



## World Bank Forestry Mitigation Strategy and Actions

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**CLIMATE CHANGE AND MITIGATION IN AGRICULTURE IN LATIN AMERICA AND THE CARIBBEAN:  
INVESTMENTS AND ACTIONS**

**Food and Agriculture Organization, Rome  
April 20, 2010**

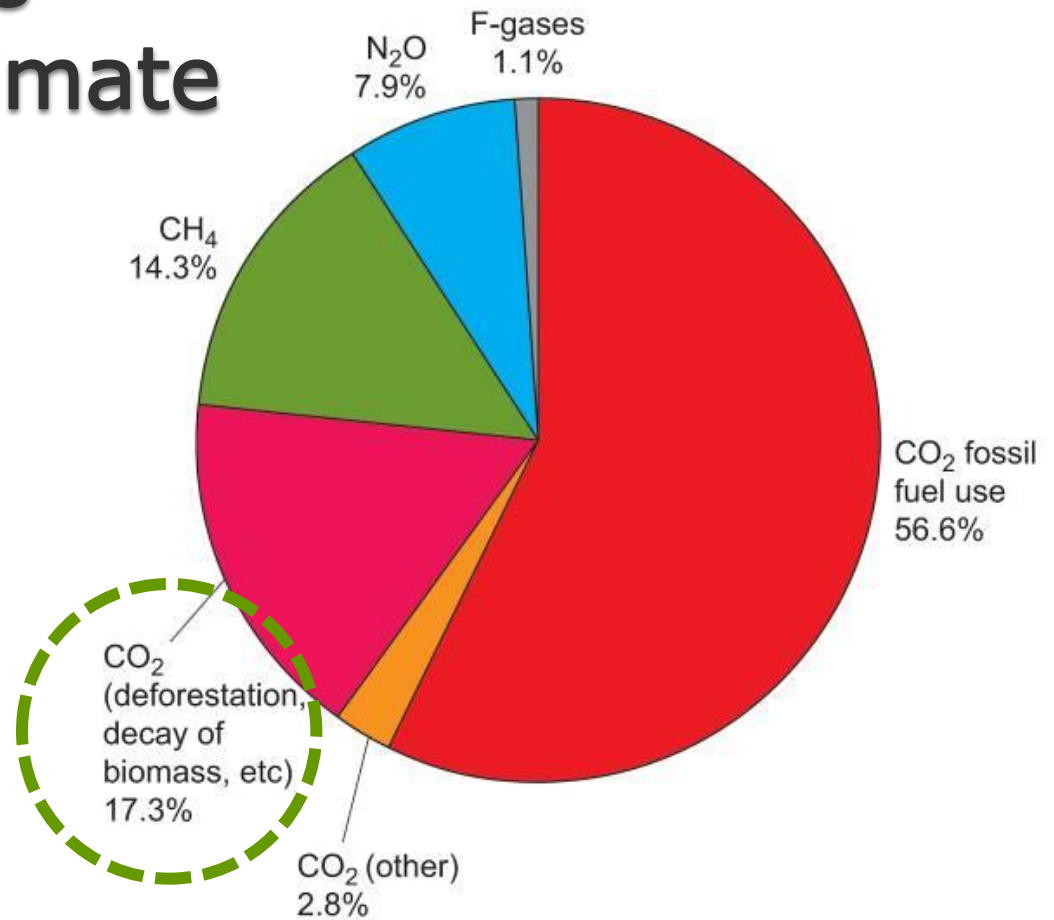


# Outline

- Forests and Climate Change
- Reducing emissions from deforestation and forest degradation in developing countries – REDD
- National REDD Readiness
- Forest Carbon Partnership Facility (FCPF)
- FCPF Readiness Fund
- Forest Investment Program (FIP) – Investments & Criteria
- Areas for Further Work for REDD+: Countries, Institutions, UNFCCC
- Further work: Afforestation, Reforestation, AFOLU?

