

Geodäsie, quo vadis ?

Surveying: Where are we heading ?

Prof. Stig Enemark
 President
 Aalborg University, Denmark

INTERGEO 2010, COLOGNE, GERMANY, 5 – 7 OCTOBER 2010

Quo Vadis – the big swing...

- **From Measurement to Management**
 - From land surveying to land management.
- **From Cadastre to Land Governance**
 - From security of tenure to governance of the people to land relationship
- **From Local to Global**
 - Surveyors have a key role to play in contributing to the global agenda

Current Policies

Is the role of the Surveyors changing ?

Yes !

From land surveying to land management

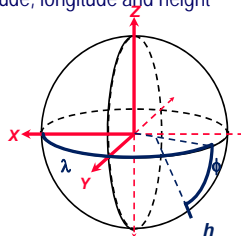
Policies - the big swing

- **From Measurement**
 Surveyors will still be high level experts within measurement science, but due to technology development the role is changing into managing the measurements
- **To Management**
 Surveyors will increasingly contribute to building sustainable societies as experts in managing land and properties

The Land Professionals

Positioning infrastructures Versus traditional Geodetic Datum

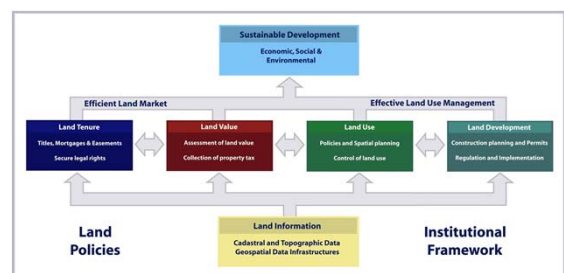
- Enables description of position as latitude, longitude and height and underpins all geo-spatial data;
- Characteristics:
 - Coverage - initially local but has evolved to national and continental;
 - Measurement - initially ground based, labor intensive, now more efficient using GNSS;
 - Data management - initially very analogue but now a key part and often integrated in Spatial data Infrastructures (SDI)



Positioning infrastructures are the only truly global infrastructure underscoring capture and management of spatial data world wide

Source: Matt Higgins, Washington, 2009

Land Governance



A Global Land Management Perspective, Stig Enemark, April 2004.

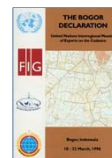
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The FIG Agenda ...



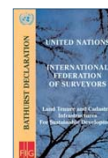
1996
FIG Statement on the Cadastre Concepts and standards



1996
Bogor Declaration FIG/UN initiative on the role of cadastral infrastructures

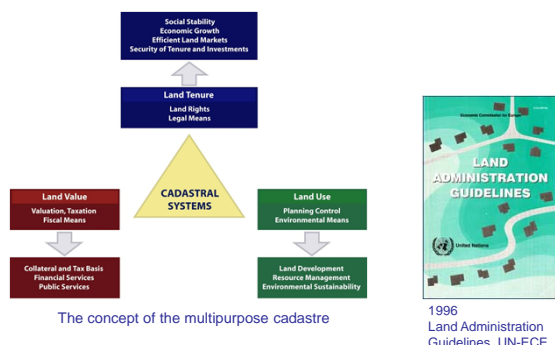


1998
Cadastre 2014 A FIG vision in six statements for future cadastre systems .



1999
Bathurst Declaration FIG/UN initiative on land administration in support of sustainable development

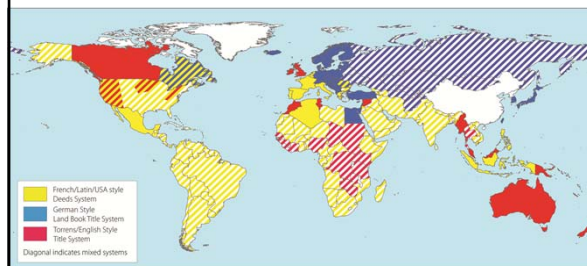
Cadastral Systems



The concept of the multipurpose cadastre

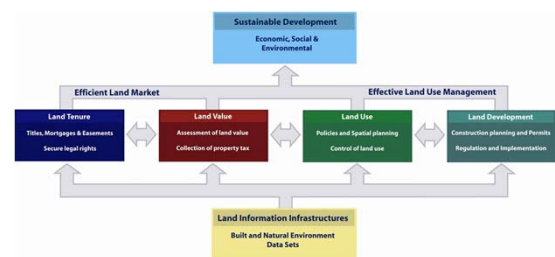
1996
Land Administration Guidelines, UN-ECE

Land Registration Systems around the World



Deeds System (French/Latin/USA style): A register of owners; the transaction is recorded – not the title.
Title System (German, Torrens/English style): A register of properties; the title is recorded and guaranteed.

