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Bundesamt für Landestopographie  
Office fédéral de topographie  
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Uffizi federal da topografia

# International Trends in Land Administration

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Modern Trends in Land Administration | FIG-Seminar on e-Land Administration, Innsbruck, Austria, 2-4 June 2004 | 2

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## Sustainable Development (1/2)

- "Our common Future" (Brundtland, 1987):
  - SD as the *'development that meets the needs of the present without compromising the ability of future generations to meet their own needs'*
    - protecting the natural environment
    - improving the social situation for the poor
    - combating poverty
- UN-Rio Conference on Environment and Development, 1992:
  - world faces two major challenges: protecting the environment and alleviating poverty
  - Rio Declaration on Environment: Agenda 21 action program for SD
  - tripple bottom line: economic, social, environmental

## Sustainable Development (2/2)

- World Summit on Social Development in Copenhagen, 1995, and World Women's Conference in Beijing, 1995:
  - the importance of giving equal access to land and security of tenure for underrepresented groups (women, indigenous people, vulnerable groups)
- UN-Conference on Human Settlements (Habitat II), 1996:
  - challenge of fast-growing cities in developing countries – to be mastered through proper planning, land management and security of tenure
- World Food Summit in Rome, 1996:
  - underlined the importance of good management of land in providing food for the growing world population

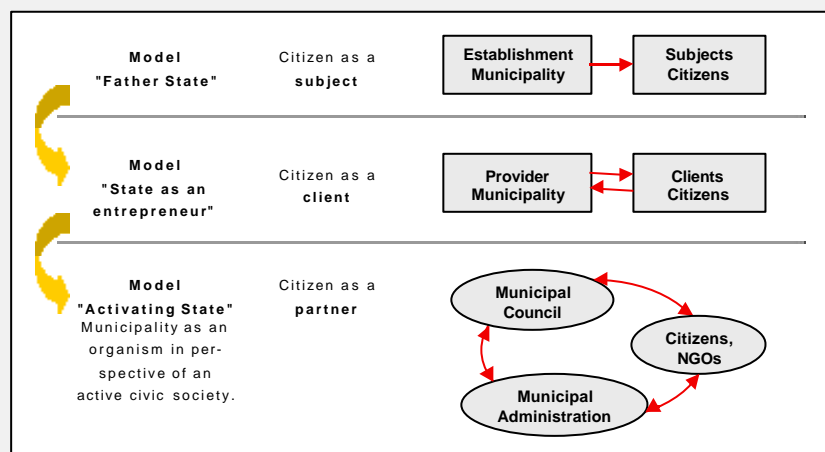
## Good Governance

### Global Campaign on Urban Governance (UN-Habitat, 2002)

- **Sustainability** in all dimensions of urban development
- **Subsidiarity** of authority and resources to the closest appropriate level
- **Equity of access** to decision-making processes and the basic necessities of urban life
- **Efficiency** in the delivery of public services and in promoting local economic development
- **Transparency and accountability** of decision-makers and all stakeholders
- **Civic engagement and citizenship:** empowerment and active participation of citizens in decision-making processes
- **Security** of individuals and their living environment

## Civic Participation

### Evolving Relationship State-Citizen (from Magel, 2002)



## E-Government

### The 4 not-so-easy steps to e-government (The Economist, 2000)

- 1st stage
  - to post information about themselves
  - one-way communication
- 2nd stage
  - two-way communication, allowing citizens to provide new information about themselves, e.g. address changes
- 3rd stage
  - formal, quantifiable exchange of value to take place
  - e.g. renewing licenses, paying a fine, enrolling for educational course, filling out tax returns, claims for benefit
  - so far mainly on local or state level rather than central government level
- 4th stage
  - portal that integrates complete range of government services
  - based on needs and functions, not on department or agency

## Cadastre 2014 Vision Statements

- Cadastre of the future will show the **complete legal situation** of the land, including public rights and restrictions !
- Separation between maps and registers will be abolished !
- Cadastral mapping will be dead ! Long live **modeling** !
- Paper and pencil-cadastre will be gone !
- Cadastre 2014 will be **highly privatised** ! Public and private sectors are working closely together !
- Cadastre 2014 will be **cost recovering** !



