

Monitoring, Reporting and Verification update for Zambia

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INTRODUCTION

Land – use

- Zambia total land area is about 75 million hectares
- 49.9 million hectares is covered by forests representing 66%
- Cultivated land of annual and perennial crops 7.5 million hectares or 10%,
- built-up area is at *0.5 million hectares* or 1%,
- water bodies is at *3.0 million hectares* or 4%

(Based on the Integrated Land-Use Assessment of 2005-2008)

Ownership

- **About 45.8 million hectares or 60.9% of Zambia's total land is under customary land ownership;**
- **14.8 million hectares or 19% is state land;**
- **8.3 million hectares or 11% of the land is owned by individuals;**
- **1.1 million hectares or 1.4% is owned by private industries,**
- **1.0 million hectares or 1.4% is owned by other private institutions .**
- **4.8 million hectares or 7% of land could not be accounted for from this survey.**

(Based on the ILUA -2007)

Forest data

- The total growing stock for Zambia' forest is estimated at *2.9 billion m³*
- The general forest categories
 - evergreen forest has *59.1million m³* or 2%,
 - deciduous forest has *649.9 million m³* or 22%;
 - semi-evergreen forest has *2.2billion m³* or 76%;
 - while the other natural forests have a total of *7.1 million m³* or 0.24%.
- The total national biomass stock (i.e. above and below ground) is estimated at 5.6 billion *tones* out of which *2.6 billion tones* is total carbon stocks.

Forest data cont../

- Over 65% of the forests are secondary regeneration with active growth potential.
- The rate of land cover change (deforestation rate) based on remote sensing results is estimated at 284,000 hectares per annum or 0.62% of the wooded land (forests).

