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President of FIG  
Director of TUM Institute of Geodesy, GIS and Land Management

about

## About FIG's and Surveyors Contributions to building a better world

at XIX International Geodetic Student Meeting in  
Krakow, Poland, 30 June 2006



### FIG Definition of the Functions of the Surveyor

The surveyor's professional tasks may involve one or more of the following activities which may occur either on, above or below the surface of the land or the sea and may be carried out in association with other professionals.

1. The determination of the size and shape of the earth and the measurement of all data needed to define the size, position, shape and contour of any part of the earth and monitoring any change therein.
2. The positioning of objects in space and time as well as the positioning and monitoring of physical features, structures and engineering works on, above or below the surface of the earth.
3. The development, testing and calibration of sensors, instruments and systems for the above-mentioned purposes and for other surveying purposes.
4. The acquisition and use of spatial information from close range, aerial and satellite imagery and the automation of these processes.
5. The determination of the position of the boundaries of public or private land, including national and international boundaries, and the registration of those lands with the appropriate authorities.
6. The design, establishment and administration of geographic information systems (GIS) and the collection, storage, analysis, management, display and dissemination of data.
7. The analysis, interpretation and integration of spatial objects and phenomena in GIS, including the visualisation and communication of such data in maps, models and mobile digital devices.
8. The study of the natural and social environment, the measurement of land and marine resources and the use of such data in the planning of development in urban, rural and regional areas.
9. The planning, development and redevelopment of property, whether urban or rural and whether land or buildings.
10. The assessment of value and the management of property, whether urban or rural and whether land or buildings.
11. The planning, measurement and management of construction works, including the estimation of costs.

In the application of the foregoing activities surveyors take into account the relevant legal, economic, environmental and social aspects affecting each project.

## From survey to serve society

FIG and its members want to serve society and to contribute building a more just, peaceful and sustainable world by

Implementing MDG, especially on the fields of property rights, secure tenure, access to land, water, marine and natural resources

## From survey to serve society

- Data management, GSDI and NSDI
- Urban-rural interrelationship/urban and rural development, resettlement, infrastructure
- Survey engineering, LBS, laser scanning
- Land administration; marine, coastal zone, land, real estate and risk management
- Geodetic reference framework by GNSS etc.
- Mapping, 3 D and 4 D (?) cadastre ...

## Exiting Leica Geosystems CEO H. Hess:

**„I believe that surveyors face an enormously exciting future**

The US Department of Labour has named three most attractive areas of the future: nano-technology, biotechnology and **geo-technology**. I wish surveyors could see and explore this tremendous opportunity and contribute with open eye to solving the growing need for geo-information.“

GIM, Interview, Dec. 2005 Vol. 19, Issue 12

## Sustainable Development

in the sense of Rio, Istanbul, Johannesburg Declaration and according to the Millennium Development Goals especially aims at

- the just balance of economic, ecological and social development on the basis of a "comprehensive planning and decision process"
- more democracy, decentralisation and deregulation, more participation and transparency etc. according to the "good governance principles"
- improving or sustaining quality of life of **all** living species and at efficient and sustainable use and managing of natural resources, especially of our more and more scarce land
- more awareness of people about our endangered world ("Our world is a village": increasing globalisation of environment impacts)

**Conclusion:** To implement sustainable development goals and to come to a more overall and special knowledge each state, authority and people need more and better data and comprehensive information.

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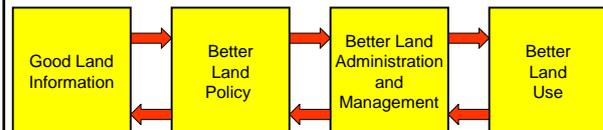
**„Of all the ills that kill the poor, none is as lethal as bad governance.“**

**The Economist**

**„Good Governance is perhaps the single most important factor in eradicating poverty and promoting development.“**

**Kofi Annan  
Secretary General  
United Nations**

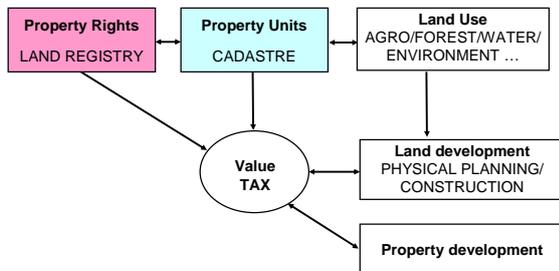
Sustainable development is not attainable without sound Land administration



