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)
Introduction (4)

- **LADM**
  - Draft International Standard: March 2010
  - Based on ‘Cadastre 2014’

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

Source: Paul Egesborg, Natural Resources Canada, 2009
Overview Vision 2025

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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 (3)

- World Bank/UN-HABITAT field test Ethiopia (2009)
  - Very high understanding of images
  - Very participatory approach
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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
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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.