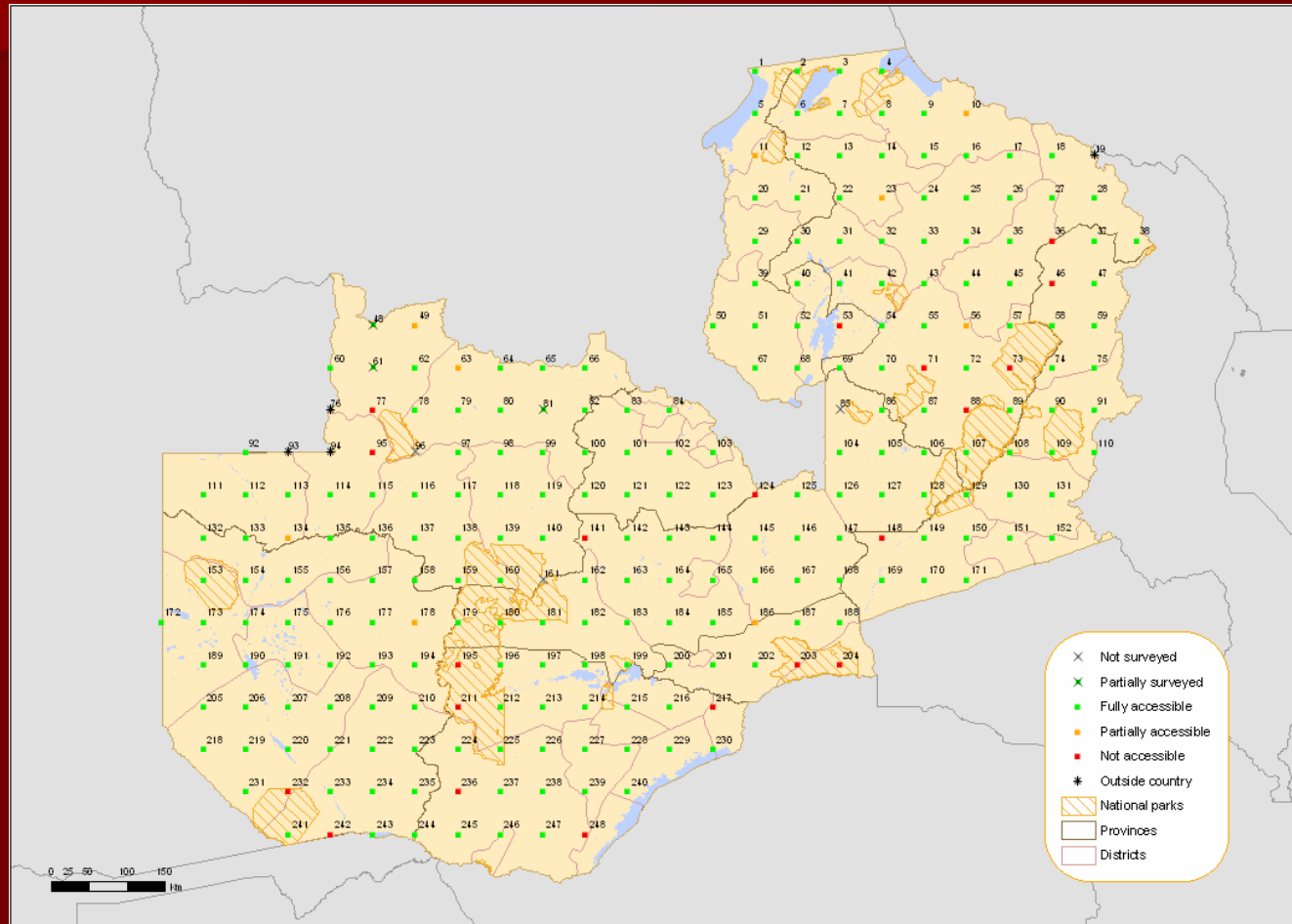
Forest data cont../

- Under ILUA classification, the national vegetation classes were re-classified into global classes as follows:
 - the *Miombo woodlands* (plateau and hills) are the Semi evergreen forests;
 - *Baikiaea forests, Munga, Mopane* and *Kalahari woodlands* are the Deciduous forests;
 - Riparian, Swamp, Parinari, Itigi* and the *Lake basin chipya forests* are evergreen forests; while the
 - Termitary associated bushes* are the Shrub thickets; and all tree less areas comprising *riverlines, plains, dambos* are either grasslands and or wooded grasslands.

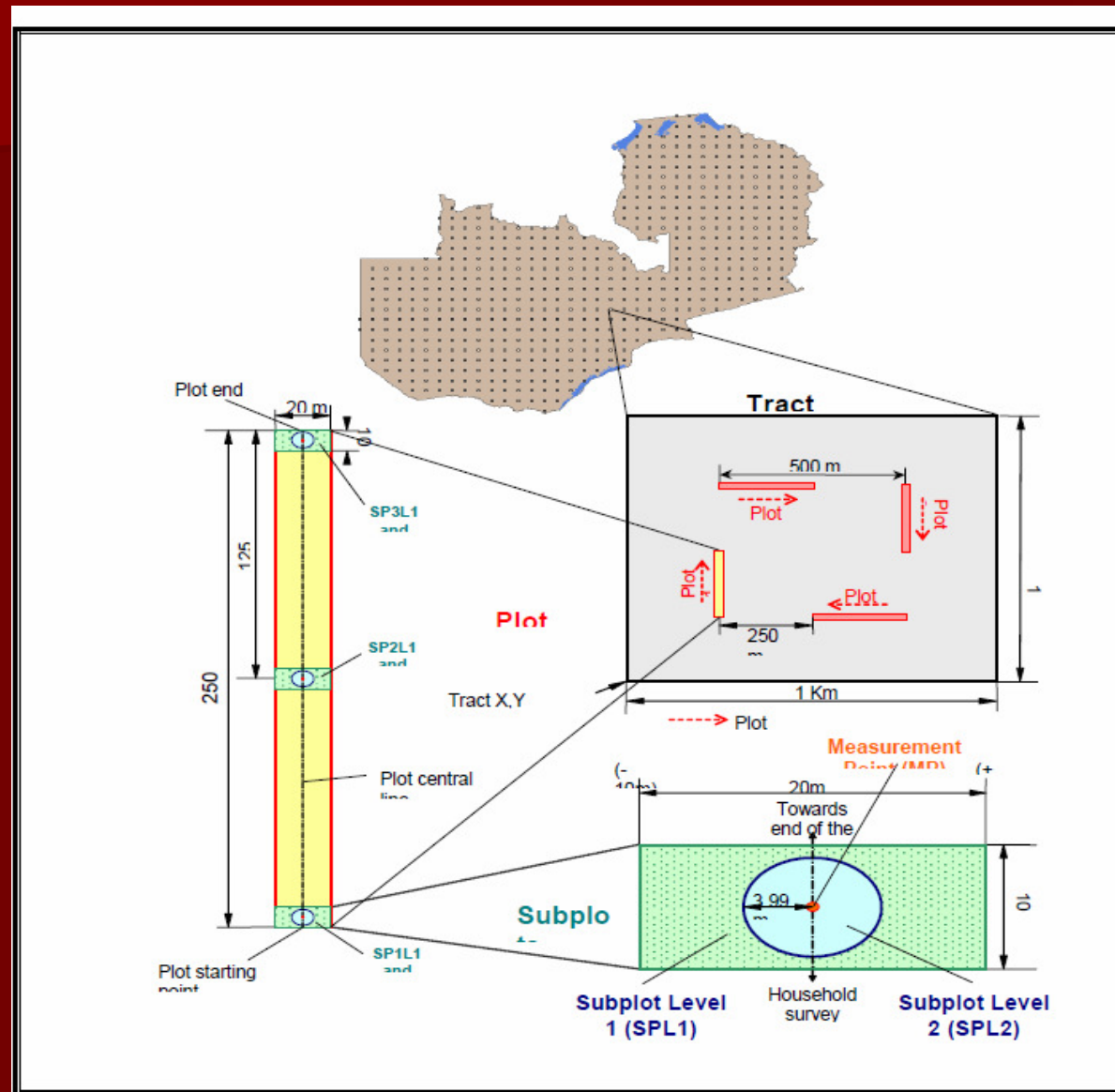
NFIs and national assessment/monitoring programmes