Source: The Bathurst Declaration FIG-Publication No. 22/1999

## Land Administration as part of Spatial information

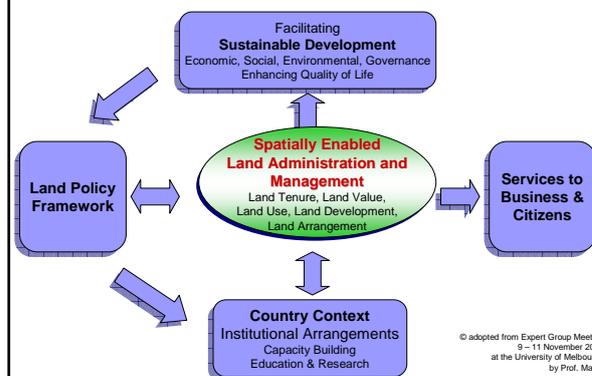
Institutional level – cooperation through integration of function



**Core message:** Central Europe has a long tradition in institutional cooperation, with similar results under different institutional settings

Graphic: Gerhard Muggenhuber

## A Land Management Vision



© adopted from Expert Group Meeting 9 – 11 November 2005 at the University of Melbourne by Prof. Magel

## Covering essential areas of land management

Core message: a full package of land management with the wider perspective of a solid land market requires instruments from (1) land administration (2) valuation (3) land use planning and land development, (4) financial services.

Due to the fast development and changing use of land resources special attention has to be given to land use planning tools including land consolidation (rural), land readjustment (urban) and urban and rural land development! The interrelation of urban and rural is often ignored...

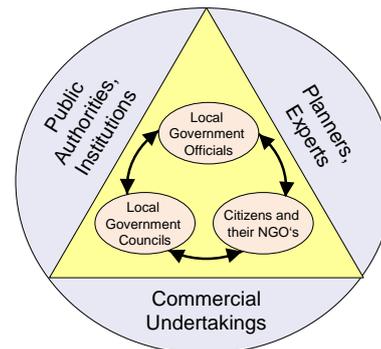
Europe developed successful models for urban rural interrelated improvements of infrastructure with land as a focus.

# Life is local!

...“We need more subsidiarity. That means that wherever possible action must be close to individuals. **Subsidiarity** means strengthening the regions, permitting diversity, having confidence in individuals. For politicians it also means being able to let go, and this particularly true for central authorities.”...

(Source: Chancellor Dr. Angela Merkel on European Values in a Global World)

## Growing civil society and subsidiarity



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Lehrstuhl für Bodenordnung und Landentwicklung



My goal and philosophy as the current FIG president are:

„Against the above mentioned global, continental and national challenges, threats and chances and the aimed role for professions, professionals and NGO in general and for surveyors in special we should aim in our education and practice at **„well grounded specialized generalists“** with skills in theory and practice.

„To be a good technician  
it is not enough  
to be a good technician only“

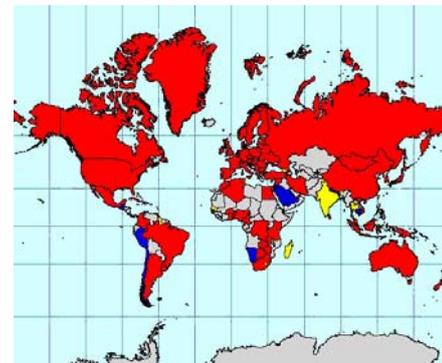
Spanish writer Ortega y Gasset

There is a common truth across the world:

Education should not only be focussed on modern survey technology and techniques and on data gathering and modelling etc. but also on the whole environment of neighbour disciplines and on understanding and collaborating with them.

Source: FIG President Magel, 2005

FIG Members



■ Full member   
 ■ Affiliate   
 ■ Correspondent

### FIG Commissions

- Commission 1 – Professional Standards & Practice
- Commission 2 – Professional Education
- Commission 3 – Spatial Information Management
- Commission 4 – Hydrography
- Commission 5 – Positioning and Measurement
- Commission 6 – Engineering Surveys
- Commission 7 – Cadastre & Land Management
- Commission 8 – Spatial Planning & Development
- Commission 9 – Valuation and the Management of Real Estate
- Commission 10 – Construction Economics and Management

Can FIG represent surveyors identity, socio-political role and technical tasks on the one hand and meet the hopes and demands of politics and society on the other hand?

A SWOT-analysis (S = strength, W = weakness, O = options and T = threats) is the best approach for finding the right answer.

Each member from time to time and each applicant for FIG-membership should try to do this analysis as well – and also each FIG-council and the FIG-commissions have to give an answer to these questions.

