

## **FIG-Task Force on «Spatially Enabled Society»**

FIG-Working Week, TS02K  
Marrakech, Morocco  
19 May 2011

Dr. Daniel Steudler



### **Overview**

- **Spatial information needs of societies**
- **How to tackle those needs**
- **Definition of spatial enablement of society**
- **Way forward for the Task Force SES**



## Spatial enablement of individuals



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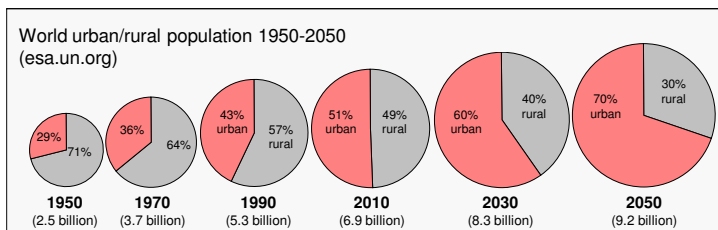
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## Population growth

- World pop. increasing to 9.2 billion by 2050
- huge urbanization process
- UN-Habitat (2010): urban population in Africa of 400million will triple until 2050
- Challenges: development of infrastructures, basic services such as health, education, drinkable water, waste water treatment, public transport, security



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## Land-use planning

### Jakarta, Indonesia:

- Pollution and overpopulation at saturation point;
- Jakarta has population of 9.6 million, 12.5 million at day time;
- traffic congestions, poor public transport system;
- Government considers 3 options: status quo / moving only administrative capital / moving whole capital to new location;
- sparking political debate and controversy;
- "we have to rethink the way we use land".



The Guardian Weekly 31.12.10 29



## Land grabbing

### Mali: Whose land is it, anyway?

- Building of new irrigation canal by Government backed international contractors;
- scheme to raise agricultural yields and improve food security (of already intensively use land);
- Mali is a country where 80% of the people depend on subsistence farming for their livelihood;
- fear that this will deprive subsistence farmers of their land and food;
- farmers are promised compensation for their land, and that there will be jobs.

"The compensation they gave was not enough to build a new house," he says. "We are very deeply shocked. I have lived here all my life but I was told my smallholding was not on the map used by Malibya to build the canal. They took me to the tribunal and I was told that I had built on land where building was not allowed – and I lost my home. "This project is good for the government but it is not good for the people."



The Guardian Weekly 21.01.11 43



## Land grabbing

### Cambodia: Community drained dry

- Land development corporation to carry out new property developments in Phnom Penh;
- about 20,000 people are in danger of losing their homes, where they have lived there for decades;
- UN reports that land grabbing by the rich and powerful is a major problem;
- problems arise from Khmer Rouge era, when everything was made state property;
- Government recognised the lack of land title and offered people to re-apply for title;
- however, many were denied their title;
- Government entered into a 99-year lease agreement with private developer.



International development  
Community drained dry



Phnom Penh, Cambodia  
A woman stands in a flooded area, surrounded by debris, illustrating the impact of land grabbing.

10%

The Guardian Weekly 01.04.11 43



## Disaster management

- Thailand after tsunami: lack of proper landownership information allowed financial investors to take over land, while local fisherman have been ousted from their properties;
- well documented landownership information would have protected minorities with lesser economic power against exploitation;
- Aceh after tsunami: the loss of land registry and cadastral data caused huge problems for reconstruction, planning, and social stability;
- **Disaster management starts before the disaster; landownership information is crucial.**





## Environmental sustainability

### "Tragedy of the commons": Azerbaijan after transition in 1990's

- private landownership was introduced initially only for land within the village;
- land outside the villages remained common property respective state property;
- village society was not sufficiently organized;
- sheep secure the income of the rural population;
- sheep stock became approx. 5 times as big as the actual capacity of the land would have been;
- serious erosion and degradation problems;
- **basic problem was lack of responsibility and accountability for the resource "land".**



## Land Management





**Nail house in Chongqing, China:**  
A cadastre with documentation of land ownership is obviously in place, but something else seems to be unsatisfactory.





