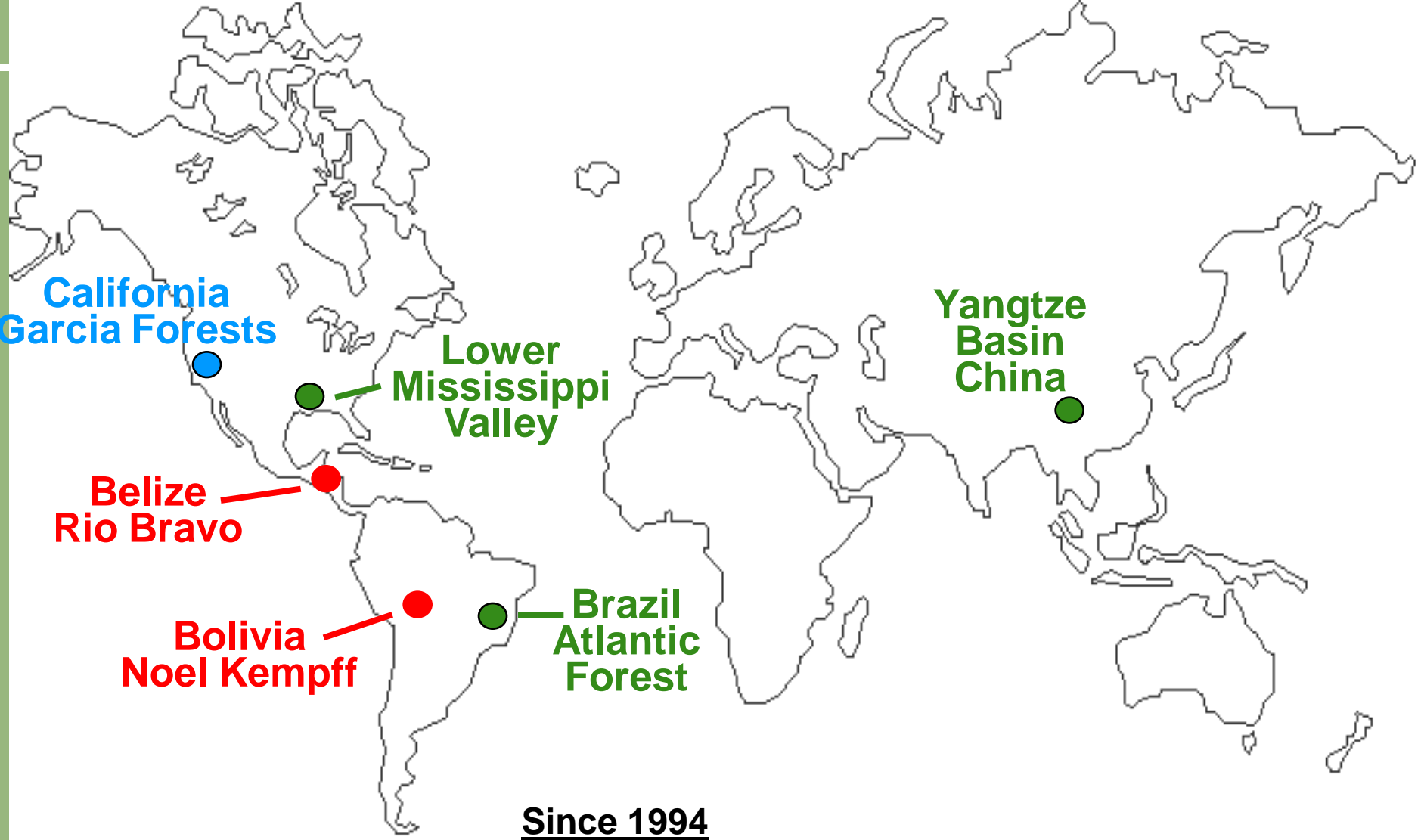


# Overview of Berau Forest Carbon Program *Carbon Accounting*

Photo © Mark Godfrey/The Nature Conservancy

# TNC Portfolio of Implemented Forest Carbon Projects



**Since 1994**

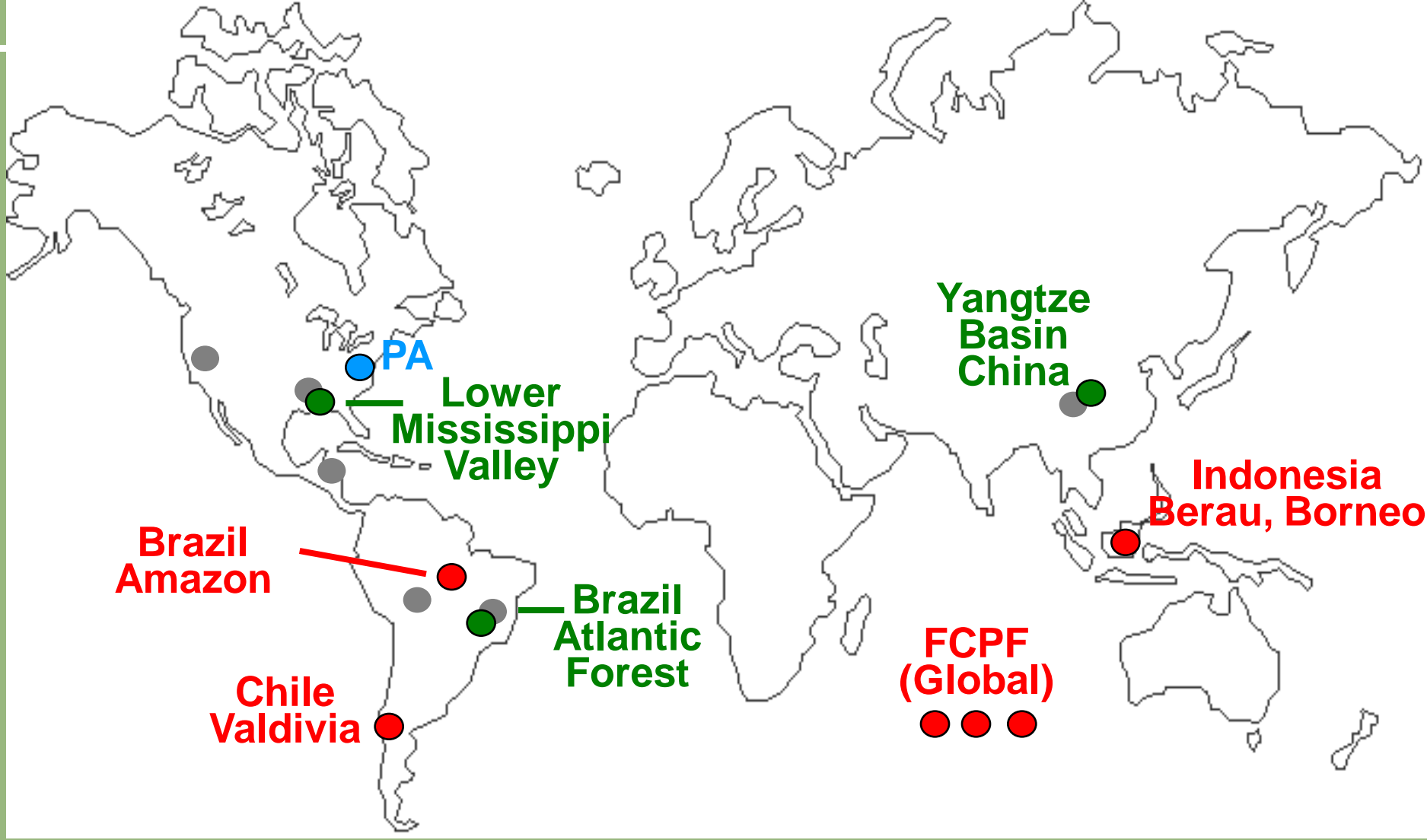