## Summary of Trends

- Sustainable Development
- Good Governance
- Civic Participation
- E-Government
- C2014 Vision Statements



## How to answer ?

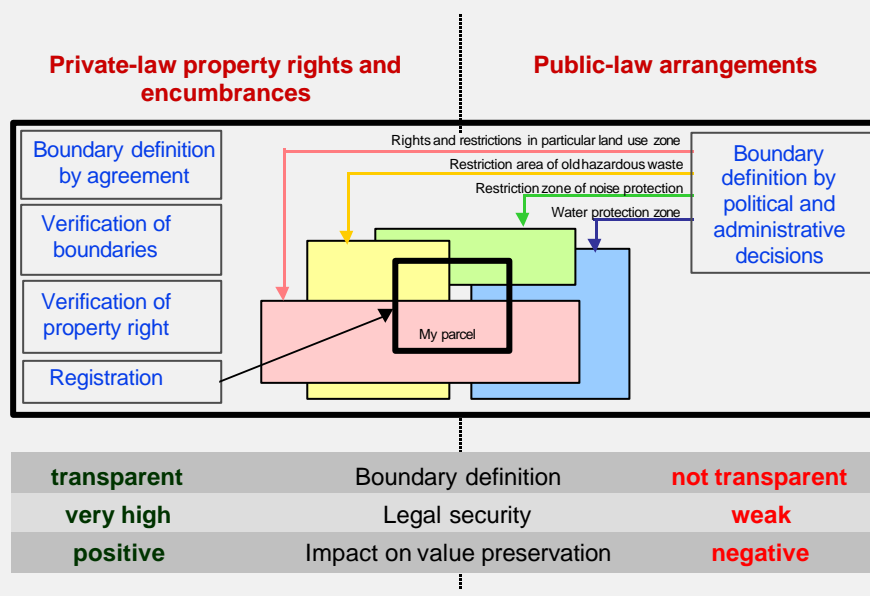
## How to answer ?

- by establishing and achieving **complete and comprehensive cadastral system**
- by adopting a policy of **data integration and sharing**
- by the consequent use of system independent standards and **data modeling**
- by adopting two new definitions:
  - **land objects**
  - **principle of legal independence**

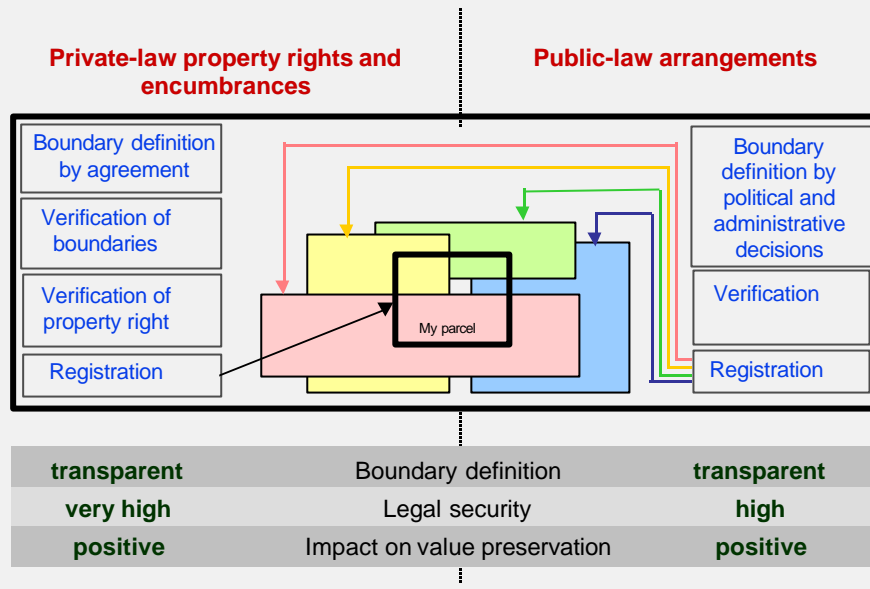
## Answer 1: Complete and comprehensive cadastral system