## Land Administration and Management Paradigm

Tasks	Land related activities	Tools / Methods
<b>Strategy</b> <ul style="list-style-type: none"> <li>visions and objectives</li> </ul>	<b>Land policy</b>	<ul style="list-style-type: none"> <li>political activities</li> </ul>
<b>Management</b> <ul style="list-style-type: none"> <li>measures and projects for the implementation of the policy</li> </ul>	<b>Land management</b> 	<ul style="list-style-type: none"> <li>land-use planning</li> <li>land consolidation</li> <li>land reallocation</li> <li>melioration</li> <li>landscape development</li> <li>land recycling</li> </ul>
<b>Administration / Documentation</b> <ul style="list-style-type: none"> <li>handling of spatial information, data analysis, data visualization</li> <li>cadastral operations, data modelling, data acquisition, data maintenance, data distribution</li> </ul>	<b>Land administration and cadastre</b> 	<ul style="list-style-type: none"> <li>monitoring</li> <li>navigation</li> <li>geoinformation</li> <li>land registration</li> <li>cartography</li> <li>surveying</li> <li>geodesy</li> </ul>

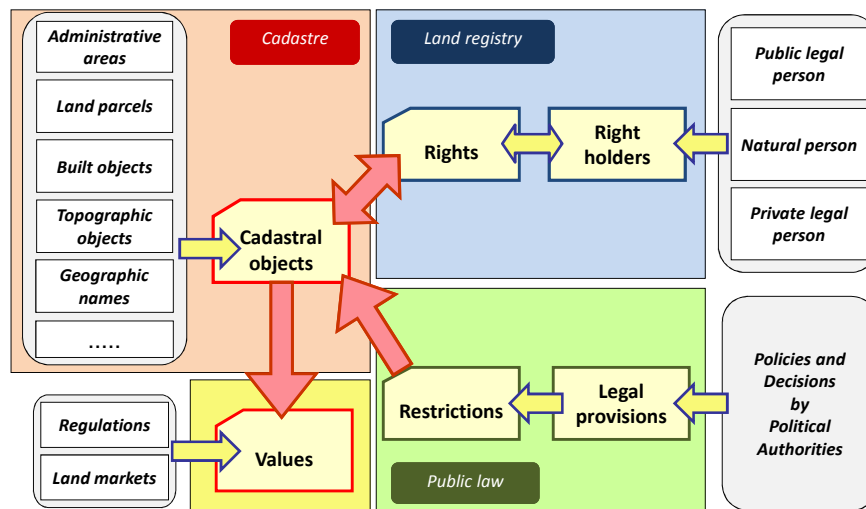
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## Elements of a Land Administration System



(Horisberger, 2011)

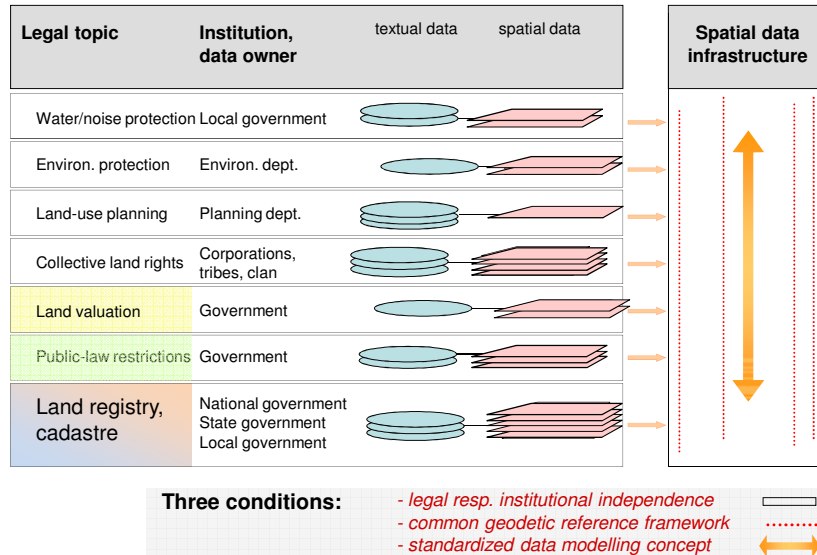
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## Spatial Data Infrastructure



