Data Provision for Decision Making

Mindenda Pande
1st March 2016
Unioninkadun juhlahuoneistot
Unioninkatu 33
Helsinki

Integrated Land-Use Assessment
Forestry Department
Introduction to ILUA II

• ILUA I (2005 – 2008)
  – Global Forest Assessment
  – Sparse sampling network
  – Regional forest initiatives / limited applicability

• ILUA II (2010 – 2016)
  – Redesigned Sampling Methodology
  – Improved sampling density
  – UN REDD+ / Sustainable Forest Management / GHGi
Zambia - Geographical Location
Sampling Methodology

- ILUA I - 221 Plots
- ILUA II - 986 Plots
Sampling Methodology

Modified NFMA
Preliminary Studies

- **ILUA II – Informed Data Collection**
  1. Classification of Zambian Forests
  2. Biodiversity Report for ILUA II
  3. Assessment of Existing Models for Biomass Volume Calculations
  4. **Biophysical Information Needs (BIN) Assessment Report**
  5. Zambia Forest Action Plan Preparatory Review
  6. Measuring the Informal Forest-based Economy as Part of the National Forest Monitoring and Assessment
  7. Data Sharing Guidelines
  8. Biophysical Field Manual

- **Stakeholder inputs to planning**
Biophysical Information Needs (BIN) Assessment Report

• Stakeholder feedback
  – *Where* are resources located?
  – *What* resources are available?
  – Estimated *quantity* of available resources?
  – *How* and *Who* are managing these resources?

• Priority Information Needs ID
  – Biomass and Carbon Stocks
  – Processes driving change (fire, degradation, invasive species)
  – Update management tools (vegetation types, allometric equations)
  – Day to Day management requirements (GIS data, boundary narratives)
  – Land cover change maps
Data Collection - Training

• Biophysical Field Teams
  – Provincial teams
  – 7 day intensive training
  – Biophysical and Soil variables (BIN Assessment)
  – Quality Assurance / Quality Control

• Data collection tools
  – GPS navigation
  – Paper based data capture (Digital ?)
## Data Collection
### 2013 - 2014

<table>
<thead>
<tr>
<th>Province</th>
<th>Clusters</th>
<th>Plots</th>
<th>Plot sections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central</td>
<td>122</td>
<td>478</td>
<td>513</td>
</tr>
<tr>
<td>Copperbelt</td>
<td>51</td>
<td>197</td>
<td>223</td>
</tr>
<tr>
<td>Eastern</td>
<td>91</td>
<td>363</td>
<td>398</td>
</tr>
<tr>
<td>Luapula</td>
<td>98</td>
<td>387</td>
<td>422</td>
</tr>
<tr>
<td>Lusaka</td>
<td>41</td>
<td>162</td>
<td>169</td>
</tr>
<tr>
<td>Muchinga</td>
<td>122</td>
<td>483</td>
<td>533</td>
</tr>
<tr>
<td>Northern</td>
<td>104</td>
<td>408</td>
<td>436</td>
</tr>
<tr>
<td>NorthWestern</td>
<td>138</td>
<td>547</td>
<td>562</td>
</tr>
<tr>
<td>Southern</td>
<td>75</td>
<td>292</td>
<td>316</td>
</tr>
<tr>
<td>Western</td>
<td>144</td>
<td>575</td>
<td>584</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>986</strong></td>
<td><strong>3892</strong></td>
<td><strong>4156</strong></td>
</tr>
</tbody>
</table>
Data Entry & Management

- OpenForis – Data Management System
  - Zambian Forestry Department
  - Collect
  - Calc
  - Saiku

- Data Entry
Data Provision for Decision Making

strengthened capacity in planning and implementation of SFM and REDD+ through better information, capacity building, dissemination of information, and improved multi-sectoral dialogue.

• Sustainable Forest Management
• Forest Reference Emissions Level
Zambia: Forest Reference Emissions Level

- Component of REDD+ Readiness
- Benchmark to measure progress towards emissions reductions
Zambia: FREL – Emissions Factors

- Forest stratification and Emissions factors used ILUA II plot level data
Zambia: FREL – Activity Data

- Activity data collected using supervised classification of satellite imagery – mapping undertaken as part of ILUA II
- Forest loss data employed in the FREL development
Zambia: FREL – Submission to UNFCCC

- FREL Technical Assessment guide decision making on REDD+ activities in Zambia

http://redd.unfccc.int/submissions.html?country=zmb
Zambia: Sustainable Forest Management

• Biophysical & Socioeconomic Data
  – Merchantable Volume
  – DBH Classes
  – Forest Cover / Species Distribution
  – Non-Wood Forest Products

