



Zambia's National Forest Monitoring System (NFMS)

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UN-REDD
PROGRAMME



MINISTRY FOR FOREIGN
AFFAIRS OF FINLAND

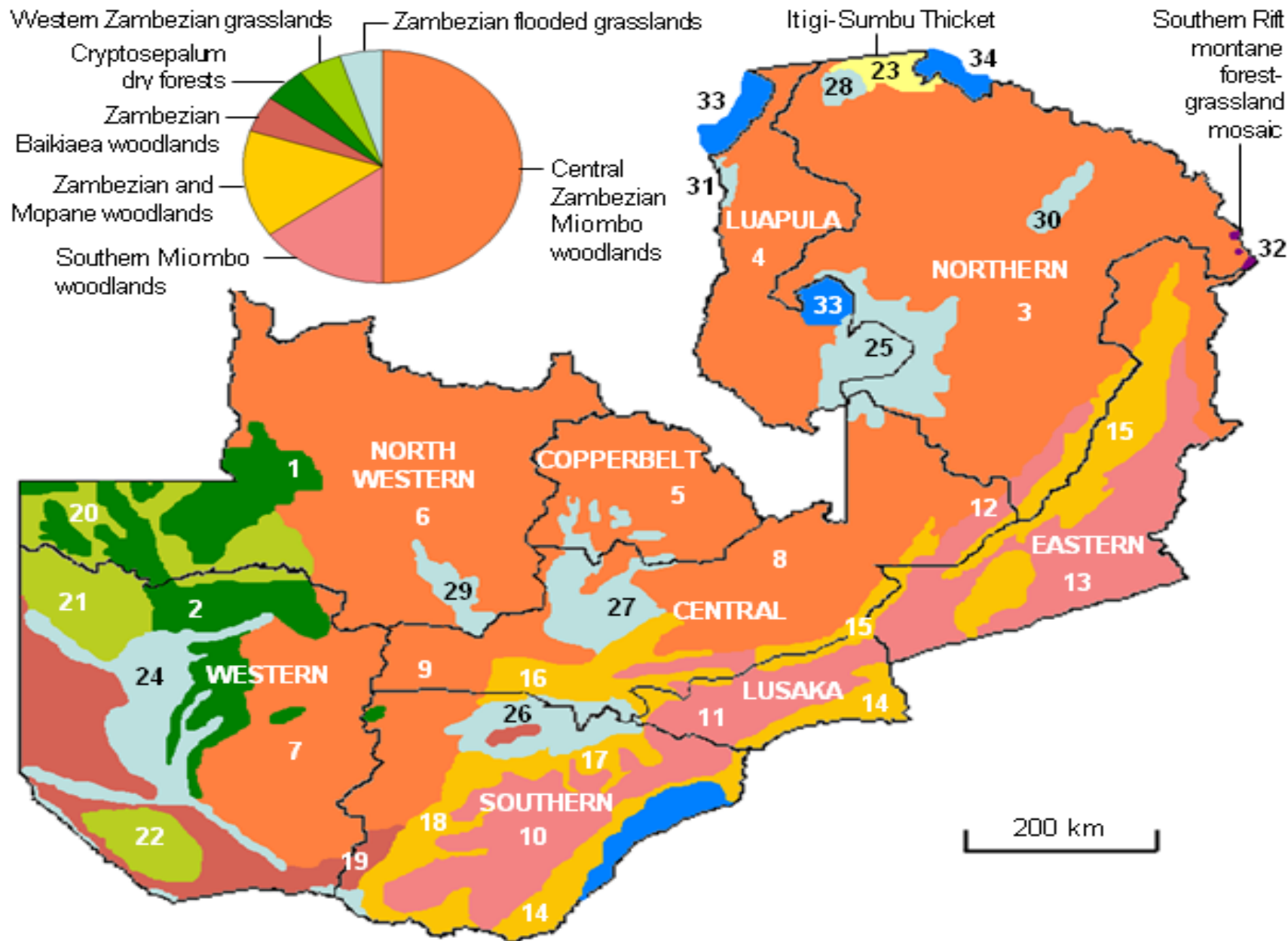
Outline of Presentation

- Forest Resources in Zambia
- Implementation Arrangement for ILUA II Project and UN-REDD Programme
- REDD+ Readiness process
- National Forest Monitoring System