### FIG SWOT-analysis

Strength	Weakness
- high engagement of functioners and members - high reputation and attractivity - present in more than 100 countries - leading survey representative (incl. business sector) - representation of all branches (state, private...) - providing standards and guidelines for quality of education and professional ethics etc. - contributions to good governance and institutional framework - .....	- not everywhere adequate education level - weak representation in planning activities - not enough geodetic university level and no/less tradition and not enough evidence of surveyors in some countries - due to honorary posts and lack of money there is no quick „business like-handling“ possible - still too European and too much northern hemisphere - different sizes and activities of commissions
Options	Threats
- high competence in GIS for enlarging activities - bridging the fields and getting win-win-aspects (e.g. GIS + land management etc.) - influencing political decisions on national aspects of surveying - patronages of rich members for poor member applicants - .....	- closing of geodesy at universities - not enough students in Western Europe - study of „second choice“ (minor quality of students?) - financial weakness of esp. African members - instable or weak conditions for regional events in many countries - language problems and language proud

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TUM, Institute of Geodesy, GIS and Landmanagement

Irrespective of still some deficits and weaknesses in e.g. geographical and representation in technical fields and on educational level my answer after seven years of prominent functions and responsibilities in the FIG-council and after many visits, discussions and meetings is very clear:

1. FIG can and does represent the identity, socio-political role and the importance of technical contributions in a special visible and both politically and technically efficient way. This is clearly demonstrated by the output of our work like WW, conferences, publications and by the attendance of outstanding speakers from UN or science communities and politicians or by the strong support of national governments as we can experience it at the moment for the FIG Congress 2006 in Bavaria.

The best answer for surveyors are the not ending applications of member associations as it had just happened with the big country and new member IRAN or with academic, affiliate and corporate members.

2. Obviously FIG can meet the demands of international or national communities / state agencies / universities etc. because FIG expertise and experts are not only asked for by several UN-agencies but also by a lot of national institutions and offices in the wide range of surveyors functions as they are described in the annual review 2003 – 2005 of FIG. FIG additionally plays a crucial role within the sister organisations and the geospatial information societies: FIG is chairing both the Joint Board of Geospatial Information Societies and the UN Habitat Professionals Forum!



One really can say:

**„FIG is the mother of all surveying, surveyors and surveyor students“**



#### GESA ANTHEM

GESA! Hail GESA!  
The Eye of every engineer.  
GESA! Hail GESA!  
With Our Skills we help Build Mother Ghana.

In the Storms we Survey.  
In the Sun we Portray.  
To make Ghana a Happy place to stay.  
Every Night Every Day.  
No matter what comes our way.  
To make The World a happy place to stay.

Geomatics Engineering Students Association of Ghana  
(Composer: Yaw Owusu-Akyaw, 2004)

Jack Dangermond: "Geography and GIS are necessary tools if we are willing to sustain our world."

**But nevertheless** keep in your mind: It is for ever human being who decides on our future and on our well being.

Therefore we need a stronger UN and much more commitment of all nations and civil society to the Millennium Development goals. And finally - we everywhere need not only excellent leadership and excellent education at schools and universities but also a broad opening and development of our hearts and values.

FIG President Prof. Magel

... "The dignity of the individual, which comes from God, and the call to freedom, that is the original basis for all human rights, for the rule of law, for justice, for solidarity, which also finds its expression in the modern social state, for subsidiarity, in other words for the virtue of self-determination, instead of the delegation of personal freedom to institutions."...

(Source: Chancellor Dr. Angela Merkel on European Values in a Global World)

### Surveyors are specialists of low land reality ... and sustainable development

therefore my **VISION** as FIG president:  
Surveyors should play a manifold role as

**enablers** for local people, CBO and NGO

**mediators** between citizens and authorities

**advisors** to politicians and state institutions

**See you again in Munich!**

XXIII International FIG Congress  
German INTERGEO®  
8 - 13 October 2006 - Munich, Germany

Monday 9 October			
8:00			
9:00	Help desk	Commissions 1-10	Intern. Student
10:00	ICM 8:30 a.m. - 6:00 p.m.	Annual Meetings ICM	ICM
11:00		Plenary Session ICM	TS 1 ICM
12:00			
13:00	Reception Mayor of Munich City Hall	Lunch	
14:00		Technical Sessions TS 2 - 11	
15:00		ICM	
16:00		Technical Sessions TS 12 - 21	
17:00		ICM	
18:00			
19:00			
20:00	Reception Bavarian State Residenz		
21:00			