

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

*Harry UITERMARK,
Peter VAN OOSTEROM,
Jaap ZEVENBERGEN and
Christiaan LEMMEN*



UNIVERSITY OF TWENTE.

ITC

FACULTY OF GEO-INFORMATION SCIENCE AND EARTH OBSERVATION

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 'Cadastre 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)

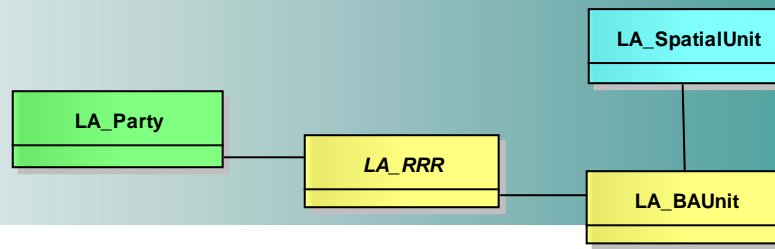


- The notion of a 'spatially enabled society'
 - Introduced by the Centre for SDI and Land Administration, Department of Geomatics, University of Melbourne, Australia
 - 'All information is organized around *location* and available to everybody'
- Comparable to OGC's mission:
 - 'the integration of electronic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

Overview Vision 2025

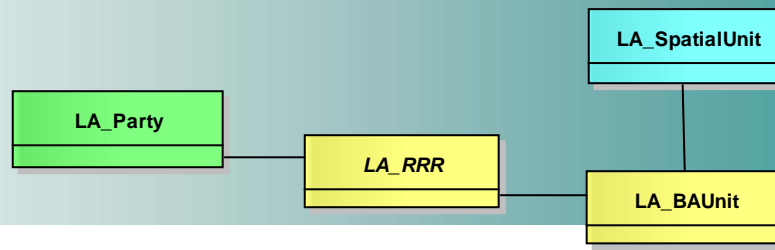
1. Introduction.
2. Land Administration Domain Model (LADM).
3. STDN.
4. The 'push' from geo-ICT.
5. The 'pull' from land governance.
6. Conclusion.

LADM (1)



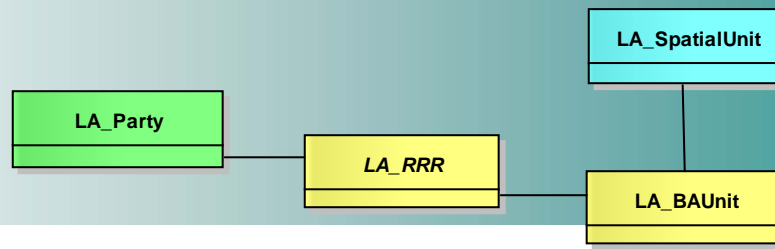
- Two *objectives*:
 1. Model for building Land Administration systems.
 2. Basis for communication (a Land Administration terminology).
- *Design principles* from 'Cadastre 2014'
- Five *basic components*:
 1. Persons and organizations ('Parties').
 2. Rights, restrictions and responsibilities ('RRR').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

LADM (2)