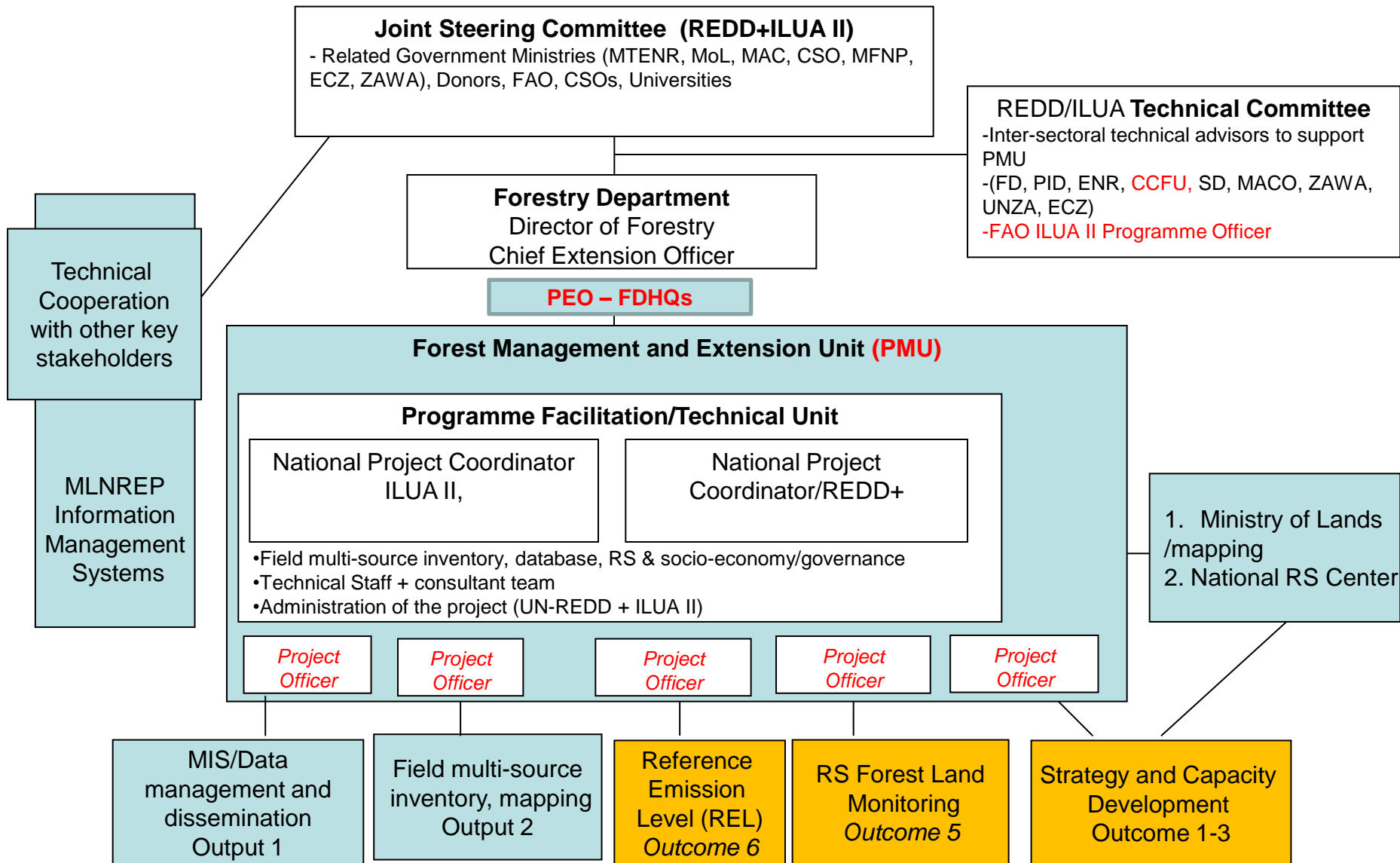
Forest Resources in Zambia

- Zambia surface land area is **752,614Km²**
- Forests cover about **49.9 million ha** (66% of land cover),
- The forest vegetation type is mainly Miombo (**Semi-evergreen forests**); Baikiaea, Munga, Mopane, Kalahari woodlands (**Deciduous Forests**), Ripian, Swap, Parinari, Itigi, Lake basin Chipya (**Evergreen forests**), Termitary associated bushes (**Shrub thickets**), **grasslands, wooded grasslands.**
- Plantations cover about **61,000 ha** (7,000 ha by the Forestry Department and **50,000 ha** under ZAFFICO, the rest by communities, farmers, schools etc.)
- **2.9 billion m³** of growing stock