LAS provide the infrastructure for implementation of land policies and land management strategies in support of sustainable development.

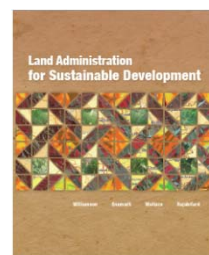


- **Land Tenure:** the allocation and security of rights in lands; the legal surveys of boundaries; the transfer of property through sale or lease; and the management, adjudication of disputes regarding rights and boundaries.
- **Land Value:** the assessment of the value of land and properties; the gathering of revenues through taxation; and the management and adjudication of land valuation and taxation disputes.
- **Land-Use:** the control of land-use through adoption of planning policies and land-use regulations at various levels; the enforcement of land-use regulations; and the management and adjudication of land-use conflicts.
- **Land Development:** the building of new infrastructure; the implementation of construction planning; and the change of land-use through planning permission and granting of permits.

TABLE 1.1 - TRADITIONAL BENEFITS OF LAS

Support for governance and rule of law	The formalization of processes used for land management engages the public and business, and, in turn, this engagement leads to their support for the institutions of government.
Alleviation of poverty	A primary means of alleviating poverty lies in recognizing the homes and workplaces of the poor and their agricultural land as assets worthy of protection.
Security of tenure	This is the method of preserving people's associations with land. It is the fundamental benefit of formal land administration. Ensuring security throughout the range of tenures used in a country helps provide social stability and incentives for responsible land use. Conversion of some of the rights into property is the core process of commodification of land needed for effective markets.
Support for formal land markets	Security and regularity in land arrangements are essential for successful, organized land markets. LAS manage the transparent processes that assist land exchange and build capital out of land.
Security for credit	International financing norms and banking practices require secure ownership of land and robust credit insurers that is, tenures which support security interests in land that can only exist in formal LAS.
Support for land and property taxation	Land taxation takes many forms, including tax on passive land holding, on land-based activities, and on transactions. However, all taxation systems, including personal and company taxation, benefit from national LAS.
Protection of state lands	The coherence of national LAS is dependent on its coverage of all land. Thus, management of public land is assisted by LAS.
Management of land disputes	Stability in access to land requires defined boundaries, titles, and interests. If LAS provide simple, effective processes for achieving these outcomes, land disputes are reduced. The systems also need additional dispute management processes to cover breakdown caused by administrative delay, corruption, fraud, forgery, or transaction fees.
Improvement of land planning	Land planning is the key to land management, whether the planning is institutionalized within government or achieved by some other means. Impacts of modern rural and urban land uses affect adjoining land and beyond. These impacts need to be understood and managed by effective land planning assisted by LAS.

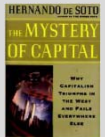
Williamson, Eneemark, Wallace, Rajabifard, 2010



Limitations of Formal Cadastral Systems...

"Civilised living in market Economies is not simply due to greater prosperity but to the order that formalised property rights bring"

Hernando de Soto – 1993

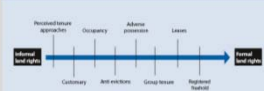


Formal land rights can be recorded in traditional cadastral systems

Continuum of rights (GLTN-agenda)

From: **illegal or informal rights**


To: **legal or formal rights**



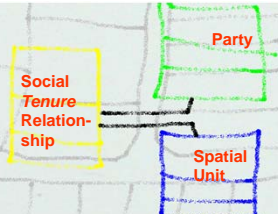

Informal rights cannot be recorded in traditional cadastral systems

Limitations of Formal Cadastral Systems

- More than 70 per cent of the land in many developing countries are outside the formal systems of land registration and administration
- This relates especially to informal settlements and areas governed by customary tenure
- Traditional cadastral systems do not provide for security of tenure in these areas.



The Social Tenure Domain Model: Closing the Gap

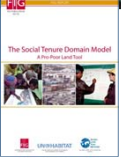



Modeling the relation between Parties – Spatial unit – Social Tenure


Parties ("who"): Not only a (legal) person – but a range of subjects such as person, couple, groups of people, unidentified groups, authority, etc.

Spatial Unit ("where"): Not only an identified (measured) parcel – but a range of objects such as land parcels, buildings, etc and identified in various ways – such as one point, street axes, photos, etc.