**720,000 hectares**

**7 million tons of CO<sub>2</sub> (over project lifetimes)**

**\$39 million in carbon finance**

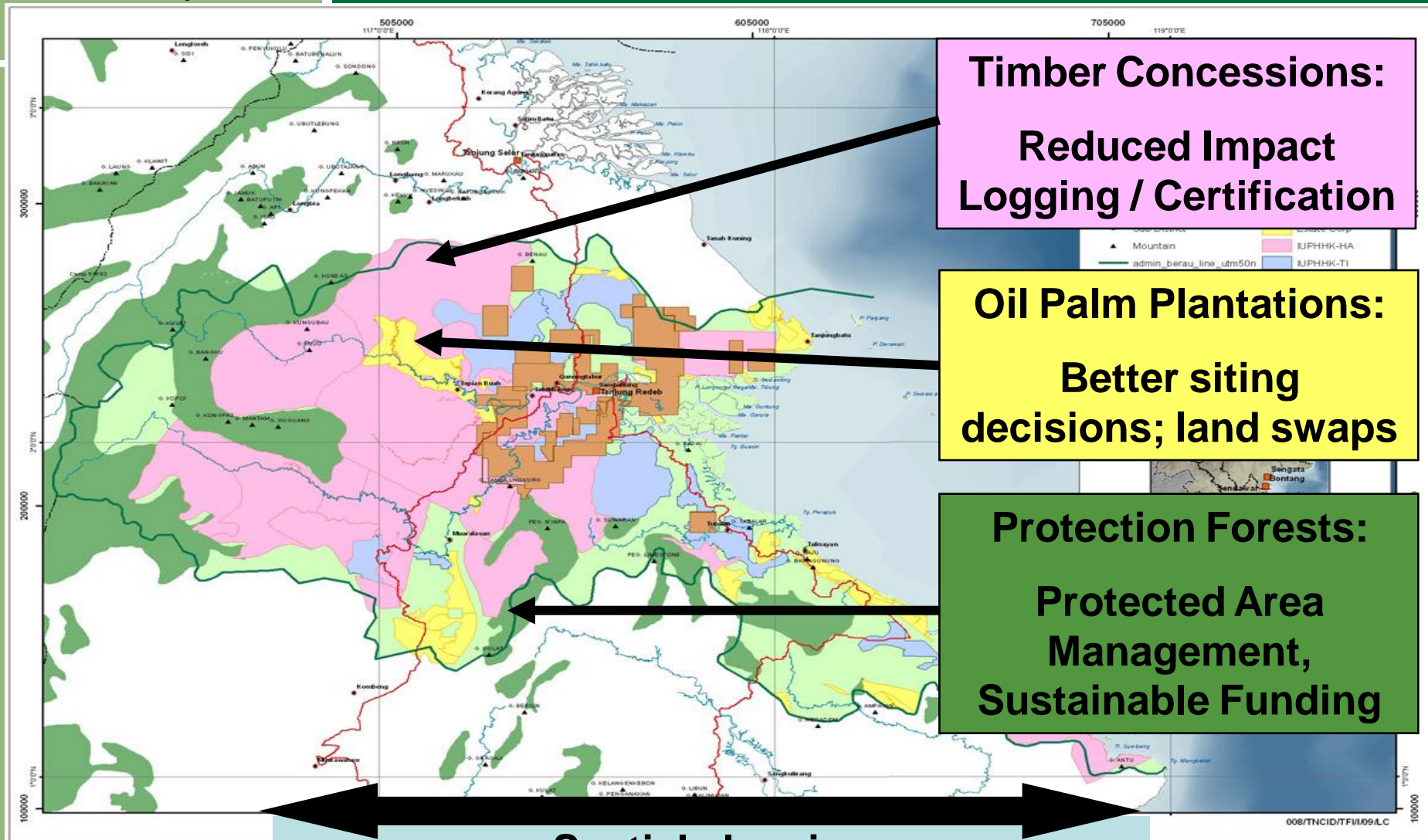
-  REDD
-  Reforestation
-  Forest Mgmt.