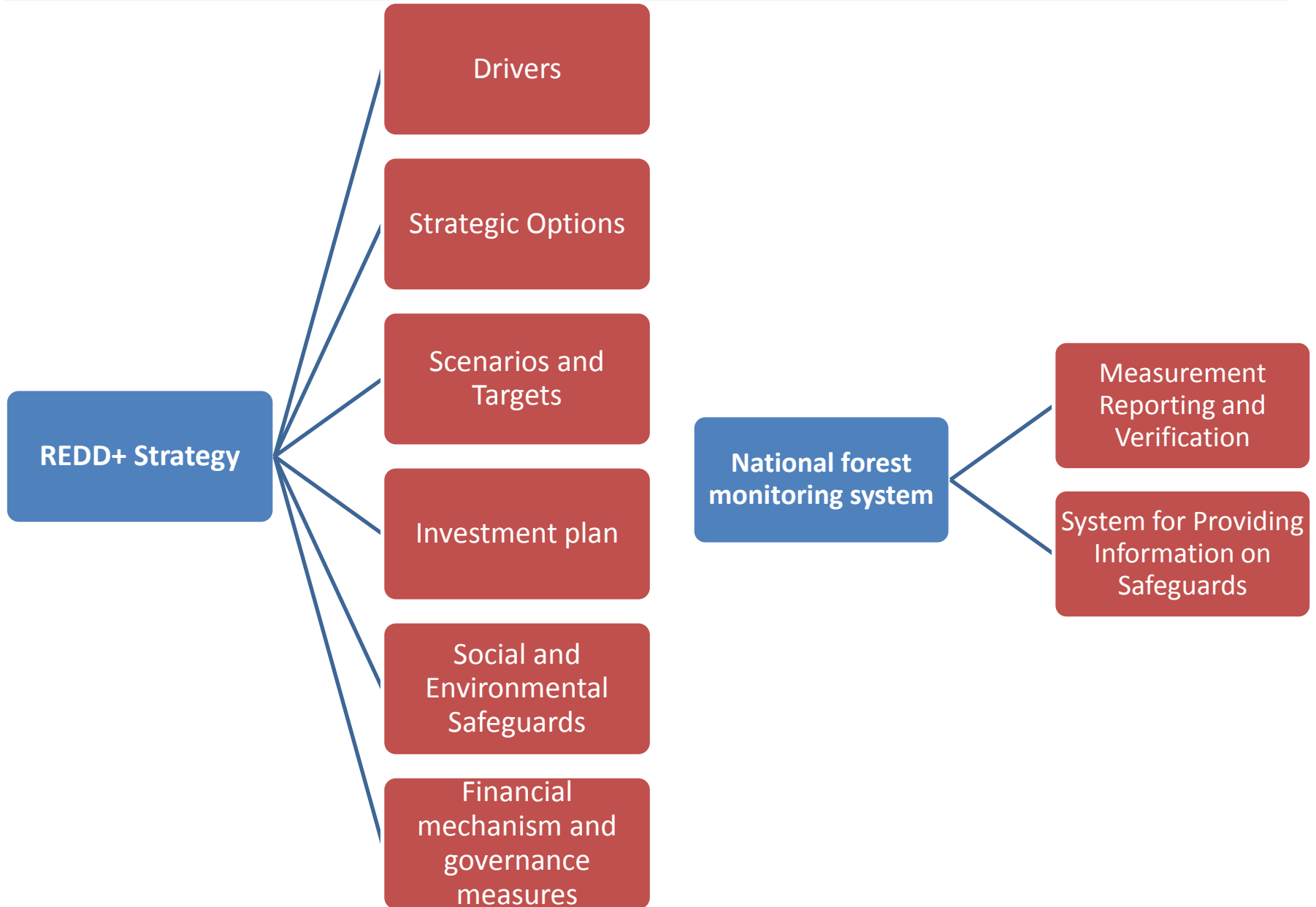
KEY TO ECOREGIONS *Chart slices are proportional to area of ecoregion*



Implementation Arrangements for UN-REDD and ILUA II in Zambia



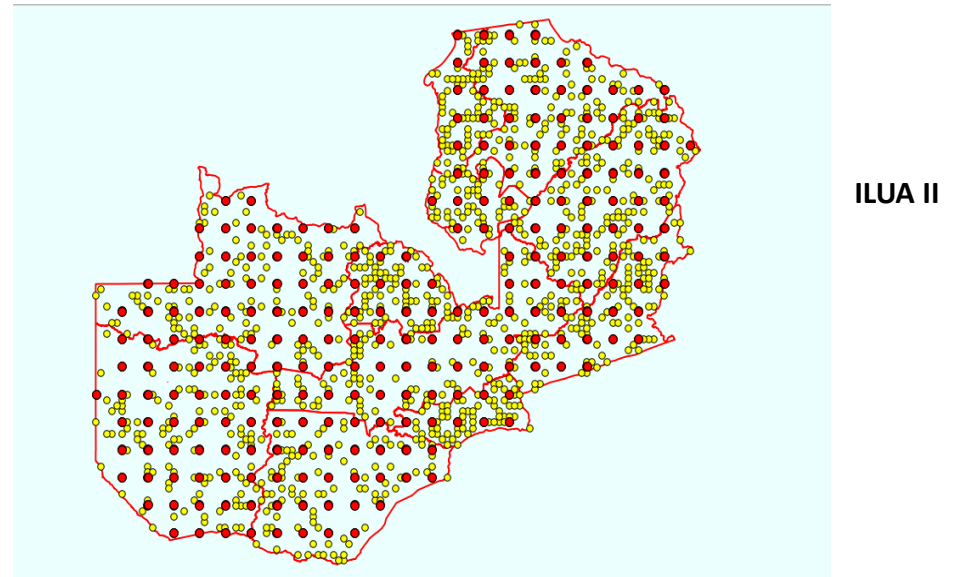
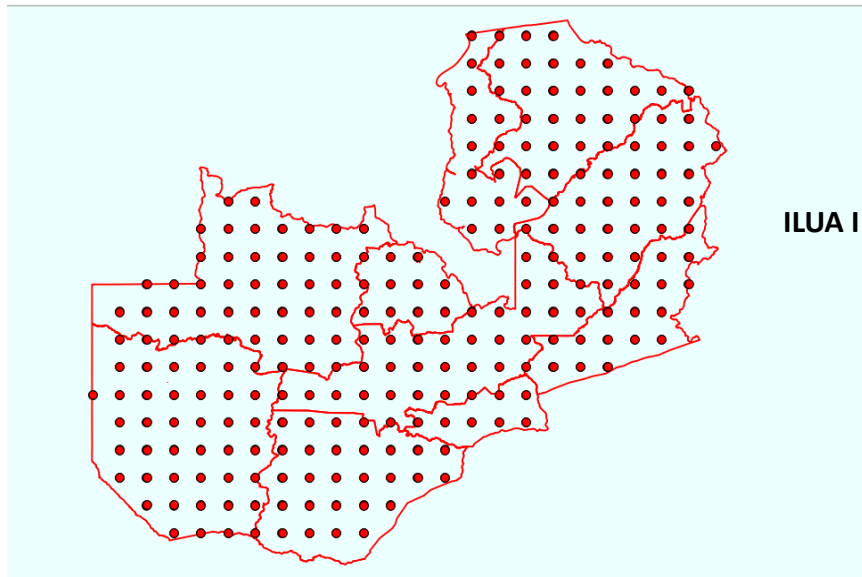
The REDD+ readiness process



