Systematic Land Information Management (SLIM)

By
Mr. Jukka Nieminen
Jaakko Pöyry Infra – Soil and Water Ltd.
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Jukka.nieminen@poyry.fi
Universal Problems with Urban Management in Developing Countries

- Not enough own revenues to cover all urban management tasks
  - Public Utilities (Water, Drainage, Garbage Collection, Power …)
  - Services (Basic Education, Health Care, …)

- Difficulties in maintaining constant inflow of revenues
- Tax paying units (houses, business units) are not known
- No proper monitoring system or maps to organise the revenue collection
- No commitment from the city administration
SLIM Systematic Land Information Management

- Survey
  - Topographic map
  - Property tax map
  - Cadastre map
  - Planning map

- Cadastre
  - Cadastre index map
  - Land register

- Planning
  - Strategic plans
  - Master plans
  - Detailed plans
  - Disaster mitigation and management

- Valuation
  - List of taxpayers and tax
  - Assets valuation list
  - Land valuation list

- Financial systems
  - Efficient tax collection and enforcement
  - Additional income through sale of data and digital maps

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Principal Approach

n Build GIS Platform for applications
  – Systems Analysis ‡ Logical Design ‡ Detail Design
  – GIS Base Map ‡ Aerial Photography, Satellite Imagery
  – Digitize essential features only (buildings, roads, rivers, coast line etc.)
  – Form database structures for revenue / business license collection

n Start with those applications that bring revenue to the LGU
  – Property Tax Collection and Monitoring (Buildings, Real Property Units)
  – Business License Collection and Monitoring (Business Premises, Real Property Units)
  – Fiscal cadastre ‡ kept up-to-date all the time

n Add modules that serve other local planning needs
  – Strategic Planning SLIM (Townships, roads, streets, land use etc.)
  – Informal Settlements SLIM (Buildings, utilities, public services, financing)

n Agree later on additional modules and their time table
Rectified aerial photos (densely built areas) and satellite imagery (outskirts of the urban areas) will be used.

Only essential features will be digitized.

Attribute data will be collected from the site and from existing databases.
Tax Collector’s Sample Sheet – Properties in a Block

- Property land use can be presented immediately after data entry
- Seamless map
- Ortho photo at the back

Use of property

- Not classified
- Commercial
- Industrial
- Residential
- River bank
Tax Collector’s Sample Sheet – Valuation

- Progress of property valuation can be followed daily
- Status report of work that is completed can be printed any time
- Picture material can be collected to support valuation
Tax Collector’s Sample Sheet – Tax values

- A hyperlink from each property unit to picture material can be built to verify valuation
- Useful in dispute cases
Example of thematic map: Arrears
New urban development to be included
SLIM Benefits

- Enhancement of property taxation
  - Efficiency
  - Equal treatment of all taxable units
  - Monitoring of billing and tax collection

- Enhancement of GIS capabilities
  - support for citywide GIS
  - support for management and planning of projects

- Transparency
  - Increases fairness of the taxation system
  - Transparent administrative procedure

- Improvement of LGU finances
  - Business tax included in the system
  - Improvement of LGU services
    - Local services get more operation budget
    - Local services can utilize the GIS map
    - Public utility companies can be linked to GIS map

- Base for informal settlement development
  - Map for informal settlement planning
  - Existing infrastructure, buildings, services etc.
  - Share of increased revenues could be directed to informal settlement schemes
Development of Poor Urban Communities Sector Project (DPUCSP) - Philippines

ADB-project, with three components

- **Part A:** Site Development and Tenure Distribution
- **Part B:** Microfinance for Low Income Communities
- **Part C:** Capacity Building and Implementation Support
  - **C1** Sector strengthening and project implementation support.
  - **C2** Developing capability in GIS based mapping for property and other tax enhancement

- Financed by ADB
- Cities Alliance and German grant funds
- Financing from Government of Finland
Contents of the project - Philippines

- Urban management issues – DPUCSP linkages (ADB)
- Philippines Regional Municipal Development Project (PRMDP - AusAID)
- SLIM Approach
  - GIS platform development
  - GIS oriented, focus on tax revenue collection
  - Strategic Planning and Informal Settlements
- Contents will be different in each LGU
  - Work package is tailored to fit the actual needs of each LGU
- Builds on the existing data and applications (e.g.TRACS = Tax Revenue Assessment and Collection System – AusAID)
- First Step - Feasibility Study
  - Completed in December 2003
  - Interviews, data collection
  - Appraisal by Government of Finland in April 2004
- Approval by Finnish Government June 2004, OECD July 2004
- Next steps
  - Participating cities selected (6 candidates already in the short list)
  - Work program to be finalized in cooperation with LGUs, Borrower, DILG
  - Financial agreement by the end of 2004 (EUR 7 Million)
  - Commencement of project 2005
Feasibility Study – Participating LGUs
Project Implementation
Disbursement period 4 yrs

Risk period 16.5 yrs

Repayment period 12.5 yrs

Semi-annual installments

First disbursement

Starting point of Credit

Grace period 4 yrs (EUR & USD)