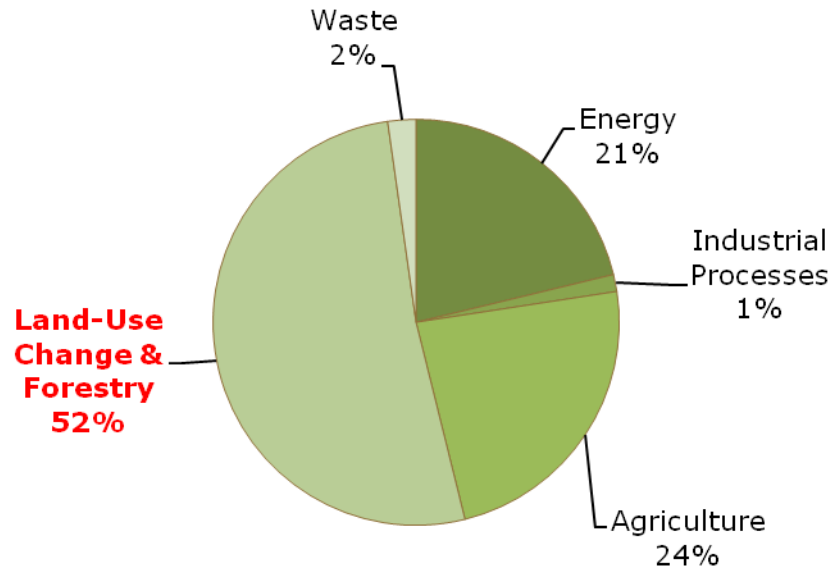


# Why are forests important in climate change?

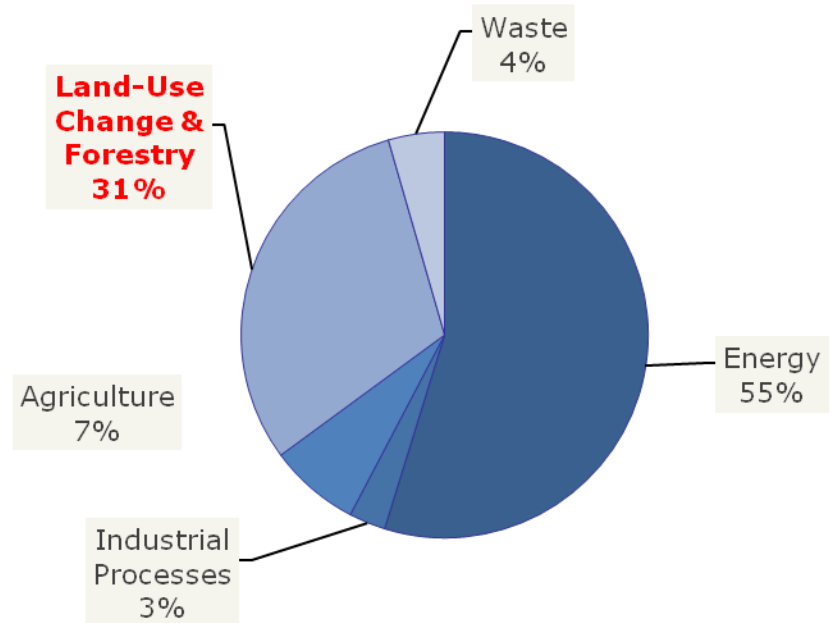


# Why are forests important in climate change?

## South America



## Central America & Caribbean



Source: WRI. <http://cait.wri.org/>





# Why REDD?

- In Bali, 2007, the parties agreed to investigate “Policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries.”



# Why REDD?

## REDD...

- Is relatively cost effective
- Has immediate impact
- Has co-benefits (Stern Review 2006) :
  - Biodiversity conservation
  - Research and development
  - Watershed protection
  - Improved livelihoods for communities
    - Traditional products
    - Tourism
- Reduced vulnerability



# Why REDD?

- Costs of REDD
  - Establishing REDD in 40 countries:  
**\$4 billion over 5 years**
  - Payments to reduce deforestation by 50%:  
**\$17-33 billion/year**
  - Implementation and opportunity cost 2010-2200:  
\$1.7 trillion
- Benefits of reducing deforestation by 50%
  - Avoided costs from climate change 2010-2200: **\$5.3 trillion**
- Net Benefits (NPV)
  - **\$3.7 trillion**



Source: Eliasch Review (2008)





# National and Subnational Activities

- The causes of deforestation and forest degradation are often systemic
- Project or subnational level actions may suffer from leakage or unsustainability without national carbon monitoring and accounting, and an adequate national policy framework
- Projects and demonstration activities are important – but eventually, they need to be scaled up



# National and Subnational Activities

- At a minimum, there should be a national policy, monitoring, and accounting framework for REDD
- Creating these frameworks requires capacity-building and citizen participation at the national level



# National REDD Readiness

## REDD Financing Phases

**PROPOSAL  
FORMULATION**

**READINESS PREPARATION**

Strategy development and  
capacity building: consultation,  
training, analysis, design