- complete coverage (information systems, not isolated cadastral patchwork)
- comprehensive coverage
  - one unique cadastral system, not several parallel systems (private-public, urban-rural, forest, etc.)
  - comprehensive content (all land related legal issues, private rights as well as public restrictions/responsibilities)

## Today's handling of private- & public-law arrangements

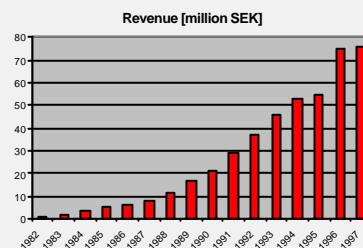


## Today's handling of private- & public-law arrangements



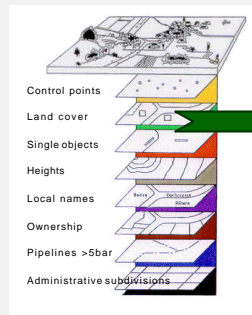
## Answer 2: Data integration and sharing

- issue nowadays is about information systems, which are supposed to provide service to users
- avoidance of double data acquisition (acquire once – use many times)
- cost efficiency
- transparency
- easy access

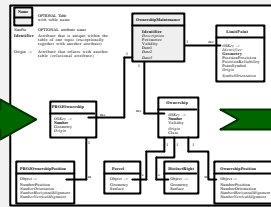


Revenue generated from Swedish LDBS queries (LMV, 1998).

## Answer 3: Consequent use of standardized data modelling technique



**Information Layers**  
(Possibility to realise the layers separately)



**Data Model (UML)**  
(Entity-Relationship-Diagram)

```
TRANSFER Data_Catalogue :
MODEL Basic_Data_Set
SOMAIN
LEoord = COORD2 480000.000 70000.000
      840000.000 300000.000;
Hkoord = COORD3 480000.000 70000.000 0.000
      840000.000 300000.000 5000.000;
Height = DIML 0.000 5000.000;
Precision = [0 .. 300];
Reliability = (Obs, No);
LetterOrientation = GRADE 0.0 400.0;
Status = (planned, valid);

TOPIC Control_Points =
.....
END Control_Points;

TOPIC Land_Cover =
.....
END Land_Cover;

Ownership =
.....
Monumentation = (border_stone, plastic_peg, cross,
not_monumented);
OwnershipType = (parcel, district_right,
construction_right, water_source_
right);

TABLE LimitPoint =
KEY: OPTIONAL -> OwnershipMaintenance;
Identifier: OPTIONAL TEXT*1;
Geometry: LEoord;
PositionPrecision: Precision;
PositionReliability: Reliability;
Origin: OPTIONAL TEXT*30;
SymbolOrientation: OPTIONAL LetterOrientation;
!! Default: 0.0
IDEM;
Geometry;
END LimitPoint;
END Ownership;
END Basic_Data_Set.
```

**Data Description Language**  
XML / INTERLIS  
(system independent)

## Benefits for using standardized data modeling techniques

- data and information exchange across different systems without information loss
- basis for system-independent tendering process (product- rather than method-oriented)
- basis for flexible, efficient and comprehensive information systems
- quality checking and assurance
- long-time archiving