# Developing TNC Project Opportunities

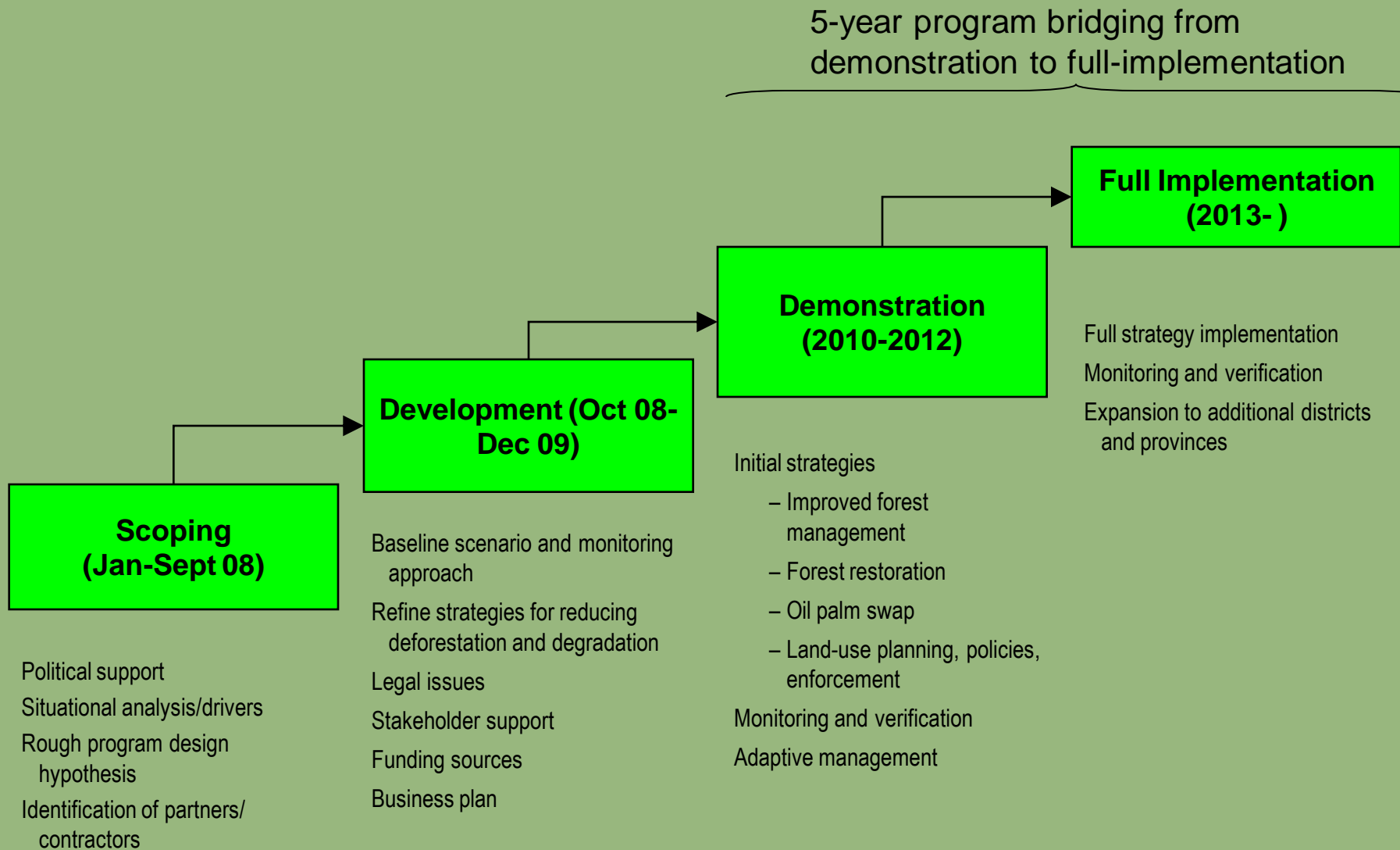


-  REDD
-  Reforestation
-  Forest Mgmt.