Social tenure ("what"): Not only ownership and formal legal rights – but also range of informal, indigenous and customary rights as well as financial issues such as **group loans and micro credit**.



The FIG Agenda ...



2005 Aguascalientes Statement on development of land information policies in the Americas. Joint FIG/UN initiative

2006 FIG Contribution to Disaster Risk Management.

2008 Costa Rica Declaration on pro-poor CZM

2010 Land Governance in support of the MDGs. FIG/WB initiative.

2010 Land Governance WB, GLT, FIG, FAO

The FIG Agenda from Cadastre to Land Governance

- Holding of rights to land
- Economic aspects of land
- Control of land use and development

Administering the people-land relationship through

- Land Policy
- Land Management
- Good Governance

and

- Building the capacity to deal with this

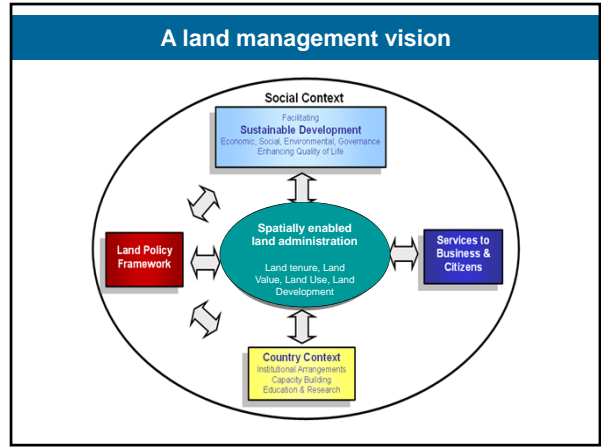
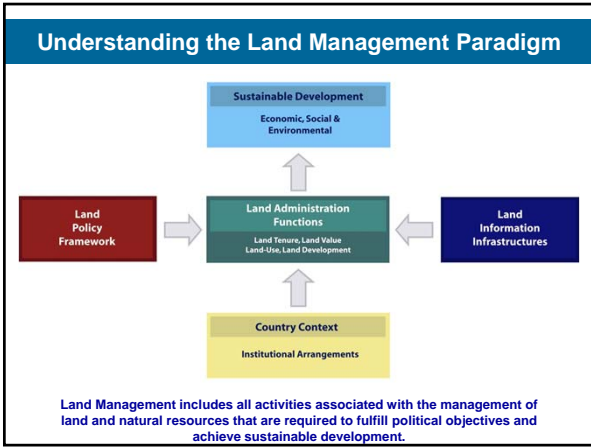


Land governance

Land governance is about the policies, processes and institutions by which land, property and natural resources are managed.

This includes decisions on access to land; land rights; land use; and land development.

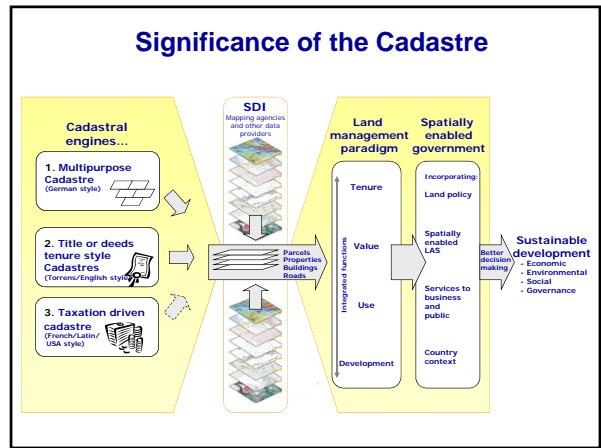
Land governance is about determining and implementing sustainable land policies.



Spatially Enabled Government

A spatially enabled government organises its business and processes around “place” based technologies, as distinct from using maps, visuals, and web-enablement.

The technical core of Spatially Enabling Government is the **spatially enabled cadastre**.



The role of FIG

FIG intend to play a strong role in building the capacity to design, build and manage Land Governance systems in response to Climate Change and in support of the Millennium Development Goals

“Building the capacity for taking the land policy agenda forward in a partnership with the UN agencies and the World Bank”

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Do Surveyors have a role to play in the global agenda?

Yes !