**READINESS INVESTMENT**

Implementation of national  
REDD+ policies and measures

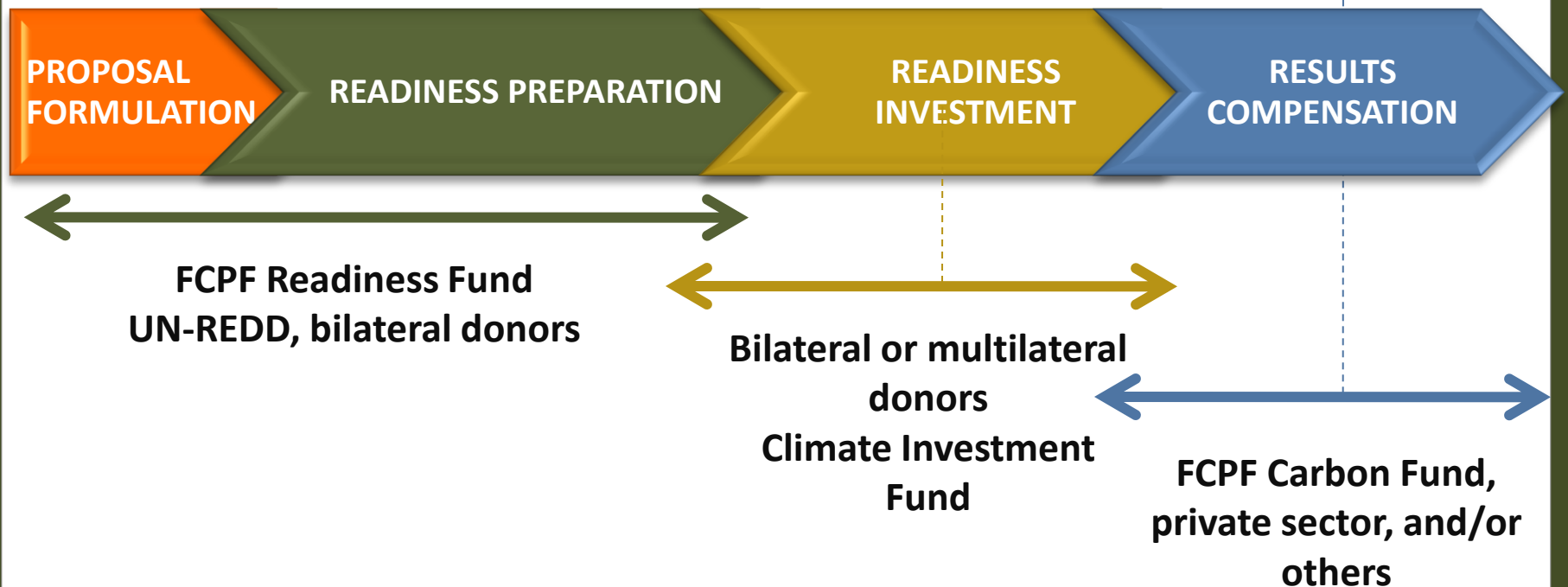
**RESULTS COMPENSATION**

for fully measured, reported, and  
verified emission reductions and  
removals

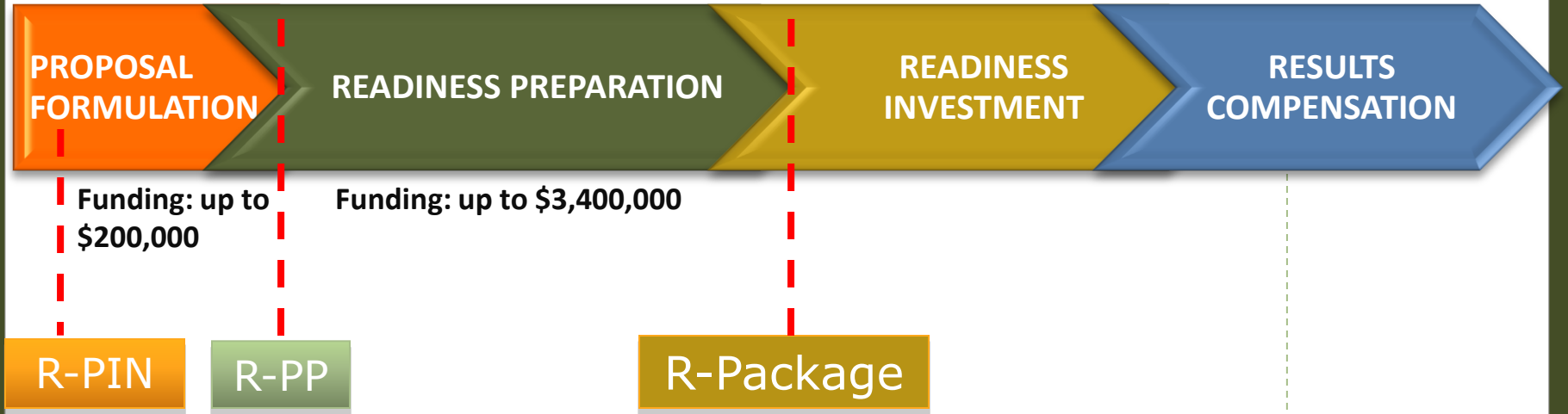


# National REDD Readiness

Working through two mechanisms: (1) the Readiness Mechanism and (2) the Carbon Finance Mechanism, the **Forest Carbon Partnership Facility (FCPF)** will help reduce deforestation and forest degradation. Developing countries will earn money from reduced carbon dioxide emissions realized by keeping their forests standing.



# FCPF Readiness Fund



# FCPF Readiness Fund



R-PP

## R-Package

National Reference Scenario

National Monitoring System

National REDD Strategy

- Implementation framework
- Social and environmental risk management frameworks



# FCPF Readiness Fund

PROPOSAL  
FORMULATION

READINESS PREPARATION

READINESS  
INVESTMENT

RESULTS  
COMPENSATION

R-PP

Organize and Consult

- National Readiness Management Arrangements
- Stakeholder Consultation and Participation

Prepare the REDD Strategy

- Assessment of Land Use, Forest Policy and Governance
- REDD Strategy Options
- REDD Implementation Framework
- Social and Environmental Impacts

