

From LADM/STDM to a spatially enabled society: a vision for 2025

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Introduction (1)

- Vision is a co-production
 - Founding fathers of LADM:
 - Christiaan Lemmen (ITC)
 - Peter van Oosterom (Delft University of Technology)
 - Jaap Zevenbergen (ITC).
- Why am I here?
 - Editor of the LADM/ISO project team
 - Dutch Cadastre (Geomatics background)
 - Detached to ITC since 2008.

Introduction (2)



- ITC is a 60 years old educational institution
- ITC is a faculty of University of Twente (2010)
- ITC mission:
 - *Development of knowledge in geo-information science.*
- ITC target group:
 - *Young professionals from developing countries.*
- ITC is associated to the United Nations University (UNU)
 - *The School for Land Administration Studies.*

Introduction (3)



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Introduction (4)

- **LADM**
 - Draft International Standard: March 2010
 - Based on ‘Cadastrre 2014’
 - International Standard (ISO 19152): expected in 2011
- **STDM**
 - Software tool, based on LADM
 - Presented at FIG Conference April 2010
- **The continuous thread**
 - The ‘push’ from (geo-)ICT
 - the ‘pull’ from land governance
- **Key word: Standardization**

Introduction (5)

- The notion of a ‘spatially enabled society’
 - Introduced by the Centre for SDI and Land Administration, Department of Geomatics, University of Melbourne, Australia
 - ‘All information is organized around *location* and available to everybody’
- Comparable to OGC’s mission:
 - ‘the integration of electronic location resources into commercial and institutional processes worldwide’

Overview Vision 2025

1. Introduction.
2. Land Administration Domain Model (LADM).
3. STDm.
4. The 'push' from geo-ICT.
5. The 'pull' from land governance.
6. Conclusion.

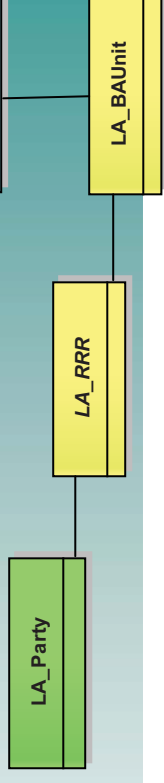


LADM (1)



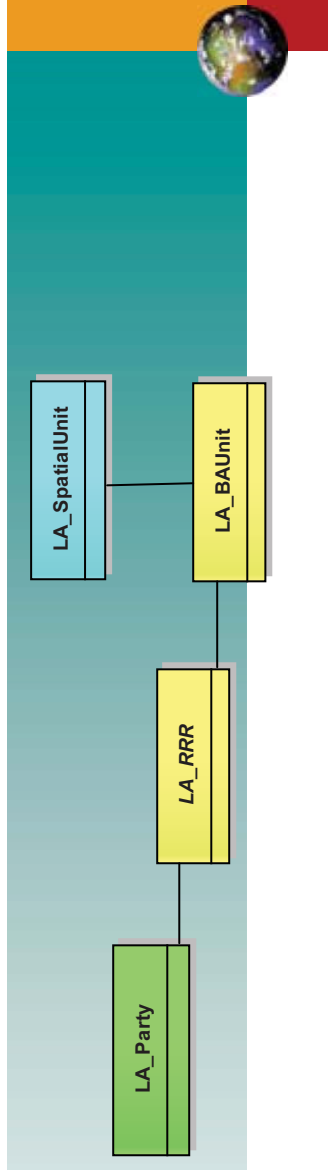
- **Two objectives:**
 1. Model for building Land Administration systems.
 2. Basis for communication (a Land Administration terminology).
- **Design principles from ‘Cadastré 2014’**
- **Five basic components:**
 1. Persons and organizations (*‘Parties’*).
 2. Rights, restrictions and responsibilities (*‘RRR’*).
 3. Parcels, buildings and networks (*‘Spatial Units’*)
 4. Surveying.
 5. Geometry and Mapping.

