

3D Cadastre in Argentina: maps and future perspectives

Diego Alfonso Erba & Silvio Daniel Graciani

Conclusions

- One of the most relevant shortcomings of the Argentinean cadastre is the lack of georeferenced data $\Rightarrow 1D + 2D \neq 3D$.
- There are intentions to georeference data, but not real and massive initiatives yet.
- Legal territorial objects (contemplated in the National Law) are managed by different institutions.
- The multipurpose vision of cadastre is still very incipient and the Argentinean Spatial Data Infrastructure (IDERA) has not yet been implemented.

Lincoln Institute of Land Policy



1946: John C. Lincoln established the Lincoln Foundation in Phoenix, Arizona.

1966 the Foundation established the John C. Lincoln Institute at the University of Hartford in Connecticut

1968 it supported the creation of the Land Reform Training Institute in Taiwan

1974 Lincoln Institute of Land Policy was established as a school

1993 Program on Latin America and the Caribbean

2003 Program on the People's Republic of China

2006 the Lincoln Foundation and the Lincoln Institute merged to become a Private Operating Foundation

Lincoln Institute of Land Policy

<http://www.lincolninst.edu>

Department of Planning and Urban Form

Department of Valuation and Taxation

Department of International Studies

Program on the People's Republic of China

Program on Latin America and the Caribbean

Program on Latin America and the Caribbean

Mitigation of rampant informality involves improving our understanding of the functioning of formal and informal urban land markets and of the legal foundations of property and land tenure rights to encourage sustainable, preventative policies.

Reinforcement of self-financing explores the potential to recover land value increments resulting from local public investments, administrative changes affecting land use, and exploration of the potential for improvement in property tax performance.

Impacts of public interventions assesses how investments in urban infrastructure and services, as well as regulatory interventions, affect the built environment in cities and the efficient and socially inclusive use of land.

Argentina



Area (8th)

2,766,890 km²
1,068,302 sq mi

Population (32nd)

40,117,096

Density (207th)