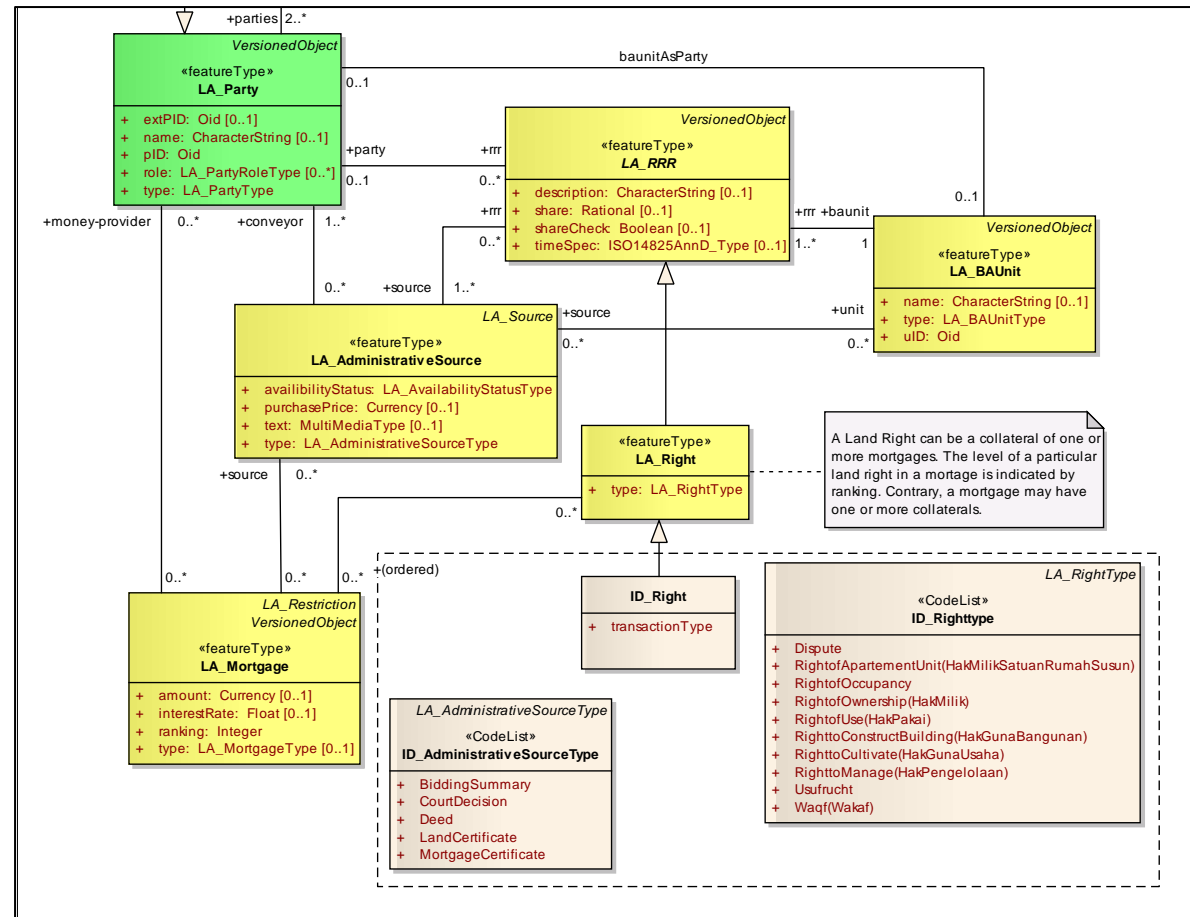
- Flexible and extensible components:
 1. Parties -> all kinds of groups:
 - (e.g. families, tribes, co-operations or communities).
 2. RRR -> all kinds of rights and social tenure relationships:
 - Formal rights.
 - Indigenous or customary rights.
 3. Spatial units -> all kinds of representations:
 - 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 (3)



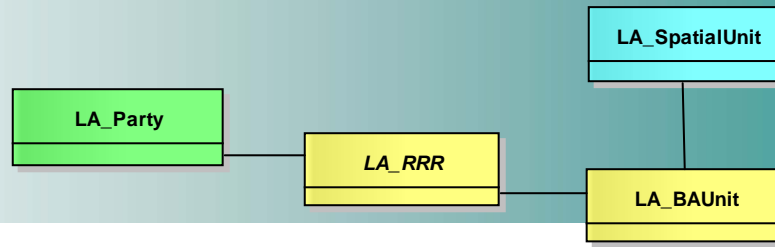
■ Indonesia:

- Management of customary land is transferred to local government
- More than 400 districts
- LADM as standard with extensions