Develop a Reference Scenario

Design a Monitoring System

- Emissions and Removals
- Other Benefits and Impacts

Schedule and Budget

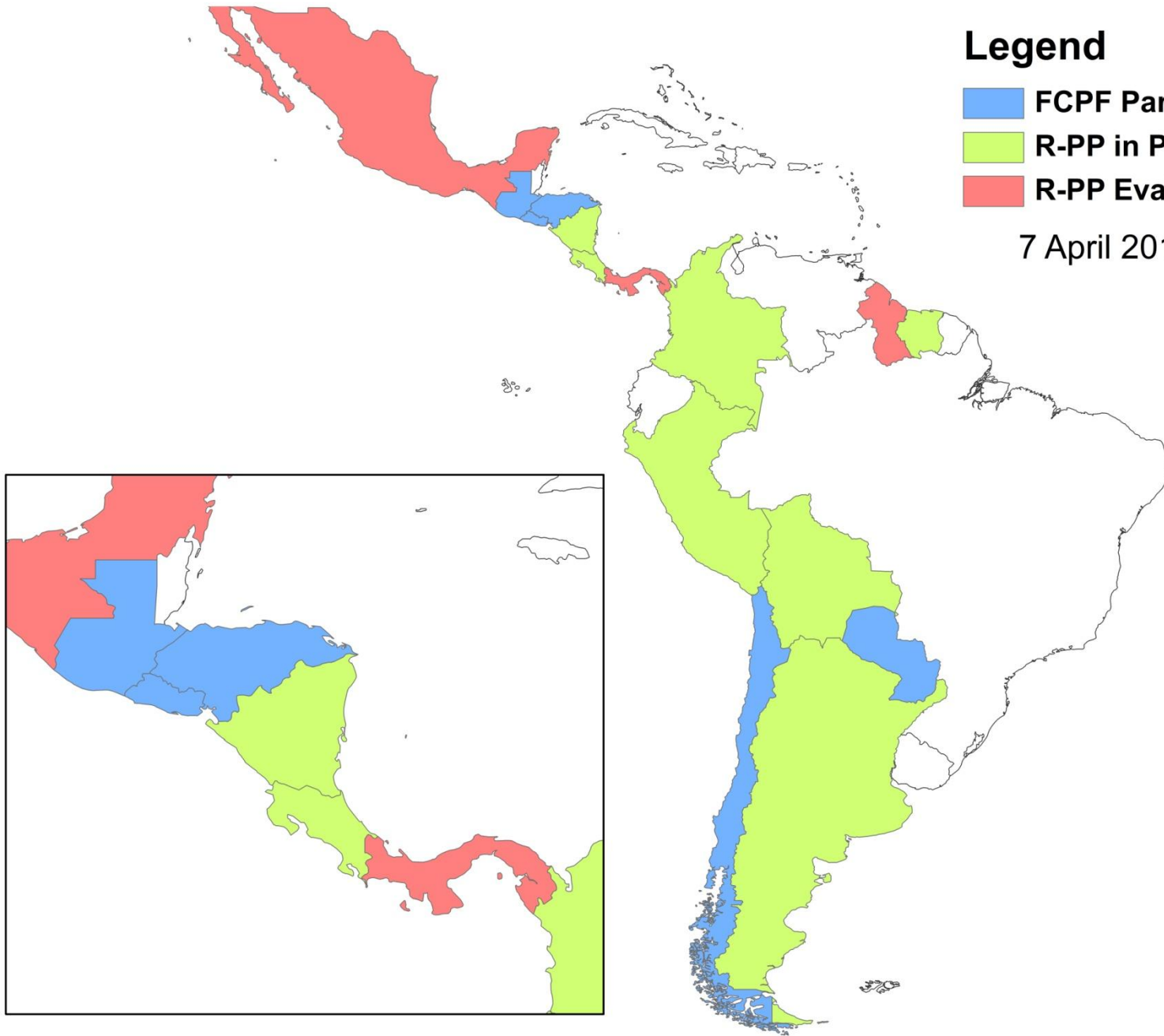
Design a Program Monitoring and Evaluation Framework



# Legend

- FCPF Participants
- R-PP in Preparation
- R-PP Evaluated by PC

7 April 2010





# Forest Investment Program (FIP)

- A program of the Strategic Climate Fund (SCF), one of two Climate Investment Funds (CIFs)
- Scaled-up, up-front bridge financing via a coalition of MDBs
- Finances readiness reforms and public and private investments, identified through national REDD readiness or equivalent strategies
- Programmatic investments aimed at transformational change in the forest sector or sectors affecting forests
- \$542 M



# Potential FIP Investments

- Build institutional capacity, forest governance and information
- Forest mitigation efforts, including forest ecosystem services
- Outside the forest sector necessary to reduce the pressure on forests such as alternative livelihood and poverty reduction opportunities



# Potential FIP Investments

Investments should take into account:

- opportunities to help adapt to the impacts of climate change on forests
- contribution to multiple benefits
  - biodiversity conservation
  - protection of the rights of indigenous peoples and local communities
  - poverty reduction
  - rural livelihoods enhancements



# FIP Investment Criteria

- Climate change mitigation potential
- Addressing drivers of deforestation and degradation
- Forest-related governance
- Country ownership, preparedness and ability to undertake REDD+
- Leveraging additional financing including private sector
- Integrating sustainable development
- Inclusiveness of process and participation of stakeholders
- Capacity building measures
- Coordinating with other REDD+ efforts
- Demonstration, learning and impact capacity
- Safeguarding the integrity of natural forests
- Measurable outcomes and results-based approach




# Emerging potential work in Guyana on REDD

- Small, quasi-unknown country now in the forefront of a global effort
- Mitigation efforts (standing forests) may help finance Adaptation and development
- World Bank possibly helping with a palette of 7 instruments, of which 5 are new, and the 2 traditional ones representing a fraction of total involvement



