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# National Forest Monitoring Systems for REDD+: Functions & Tools for Spatial Analysis

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# Outline

- National Forest Monitoring Systems for REDD+
  - Purpose and Functions
- Forest Monitoring for REDD+
  - Forest Monitoring Tool: Terra-Amazon & Web-GIS Portal
- MRV of Forest Carbon: Activity Data Assessment
  - Activity Data Tool: Open Foris Collect Earth

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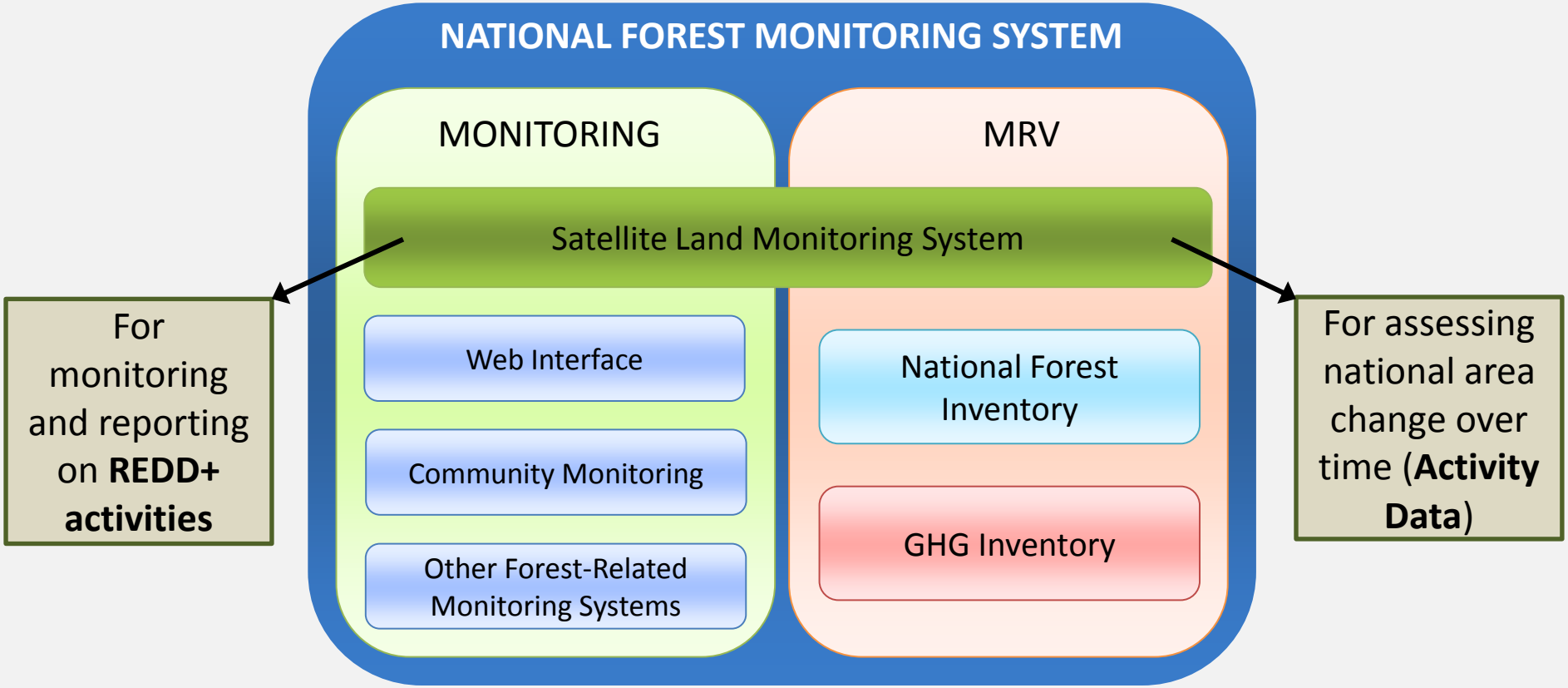
REDD+ Requirements

# National forest monitoring systems

# National Forest Monitoring Systems for REDD+



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NFMS Functions

# Monitoring of REDD+ activities

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# Forest Monitoring for REDD+: Deter (2004)