14 hab/km²

Wikipedia.org

A History of the Argentinean Cadastre

1868, Law No. 17.701 (Registry Law) mandates real estate records

Law No. 17.711 introduces the obligation of real estate recording

1869, the Law No. 340 enacted the Argentinian Civil Code



with effect from Jan. 1871

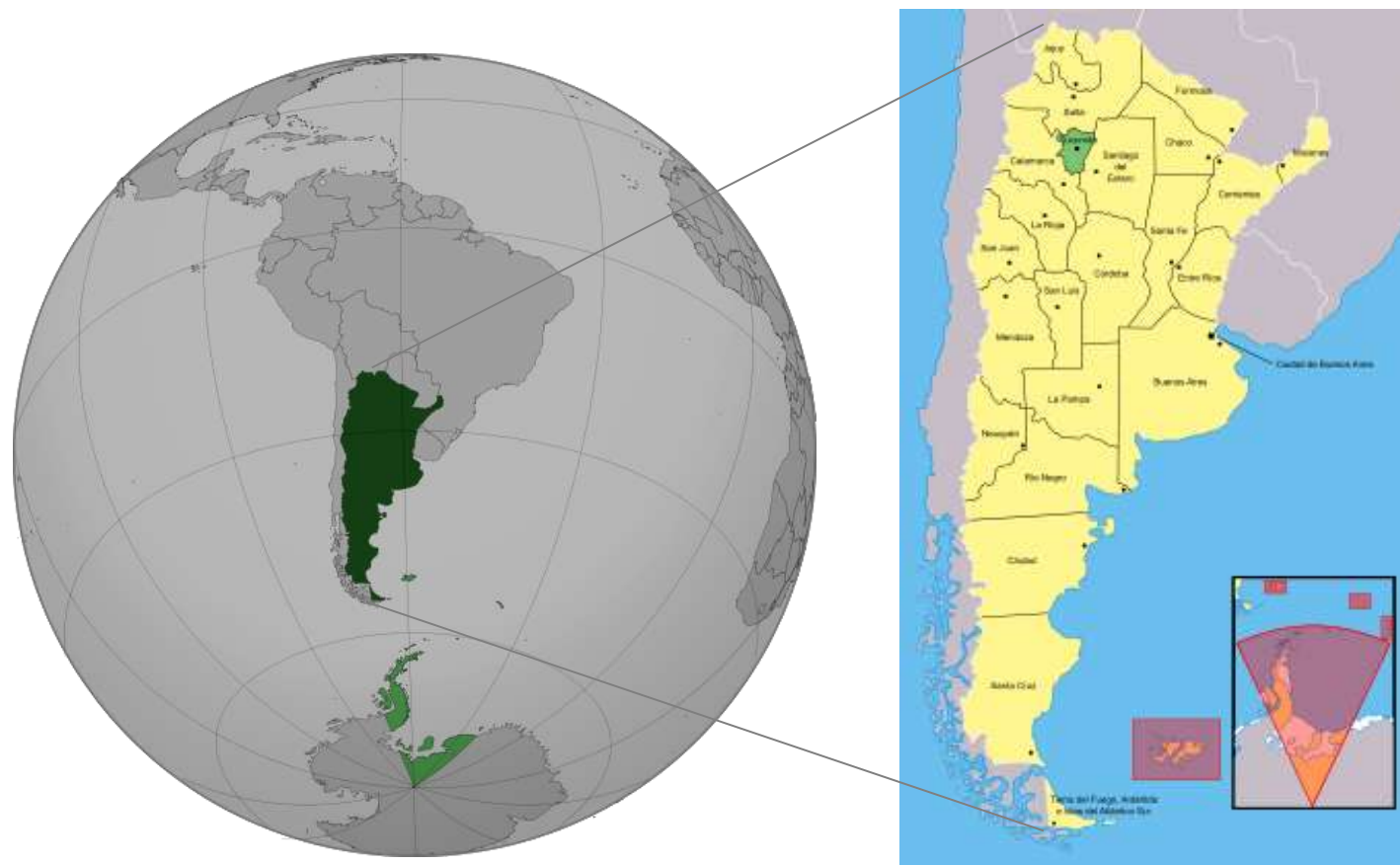
1973, Cadastral National Law No. 20.440

Argentine Republic does not have a national cadastre

1980, Decree- Law No. 22.287 suspended practically all its articles

2007, Law No. 26.209 (“Cadastral National Law”) complements the Civil Code

3D Cadastre in Argentina



Sample

City of Buenos Aires
Entre Ríos
Santa Fe
La Pampa
Tucumán

3D Cadastre in Argentina

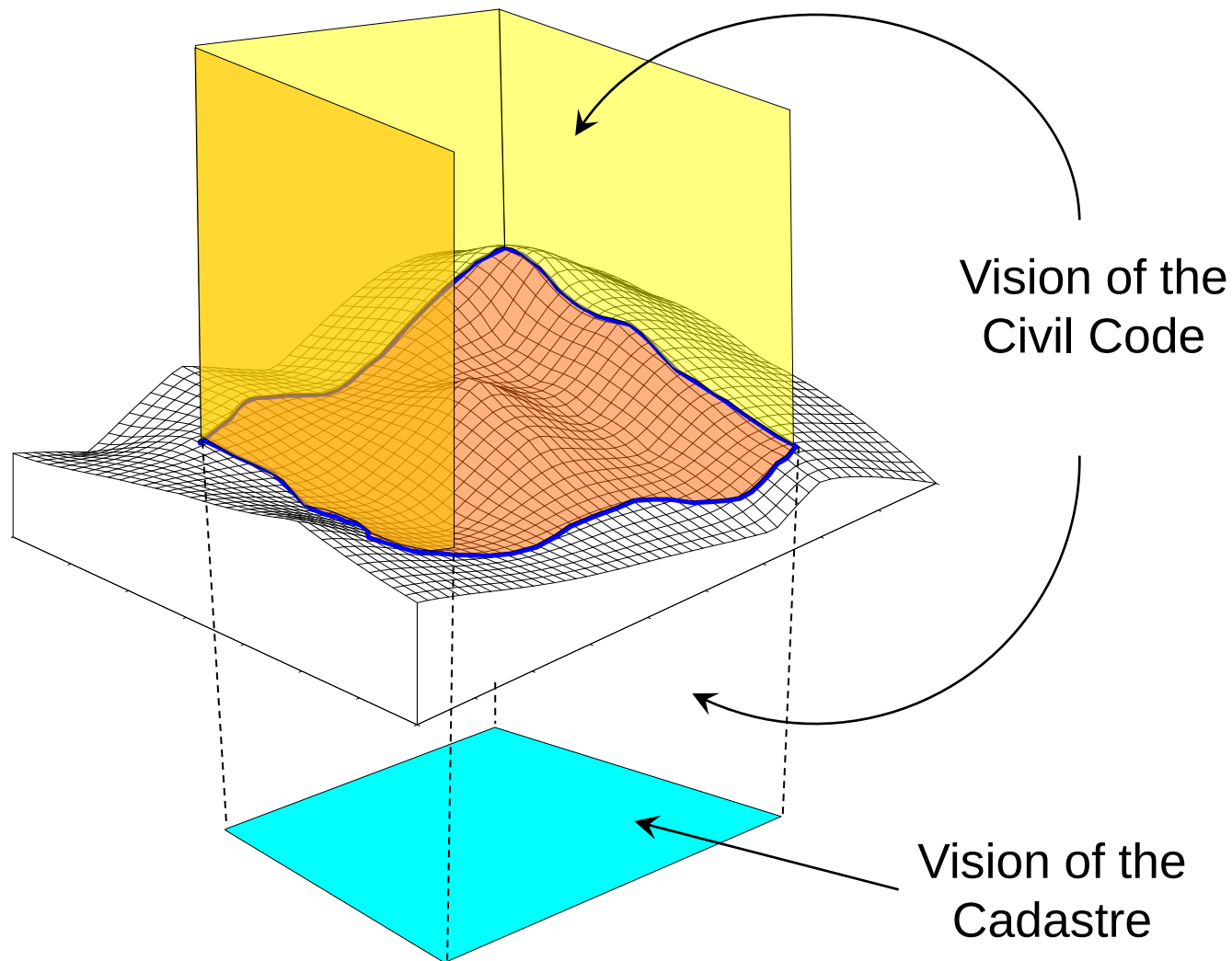
General/applicable 3D real world situations