LADM (2)

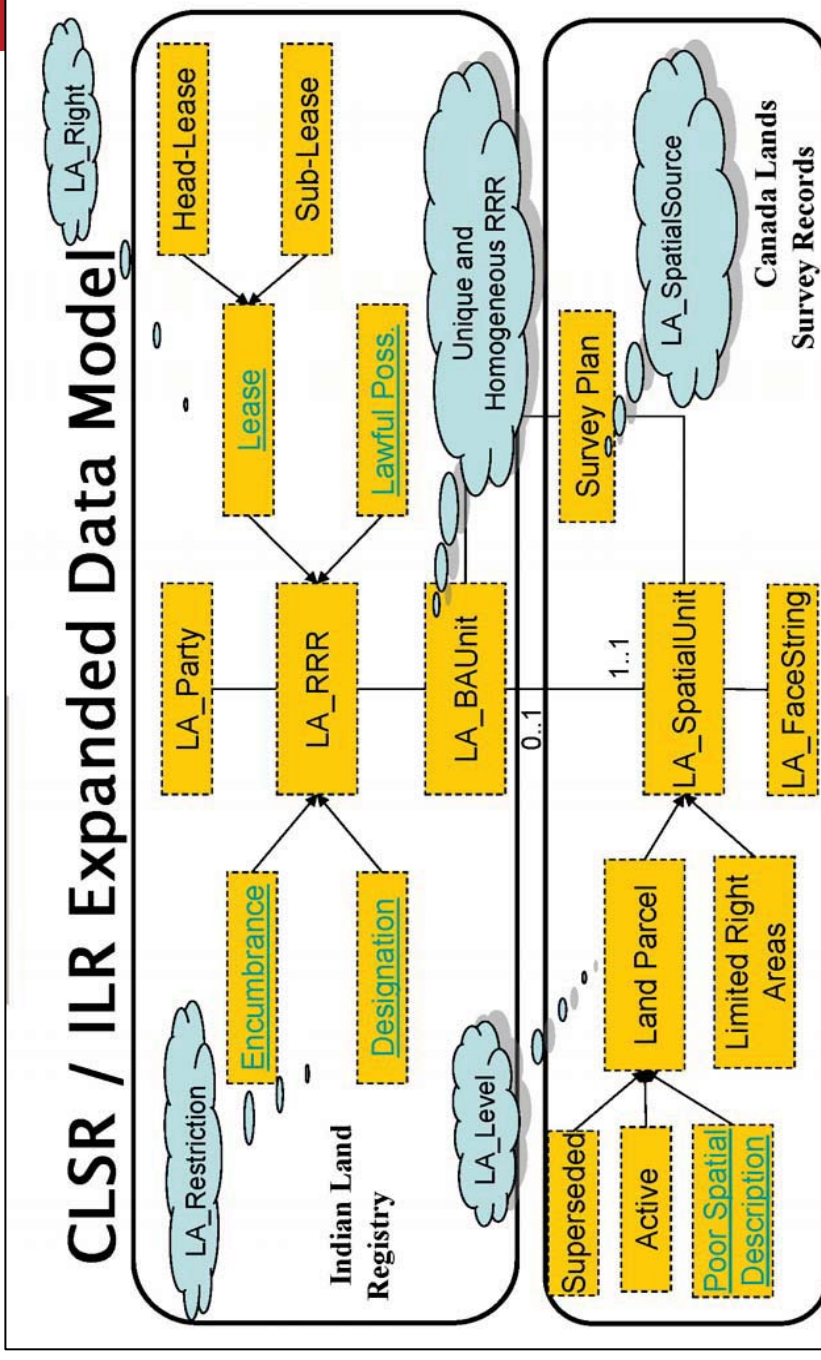


- Flexible and extensible components:
 1. Parties -> all kinds of groups:
 - (e.g. families, tribes, co-operations or communities).
 2. RRR -> all kinds of rights and social tenure relationships:
 - Formal rights.
 - Indigenous or customary rights.
 3. Spatial units -> all kinds of representations:
 - From *text* based to *topology* based spatial units.
 4. Surveying -> all kinds of inputs:
 - E.g. measuring tape, hand-held GPS or satellite images.