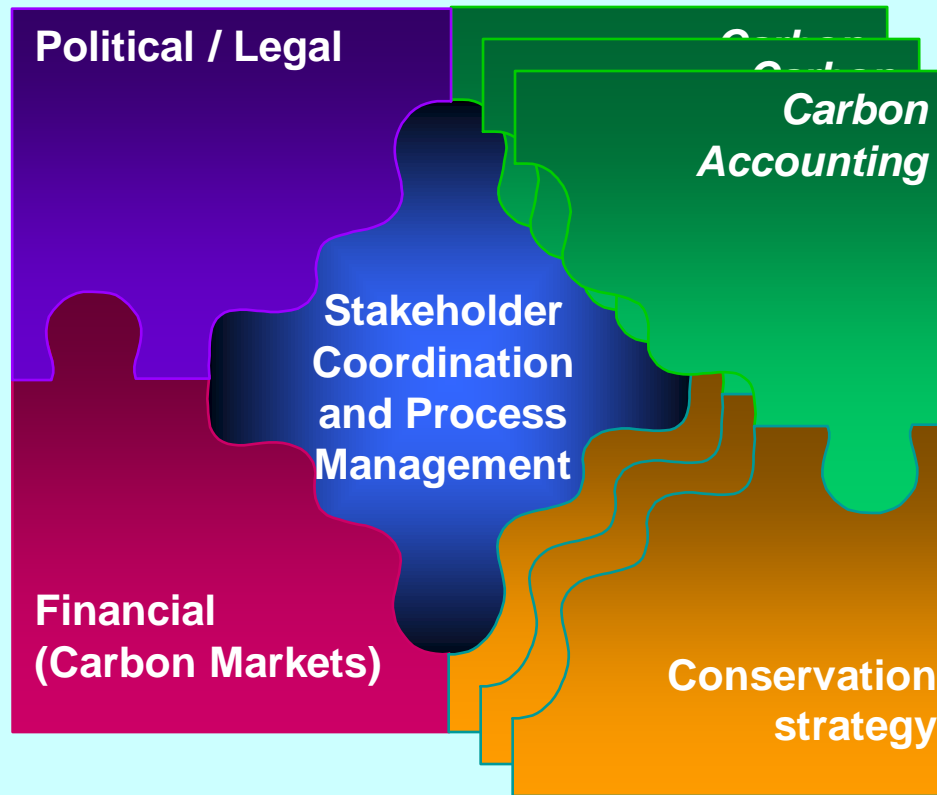




# PHASES OF PROGRAM



## Building a REDD Pilot Project Involves..

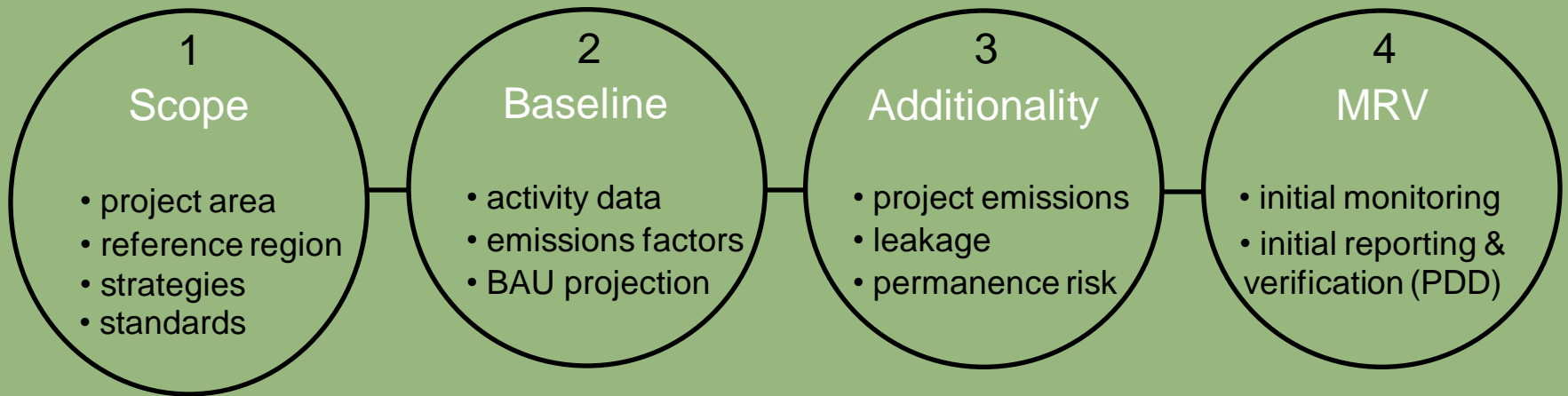


**NESTING** at District, National, & Global Scales  
(esp. accounting and political/legal)

