Low Cost Cadastral Data Acquisition

ANNUAL WORLD BANK CONFERENCE ON LAND AND POVERTY
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Abstract

• Spatial Cadastral Data
• Participatory
• Fit for purpose?
• Some low cost approaches
• Both geo-data as administrative data
• Overview based on experiences
Experiences / Examples:

• Satellite image - Ethiopia
• Ortho photo - Namibia
• GPS, ortho photo - Lesotho
• Ortho photo - Rwanda
• Test of digital pen - Rwanda
• Guinea Bissau - Google Maps images, point Cadastre
• Some other experiences / tests
• Remarks
Example 1: Satellite Images

- Ethiopia
Example 2: Namibia

- Digital ortho photo
- Land Registration of the Customary Land Rights in Communal Areas
  - 4 pilots
Example 3 Lesotho

- Digital ortho photo, hand helds, rovers etc.

MCC – MCA-Lesotho
Lesotho Land Administration Authority
Land Equity International (LEI)
Example 3: Lesotho
Example 3 Lesotho
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:
  – Scanning field sheets
  – Geo-referencing
  – Vectorising boundaries
What to do with existing land files

• Scanning and make digital?
• Or:
• Reorganise the paper archive, improve and store well; develop an indexing system

• Start all over with land adjudication and registration, systematic approach, fit for purpose, the old archive can be as back up in cases of doubts, questions etc.
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
Test digital pen Rwanda

- Efficient data acquisition methods needed
- This test focuses on spatial data acquisition
Test digital pen Rwanda

Legend

- Matakis
- Parcel number
- Remark
- Parcel boundary

1:1,000

25
50
75
Meters
Example 6: Point Cadastre

- An example: Proposal / Brainstorm for Bissau
Point Cadastre !? !?
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<th>Photo Identifier</th>
<th>Bissau, Bairro 01</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of Inspector</td>
<td>Yussuf</td>
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</tbody>
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<table>
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<tr>
<th>Identificação Da Casa</th>
<th>Casa Numero</th>
<th>Bairro</th>
<th>Nome Proprietário</th>
<th>Numero Processo</th>
<th>Numero Tailhão</th>
<th>Ultimo Pagamento</th>
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Office

- Open Photo in GIS
- Find House 1
- Find Ficha House 1
- Connect Ficha – Co-ordinates
<table>
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<th>Bairro 01</th>
</tr>
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</tbody>
</table>

- Objects under construction
Objects under construction
No Tax Paid and not registered

Photo Identifier
Bairro 01
Name of Inspector
Yussuf
Photo Identifier: Bairro 01
Name of Inspector: Yussuf

- Objects under construction
- No Tax Paid and not registered
- No Tax Paid but registered
Photo Identifier
Name of Inspector
Bairro 01
Yussuf

- Objects under construction
- Neighbor Inspector
- No Tax Paid and not registered
- No Tax Paid but registered
- Tax Paid
• Multi Purpose Cadastre:
  – Tax Registration
  – Health
  – Water
  – Electricity
  – Building Register
Final remarks / studies

• What is society waiting for:
  – monumentation of parcels
  – or titles to their plots
Field Survey - Tablet PC
Drones or Octocopters
Unconventional Approaches

The Social Tenure Domain Model
A Pro-Poor Land Tool
Participation in international fora

In order to promote its policy Kadaster also takes part in international forums, e.g., UNECE/WPLA (United Nations Economic Council for Europe / Working Party on Land Administration), Global Land Tool Network from the UN Habitat, FAO and FIG (International Federation of Surveyors).

We are also responsible for OICRF, the International Office of Cadastre and Land Records. This centre is a permanent institution of the FIG. The library comprises more than 8000 digital documents about all aspects of land administration. Every day students, PhD candidates and professionals download documents.

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Thank you for your attention