The concept of a 3D property exist officially (Art. 2518 Civil Code).

“Land ownership extends in depth and to the airspace,
above and below the ground, in perpendicular lines ...”

The concept of a 3D parcel does not exist officially.

Cadastral National Law, Art. 4: “..., a parcel is a
representation of a continuous real estate territory identified
by a polygonal boundary ...”.



3D Cadastre in Argentina

General/applicable 3D real world situations

Parcels are generally referenced to physical elements:

Urban: corner of a block (intersection of lines that separates the public from the private domain)

Rural: fences, posts, etc.



3D Cadastre in Argentina

General/applicable 3D real world situations

Spaces occupied by natural resources (underground water and mine deposits) are **territorial objects**, not parcels.

Cadastral National Law, Art. 10: “The legal territorial objects which do not constitute parcels in accordance with Art. 5 of this Cadastral National Law will be established by surveys or other alternative methods that guarantee similar levels of precision, reliability and integrity as surveys established by the local legislation, and recorded before the cadastral body, in accordance with local legislation”.

3D Cadastre in Argentina

General/applicable 3D real world situations

Easements or **restrictions** to the property: the responsibility of defining them is transferred to other institutions.

There are isolated initiatives to map the **contaminated areas** (air, surface and underground contamination). It is rare to find coordinates, levels, or the vertical dimension ► 2D.

3D Cadastre in Argentina

Infrastructure/utility networks

2D representation of the networks, or

YES/NO fields in the cadastral alphanumeric database

Initiatives implementing **Spatial Data Infrastructure**, integrating cadastral data with the information provided by utilities Co. ► 2D.

3D Cadastre in Argentina

Construction/building units

positive responses question about recording buildings as 3D units



Horizontal Property Law No. 13.512

	Partition Walls and/or Façade
	Exclusive ownership
	Common ownership and common use
	Structural elements and conduits
	Common ownership and exclusive use
	Common ownership and exclusive use of certain units



3D Cadastre in Argentina

Construction/building units

2D Relative position

1D vertical distances of elevated objects are measured to the floor on which they are supported, and not identified with absolute heights or altitudes

Inclusion of a **circular black and white symbol**



Using **cross-sections and** representation of the building **façade**

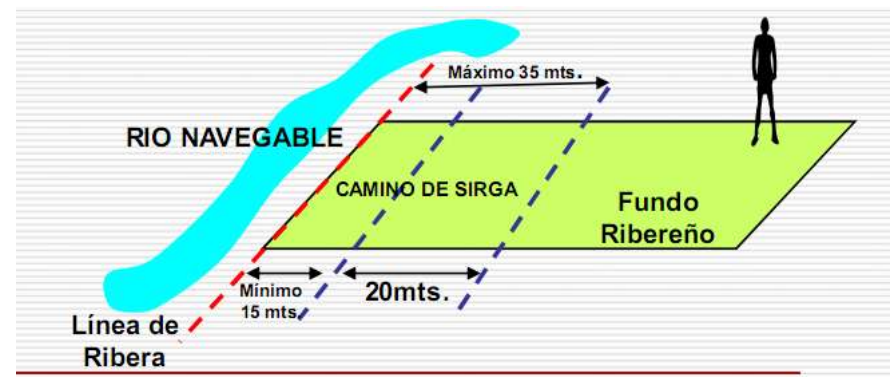
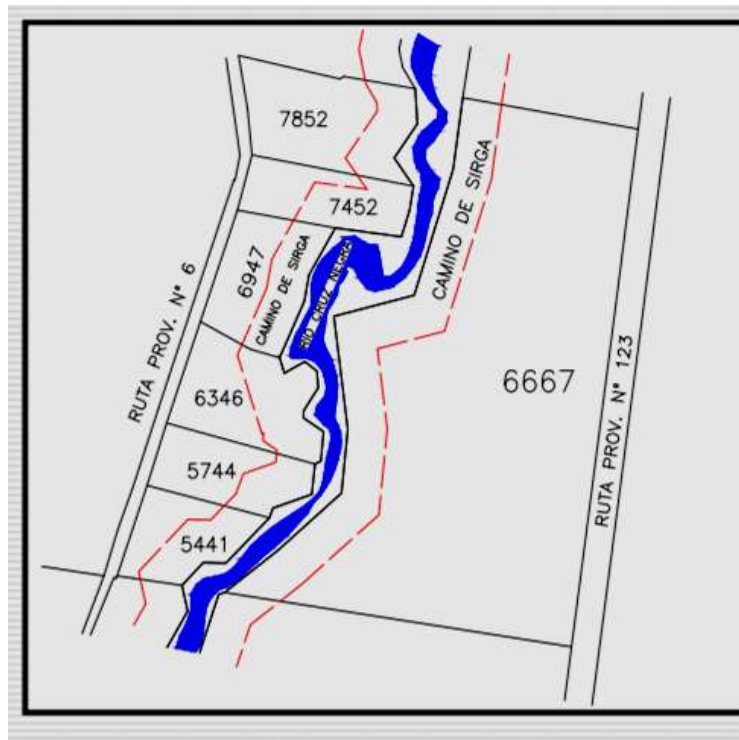