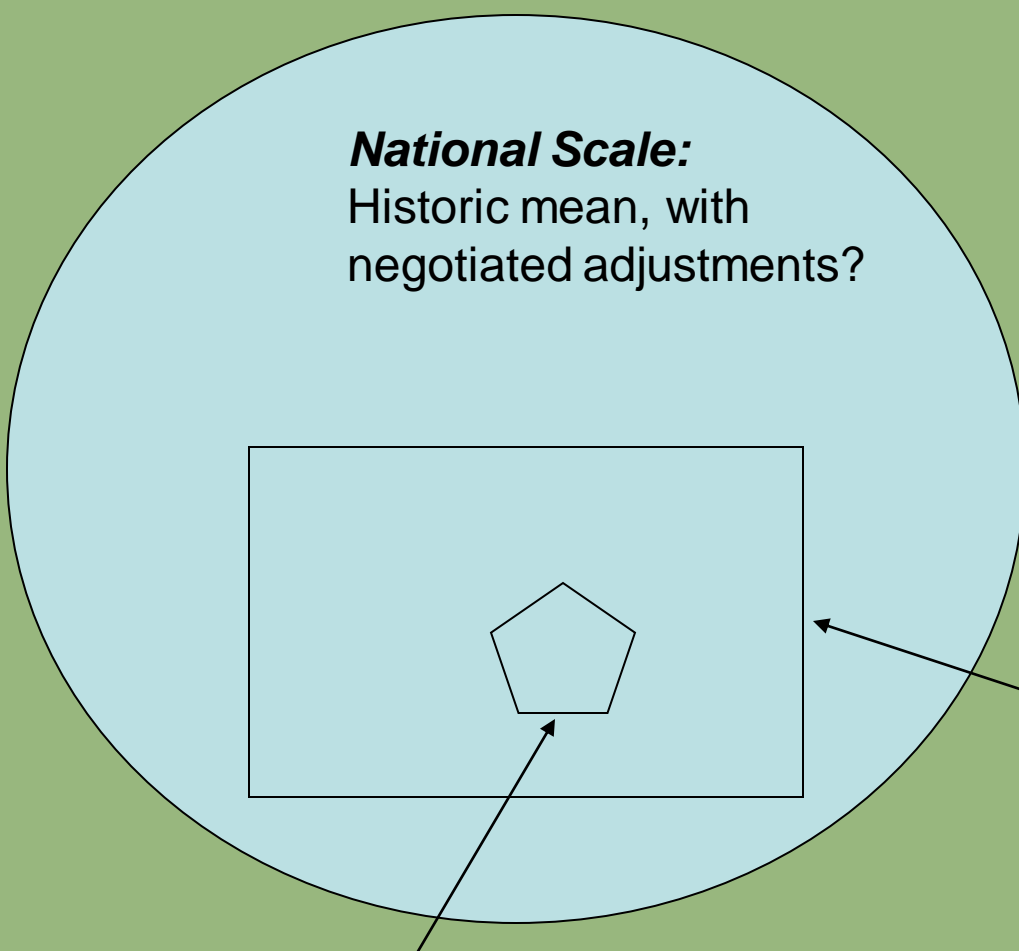
1. Demonstrate credible, affordable, & state-of-the-art accounting of emissions avoided.
2. Verifiable by leading standards.
3. Nested within national accounting system.
4. Anticipates and informs emerging global framework.



