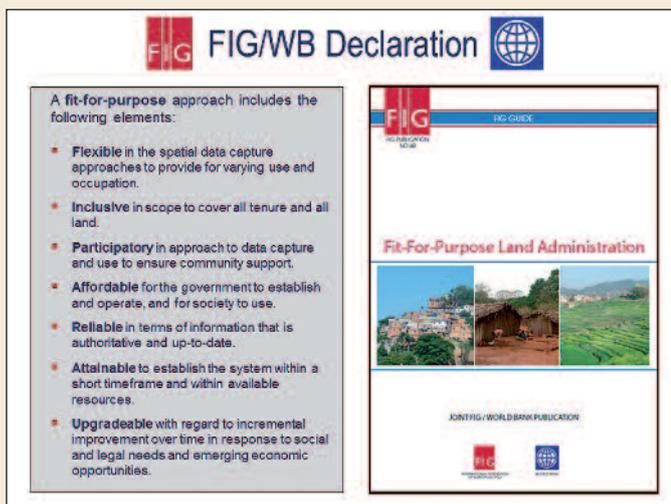


# Flexible Land Administration

Security of tenure is widely considered to be the missing piece of the puzzle when it comes to eradicating poverty. And, as explained in the previous issue of *GeoInformatics*, the European Union is now placing land rights at the heart of the EU development policy. This article presents a way forward in terms of building flexible and “fit-for-purpose” land administration systems in developing countries. This will ensure security of tenure for all and sustainable management of the use of land.

Professor Stig Enemark



In most developing countries, less than 30 per cent of the land is included in formal land systems such as cadastre and planning control. This means that more than 70 per cent (often about 90 per cent) of the population – especially the poor and vulnerable groups – remain excluded from the formal systems. Therefore, there is an urgent need to build cost-effective and sustainable systems, which identify the way land is occupied and used and accordingly provide for secure land rights land use control. When considering the resources and capacities required for building such systems in developing countries, the concepts of mature, sophisticated systems as predominantly used in developed countries may well be seen as the end target, but not as the point of entry. When assessing technology and investment choices, the focus should be on a “fit-for-purpose” approach that will meet the needs of society today and can be incrementally improved and upgraded over time in response to societal needs, emerging economic opportunities and specific development activities.

Importantly, the use of a fit-for-purpose approach does not limit ambitions for an ultimate solution, e.g. solutions in line with advanced systems used predominantly in developed countries. In fact, most cadastral systems built over recent years in Eastern European and countries in Central Asia are based on fit-for-purpose methodologies. Some countries are now in the process of building improved and more

advanced versions. In Sub-Saharan Africa Rwanda has taken the lead by covering 10 million parcels in about three years for a unit cost of about 6 USD per parcel. Ethiopia is also moving forward and other African countries are following in their footsteps.

## The Fit-for-Purpose concept

The term “fit-for-purpose land administration” indicates that the approach used for building land administration systems in developing countries should be flexible and focused on serving the purpose of the systems (i.e. citizens’ needs, including such issues as providing security of tenure and control of land use) rather than focusing on top-end technical solutions and high accuracy surveys. Flexibility is the key characteristic. It is about flexibility in terms of demands for accuracy, demands for spatial information and the recording of legal and social tenure, and in shaping the legal framework to accommodate societal needs. The basic components of the fit-for-purpose concept are threefold:

- Using affordable modern technologies for building a spatial framework, e.g. orthophotos, showing the way land is occupied and used. The scale and accuracy of the mapping may vary according to building density, topography and other requirements.
- Based on the spatial framework, using a participatory approach to identifying and recording the various legal and social tenure rights associated with occupancy and use of the land.
- Adopting a legal framework that accommodates the flexibility necessary for implementing a fit-for-purpose approach. It is recognised that the legal or formal Western systems do not serve the millions of people whose tenures are predominantly social rather than legal. This relates to the Social Tenure Domain Model and the Continuum of Land Rights, where the range of possible forms of tenure is considered as a continuum (FIG/GLTN, 2010).