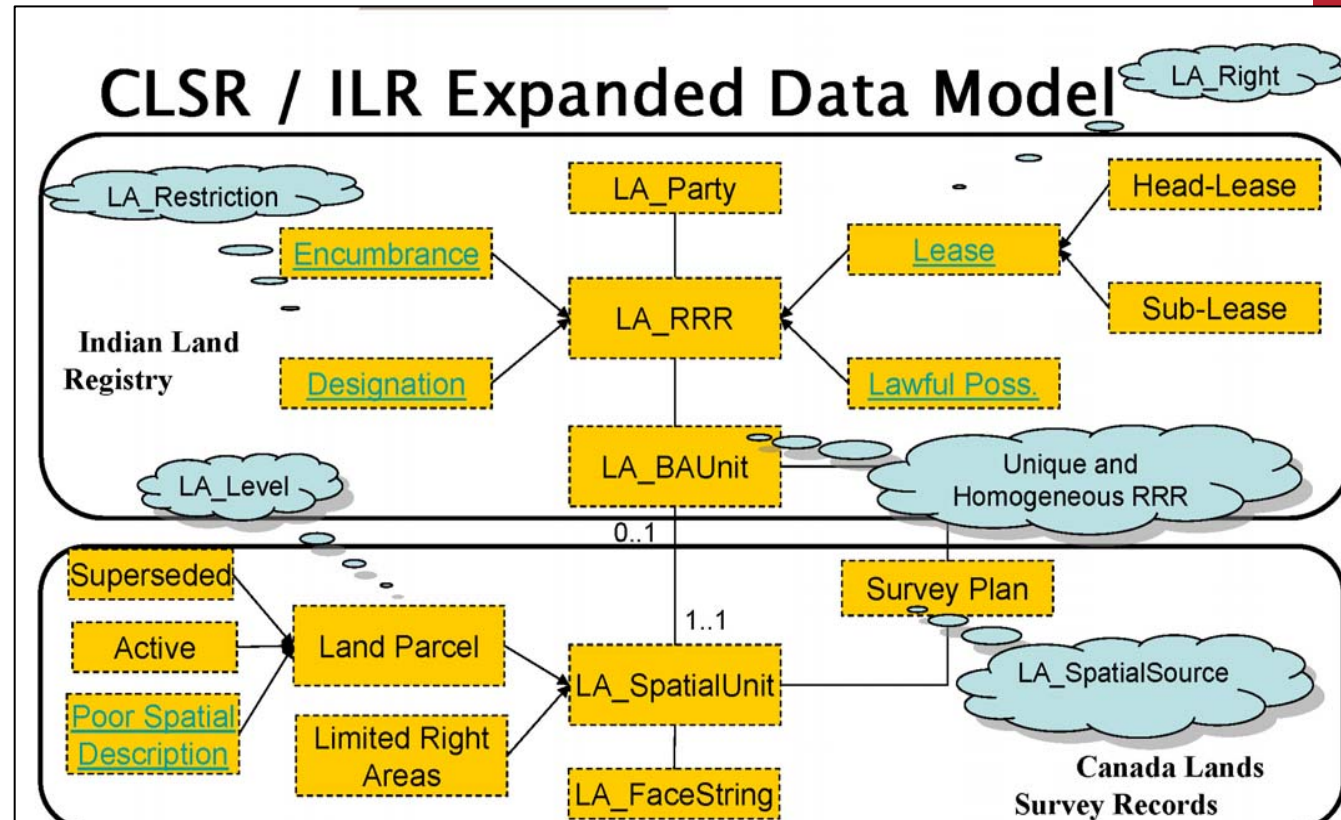
Source: Ketut Ary Sucaya, BPN, 2009

LADM (4)



Canada

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



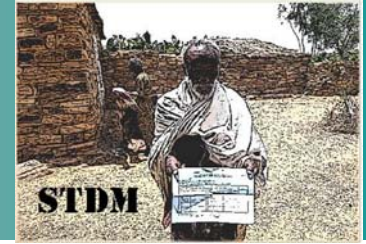
Source: Paul Egesborg, Natural Resources Canada, 2009

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 pro-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

Spatial Unit

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

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

Validity: 4 12 2009 [] Until [][][] []

New 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.