Lowest garage floor downwards, rooftop upwards: common property

3D Cadastre in Argentina

Legal Territorial Objects

Towpaths. Civil Code, Art. 2639. 35 meter strip measured from the shore of navigable waterways toward the interior of adjoining properties.

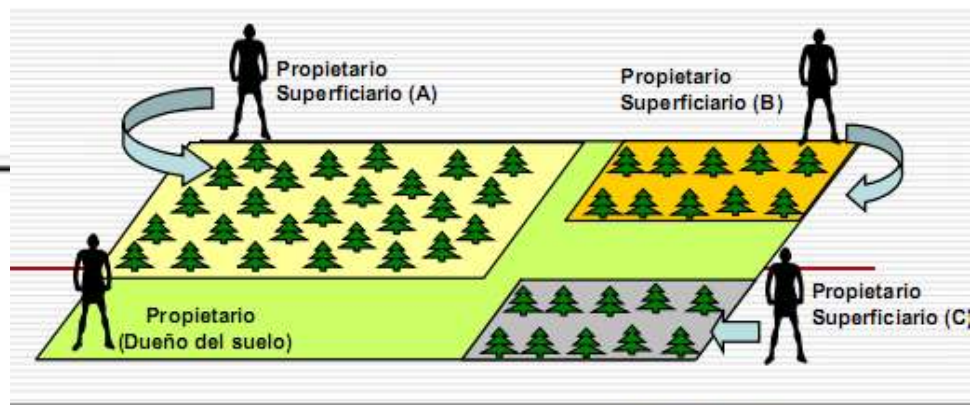
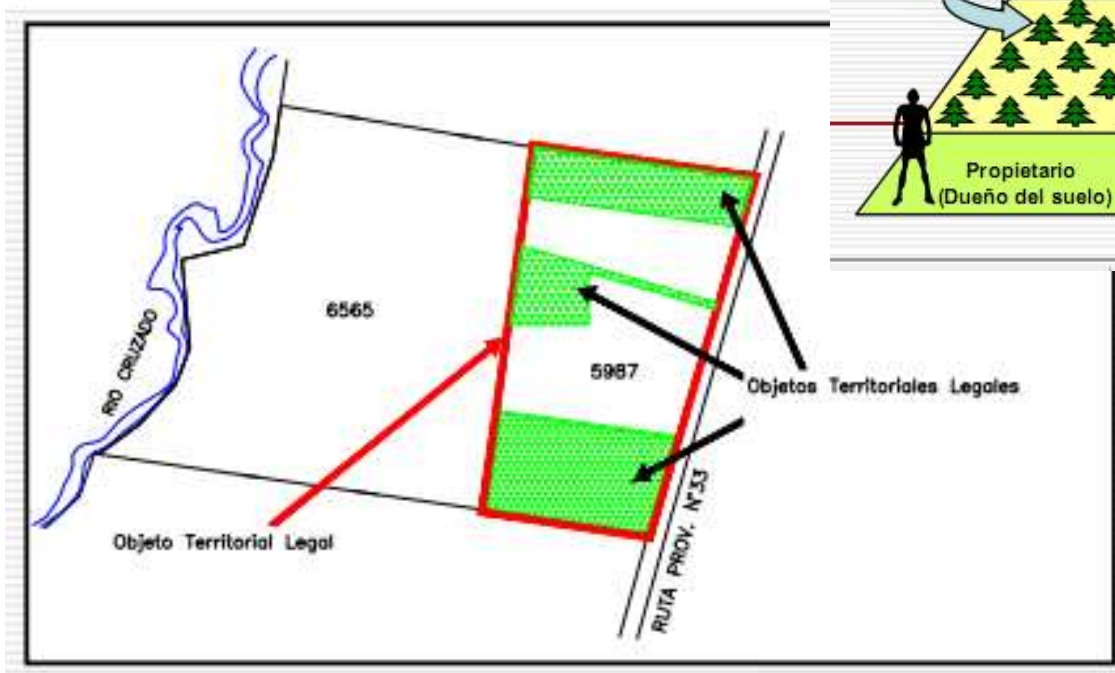