# Forestry CC Projects: a sample of possible instruments

Country	Project Name	Product line	Amount (US\$M)	% for CC	Amount for CC (US\$M)	Objective
Panama	Rural Productivity Project	GEF	6.00	30%	1.80	conserve biodiversity of global importance and protect important forest, mountain and marine-coastal ecosystems
Honduras	Pico Bonito Sustainable Forests Project	BioCarbon Fund	1.80	100%	1.80	generate 850,000 tones of carbon dioxide equivalent (CO2 e) emissions reductions by 2017, while at the same time supporting the restoration of degraded forest habitats and establishment of sustainable income-generation options.
Honduras	JSDF - Forests and Rural Productivity	JSDF 	1.47	60%	0.88	increase the economic benefits and environmental services derived from forest ecosystems in selected low income municipalities with high agro-forestry within the project area potential
Peru	PE Nat Res Land Use Change & Env	AAA	0.06	100%	0.06	
Argentina	Rural Corridors and Biodiversity Conservation	GEF	7.00			conserve biodiversity of global and national importance, protect carbon assets, and develop and implement measures for ecosystem-based adaptation to climate change within the wider productive landscape and in select protected areas
Argentina	Native Forests Management and Climate Change Mitigation	IBRD	30.00			implement sustainable management practice in native forests, Reduce Carbon Emissions, Strengthen Systems of Monitoring, Enforcement and Compliance, and Ensure Equity of Participation
Chile	Sustainable Land Management	GEF	7.00			develop a national incentive program for mainstreaming sustainable land management planning and practices in order to combat land degradation, conserve biodiversity of global importance and protect vital carbon assets
Chile	Carbon Sinks and Securitization	BioCarbon Fund	2.40	100%	2.40	demonstrate delivery mechanisms for carbon sequestration through afforestation, while promoting biodiversity conservation and mainstreaming forestry into economic development
Mexico	Communities, Forestry and Climate Change	IBRD	100.00			assist indigenous communities and ejidos to improve the management and conservation of their forests and to mainstream climate change mitigation and adaptation activities into their forest practices
Argentina	Sustainable Natural Resources Management	IBRD	60.00			improve the management and conservation of natural resources, foster rural development and enhance the environmental values of natural resource management practices in Argentina

# Areas for Further Work for REDD+: Int'l Organizations, NGOs, Academics

- Coordinate and consolidate financing schemes into a logical process (FCPF, UN-REDD, FIP)
- Address how sub-national approaches (provincial or state strategies and projects) can be incorporated into national plans, with regards to REDD interventions as well as reference scenarios and monitoring
- Fine-tune methodologies for measuring, reporting, and verifying carbon emissions, especially for degradation, SFM, conservation, enhancements of carbon stocks



# A New Approach

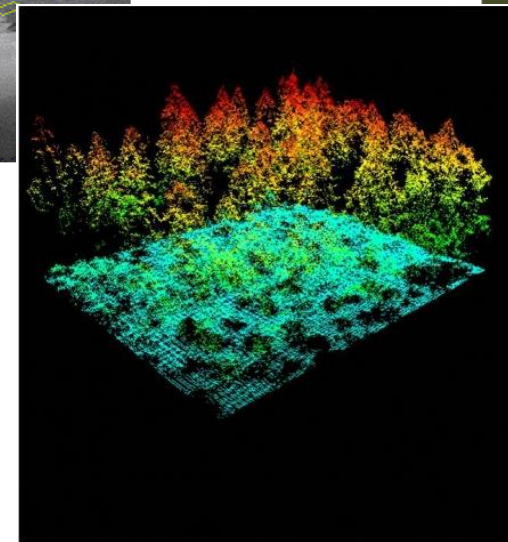
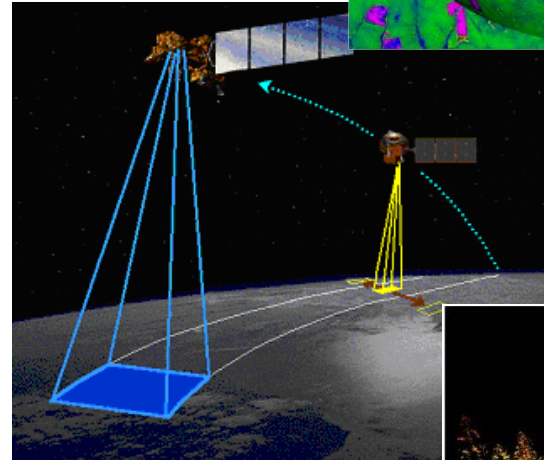
A new rapid carbon mapping approach that can reduce costs and extend monitoring and verification to the national level.

The method integrates:

- Automated satellite analysis of forest cover, deforestation, degradation
- Regional airborne LIDAR sampling
- A modest number of field plots



Source: Asner, 2010

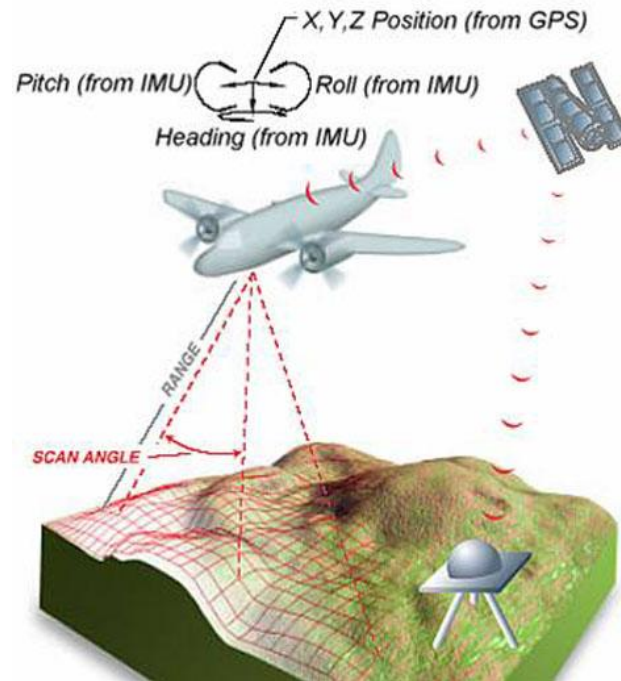
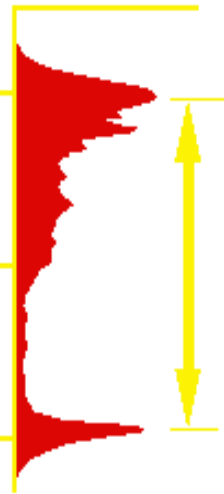