National Forest Monitoring System

- The National Forest Monitoring System in Zambia is composed of the following components:
 - a. National Forest Inventory (Supported by Finland with technical support from FAO) and includes the Forest Livelihoods and Economic Survey (FLES).
 - b. Satellite Land Monitoring System (Supported by the UN-REDD Programme)
 - c. National GHG Inventory with Zambia Environmental Management Agency as lead.

National Forest Inventory



- Sample at an intensity that provides good statistical estimates of volume and biomass for major forest types at the provincial level
- Sample across variations in forest canopy cover (within Forest Types) caused by disturbances, degradation, and ecological conditions (Emission Factors for Forest Lands)
- Measure all biophysical elements (timber resources, biomass, agricultural data) that are important for land-use planning in Zambia
- IPCC forest carbon pools

Forest Livelihood and Economic Survey

- Recognized that effective and functional monitoring systems are those that are embedded within already existing structures.
- FLES is linked to the Central Statistics Office, which conducts regular surveys/studies/assessments and reports to the nation.
- FLES aims at collecting data in relation to the socio-economic importance of forests, forest governance and informal forest-based economy
- FLES is therefore one way of formally integrating forest livelihood, economic and safe guards into existing government functions and ensure long term sustainability.

Satellite Land Monitoring System

- Zambian approach has the following components;
 - a. Land-cover mapping for 1990, 2000, 2010 completed and only remaining with Validation
 - b. Web portal established for interactive process
 - c. Established a decentralised approach national forest monitoring system

A join Programme on Land-cover Mapping

Satellite based analytical work was conducted jointly between UN-REDD Programme and RCMRD