Hilda Herrera &
Cristian Bevacqua

3D Cadastre in Argentina

Legal Territorial Objects

Forestry surface right: Law No. 25.509/2001

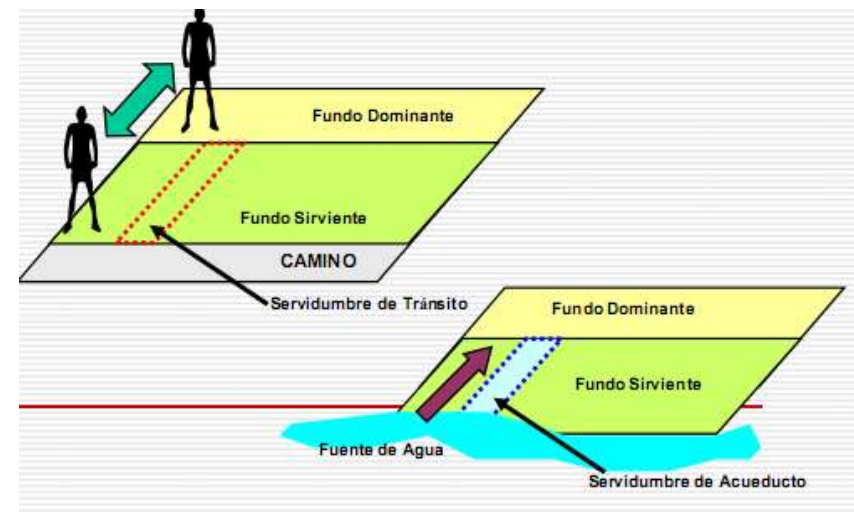
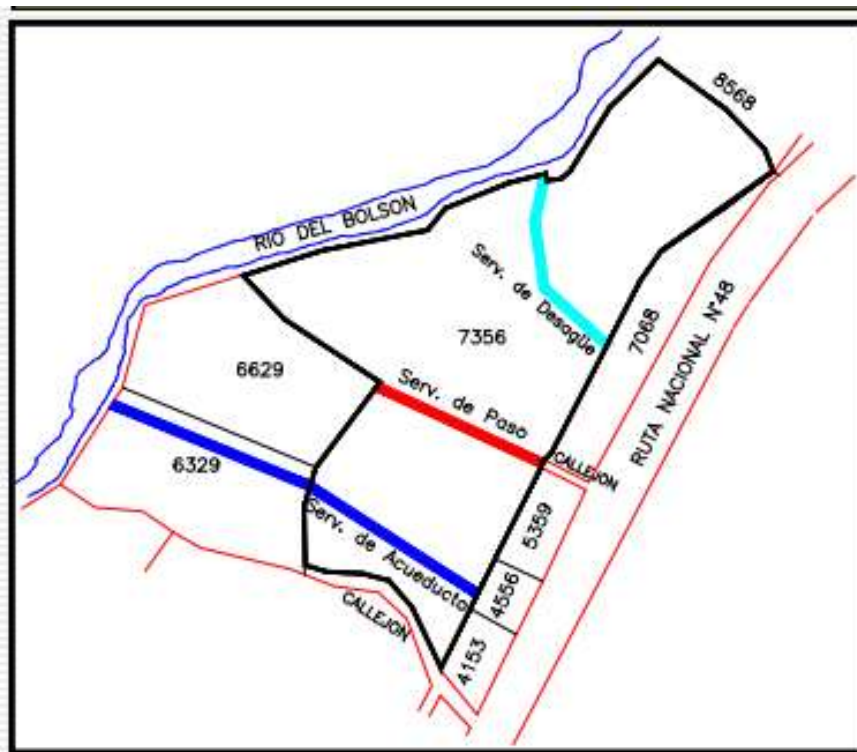