Benefits relate to the opportunity of building appropriate systems within a relatively short time and for relatively low and affordable costs. This will enable political aims such as economic growth, social equality and environmental sustainability to be better supported, pursued and achieved.

## The Spatial Framework

The spatial framework is the basic large scale mapping showing the way land is divided into spatial units (such as parcels and plots) for



Left: Orthophoto used as a field work map sheet with a georeferenced grid. The map shows the delineated parcel boundaries and parcel identification number. Right: Vectorised field map showing the resulting cadastral map with parcel boundaries and cadastral numbers. Source: Zerfu Hailu, Ethiopia.

specific use and occupancy. It provides the basis for dealing with land administration functions such as: recording and management of legal and social tenure; assessment of land and property value and taxation; identification and management of current land use; planning for future land use and land development; delivery of utility services; and administration and protection of natural resource. The framework should be linked to the national grid through a positioning infrastructure based on the Global Navigation Satellite Systems so that maintenance, updating, and upgrading can take place whenever needed or decided.

In many developed regions of the world this countrywide spatial framework has been developed over about two centuries as large scale cadastral mapping and maintained through property boundary surveys conducted to a high accuracy according to long standing regulations and procedures. However, in developing countries, using such advanced technical standards of adjudication, boundary marking and field surveys are far too costly, too time consuming and capacity demanding, and in most cases simply not relevant, for providing an initial suitable spatial framework. The focus should, therefore, be on methods that are fast, cheap, complete and reliable. The spatial framework can then be upgraded whenever necessary or relevant in relation to social needs and available resources.

Referring to the UN-HABITAT concept of the continuum of land rights, such a fit-for-purpose approach could be referred to as a "continuum of accuracy". The key focus should be on providing secure tenure for all, and managing the use of land and natural resources for the benefit of local communities and society as a whole. The fit-for-purpose approach for providing the spatial framework can be outlined in four key principles:

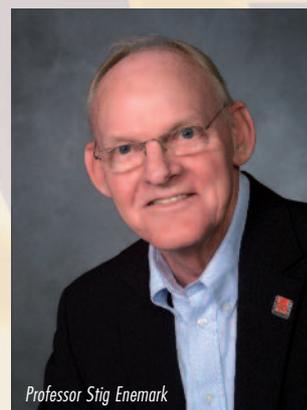
- **General boundaries rather than fixed boundaries.** Using general boundaries to delineate land areas will be sufficient for most land administration purposes especially in rural and semi-urban areas.
- **Aerial imageries rather than field surveys.** The use of high resolution satellite/aerial imagery (e.g. 50 cm resolution) is sufficient for most land administration purposes. This approach is three to five times cheaper than field surveys.
- **Accuracy relates to the purpose rather than technical standards.** Accuracy of the land information should be understood as a relative issue related to the use of this information.

- **Opportunities for updating, upgrading and improvement.** This relates to opportunities for on-going modification, sporadic upgrading and incremental improvement whenever relevant or necessary for fulfilling land policy aims and objectives.

### Final remarks

In most developed countries, spatial frameworks were developed over time in response to societal, institutional and technological developments. Building the frameworks in developing regions should reflect current societal needs and available economic resources.

In developing countries, the groups of land professionals, such as lawyers, surveyors, planners etc., tend to adopt codes of ethics that support the existing systems, and there are many examples of resistance towards change that will challenge their current position. On the other hand, by including all land in the formal land administration systems,



Professor Stig Enemark

land professionals will contribute to social development and, at the same time, also widen their functions and clientele. The key benefit of a fit for purpose approach would be that it is possible to include all land in the formal land administration system within a reasonably short time and at a relatively low cost. Advanced systems can then be incrementally developed over time in response to social needs and emerging economic opportunities.

#### References:

FIG (2014): *Fit-for-Purpose Land Administration*. FIG Publications no. 60. FIG office, Copenhagen. <http://www.fig.net/pub/figpub/pub60/figpub60.htm>

FIG/GLTN (2010): *The Social tenure Domain Model*. FIG Publications no. 52. FIG Office, Copenhagen. <http://www.fig.net/pub/figpub/pub52/figpub52.htm>

Stig Enemark is Honorary President of the International Federation of Surveyors (FIG) and Professor of Land Management at Aalborg University, Denmark. Email: [enemark@land.aau.dk](mailto:enemark@land.aau.dk).