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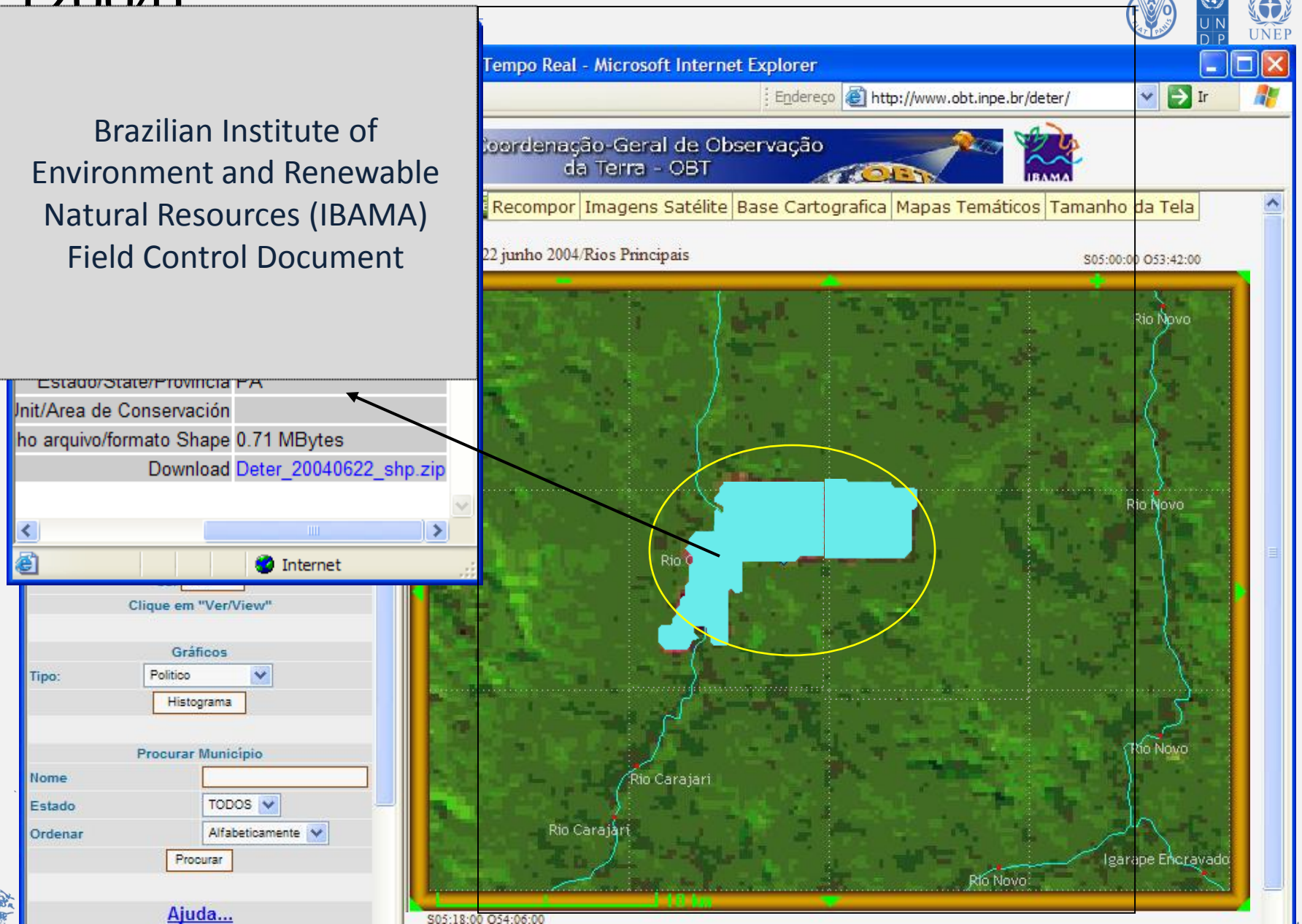
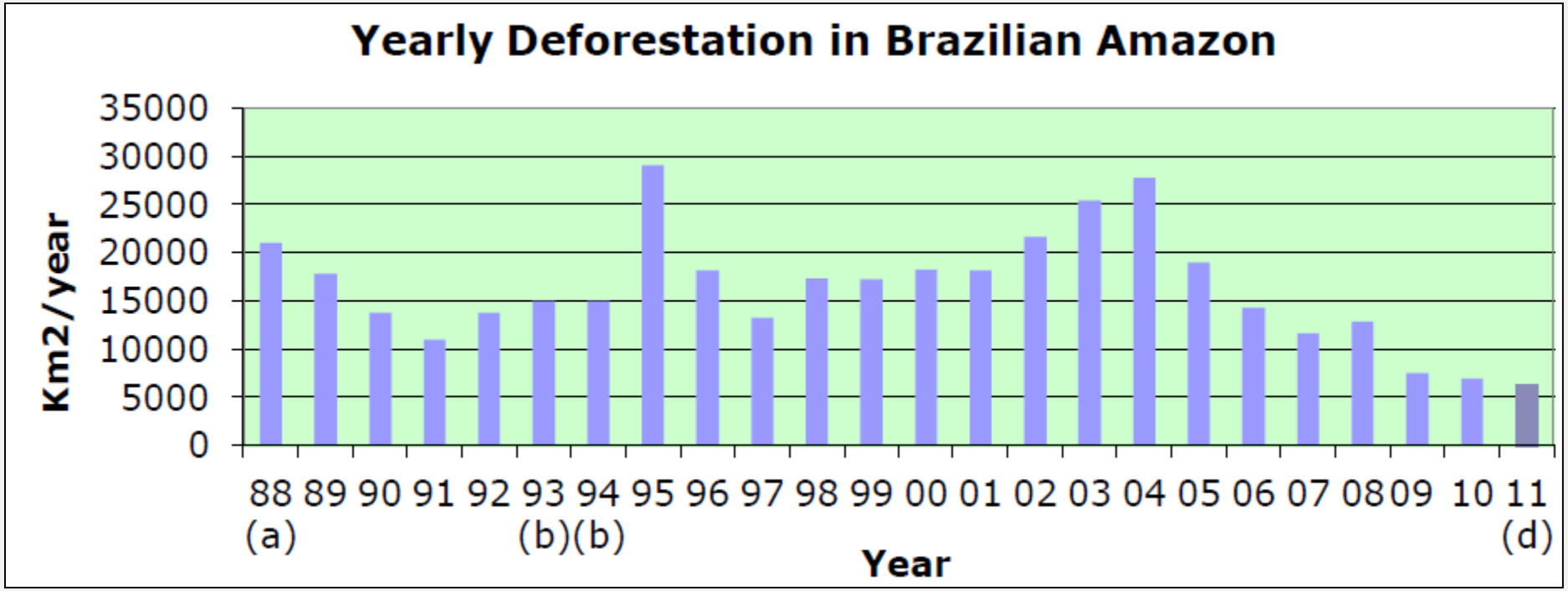
Brazilian Institute of Environment and Renewable Natural Resources (IBAMA) Field Control Document