# Airborne LIDAR

## “Light Detection and Ranging”

TRAVEL TIME (nsec)



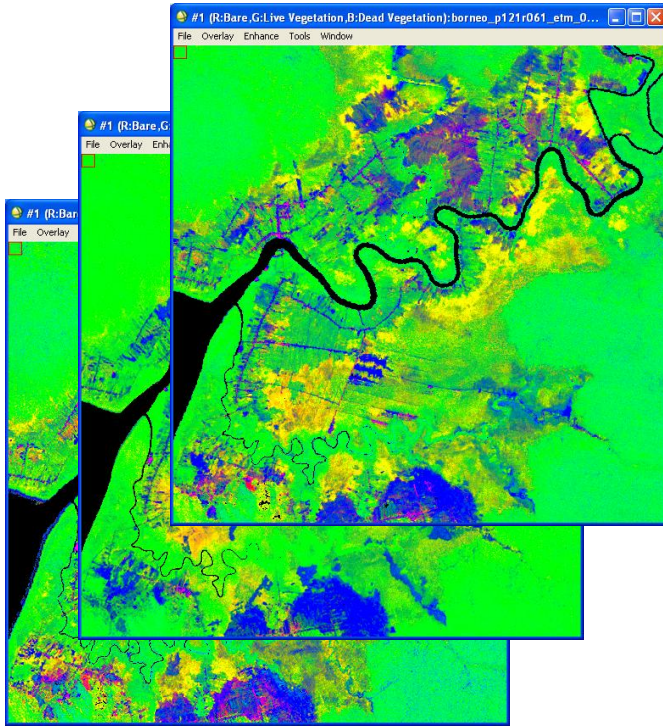
# Hyperspectral LIDAR of the Carnegie Airborne Observatory



Source: Asner, 2010

# CLASlite

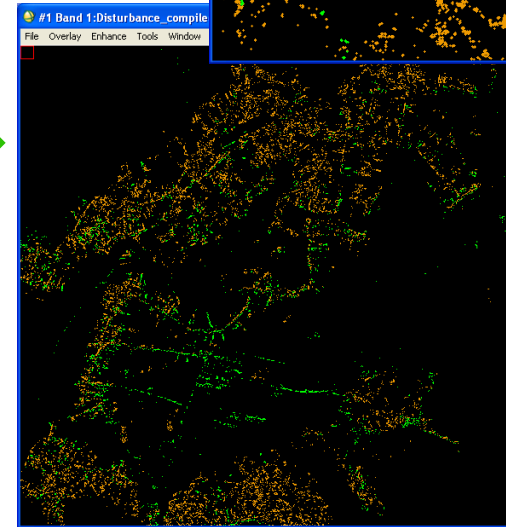
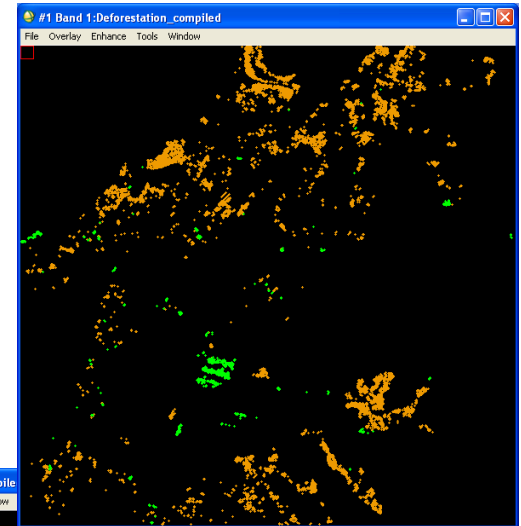
Automatic analysis of satellite imagery