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## Definition of a Spatially Enabled Society

A spatially enabled society – including its government – is one that makes use and benefits from a wide array of spatial data, information, and services as a mean to organize its land related activities. Spatial enablement is a concept that adds location to existing information and thereby unlocks the wealth of existing knowledge about the land, its legal and economical situation, its resources, potential use and hazards. Information on landownership is thereby a basic and crucial component to allow for correct decision-making. Such data and information must be available in a free, efficient, and comprehensive way in order to support the sustainable development of society. It therefore needs to be organized in such a way that it can easily be shared, integrated, and analysed to provide the basis for value-added services.

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## Key elements for a SES

- **legal framework** for basic geoinformation;
- **common data integration concept:**
  - legal and institutional independence of data (to allow for independent responsibilities);
  - common geodetic reference framework;
  - standardized data modelling concept;
- **positioning infrastructure** for the common reference framework;
- **network infrastructure** to enable integration and sharing of spatial data through the spatial data infrastructure SDI;
- **landownership information** as one of the basic information topics;
- **data and information:**
  - official, authentic, complete, comprehensive, updated;
  - accessibility of data i.e. public sector information initiatives;
  - virtual geographic information (VGI), web 2.0 possibilities.



## Further elements

In terms of spatially enabling a society, there are further issues that need to be considered, namely:

- the **educational framework**,
- the **technical and institutional development of spatial data management**,
- the **development of awareness on all levels of society** (citizens, institutions, and decision-makers,
- the **development and applicability of land management tools** in order to make best use of spatial data.





## Enablers

Who are they?

They need to be competent in several aspects:

- systemic engineering
- legal aspects
- land related, spatial aspects
- .....



## Way forward for the Task Force

- May 2011: paper, presentation and questionnaire at FIG-Working Week 2011 in Marrakech
- end of 2011: input from regional representatives
- early 2012: joint workshop as a platform to discuss the findings and gain further input
- May 2012: presentation of results at FIG-Working Week 2012 in Rome and at GSDI-13 in Québec
- end of 2012: final report



# Questionnaire

- your own thoughts
- opinion about the Definition
- opinion about Key Elements
- don't feel obliged to comment on every single question; we are grateful for any input, no matter how short or long it is
- please, hand back to Daniel Stuedler (Daniel.Stuedler@swisstopo.ch)

The Swiss Federal Office of Topography  
GSDI

**Questionnaire of TF «Spatially Enabled Society»**  
Review of notions and key elements

Background information: The questionnaire refers to the paper GSDI and presentation in ESOC on the "TF" Task Force on "Spatially Enabled Society" to Daniel Stuedler at the FIG Working Week in Marrakech. The questionnaire is to get input for the Task Force from different cultural, social, economic and geographical fields. We are also looking for critical comments and alternative suggestions, especially for the questionnaire. Don't feel obliged to comment every single question, we are grateful for any input, no matter how short or long it is.

1) What are your own thoughts about the concept of a "Spatially Enabled Society"? Where do you envision a possible or optimal society? What elements need to be in place?

2) What is your opinion about the six key elements (as presented in the paper)?

3) In your opinion, what role can or should the surveying profession play in a SES concept? And what can FIG contribute?

Whom should you contact if you have any questions or need more information?  
Daniel Stuedler, GSDI, swisstopo.ch, daniel.stuedler@swisstopo.ch

Please send the questionnaire back to Daniel Stuedler or any other FIG official or send it to Daniel.Stuedler@swisstopo.ch. We'll be pleased to have your contribution, Daniel Stuedler.

Check back to Daniel.Stuedler@swisstopo.ch

May 2011