1. ILUA II & UNREDD Programme

a) Land use mapping and

b) Land cover mapping

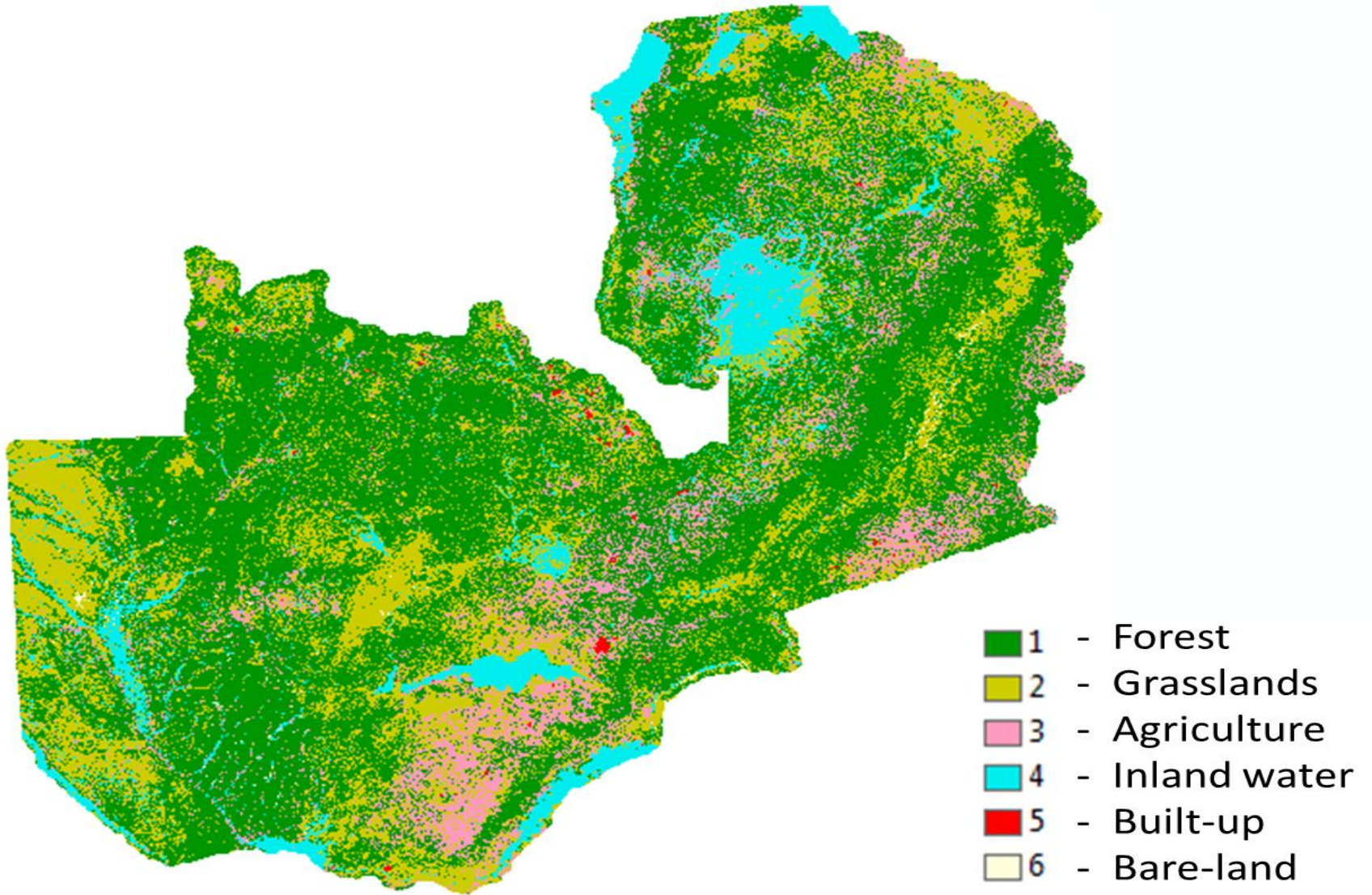
- GHG inventory (emission accounting)
- Land cover change (deforestation assessment)
- Setting the REL
- Other (forest inventory results enhancement)

2. RCMRD's Project Interests

a) Land cover mapping

- Regional GHG inventory (emission accounting) for Botswana, Malawi, Mauritius, Namibia, Rwanda, South Africa and Zambia.

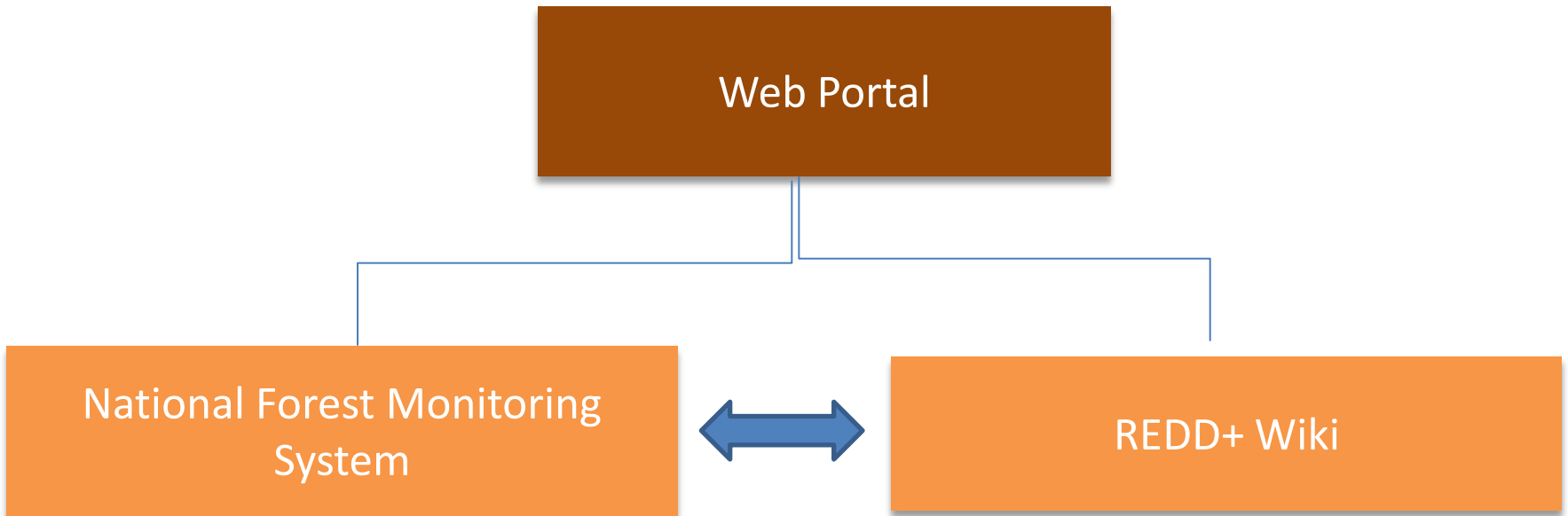
Draft output on Zambia Land-cover Map 2010