# Elements of Project Carbon Accounting



# Nested Baselines



**National Scale:**  
Historic mean, with  
negotiated adjustments?

**Project Scale:**  
Mixed. Modeled projection for unplanned?  
Book-keeping for planned?

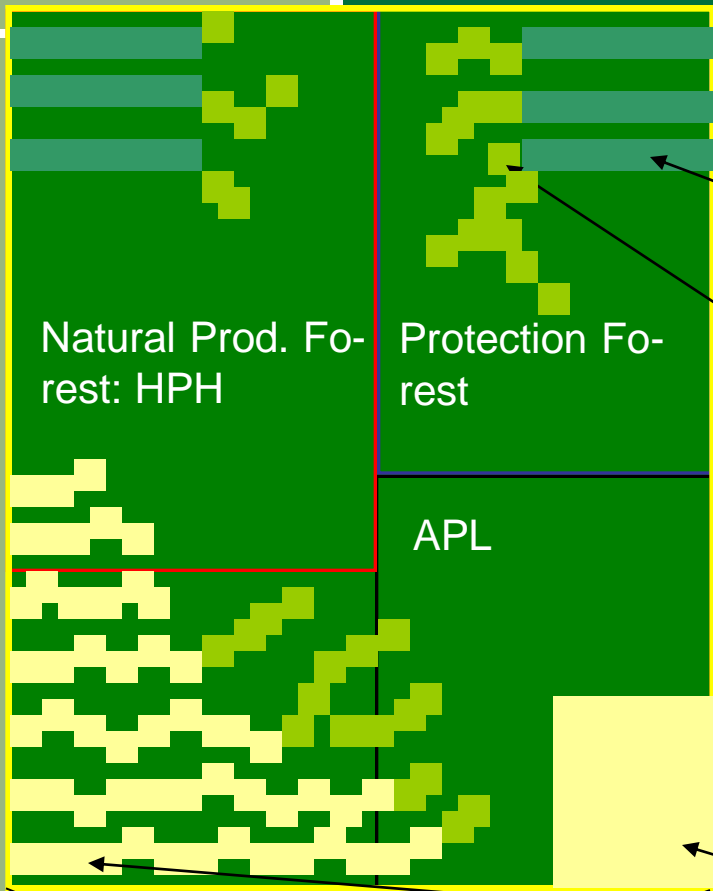
## *Related Questions:*

- Same monitoring systems used at all levels?
- Reference region for projects same as sub-national accounting scale?
- Same monitoring systems used for all scales?
- Same standards used at all scales?

## **Sub-National Scale**

(e.g. State/Province/District):  
Modeled projection, to determine proportion of national emissions pie?  
Separate models for deforestation. vs. degradation.?

# Forest Carbon Accounting: Sub-National



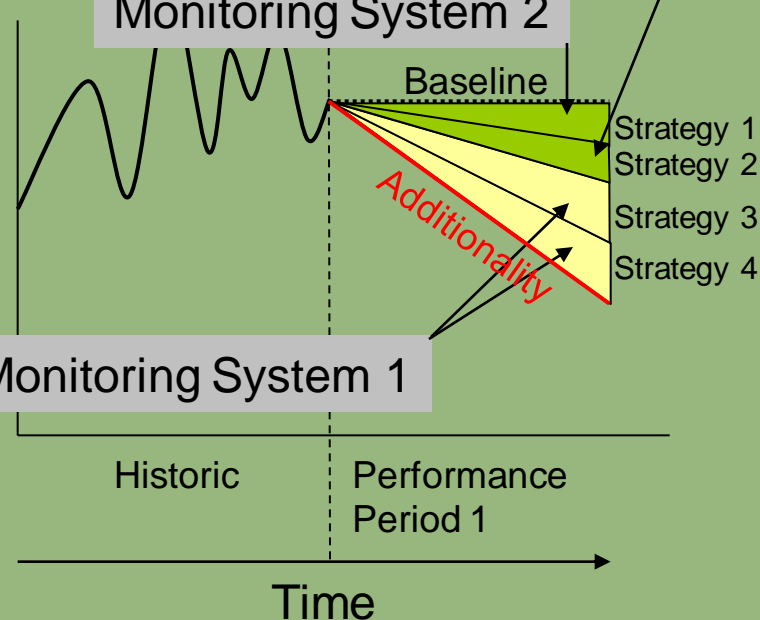
- Strategy 1. Stop illegal logging (unplanned).
- Strategy 2. Reduced Impact Logging (RIL) program for private landholders and indigenous community lands with clear tenure (planned).
- Strategy 3. Reduced deforestation: small-scale farmers with unclear tenure (unplanned).
- Strategy 4. Reduced deforestation: large landholders with clear tenure (planned).

