3D Cadastre in the Federal Countries of Latin America

Diego Alfonso Erba & Mario Piumetto

Rome, Italy
May 2012

- 20 countries
- 15% of the Earth's surface.
- 400 regional governments
- 16,000 local governments
Before the conquest, territorial cadastres were organized by the Mayans and Incas.

Geometric-economic-legal cadastral models imported from Spain and Portugal → most Latin American countries.

In recent years → the multipurpose cadastral model.
Latin America

Federal countries

- Argentina, Brazil, Mexico and Venezuela
- 65% of the region’s population and a similar percentage of surface area of Latin America

Latin America

CASCADEL ORGANIZATION IN THE LATIN AMERICAN FEDERAL COUNTRIES

<table>
<thead>
<tr>
<th></th>
<th>ARGENTINA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nacional</td>
<td>Federal Council</td>
</tr>
<tr>
<td>Regional</td>
<td>Urban and Rural Cadastre</td>
</tr>
<tr>
<td>Local</td>
<td>Urban Cadastre</td>
</tr>
</tbody>
</table>

May 2012
derba@lincolninst.edu - mpiumetto@yahoo.com.ar
Is it realistic to develop spatial concepts for parcels and legal land objects; and to propose a 3D cadastral model in the federal countries of Latin America?

National discussions

VI Congreso Internacional de Catastro
Monterrey, México, 18 a 20 de abril de 2012

XI Congreso Nacional y VII Latinoamericano de Agrimensura
Carlos Paz, Argentina, 2 a 5 de mayo de 2012

10º Congresso de Cadastro Técnico Multifinalitário e Gestão Territorial
Florianópolis, Brasil, 7 a 11 de outubro de 2012
Agenda

- Understanding Latin America cities
- Identifying main existing legal land objects
- Drawing a perspective for a 3D Cadastre vision.
CITIES IN LATIN AMERICA

Martim Smolka

May 2012 derba@lincolninst.edu - mpiumettoo@yahoo.com.ar
Legal Land Objects in the federal countries of Latin America

The construction of the 3D LLO concept can be based on the 2D definition.

Legal Land Objects in the federal countries of Latin America

Environmental spaces and surroundings

- Forestry Code (Act No. 4771/1965)
- Environmental Equilibrium and Environmental Protection and Sustainable Forest Development.
- Forest and Forestry Management Law (Decree 6070/2008)
Legal Land Objects in the federal countries of Latin America

Water resources and their surroundings

- Civil Code
- Water Code
- National Law on Water
- Waterways Law

Legal Land Objects in the federal countries of Latin America

Underground spaces and concessions

- Mining Code, established by Decree No. 456 of 1997.
- Federal Constitution
- Mining Law.
- Mining Law (Decree 295/1999)
Legal Land Objects in the federal countries of Latin America

Aerial space and use restrictions

Civil Aviation Law.
Civil Aeronautic Law.
Legal Land Objects in the federal countries of Latin America

Aerial space and use restrictions

May 2012
derba@lincolninst.edu - mpiumetto@yahoo.com.ar
Final Considerations

Perspectives for a 3D Cadastre in federal countries

In favor

• Appropriated (or adaptable) law framework
• National SDI in construction and local initiatives working well
• Professionals well prepared
• Geodetic networks widely spread
• New topic of discussion: “legal coordinates”

Against

• Cadastres and registries are still very “2D oriented”
• Lack of standards between utilities companies and cadastres
• Distance between the public institutions that administrate LLO.

Conclusions

• measuring in 3D, representing and describing in 2D.
• there is a long way to go before 3D information is integrated as part of urban legislation and property titles.
• Changing the term “area” to “space” would be a first step in giving urban and environmental legislation a 3D connotation.
• It will be more than one concept of 3D property and 3D parcel in LA.
Thank you!

questions?