- In recognition of the lack of sound and reliable national level forest resource information for Zambia, the integrated land use assessment (ILUA) was initiated in 2005.
- The ILUA is based on a standard national forest assessment (NFA) approach developed by FAO, which has been applied in several other countries since 2000, mainly in developing countries.
- The present Integrated Land Use Assessment (ILUA) has adopted a set of national and globally harmonized terms and definitions to provide information for national, regional and international reporting.
- ILUA done between 2005 to 2008

Sampling plots



Tract Design

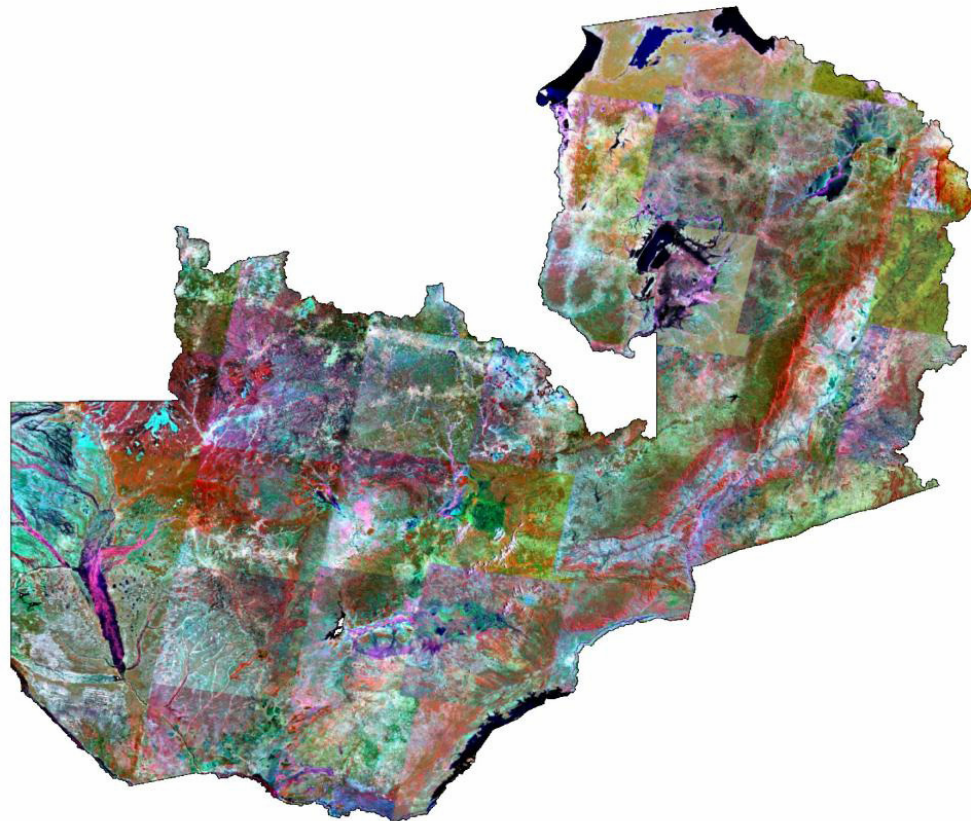


ILUA design and its sampling methodology

- The sampling design adopted for the ILUA in Zambia is systematic. No stratification was applied. The sample density and distribution in Zambia is shown in *map 3* above.
- This was a system grid set across the country at 40km between tracts. The tracts were automatically spread over the surface area of Zambia regardless of the geographical location and topological conditions. The aim was to avoid biasness in plotting and data collection.

- Data is collected through observations, measurements and interviews at different levels: within the tracts, which represents the highest level, then in smaller subunits (plots and subplots), demarcated within the tracts. A tract is a square of 1 km x 1 km

Remote Sensing Methodology for Zambia



Existing carbon estimate methods and models, and on actions to be implemented towards a fully working MRV system

- **In general two methods exist for estimating above ground biomass using ground based forest inventory data, where the ILUA study used both methods:**
 - A. Use of existing volume density estimates which are then converted to biomass density;
 - B. Directly estimating biomass density using biomass regression equations (allometric relationships).

Conclusion

- Choice of method for estimating carbon stock strongly affects the magnitude of the estimate and it is therefore crucial that studies are made prior to embarking of any carbon stock assessment to verify the applicability of the available methods and sub-models
- A second phase of the ILUA project is currently in the pipeline and should adapt to MRV requirements for REDD.