Monitoring System 3

Monitoring System 2

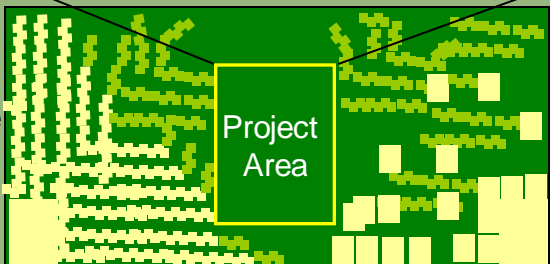
Monitoring System 1

Forest Carbon Emissions



- Strategy 1
- Strategy 2
- Strategy 3
- Strategy 4

Reference Region



Project Area

## Current projects

- Historical emissions estimation (ICRAF/UNMUL)
- Modeling reference scenario options (TNC/ICRAF/UNMUL)
- Emission factors from logging (Winrock), and certain reduced impact logging techniques (TNC)
- Evaluating options for integrated VCS methodology

# Activities: estimation of LULUCF carbon emissions

Compile and review **existing literature and available datasets** relevant to estimating forest carbon stocks and emissions in Berau.

**Primary data collection of plot level** carbon stock measurement. In designing the plot samples to reduce plot-level uncertainties we will stratify based on vegetation cover, a-biotic factors and management types. Combustion completeness from slash and burnt activities will also be recorded based on interview about local practices and secondary data (CSF and ICRAF)

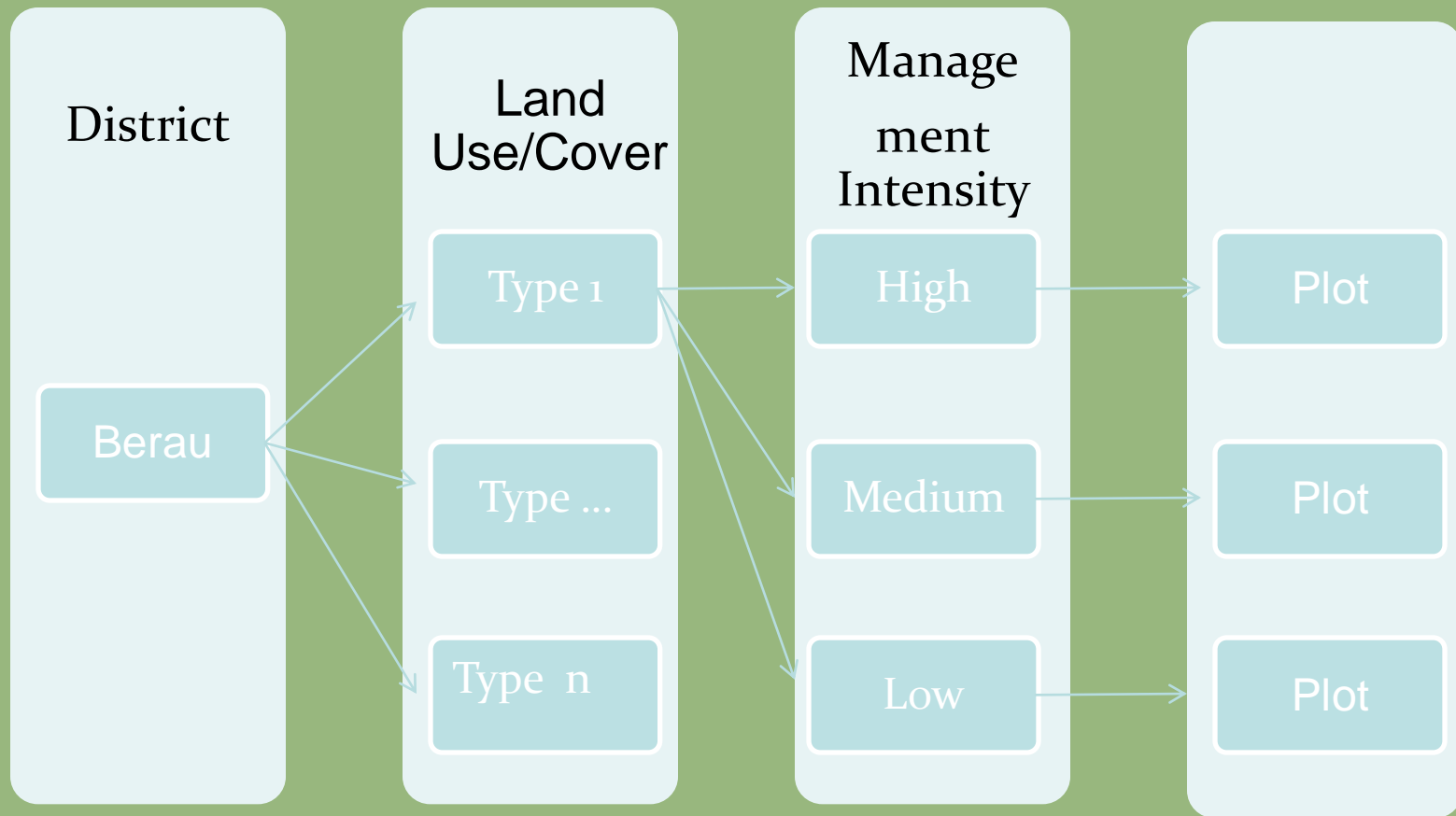
Data entry and analysis: choices allometric equation (CSF and ICRAF)