• Provincial Forest Management Plans
  – Management objectives
  – Calculating sustainable yields
  – Zoning of managed forests
Zambia: SFM – Vegetation Type Area (Province)

Provinces - Major Vegetation Types Class (ha)

- Central
- Copperbelt
- Eastern
- Luapula
- Lusaka
- Muchinga
- Northern
- Northwestern
- Southern
- Western

Major vegetation type:
- Bare land
- Build up
- Cultivated land
- Dry deciduous forest
- Dry evergreen forest
- Forest plantation
- Forest woodland
- Grassland
- Moist evergreen forest
- Other land / No Data
- Other wooded land
### Zambia: SFM – DBH class distribution (saiku output)

<table>
<thead>
<tr>
<th>Province</th>
<th>Fra Class Options</th>
<th>Valuable species</th>
<th>&lt;10 cm</th>
<th>10-14.9 cm</th>
<th>15-19.9 cm</th>
<th>20-24.9 cm</th>
<th>25-29.9 cm</th>
<th>30-34.9 cm</th>
<th>35-39.9 cm</th>
<th>40+ cm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southern</td>
<td>Forest</td>
<td>Not valuable</td>
<td>0.4141</td>
<td>43.1825</td>
<td>25.6729</td>
<td>12.3632</td>
<td>6.8027</td>
<td>4.1408</td>
<td>2.4845</td>
<td>6.0929</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Valuable</td>
<td>0.0592</td>
<td>17.6279</td>
<td>10.8252</td>
<td>8.2224</td>
<td>4.3182</td>
<td>2.4845</td>
<td>1.7746</td>
<td>2.0704</td>
</tr>
<tr>
<td>Central</td>
<td>Forest</td>
<td>Not valuable</td>
<td>0.5323</td>
<td>68.0441</td>
<td>32.6851</td>
<td>17.5092</td>
<td>10.7856</td>
<td>5.827</td>
<td>3.4738</td>
<td>4.8504</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Valuable</td>
<td>0.2521</td>
<td>28.3228</td>
<td>17.8734</td>
<td>12.9148</td>
<td>7.5070</td>
<td>4.8746</td>
<td>2.5213</td>
<td>3.0256</td>
</tr>
<tr>
<td>Northern</td>
<td>Forest</td>
<td>Not valuable</td>
<td>0.2371</td>
<td>72.3086</td>
<td>30.904</td>
<td>20.4671</td>
<td>10.2336</td>
<td>5.8614</td>
<td>3.4242</td>
<td>4.1092</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Valuable</td>
<td>0.079</td>
<td>25.5248</td>
<td>17.4247</td>
<td>13.1999</td>
<td>8.8136</td>
<td>5.9268</td>
<td>2.7658</td>
<td>3.5165</td>
</tr>
<tr>
<td>Muchinga</td>
<td>Forest</td>
<td>Not valuable</td>
<td>0.3209</td>
<td>74.3928</td>
<td>31.8645</td>
<td>16.5259</td>
<td>9.4021</td>
<td>5.1664</td>
<td>2.535</td>
<td>5.5935</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Valuable</td>
<td>0.2246</td>
<td>29.2653</td>
<td>18.4833</td>
<td>11.3596</td>
<td>7.2201</td>
<td>4.2999</td>
<td>2.2783</td>
<td>2.0216</td>
</tr>
</tbody>
</table>
Zambia: SFM – Species Area Distribution (MVT)

The graph illustrates the number of species (vertical axis) in relation to the area (horizontal axis) for different land-use categories in Zambia. The categories include:
- Dry evergreen forest
- Dry deciduous forest
- Moist evergreen forest
- Forest woodlands
- Other wooded land
- Grassland
- Cultivated

The graph shows how the number of species increases with the area for each category, with the number of species ranging from a few to upwards of 180 for certain categories at larger areas.
Moving Forward

- Capacity building
- Strengthening the continuous data collection system
- Moving away from the project approach
- Research on forest degradation
- Digital data collection
Conclusion

- ILUA II – Largest Natural Resource Inventory in Zambia
- Data collection informed through stakeholder interactions
- Data collected using international methodologies
- Data managed using state of the art software tools
- Data employed in UN REDD+ activities and Sustainable Forest Management
- Maintenance of data system ongoing
Acknowledgements

• Ministry of Lands Natural Resources and Environmental Protection
• Ministry for Foreign Affairs of Finland
• Food and Agricultural Organisation of the UN
• UN REDD programme
• IUFRO Special Project on World Forests, Society and Environment (IUFRO-WFSE)
• Finland-FAO Forestry Programme
Thank You