Web portal

- A web portal is a *transparent* approach to NFMS aiming to provide a Forest Monitoring platform whilst displaying Activity Data for GHG reporting from Forest Lands.
- Show historical land cover change trends; by different administrative units (provinces, districts, GMAs, National Parks, Forest Reserves).
- Load new annual land cover updates onto the NFMS – these new land cover updates will be used as Activity Data for REDD+ reporting.
- Visualize deforestation information from decentralized NFMA offices
- Show other spatial information for the country.

Integrating the REDD+ Wiki



Basic spatial layers

Nemestrinus

National Forest Monitoring System - Zambia



2010

English

Legend

Map navigation controls: zoom in (+), zoom out (-), and pan (four arrows).

Layers Selected layers

- Administrative Units
- Environment
- Infrastructure
 - Hydrography
 - Roads, Railroads
 - Powerlines
 - Zambia Health Facilities
 - GIS Offices
- Forest Monitoring
- Land Use Assessment - ILUA I
- Land Use Assessment - ILUA II
- UN-REDD Programme - Zambia Quick Start Initiative
- REDD+ Projects



Scale = 1 : 867K

Deforestation

Nemestrinus

National Forest Monitoring System - Zambia



2010

English



Layers Selected layers

Administrative Units

Environment

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GIS Offices

Forest Monitoring

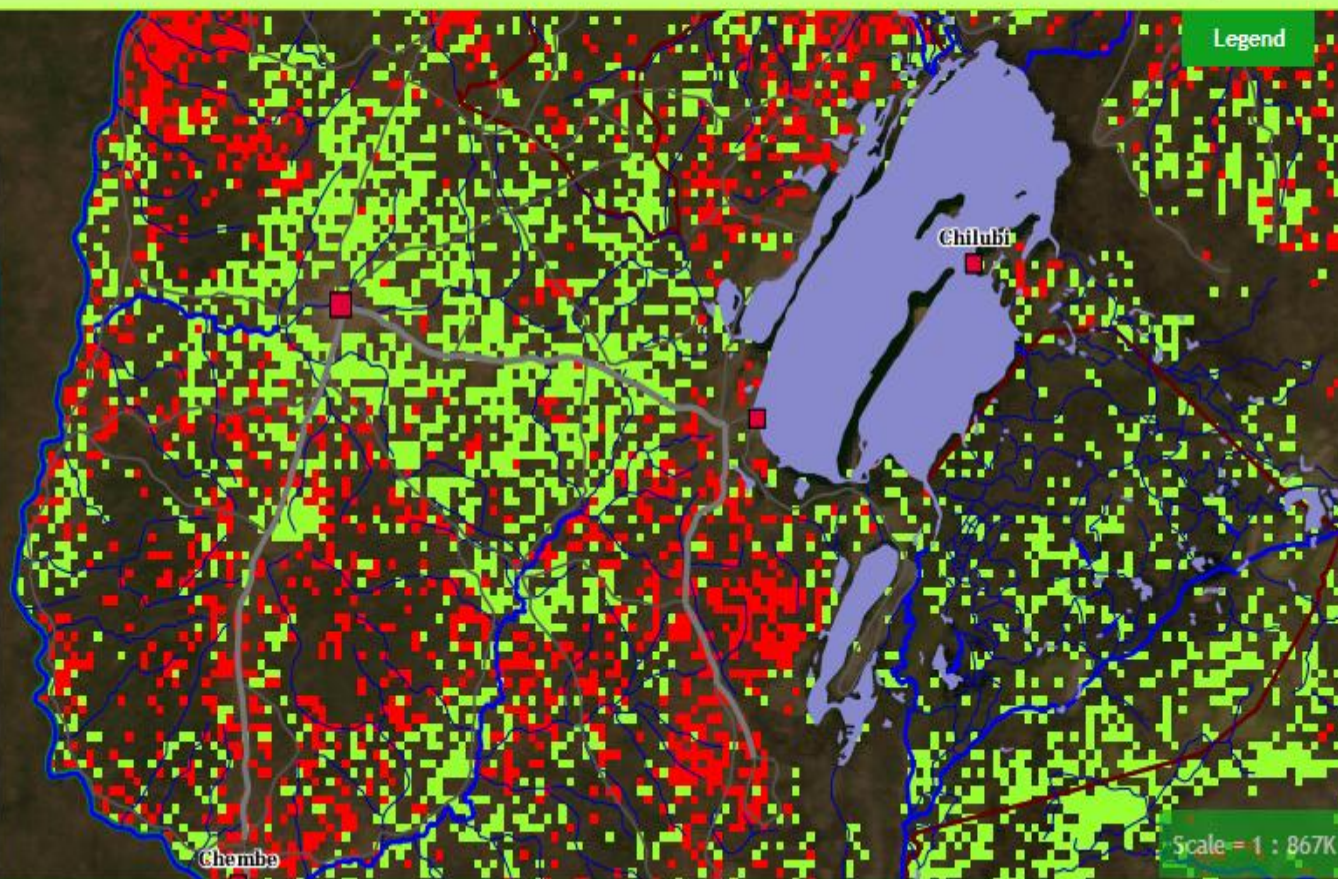
Land Use Assessment - ILUA I

Land Use Assessment - ILUA II

UN-REDD Programme - Zambia
Quick Start Initiative

REDD+ Projects

Legend



Forest Cover

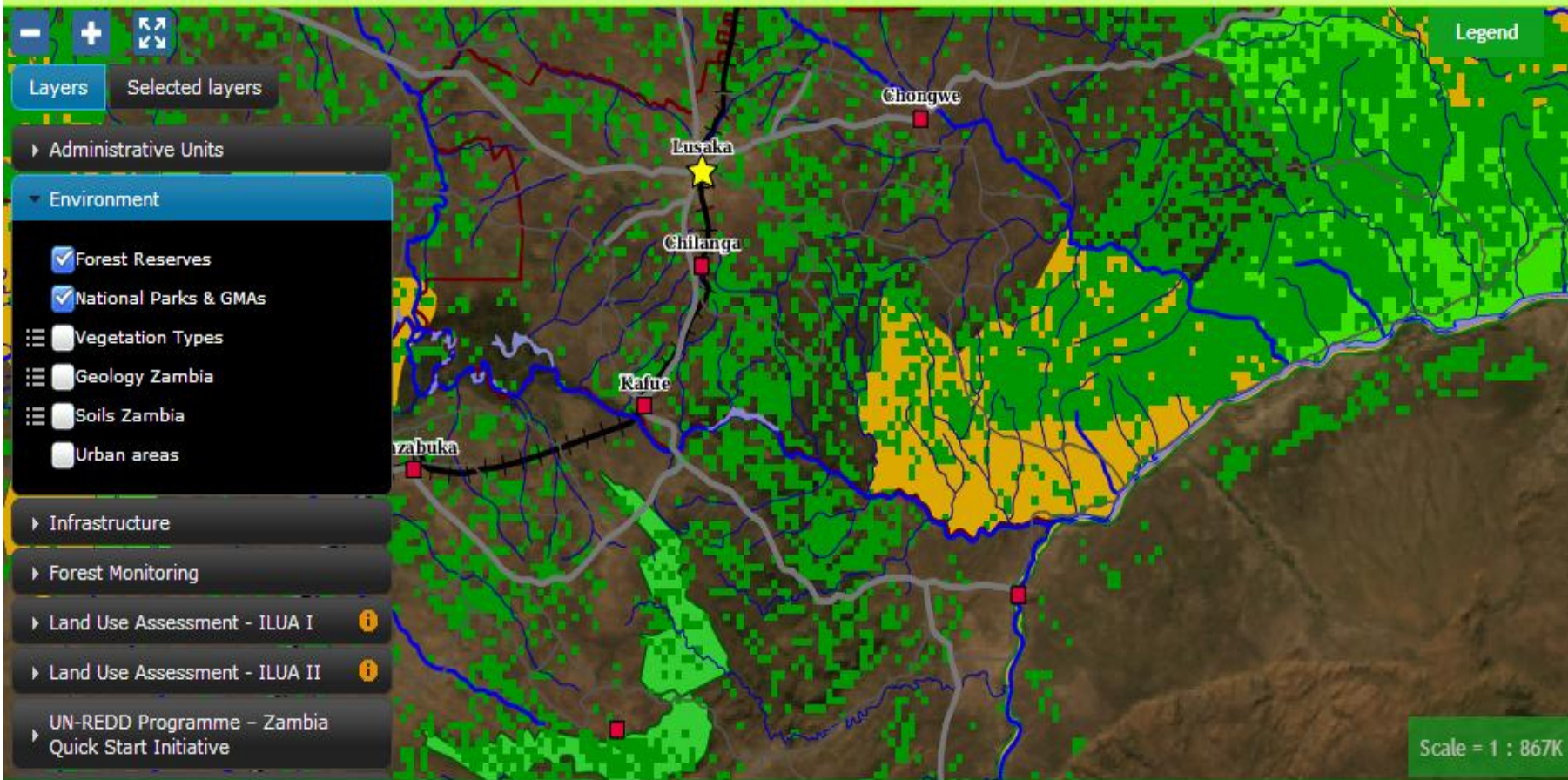
Nemestrinus

National Forest Monitoring System - Zambia



2000

English



Vegetation Maps

Nemestrinus

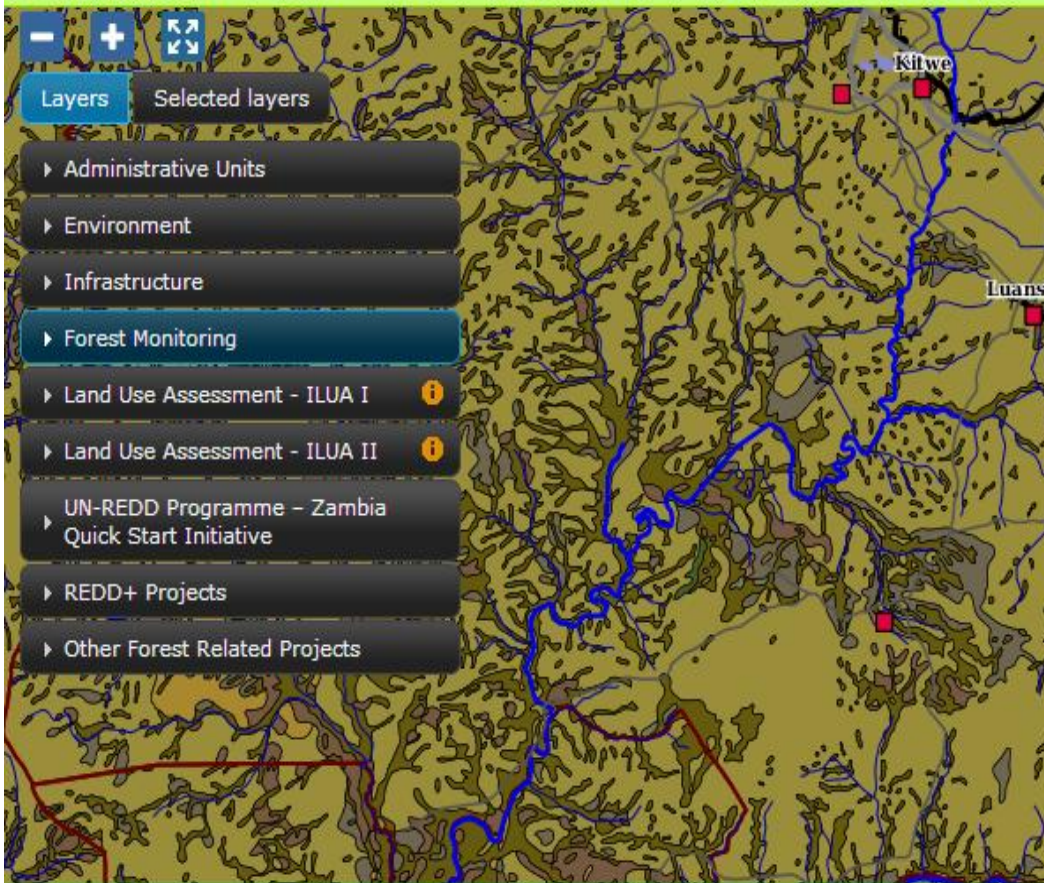
National Forest Monitoring System - Zambia



2000

English

Legend



Legend

- Kalahari sand chipya
- Baikiaea forest and deciduous thicket
- Itigi Forest
- Montane Forest
- Swamp forest
- Riparian forest
- Miombo woodland on plateau, escarpment and valley soils
- Miombo woodland on hills and rocky outcrops
- Kalahari woodland on sands
- Mopane woodland on clays
- Munga woodland on heavy soils
- Termitary associated vegetation, and bush groups within grass
- All naturally treeless and grassy areas

Integration: Portal to wiki

http://localhost/ localhost nested iframes

portal geoserver geobatch UNREDD DB

National Forest Monitoring System - Zambia

UN-REDD PROGRAMME

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Outcome 4: Strategies identified

According to the [Zambia UN-REDD Programme document](#) Community-based REDD+ strategies need to be developed to counteract the drivers of deforestation. The envisaged outputs under Outcome 4 from the project document were as follows: </p></p></div>

Decentralized National Forest Monitoring System

- Zambian NFMS aims to provide Zambia a Forest Monitoring platform whilst deliver Activity Data for GHG reporting from Forest Lands.
- Infrastructure development and capacity building for 10 provincial GIS offices in Zambia
 - Hardware (Desktop computers, scanner, plotter, printer) and Software (ArcGIS 10) for GIS units was procured and installed in provincial GIS units
 - Training of 47 provincial and Lusaka based staff; GIS, GPS, MRV and GHG reporting
- Provincial GIS units will collect real-time data on deforestation and degradation in the provinces.
- Online portal for the NFMS will make information **transparent** and available online

National GHG Inventory

- The Ministry of Lands, Natural resources and Environmental Protection through Zambia Environmental Management Agency (ZEMA) is responsible for GHG Reporting
- Forestry Department which coordinates ILUA II and UN-REDD Programmes is the GHG Source Lead Institution
- Among other tools ALU software through a project is being tested.

**Thank you for
your attention**