## Answer 4: Adopt two new definitions

### Definition of "Land Objects"

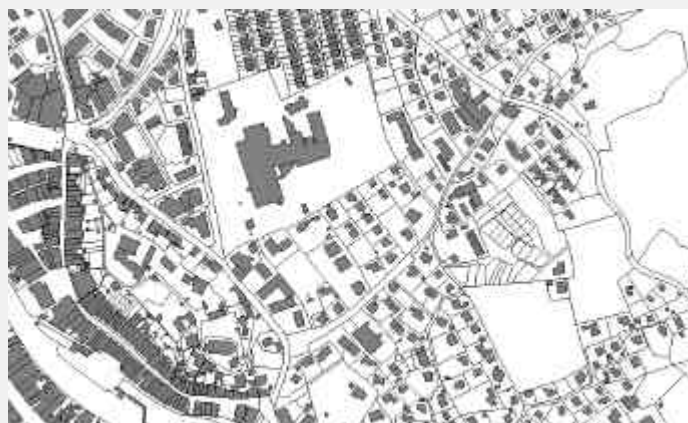
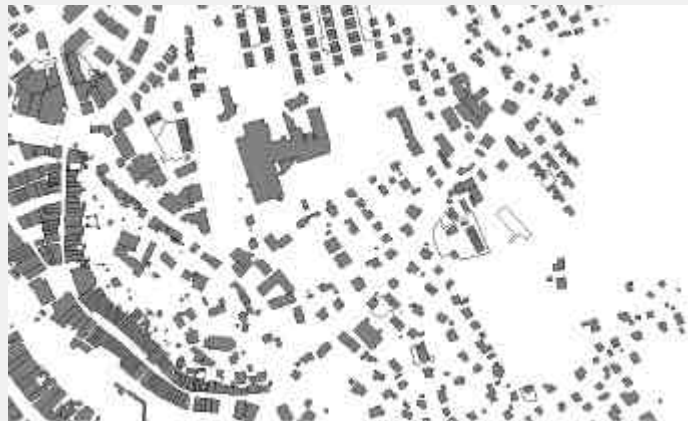
#### Land Parcel

A land parcel is a piece of land with defined boundaries, on which a property right of an individual or legal person applies.

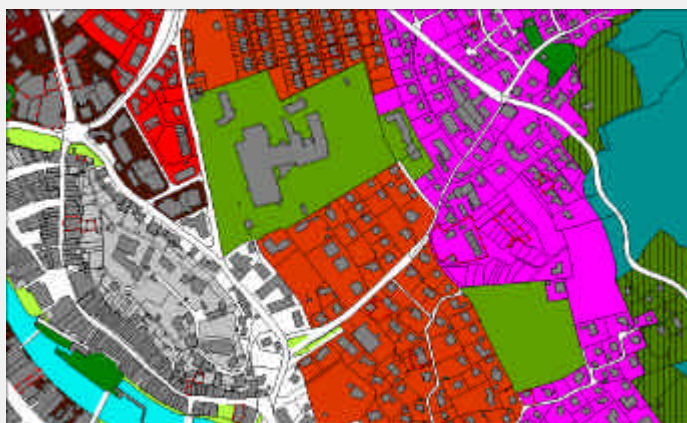
#### Land Object

A land object is a piece of land in which homogenous conditions exist within its boundaries.  
A legal land object is described by the legal content of a right or restriction and the boundaries which demarcate where the right or restriction applies.





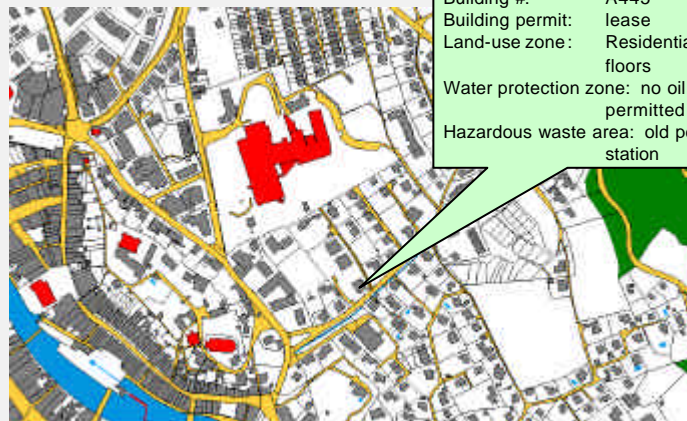




## Answer 4: Adopt two new definitions

### Principle of "Legal Independence"

Legal topic	spatial data	textual data	Stakeholders (data owners)
Water protection			Local government
Noise protection			Local government
Environmental protection			Environmental department
Land use planning			Planning department
Indigenous land rights			Tribe, clan
Collective land rights			Corporations
Land ownership, cadastre			National government State government Local government



Property parcel #: 1234  
 Easement: parcel 1235  
 Building #: A445  
 Building permit: lease  
 Land-use zone: Residential 2-floors  
 Water protection zone: no oil tank permitted  
 Hazardous waste area: old petrol station