Hilda Herrera &
Cristian Bevacqua

3D Cadastre in Argentina

Legal Territorial Objects

Active Real Estate Easements: Civil Code, Art. 2970

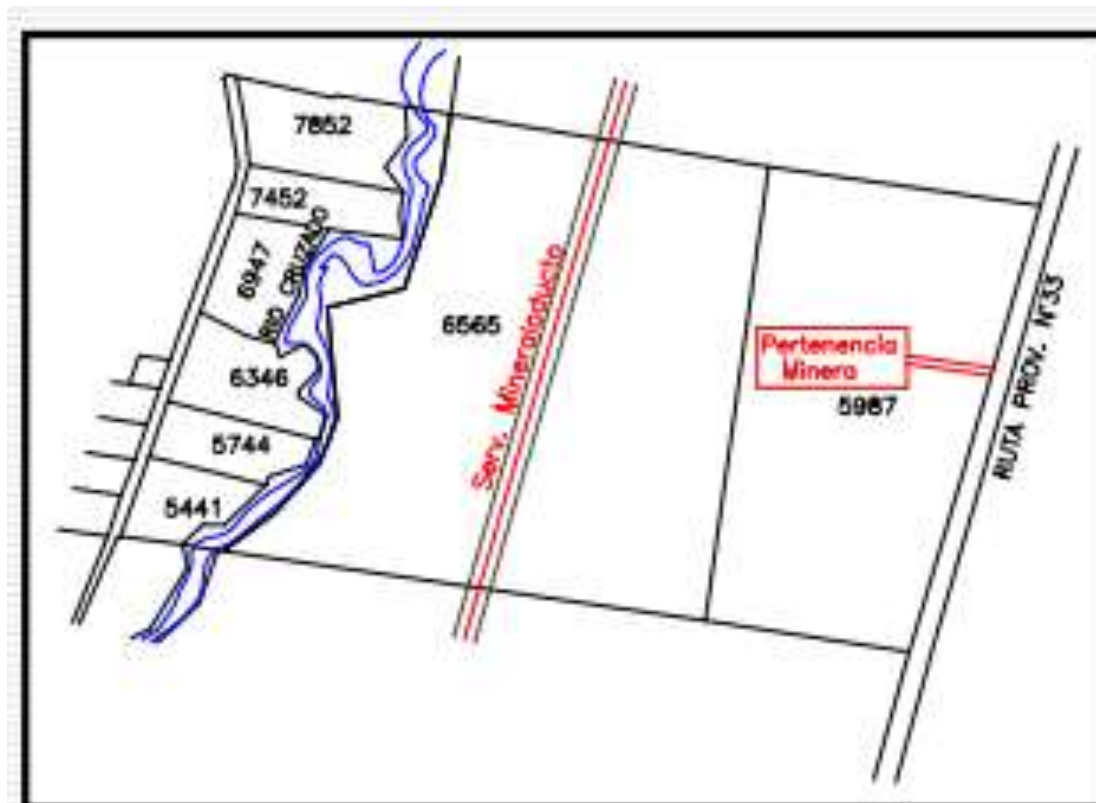


Hilda Herrera &
Cristian Bevacqua

3D Cadastre in Argentina

Legal Territorial Objects

Rights Granted under the Mining Code: Decree No. 456-1997

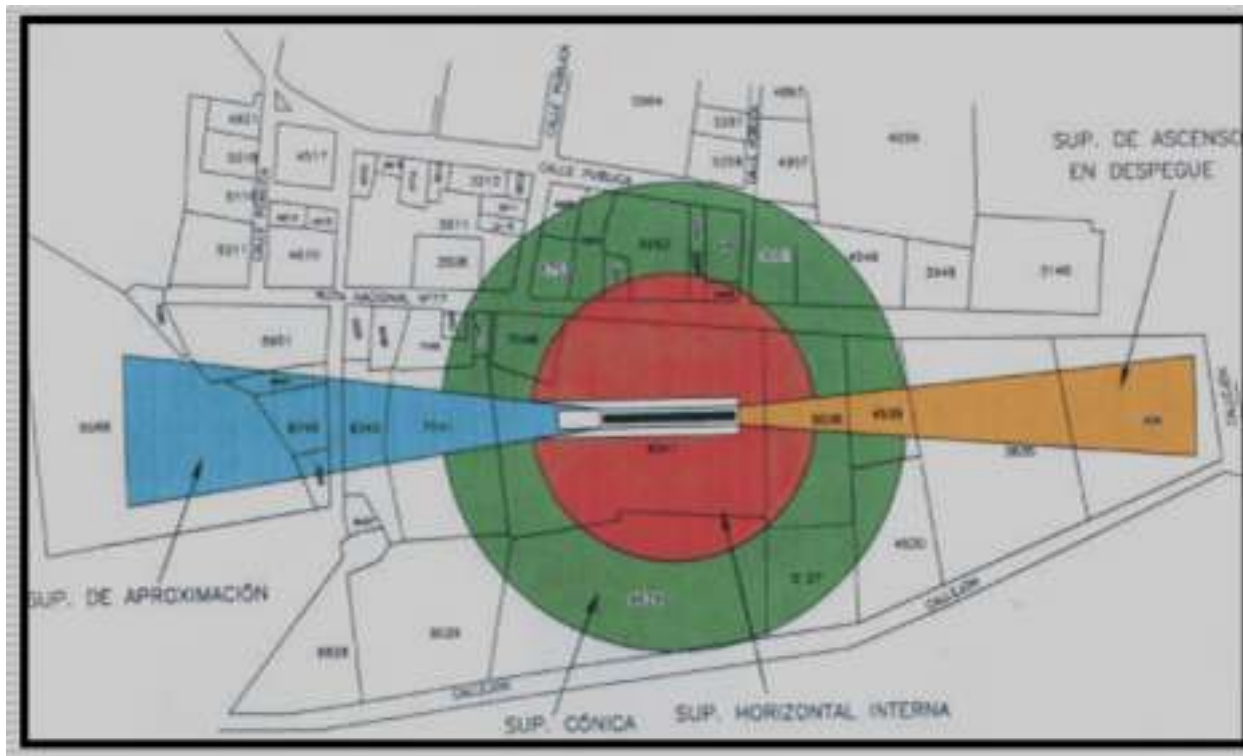


Hilda Herrera &
Cristian Bevacqua