LADM (4)



- **Canada**
 - Indian lands reconciliation project
 - 80,000 cases completed in March 2010

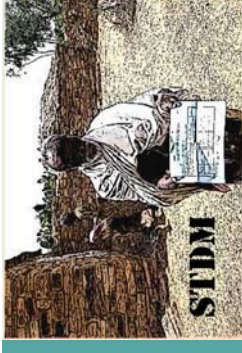


Source: Paul Egesborg, *Natural Resources Canada, 2009*

Overview Vision 2025

1. Introduction.
2. LADM.
3. **Social Tenure Domain Model (STDm).**
4. The ‘push’ from geo-ICT.
5. The ‘pull’ form land governance.
6. Conclusion

STDM (1)



- ‘Specialization’ of LADM
- Initiative of UN-HABITAT to support poor land administration
- Focus on ‘people - land’ relationships
- Built with ‘Open Source’ software
 - ILWIS GIS and PostgreSQL/PostGIS database
- Motivation: urgent need for registration

STDM (2)



STDM 0.8

- Information Management
 - Preferences
 - Reference maps
 - Data Collector
- Data Acquisition
 - Persons
 - Natural
 - Non Natural
 - Source Document
 - Spatial Unit
 - Social Tenure Relationship
- Printing

Spatial Unit

Spatial Unit	P22
Field ID	FP22
City	Kebele1
Tax amount	0
Value	0
Area	0
Layer Type	Ownership boundaries
Spatial unit type	Line based parcel
Type of Use	Agricultural
Data source	+ Open
Photograph	

Validity: 4 | 12 | 2009 | Unit | Commit | Find | Remove | Close

Overview Vision 2025

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The 'push' from (geo-)ICT (1)

1. More domain standards
 - *Domain sources maintained in a consistent manner.*
2. Transparency of Land Administration processes
 - *'Best practices' and harmonization.*
3. 3D (space) & 4D (time) registration
 - *4D integrated space/time paradigm.*
4. From 'registration system' into 'design system'
 - *Design of new spatial units in land management.*
5. A whole range of new registrations
 - *New 'people - spatial phenomena' relationships.*

The 'push' from (geo-)ICT (2)

6. Mobile applications
 - *Augmented reality, with precise positioning.*
7. Monitoring applications
 - *Decision making in water and food provision.*
8. International seamless registration
 - *An international coverage that 'fits'.*
9. Semantic web-based content
 - *All information in an unambiguous manner.*
10. Faster and direct updating by actors
 - *Up-to-date and precise reference data.*

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The 'pull' from land governance (1)

- Land governance:
 1. Decisions regarding the access to land & use of land.
 2. How are those decisions made and implemented?
 3. Conflict reconciliation.
- 'Transparency' as principle of *good* land governance:
 1. A government that acts visible, understandable and predictable.
 2. Citizens having access to information on policy and decision making processes.

The 'pull' from land governance (2)

- **Public restrictions**
 - A shift from private to public
 - A shift from parcels to spatial units
 - Spatial units with 'fuzzy' and dynamic boundaries
 - Web services with models of 'influence'
- **Public land**
 - In many countries not registered
 - 'Gaps' in registration will disappear
- **Public sector**
 - Better information, better policy

Overview

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Conclusion (1)

- Long-term vision:
- The ‘push’ from (geo-)ICT
 - Strengthens the relationship between Land Administration and other public registers
- The ‘pull’ from land governance
 - Causes a substantial use of geo-referenced public sector land information
- In other words: both developments make ‘the spatially enabled society’ happen

Conclusion (2)

- Short-term vision:
 - LADM: an ISO standard in 2011
 - STDM:
 - Massive registration of tenure relationships
 - Via a participatory approach
 - LADM + STDM:
 - Standardized land information, worldwide
- Strong contributions to the spatially enabled society.



**Thank you for
your attention.**



UNIVERSITY OF TWENTE.
FACULTY OF GEO-INFORMATION SCIENCE AND EARTH OBSERVATION

Annual Bank Conference on Land Policy and Administration
April 26 - 27, 2010. Washington D.C.