# CLGE is looking for Young Talent:

The 2nd FIG Young Surveyors European Meeting was held in Berlin, Germany on the 7th October 2014. Around 140 young surveyors from 20 countries gathered, not only to share ideas and experiences, but also to strengthen the European Network of Young Surveyors, which was established last year in Lisbon, Portugal.

*Eva-Maria Unger, Chair Elect FIG Young Surveyors Network*

The meeting started with the Opening Ceremony, where the participants had the opportunity to learn more about the various surveying organisations and associations. They were introduced to Susanne Lunz (representative of KonGeoS), Clemens Kiepke (delegate of DVW and vice president of BDVI), Maurice Barbieri (president of CLGE), Rudolf Staiger (vice president of FIG), John Hohol (president of FIG Foundation) and Eva-Maria Unger (incoming chair of the FIG Young Surveyors Network & Young Surveyors representative at the CLGE board), all of whom encouraged the participants to get involved and be active.

The morning session focused on inspiring topics; national as well as European networks and the ideas behind them were introduced.

After this the young participants were invited to join forces and work together to answer questions and discuss issues relating to each of the keynote topics. In doing this the young surveyors participated in shaping their own future by sharing their thoughts and ideas.

The afternoon session was dedicated to our sponsors. Representatives of Trimble, esri, Leica and Topcon were invited to give presentations on their latest technology updates.

Another entertaining activity in the afternoon was the challenge of creating a model satellite out of 3 pieces of paper and 3 straws. Participants showed considerable creativity and the best 4 satellites were chosen and their creators invited to outline the ideas behind their models.

As the FIG Young Surveyors Network strongly encourages all European Young Surveyors to take part in the CLGE Students' contest each year, the next session was given over to the successful participants of that contest. The best six applicants were invited to present their papers.



*Maurice Barbieri (left), newly appointed CLGE President and Dieter Seitz, Treasurer, hand over the Award for the best work in the field of Young Surveyors Engagement. Franka Grubišić (HR) is holding the certificate and Eva-Maria Unger is enjoying the moment. Find all the details about the CLGE Students' and Young Surveyors Contest, including the papers, on [www.clge.eu](http://www.clge.eu).*

© Sandra Uceda Queirós

The day was brought to a conclusion with a podium discussion, where six speakers were invited to discuss whether the educational system's relationship with the labour market was a major obstacle to the progress of young professionals.

After a hard and full day of working, collaborating and networking, CLGE, DVW and BDVI invited the participants onto the rooftop of the TU Berlin to enjoy an informal reception with friends and colleagues.

The next day the participants at the 2nd FIG Young Surveyors European Meeting had the opportunity to enjoy INTERGEO. All the participants had a chance to stroll around the exhibition area and make contact with companies from all over the world. In the afternoon, at the Trend und Medien Forum, the Young Surveyors gathered once again. The Satellite winners were commended for their creativity, but most importantly, the CLGE Students' Contest winners were presented with awards by Maurice Barbieri, the new CLGE president and by Dieter Seitz, CLGE treasurer.

ners were presented with awards by Maurice Barbieri, the new CLGE president and by Dieter Seitz, CLGE treasurer.

The event was organised in close cooperation with KonGeoS and the FIG Young Surveyors Network. Of course, this event would not have been possible without the help and support of the sponsors, supporters, participants and keynote speakers. We would like to take this opportunity, therefore, to thank our sponsors and supporters: Trimble, Esri, Leica and Topcon as well as FIG, FIG Foundation, CLGE, DVW and BDVI.

Not only are these types of meetings essential to the future of the FIG Young Surveyors Network, but they are also helpful in supporting the development of young surveyors in creating a platform for the exchange of ideas. The meeting was a great success and we are delighted to have been able to spread news and ideas of the European Young Surveyors Network.



*Without doubt an excellent contribution! © Sandra Uceda Queirós*