

## Assessment Core Cadastral Domain Model $\hat{U}$ Cadastre 2014

### Basic view

#### View of the report

Standardized core cadastral domain model serves to:

- Avoid reinventing and re-implementing the same functionality again and again
- Enable involved parties to communicate based on a shared ontology implied by the model

#### View of Cadastre 2014

Modelling is substantial for Cadastre 2014

**Statement 3: Cadastral mapping' will be dead! Long live modelling!**

The result of this process is a data model of the real world.

The modern cadastre has to provide the basic data model.

## Assessment Core Cadastral Domain Model $\hat{U}$ Cadastre 2014

### KISS - „Keep It Simple and Stupid“

---

#### View of the report

One of the main preconditions of the model development is to keep the model as transparent and simple as possible in order to be useful in practise.

#### View of Cadastre 2014

#### 4.5 Need for Flexibility and Effectivity

Cadastre 2014 with its concept of complete area coverage, with its straightforward information structure, and following the principle of legal independence topics, can meet these requirements.

The core model likes to be simple – but the parcel based background tends to get complex.

Each extension will increase the complexity of the model.

# Assessment Core Cadastral Domain Model $\hat{U}$ Cadastre 2014

## The principle of legal independence

Legal Topics:

.....

Resource Exploitation

Collective Land Rights

Water Protection

Indigenous Land Rights

Environment Protection

Land Use Planning

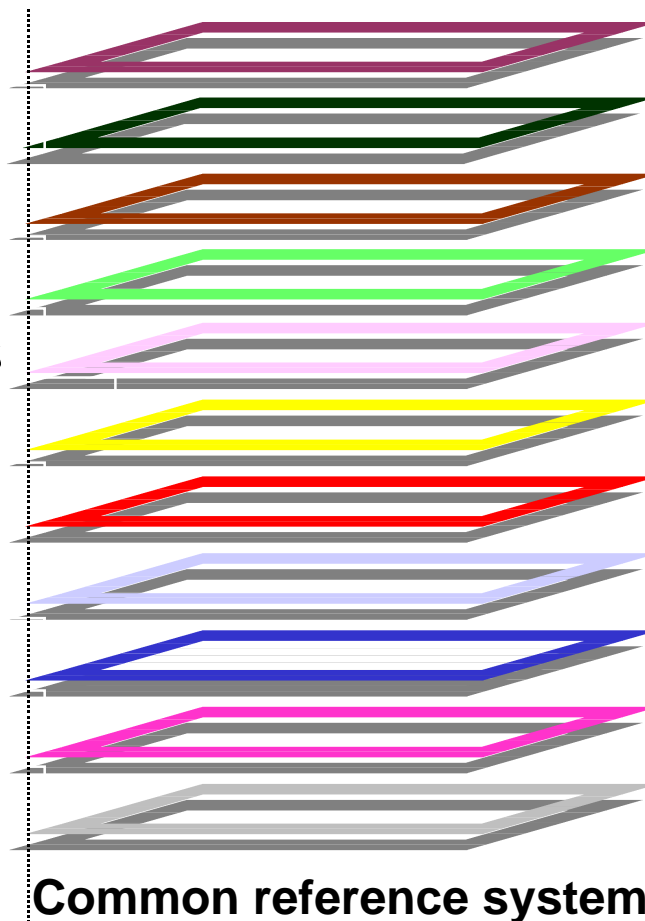
Land Property

Shelter and Housing

Natural Resources

Natural Land Objects

Land Object Boundaries:



Rightful Claimants:

.....
Chartered company
Corporation
Society
Tribe, Clan
Society
Society
Private Land Owners
House owners
Society
Society