3D Cadastre in Argentina

Legal Territorial Objects

Restrictions under the Aeronautic Code: National Law No. 17.285-1967



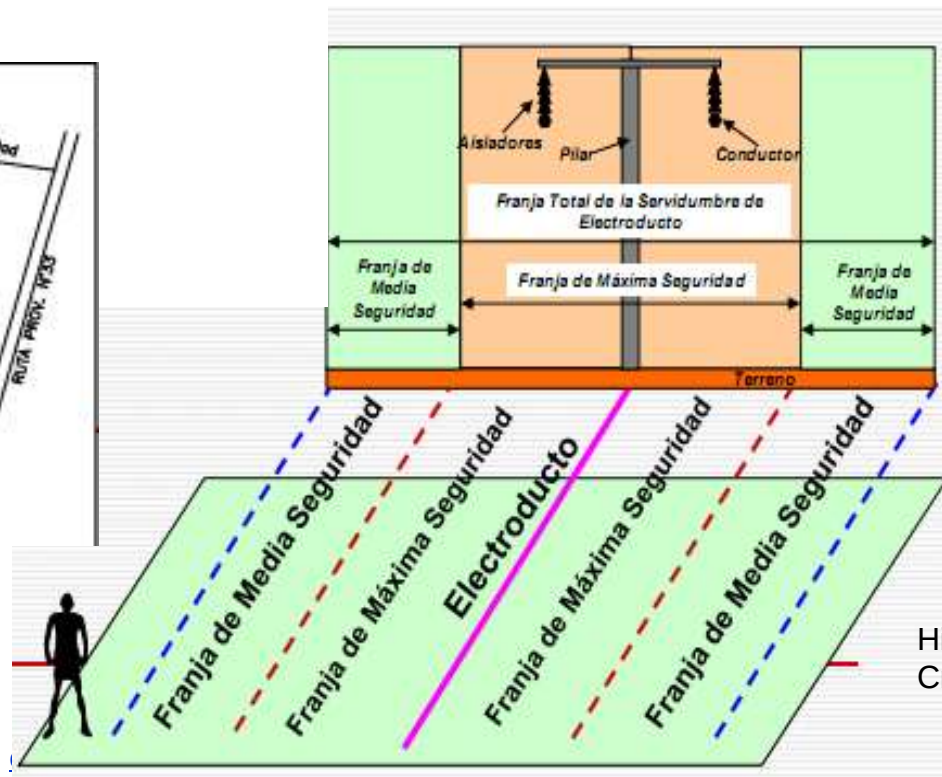
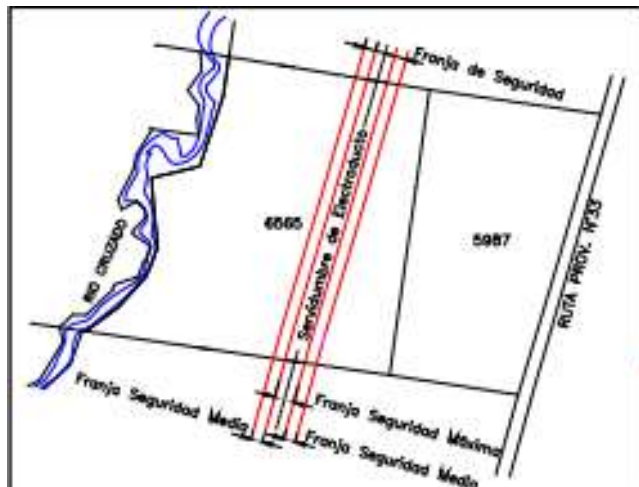
Hilda Herrera &
Cristian Bevacqua

3D Cadastre in Argentina

Legal Territorial Objects

Administrative Easements of Utility Pipes

National Law No. 19.552 for electrical conduits,
National Law No. 17.319 for hydrocarbons.