# Brazil

## Amazonian deforestation rates 1988-2011



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Forest Monitoring Tool

# Terramazon & web-interface

# TerraAmazon Platform

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- **GIS tool** designed to be a multi-user editor of geographic vector data
- Free of charge
- Extensible through plug-ins (Digital image processing: layer-stacking, georeferencing, contrast enhancement, band operation, Mixture Model, thresholding, classification, segmentation, etc.)
- Up to 20 concurrent users during the interpretation phase

**Web portal**

- Allows a country to monitor the outcomes of the implementation of its REDD+ policies and measures and communicate the results to the international community (transparent and open data access)
- Allows any user to interact with the system through a user-friendly web-interface
- Visualise data; Download statistics; Visualise information on logging concessions, protected areas, REDD+ activities, etc.
- Allows users to provide feedback, e.g. on areas of deforestation

# Forest Monitoring for REDD+

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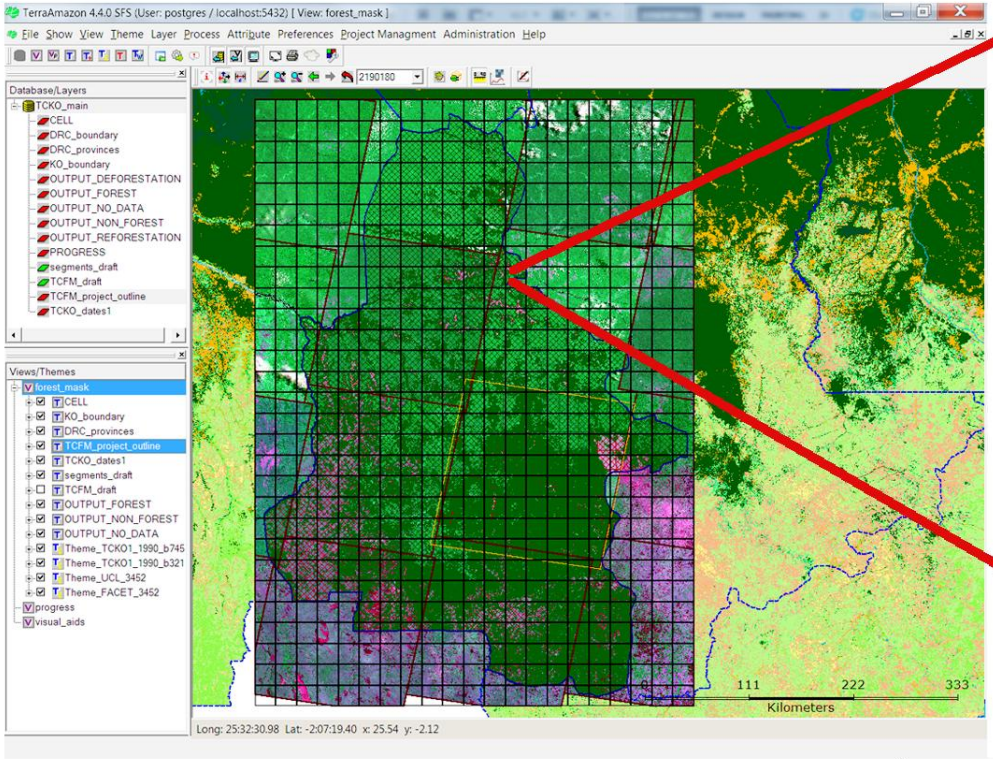
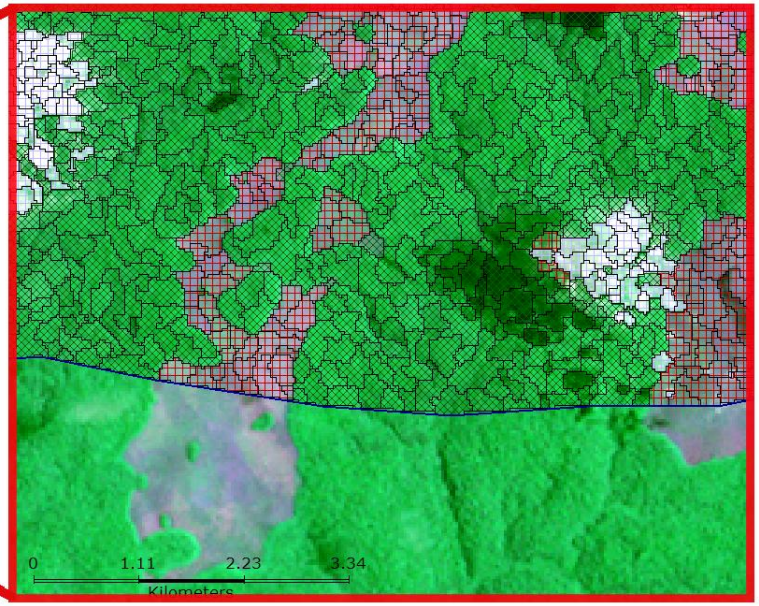
TERRA AMAZON