## Land Object Basis

### View of the report

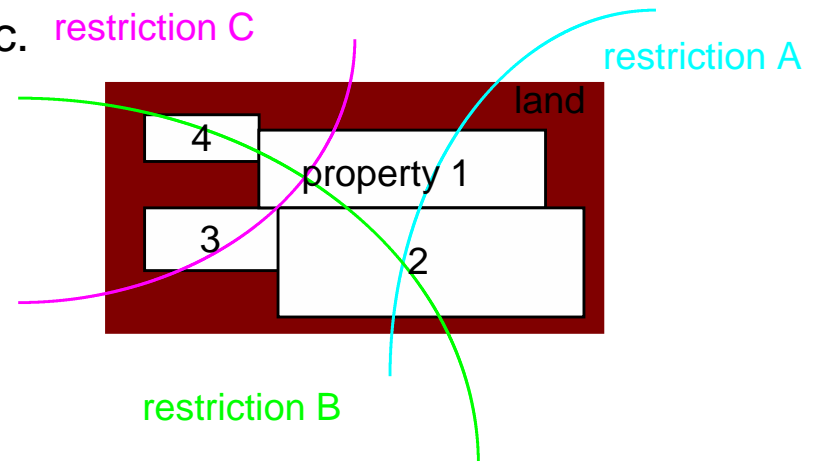
Cadastral systems are all based on the relationships between persons and land via (property) rights.

### View of Cadastre 2014

**A land object is a piece of land in which homogeneous conditions exist within its outlines.**

Examples of legal land objects are:

- private property parcels;
- areas where traditional rights exist;
- zones for the protection of water, nature, noise, pollution;
- etc.



## Assessment Core Cadastral Domain Model $\hat{U}$ Cadastre 2014

### Legal aspect

---

#### View of the report

Land administration systems are not 'just handling only geographic information' they represent a lawfully meaningful relationship amongst people and between people and land.

#### View of Cadastre 2014

Cadastre 2014 is a methodically arranged public inventory of data concerning all legal land objects in a certain country or district, based on a survey of their boundaries.

**Legal land objects are defined either by private or by public law.**

Assessment Core Cadastral Domain Model  $\hat{U}$  Cadastre 2014

**general business – cadastral business**

Level	General Business	Land Business
<b>Strategy</b> (goal setting)	<b>Policy:</b> Sound economic development	<b>Land Policy:</b> Land Market, Sustainable development
<b>Management</b> (measures to meet strategy)	<b>Company Management</b>	<b>Land Management</b> (ressource management)
<b>Administration</b> (business processes)	<b>Administrative unit</b>	<b>Land Administration</b>
<b>Accounting</b> (tools for documenting and monitoring)	<b>Accounting system</b> <ul style="list-style-type: none"> <li>• accepted principles of bookkeeping</li> <li>• reliable</li> <li>• complete</li> <li>• appropriate to needs</li> <li>• adaptable to development</li> </ul>	<b>Cadastre</b> <ul style="list-style-type: none"> <li>• accepted principles to document rights/restrict.</li> <li>• reliable</li> <li>• systematic</li> <li>• appropriate to needs/laws</li> <li>• adaptable to development</li> <li>• public</li> </ul>

## Assessment Core Cadastral Domain Model $\hat{U}$ Cadastre 2014

### Tools for a complete overview

---

#### View of the report

Having a policy is one thing, having instruments to enforce the policy is another. Therefore governments need instruments like regulations concerning land tenure security, the land market, land use planning and control, land taxation, and the management of natural resources. It is within this context that the function of land administration systems can be identified : a supporting tool to facilitate the implementation of a proper land policy in the broadest sense.

#### View of Cadastre 2014

##### **Statement 1 on Cadastre 2014**

Cadastre 2014 will show the complete legal situation of land, including public rights and restrictions!

##### Justifications for cadastre 2014

- \* Need for Support of Sustainable Development
- \* Creating Political Stability
- \* Omit Conflicts of Public and Private Interests
- \* Support of Economy
- \* etc.

## Assessment Core Cadastral Domain Model $\hat{U}$ Cadastre 2014

### Availability of technology

---

#### View of the report

Without availability of information systems it is believed it will be difficult to guarantee good performance with respect to meeting changing customer demands.