Simply, no development will take place without having a spatial dimension

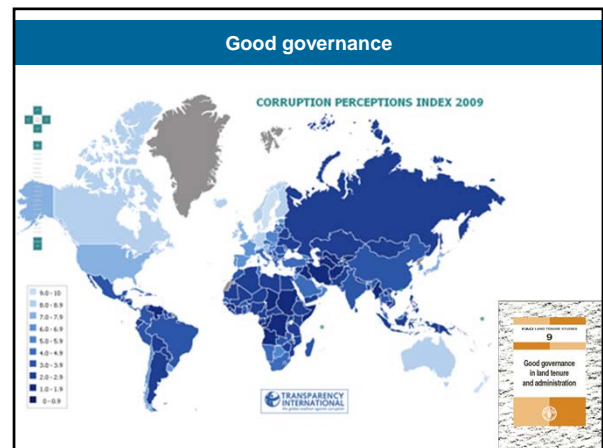
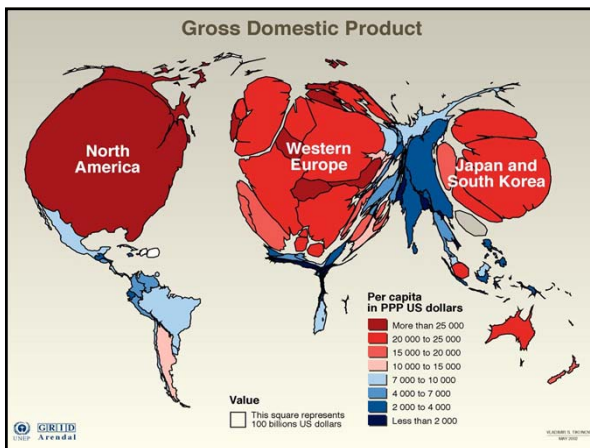
And no development will happen without the footprint of the surveyor

The Global Agenda The Millennium Development Goals

- Goal 1: Eradicate extreme poverty and hunger
- Goal 2: Achieve universal primary education
- Goal 3: Promote gender equality and empower women
- Goal 4: Reduce child mortality
- Goal 5: Improve maternal health
- Goal 6: Combat HIV/AIDS, malaria and other diseases
- Goal 7: Ensure environmental sustainability

Goal 8: Develop a Global Partnership for Development

The framework includes 18 targets and 48 indicators enabling the ongoing monitoring of annual progress



It is all about:

- People,** human rights, engagement and dignity
- Politics,** land policies and good governance
- Places,** shelter, land rights, and natural resources
- and Power,** decentralisation and empowerment



Facing the new challenges

- Climate change
- Food shortage
- Energy scarcity
- Urban growth
- Environmental degradation
- Natural disasters
- Global financial crisis

**All these challenges relate to governance and management of land
The surveyors – the land professionals - play a key role**

Global partnership drives development for achieving the MDGs

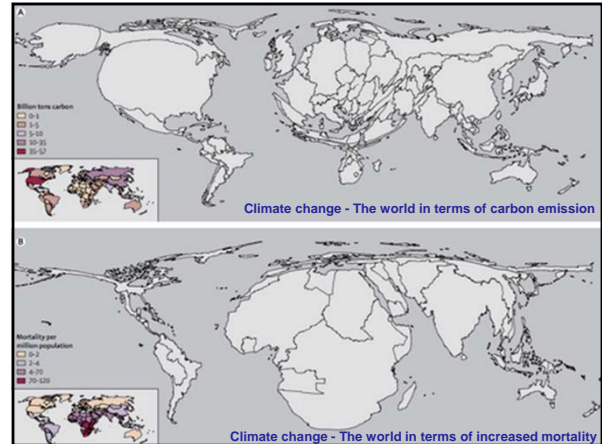
Global recognition → national recognition → local recognition

Climate change – disaster management



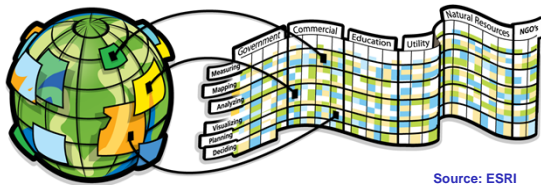
The most important environmental concern now is climate change. The authoritative Stern Report on the economics of climate change concludes that it will affect the basic elements of life for people around the world – access to water, food production, health and the environment.

(Planning Sustainable Cities: Global Report on Human Settlement 2009 (UN-Habitat))



Geo-information management

...creates a strong foundation



Source: ESRI

...for sustainable action

Climate Change

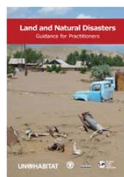
No matter the inequity between the developed and developing world in terms of emissions and climate consequences, there is a need to develop relevant means of adaptation to climate change both in the rich and the poorer countries.