Satellite data, maps, algorithms, expertise

Basic image interpretation
Database
Storage
Review / Revision
Validation

## TerrAmazon Projects

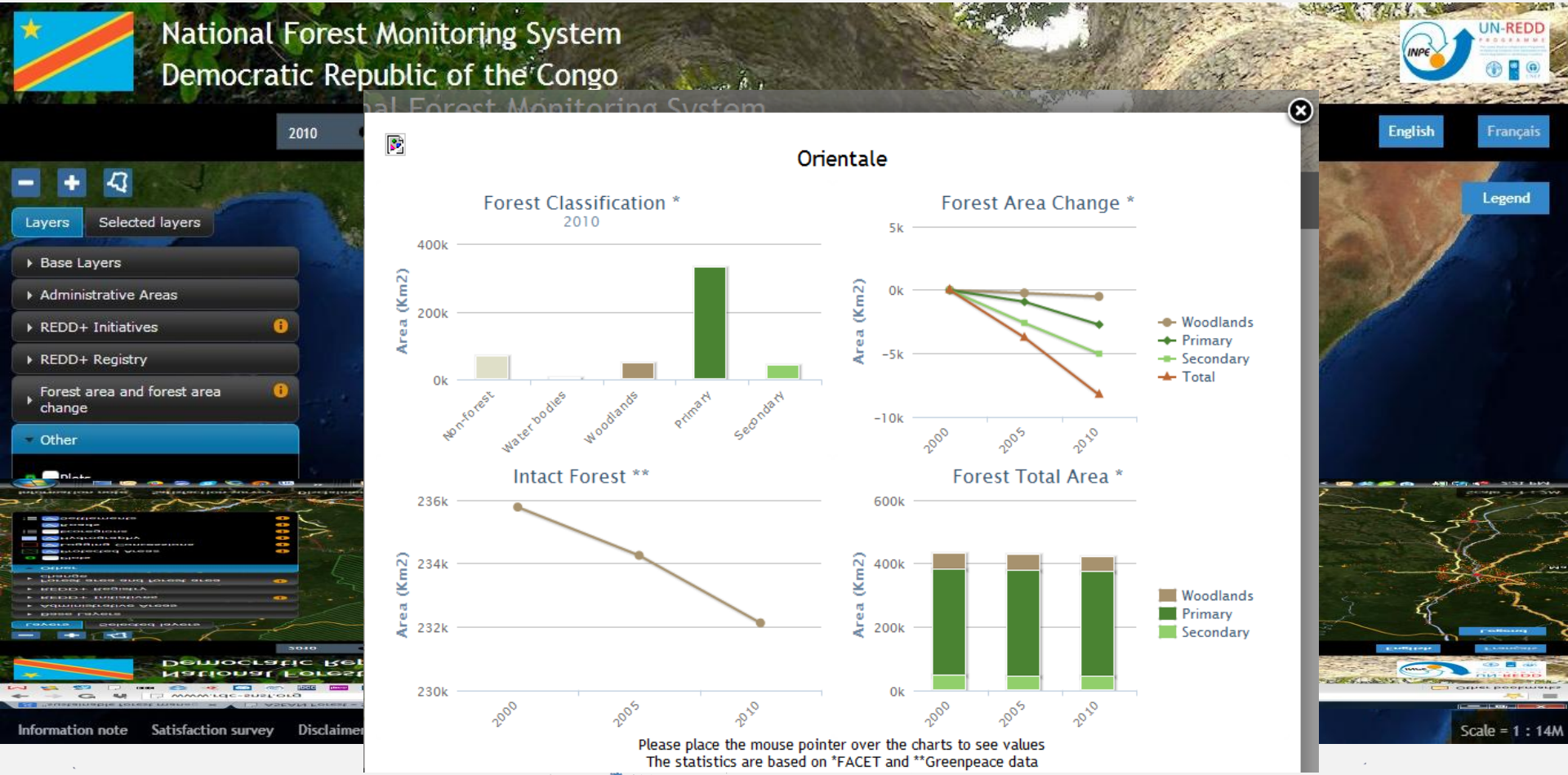



***pre-classified segments within the project area***

# Democratic Republic of Congo (DRC)

## Forest Monitoring for REDD+




http://www.rdc-snsf.org

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NFMS Functions

# MRV of forest carbon

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# Activity Data:
# Step 1: Representation of Land Use