#### View of Cadastre 2014

##### **Statement 4 on Cadastre 2014 (p 22)**

**'Paper and pencil - cadastre' will have gone!**

Geomatics technology will be the normal tool for cadastral work. Real low cost solutions are only possible when this technology is used in combination with lean administrative procedures. Developed, developing, and transitional countries need models of the existing situation to resolve the problems of population, environment and reasonable land use.



## Assessment Core Cadastral Domain Model $\hat{U}$ Cadastre 2014

---

### View of the report

Standardization is a well-known subject since the establishment of cadastral systems. Open markets, globalisation, and effective and efficient development and maintenance of flexible (generic) systems ask for standardization.

### View of Cadastre 2014

Geographic information is sent over the data highways. The Internet and its ability to facilitate worldwide data networks is playing an important role in the exchange of cadastral data. The exchange of data models will become common practice in the distribution of cadastral information.

## Assessment Core Cadastral Domain Model $\hat{U}$ Cadastre 2014

### Possibilities to develop further

---

#### View of the report

Core of the Cadastral Domain Model:  
Person, RightOrRestriction,  
RealEstateObject

One should not look at the whole model at once as the colours are representing UML 'packages' or coherent parts of the model. ....

It is likely that more packages will be developed. Besides being able to present/document the model in comprehensive parts, another advantage of using packages could be that it is possible to develop and maintain these packages more or less in an independent way.

#### View of Cadastre 2014

Cadastre 2014 puts the legal land object into the center and adjudicates the right to the land object.

**The principle of legal independence is a key item in the realization of Cadastre 2014.**

So it is possible to handle all legal land objects in the same manner.

The extension of the content of the models is not a new package, but the addition of a new legal independent layer model.

## Assessment Core Cadastral Domain Model $\hat{U}$ Cadastre 2014

---

### View of the report

The principles of Cadastre 2014 are integrated in our approach.

### View of Cadastre 2014

The principle of legal independence is a key item in the realization of Cadastre 2014.

## Assessment Core Cadastral Domain Model $\hat{U}$ Cadastre 2014

---

### View of the report

A cadastral survey is documented on a SurveyDocument which is a legal source document made up in the field.

### View of Cadastre 2014

One of the most important things was the craft to represent measured objects in a comprehensible map.

With the utilization of information technologies, the process substantially changes. The determination of object co-ordinates becomes easier with GPS and remote sensing methods, and the direct drafting of objects on a map is superseded by the creation of objects in an information system.

## Handling maintenance data

---

### View of the report

History **and** dynamic aspects

There are two different approaches when modeling the result of dynamic systems (discrete changes in the state of the system): event and/or state based modeling:

\* In event based modeling, transactions are modeled as separate entity within the system (with their own identity and set of attributes).

\* In state based modeling, only the states (that is the results) are modeled explicitly: every object gets (at least) two dates/times, which indicate the time interval during which this object is valid.

### View of Cadastre 2014

#### **Identical Procedures for Private and Public Land Objects**

The procedure of the definition is similar for land objects created under private and public law.

Cadastre 2014 expects that every right adjudicated to a legal land object will be registered officially.

## Assessment Core Cadastral Domain Model $\hat{U}$ Cadastre 2014

### Real 3D or different land objects ?

---

#### View of the report

Current cadastral registration systems, based on 2D topological and geometrically described parcels, have shown limitations in providing insight in (the 2D and 3D) location of 3D constructions.... In the previous section the volumetricProperty was introduced, but this requires a significant change in the legislation in most countries.

#### View of Cadastre 2014

A land object is a piece of land in which homogeneous conditions exist within its outlines.

These conditions are normally defined by law. As soon a law defines 3D land objects, they can be taken into consideration in cadastre 2014 by describing them with 3D-coordinates **without changing or re-inventing the basic concept.**

Most of the actual questions about 3D-object can be answered by the principal of independent topics.