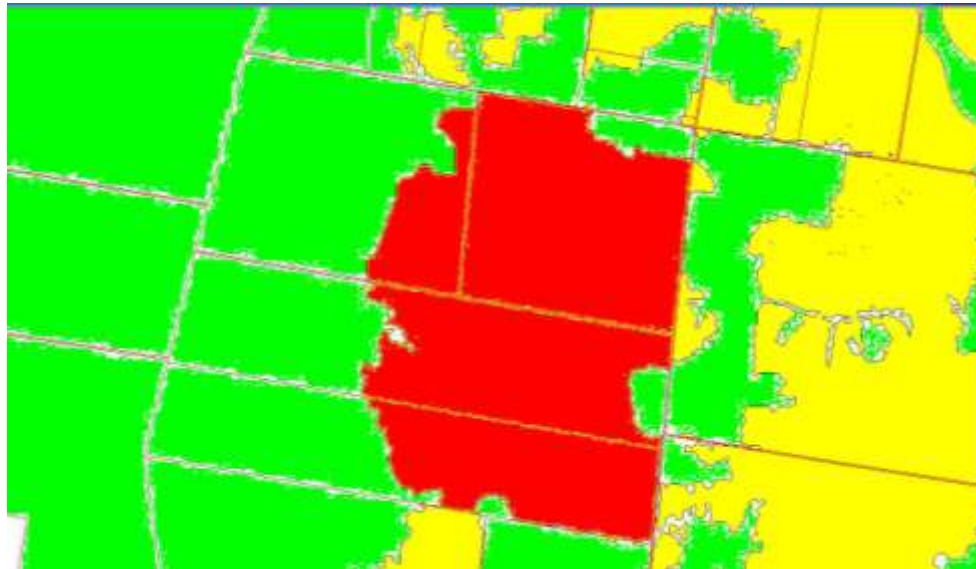
Hilda Herrera &
Cristian Bevacqua

3D Cadastre in Argentina

Legal Territorial Objects

Restrictions to Protect Native Forests: National Law No. 26.331

- Category I (red): Areas of very high conservation value.
- Category II (yellow): Areas of medium conservation value.
- Category III (green): Areas of low conservation value.



3D Cadastre in Argentina

Legal Territorial Objects

Restrictions for the Protection of Glaciers: National Law No. 26.639-2008



Final Considerations

Perspectives for a 3D Cadastre in Argentina

In favor

- Appropriated (or easily adaptable) law framework
- National SDI in construction and local initiatives working well
- Professionals well prepared
- Geodetic networks widely spread 

Against

- Cadastres are still very “analogue oriented”
- Professional are very tied with the “relative position” of the parcels
- Lack of standards between utilities companies and cadastres
- Distance between the public institutions that administrate LTO.

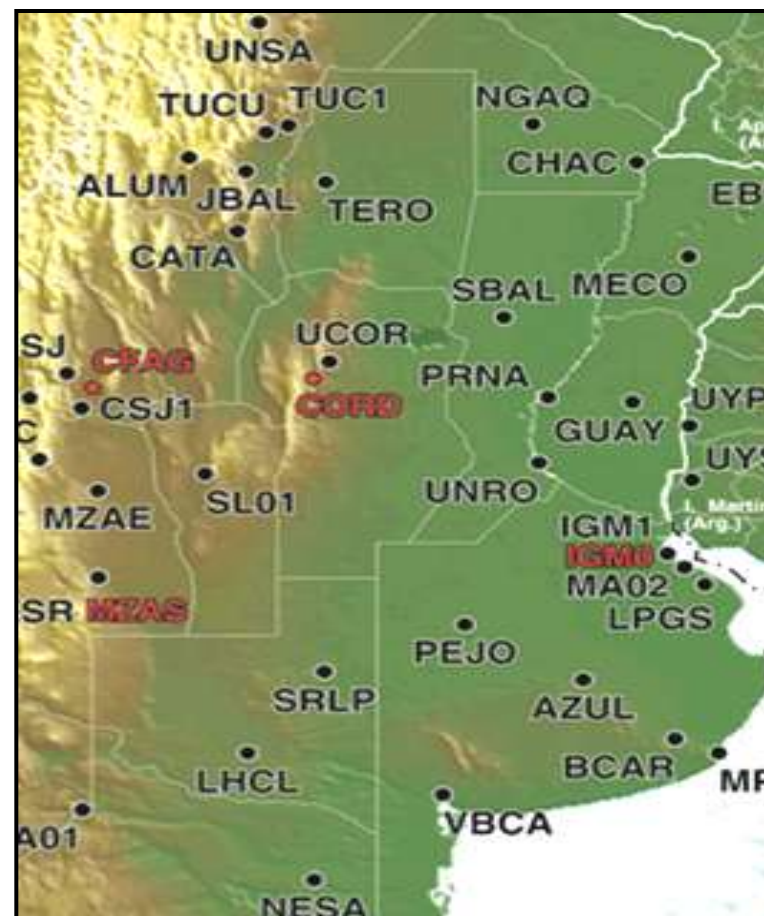
Thank you!



3D Cadastre in Argentina: maps and future perspectives

Cartography

Continuous Satellite Monitoring Network



<http://www.ign.gob.ar/AreaProfesional/Ramsac/Mapa>

POSGAR 2007 – Provincial Geodetic Networks