First repayment

Final repayment

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Appendix 8A
Debt Service (at 8.1% Interest) + O&M Versus Increases in Real Property Tax Collection
Over-all (6 LGUs)
Appendix 8B
Debt Service (@ 12% Interest) + O&M Versus Increases in Real Property Tax Collection
Over-all (6 LGUs)

<table>
<thead>
<tr>
<th>Year</th>
<th>Cumulative Amount (PhP million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Debit Service</td>
</tr>
<tr>
<td>1</td>
<td>19% Increase in RPT Collection</td>
</tr>
<tr>
<td>2</td>
<td>20% Increase in RPT Collection</td>
</tr>
<tr>
<td>3</td>
<td>30% Increase in RPT Collection</td>
</tr>
<tr>
<td>4</td>
<td>40% Increase in RPT Collection</td>
</tr>
</tbody>
</table>

Year
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Present property tax assessment practice

Practice

- Follows systematic method usually developed by the Assessor’s Office
- Assessment of taxable real property units by Assessor’s Office (manual tax mapping)
- Tax collection by Treasurer’s Office
- Different locally developed systems were used to keep track on property tax collection (TRACS or own system – computerized)

Problems:

- Accuracy?
- Updating of tax map based on voluntary declaration of the property owner
- Straightforward computerization repeats already made mistakes
- Room for corrupt practices
Present property tax assessment practice

- Often hand drawn maps
- No coordinates
- Manual registration of changes
- Not in scale
- New map only every 3-4 years
Iligan City

- Effort to overlay existing property tax map
- Ortho photo from year 2001
- Property material from year 2003
**SLIM example: Strategic Planning**

- Need to digitize administrative areas:
  - Barangays
  - Census enumeration areas
  - Informal Settlement areas

- Data entry utilizing existing data bases:
  - Census
  - Socio-economic surveys
  - Household surveys

- Production of material for decision making and strategic LGU planning
**SLIM example: Informal Settlements**

- Location of Informal settlements will be identified
- Each Informal Settlement will get their own database
SLIM example: Informal Settlements

- Updated base image will be used for locating key elements of the Informal Settlement
  - Walkways
  - Drainage
  - Garbage collection points
  - Water points
  - Schools etc.

- Basis for sites and services planning

- Can be used for monitoring of Micro Finance schemes
# Local Government Units

<table>
<thead>
<tr>
<th>LGU</th>
<th>POPULATION 2000</th>
<th>LAND AREA SQ.KM</th>
<th>NUMBER OF REAL PROPERTY TAX UNITS</th>
<th>NUMBER OF BUSINESS LICENSES</th>
</tr>
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<tbody>
<tr>
<td>BAGUIO</td>
<td>252,386</td>
<td>57.49</td>
<td>88,000</td>
<td>11,300</td>
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<tr>
<td>ANGELES CITY</td>
<td>263,971</td>
<td>62.15</td>
<td>80,000</td>
<td>9,000</td>
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<tr>
<td>BACOLOD</td>
<td>429,100</td>
<td>161.46</td>
<td>120,000</td>
<td>11,200</td>
</tr>
<tr>
<td>ILOILO</td>
<td>450,000</td>
<td>72.00</td>
<td>122,000</td>
<td>7,000</td>
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<tr>
<td>CAGAYAN DE ORO</td>
<td>462,000</td>
<td>488.85</td>
<td>158,300</td>
<td>14,600</td>
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<tr>
<td>ILIGAN</td>
<td>285,100</td>
<td>775.76</td>
<td>100,000</td>
<td>12,000</td>
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</table>
**Existing Systems (Conditions at the Project Site)**

<table>
<thead>
<tr>
<th>Name of LGU</th>
<th>Availability of GIS</th>
<th>Computer systems for tax collection</th>
<th>Digital maps</th>
<th>Use of GIS for tax collection</th>
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</thead>
<tbody>
<tr>
<td>Angeles</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Bacolod</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes/ not accurate</td>
<td>Limited</td>
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<tr>
<td>Cagayan de Oro</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes/ not updated</td>
<td>Yes / with old digital maps</td>
</tr>
<tr>
<td>Malaybalay</td>
<td>Yes</td>
<td>No</td>
<td>Yes/ not owned by LGU</td>
<td>No</td>
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<tr>
<td>Iligan</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes/ not updated</td>
<td>Yes / with old digital maps</td>
</tr>
<tr>
<td>Iloilo</td>
<td>No</td>
<td>Yes/ limited</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Dumaguete</td>
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<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Urdaneta</td>
<td>No</td>
<td>Yes/ limited</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Baguio</td>
<td>Coming</td>
<td>Yes/ limited</td>
<td>No</td>
<td>Not yet</td>
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<tr>
<td>San Fernando</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
Previous revenue enhancement projects

Kanpur 1999-2001:
- “Non-contact” survey for taxable units
- Local coordinate system defined
- Seamless digital maps
- ArcView and Arc SDE application to be built
- Recovery of investment during first two years
- Change of administration discontinued

Gaza 2000-2001:
- Digital orthophotos to identify the taxable units
- Field updates on building data and tax evaluation of buildings
- Intergraph GeoMedia was used as GIS software
- Recovery of investment during first two years
- War no information of present situation