Sustainable Land Administration Systems should serve as a basis for climate change mitigation and adaptation as well as prevention and management of natural disasters.

- Incorporating climate change into current land policies
- Adopting standards for energy use, emissions, carbon stock potential,.....
- Identifying prone areas (sea level rise, drought, flooding, fires,...)
- Controlling access to and use of land in relation to climate change and disaster risks
- Controlling building standards and emissions in relation to climate change
- Improving resilience of existing ecosystems vulnerable to climate change

Disaster risk prevention and management

- Humanitarian actors are often confronted with land issues when undertaking emergency shelter and protection activity.
- The information on the people to land relationship is crucial in the immediate post disaster situation.
- Disaster risks must be identified as area zones in the land-use plans and the land information system with the relevant risk assessment and information attached.
- Measures for disaster risk prevention and management should be integrated in the land administration systems



Land and Natural Disasters
 Guidance for practitioners
 UN-Habitat/FAO

Rapid Urbanisation

	1950	1975	2007	2025	2050
World Urban Population (million)	737	1,518	3,294	4,584	6,398
Percentage	29.1%	37.3%	49.4%	57.2%	69.6%
More Developed Region (million)	427	702	916	995	1,071
Less Developed Region (million)	310	817	2,382	3,590	5,327

Source: UN, 2008



Close to 1 billion people, or 32 per cent of the world's current urban population, live in slums in inequitable and life-threatening conditions, and are directly affected by both environmental disasters and social crises, whose frequency and impacts have increased significantly during the last few decades.

(UN-Habitat, 2009)

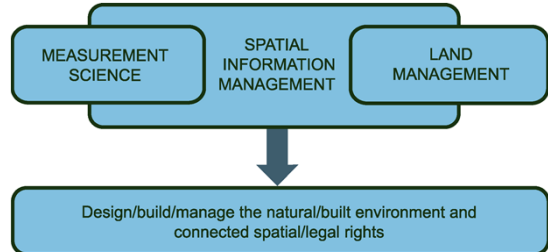
The role of the land professionals

Dealing with the land issue will require skills in the following areas:

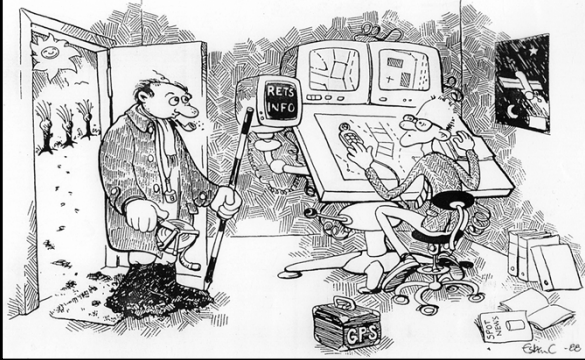
- High level geodesy models to predict future change
- Modern surveying and mapping tools to support management and implementation
- Spatial data infrastructures to support decision making on the natural and built environment
- Secure tenure systems and sustainable systems for land valuation, land use management and land development
- Systems for transparency and good governance

Land governance is an interdisciplinary and cross-cutting area mixing technical, natural and social science

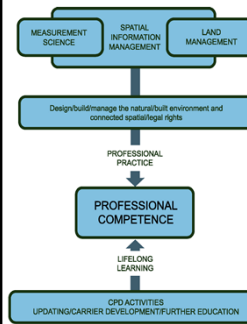
The Educational Profile of the Future



The only constant is change...



Lifelong Learning

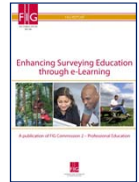


The status as professional expert cannot be achieved only through university graduation and it cannot be achieved solely through professional practice.

The idea of "learning for life" is replaced by the concept of lifelong learning.

All graduates must have access to the newest knowledge throughout their professional life.

E-Learning and innovative interaction between education, research and professional practice is essential in this regard.



The FIG Agenda

Flying High

- Global partnership with the UN-agencies incl. the World Bank in support of the global agenda such as the MDGs

Keeping the feet on the ground

- Professional and institutional development at regional, national, and local level in support of the needs of our member associations and individual surveyors.



Key Message

The linkage between climate change adaptation and sustainable development should be self evident but is not well understood by the public in general.

Land Professionals are custodians of an enabling technology and should take a leading role in explaining this linkage to the wider public.

This should also ensure that the land management perspective attracts high-level political support and recognition.



**Thank you
for your attention**