- Land Use categories: Forest land
  - Land Use sub-categories: Forest Land remaining Forest Land or Other Land becoming Forest Land

| **Forest land remaining Forest Land Subdivisions** | **Other Land becoming Forest Land Subdivisions** |
|---|---|
| •Low altitude forest on plainsand fans<br>•Low altitude forest on uplands<br>•Lower montane forest<br>•Montane forest<br>•Dry seasonal forest<br>•Littoral forest<br>•Seral forest<br>•Swamp forest<br>•Woodland<br>•Savanna<br>•Scrub<br>•Mangrove | •Cropland becoming Forest Land<br>•Grassland becoming Forest Land<br>•Wetland becoming Forest Land<br>•Settlement becoming Forest Land<br>•Other Land becoming Forest Land |

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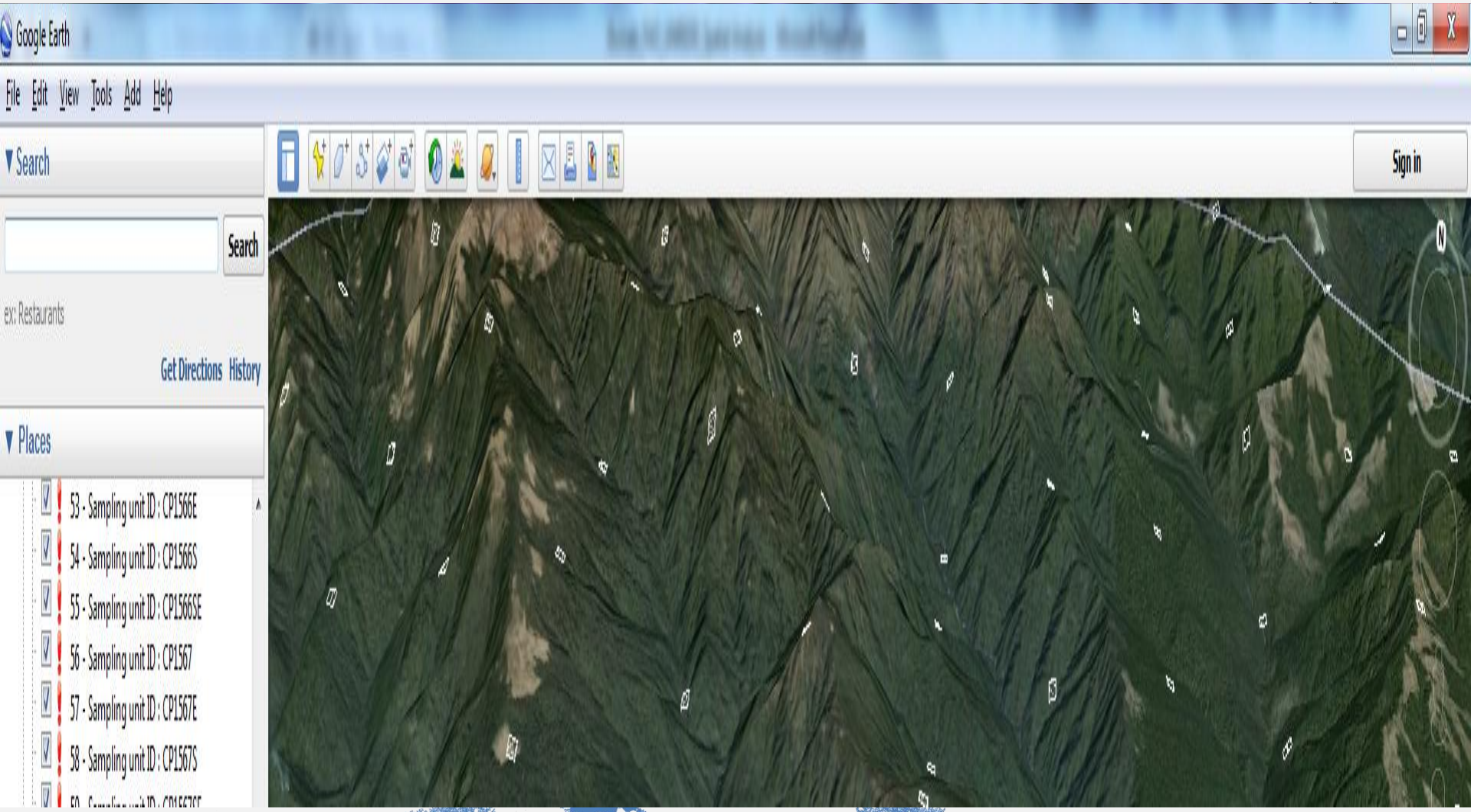
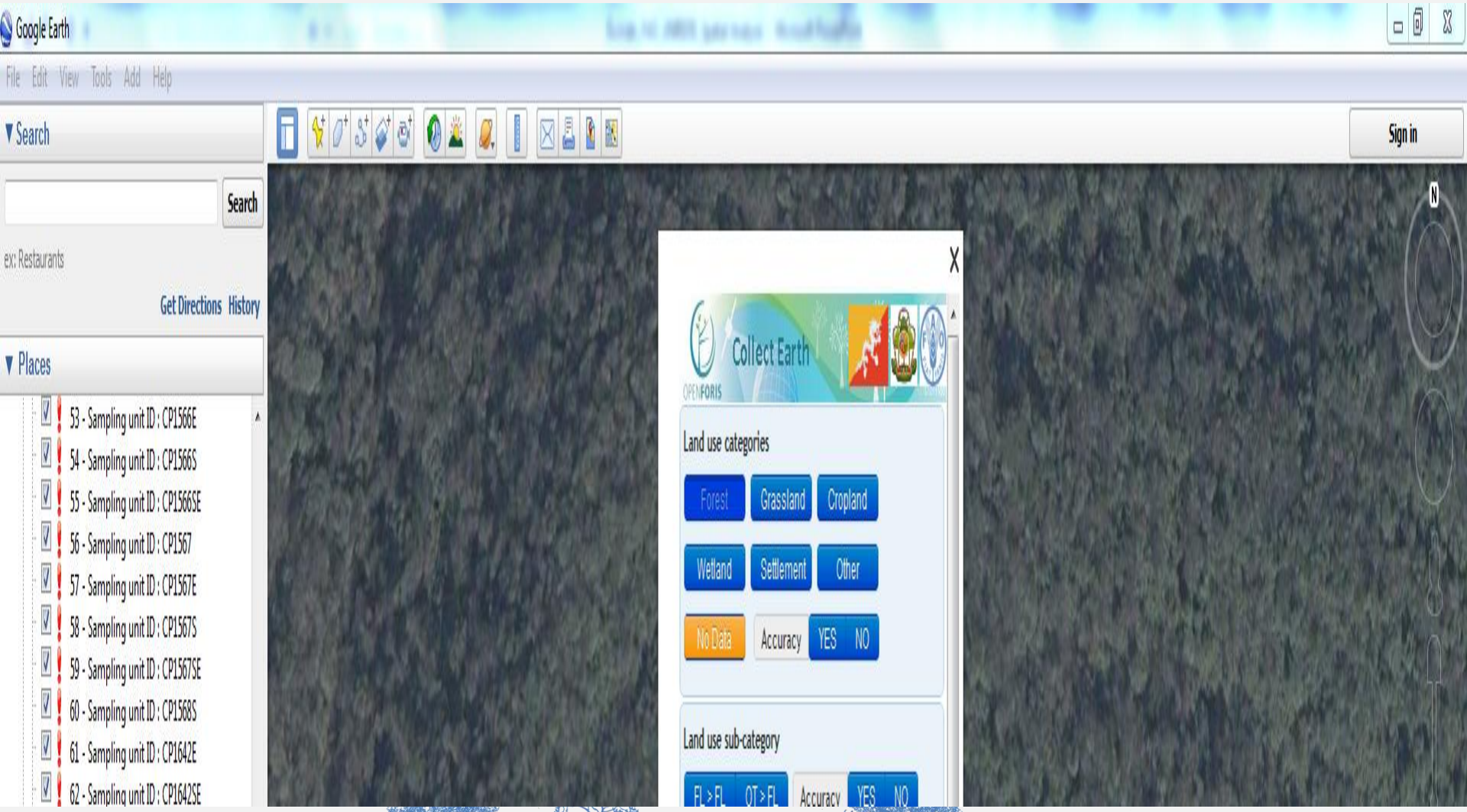
Activity Data Assessment Tool

# Open foris collect earth

# Open Foris Collect Earth – Bhutan



# Open Foris Collect Earth – Bhutan



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# Thank you