



Low Cost Cadastral Data Acquisition ?

Jacobus Meijer

and

Christiaan Lemmen (Netherlands):

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Abstract

- Spatial Cadastral Data (Mapping)
- Participatory Development
- Some low cost approaches in cadastral data acquisition
- Acquisition and processing of both geo-data as administrative data
- Here the focus on geo-data
- Overview based on experiences in different countries

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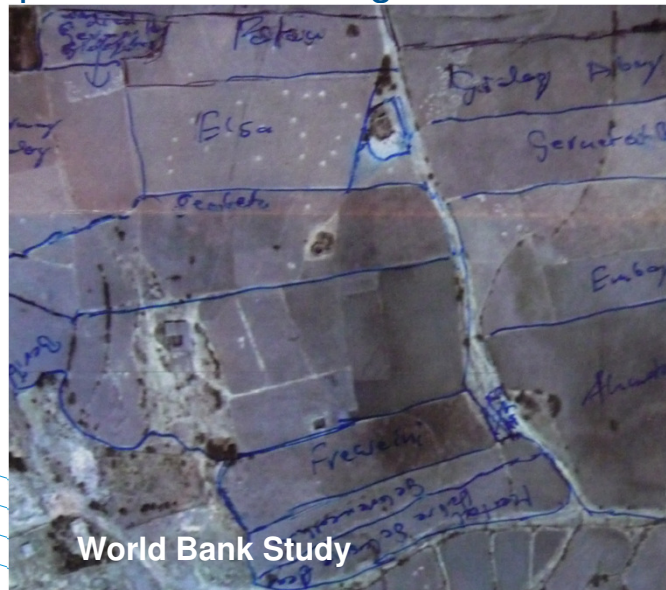
Experiences / Examples:

- Satellite image based data acquisition (Ethiopia)
- Ortho photo based in Namibia
- Gps based (hand held, with fixed stations, Lesotho)
- Ortho photo based data acquisition (Rwanda)
- Test of digital pen (Rwanda)

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Example 1: Satellite Images

- Ethiopia





Example 2: Namibia

- Digital ortho photo
- Land Registration of the Customary Land Rights in Communal Areas
 - 4 pilots

EU
Ministry of Lands and Resettlement
GTZ (GIZ)

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Example 3 Lesotho

- Digital ortho photo, hand helds, rovers etc.

**MCC – MCA-Lesotho
Lesotho Land Administration Authority
Land Equity International (LEI)**

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Example 3 Lesotho



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Example 3 Lesotho



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Example 4: Rwanda

- Land Tenure Regularisation project
- Satellite image and ortho photo based data acquisition
- Drawing boundaries in the field *by pencil*
- Post processing by:
 - Redrawing the field work using normal pen
 - Scanning field sheets
 - Geo-referencing
 - Vectorising boundaries

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Example 5: Test digital pen Rwanda

- Test of Digital Pen
A study in Rwanda by Didier Milindi Rugema (MSc Theses ITC)
- Conclusions: Digital pen method can improve efficiency
- Some related applications software have to be improved

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Test digital pen Rwanda



Approximately 8 millions parcels
Spatial and administrative data
Efficient data acquisition methods needed
This research focuses on spatial data acquisition

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Test digital pen Rwanda

- Used as normal for drawing boundaries
- Easy for local people in *P-Mapping*
- Patterns on plot (digital paper)
- Boundaries directly digital geo-referenced on site
- Predictable for climate conditions
- Digital pen rechargeable after long time used
- No loss of data when battery is discharged



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Test digital pen Rwanda

- Collected data directly overlaid to original ortho-photo
- Lines converted to polygons
- No redrawing of collected data
- No scanning field sheets
- No geo-referencing
- No vectorisation processing
- Editing collected data

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Example 7

- Cadastres and Mobile Phones
- Fighting Corruption and Empowering of the People (Mc. Laren in GIM international, Know Edge Ltd, United Kingdom)
- Remarks:
 - the quality and authenticity of crowd-sourced information is limited,
 - but it could form a starting point within the continuum of rights being proposed by UN-HABITAT, which organisation recognises that rights to land and resources can have many forms and levels.



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Quality continuum

- No cadastral map
- Only monumentation
- Plane table based maps
- Cadastral maps in local reference systems
(incomplete complete)
- Cadastral maps in national ref system (<<< this is a
very big problem in africa)
- World Reference System WGS based cadastral
maps
 - Stdm, ladm, bron?????

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