**Groundtruthing** for the satellite image interpretation (CSF)

**Spatial analysis to derive land use cover changes** during the period of 1990-2008 and accuracy assessment. For satellite image interpretation we will use hierarchical, object-based classification techniques (ICRAF)

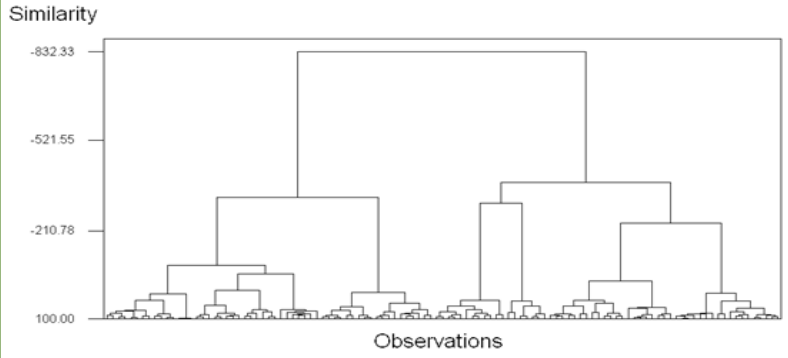
**Upscaling** from plot to landscape level (ICRAF)

# Stratification of Sampling



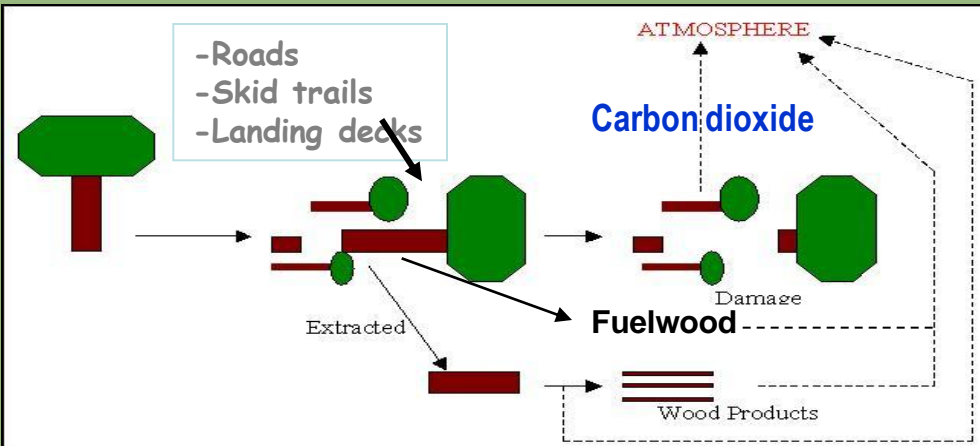
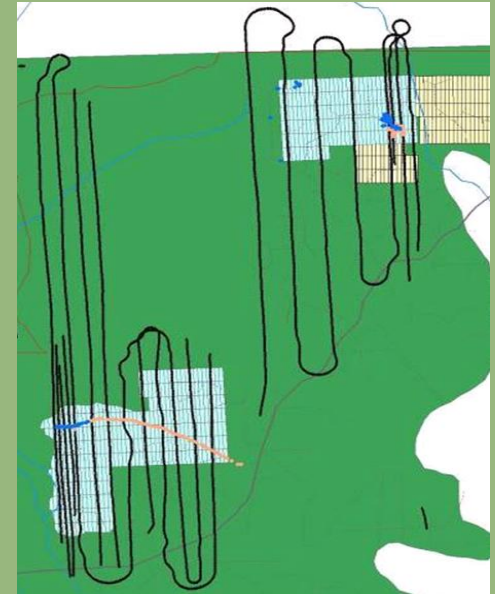
Source: ICRAF/UNMUL, 2009

# Logging Emission Factors— Winrock International



1. Stratify concessions  
(landforms, distance to market,  
landcover, etc.)

2. Flyovers and  
high-resolution  
photography



4. Field  
measurements



3. Analysis of  
photography

# Next Steps

1. Internal workshop in October 09 with project partners to harmonize approach
2. Integration with national framework (iterative approach)
3. Reviewing approach more broadly with Technical Review Panel
4. Planned future projects
  - Alternative approach to degradation mapping (IMAZON/Sekala/WRI)
  - Integration of land system maps into classification system (Daemeter/ ICRAF)
  - Low-carbon silvicultural system (Forest Carbon, TNC)
  - FSC+Carbon standards (FSC, TNC)

# TERIMA KASIH