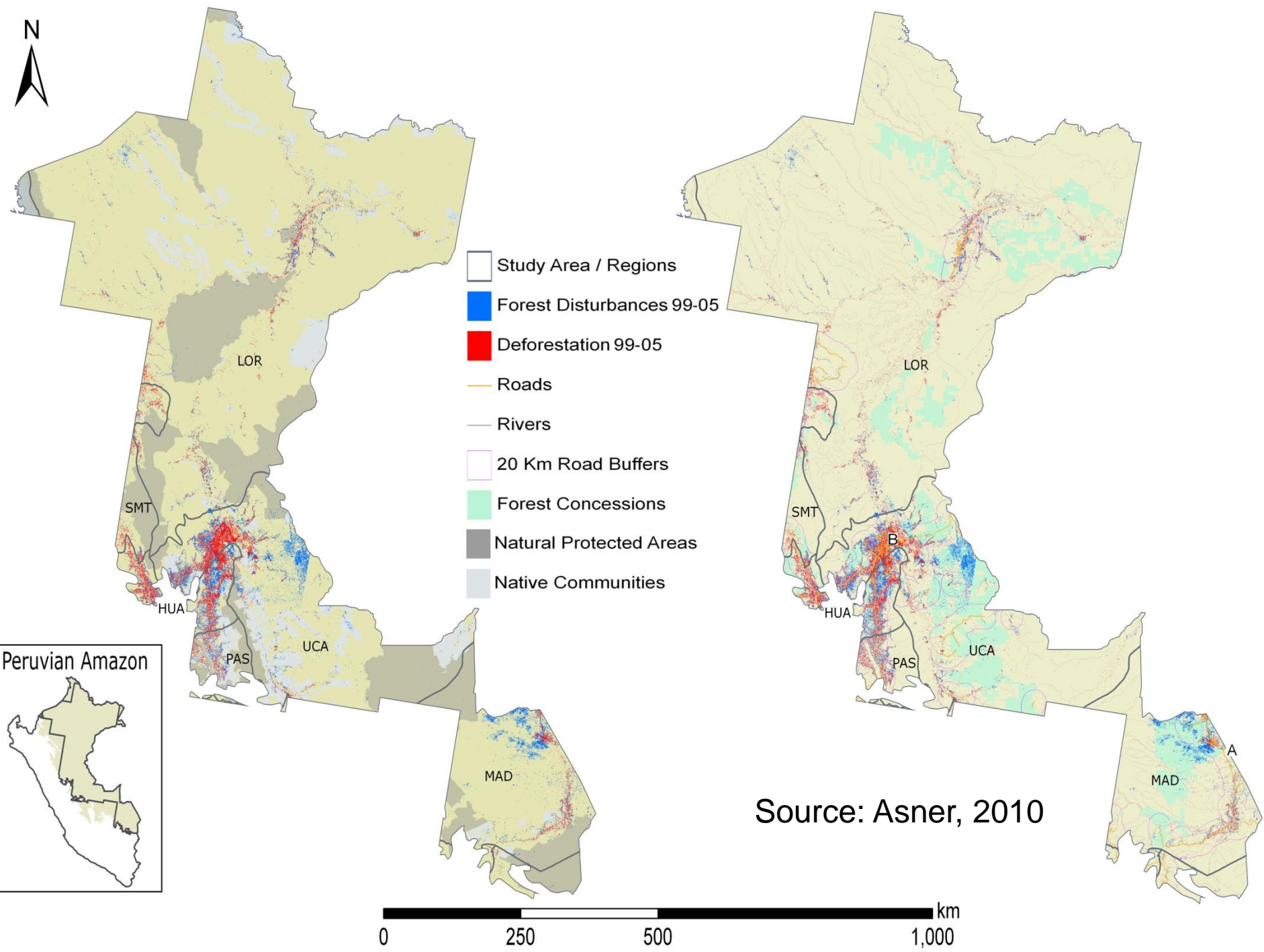
Source: Asner, 2010

## Deforestation over Time

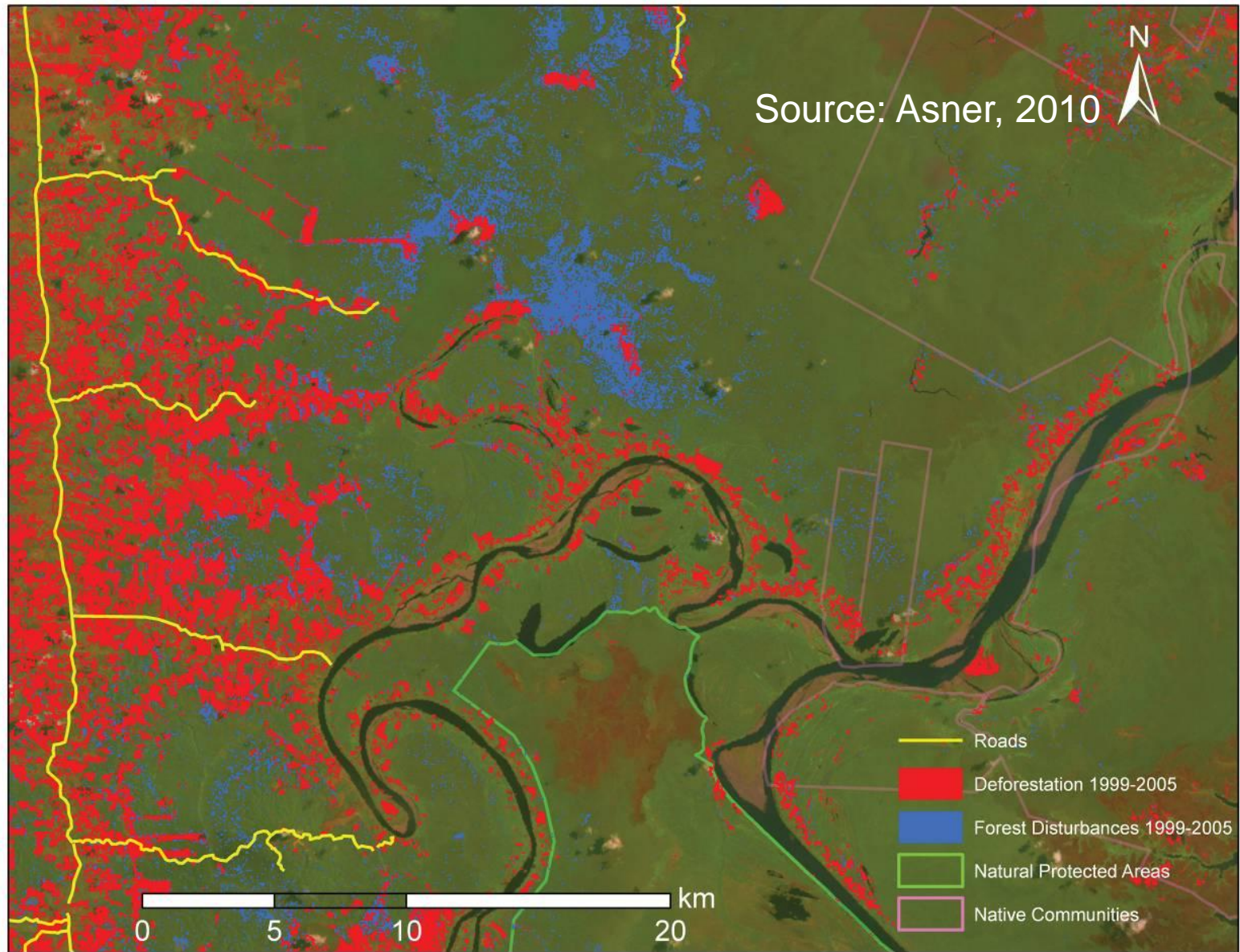
Maps of Forest Change



## Degradation over Time



## High-resolution example of forest disturbance and deforestation in Peru

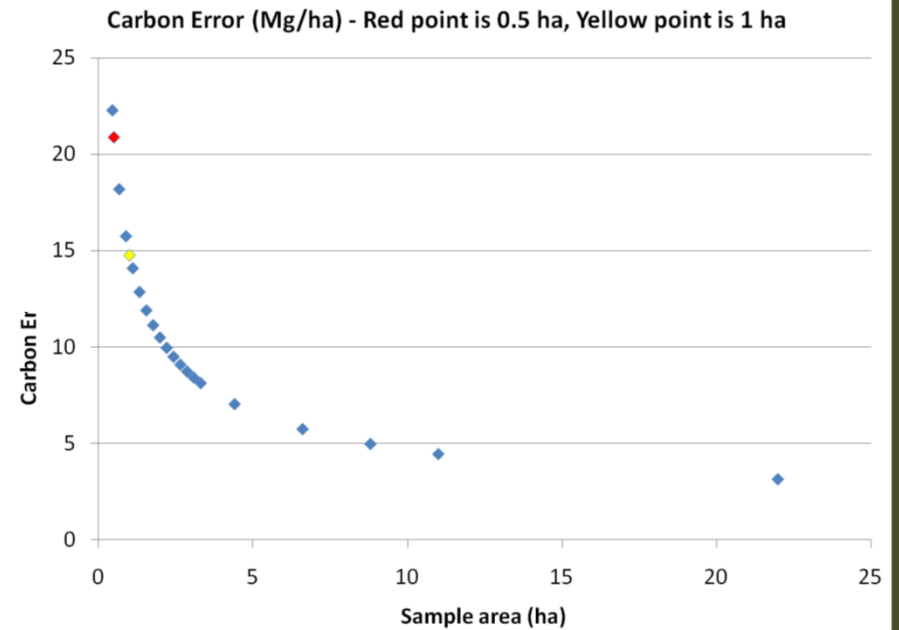
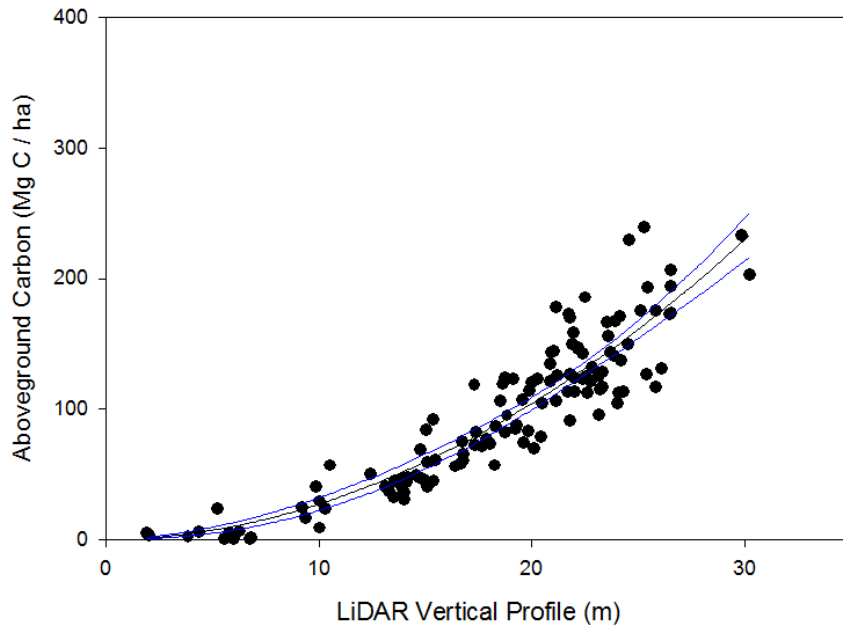


# Field Calibration Plots



Source: Asner, 2010

# New Relationship between LiDAR and Carbon for Amazon Forests



# Areas for Further Work for REDD+: Countries

- Continue and scale-up engagement with Indigenous Peoples, and broaden to other stakeholders
- Design mutually-acceptable national-level benefit sharing scheme
- Develop logical framework to identify and address drivers of deforestation (causal analysis)





# Areas for Further Work for REDD+: UNFCCC/Negotiations

- Define requirements for reference scenarios, particularly for countries where future deforestation/degradation may be higher or lower in the future than in the past
- Define mechanism for revenue generation and distribution at international level
- Clarify how safeguard principles (agreed in principle in Copenhagen) will be enforced
- Define "deforestation" and "degradation", addressing concerns of civil society, especially with regards to native vs. exotic species



# Areas for Further Work for Afforestation and Reforestation

- Seek better integration of temporary CERs with system of permanent CERs, or transition of A/F credits to permanent CERs (using buffers, insurance, etc.)
- Continue to work to reduce transaction costs
- Continue to promote methods for involvement of small-scale activities, including the Program of Activities modality



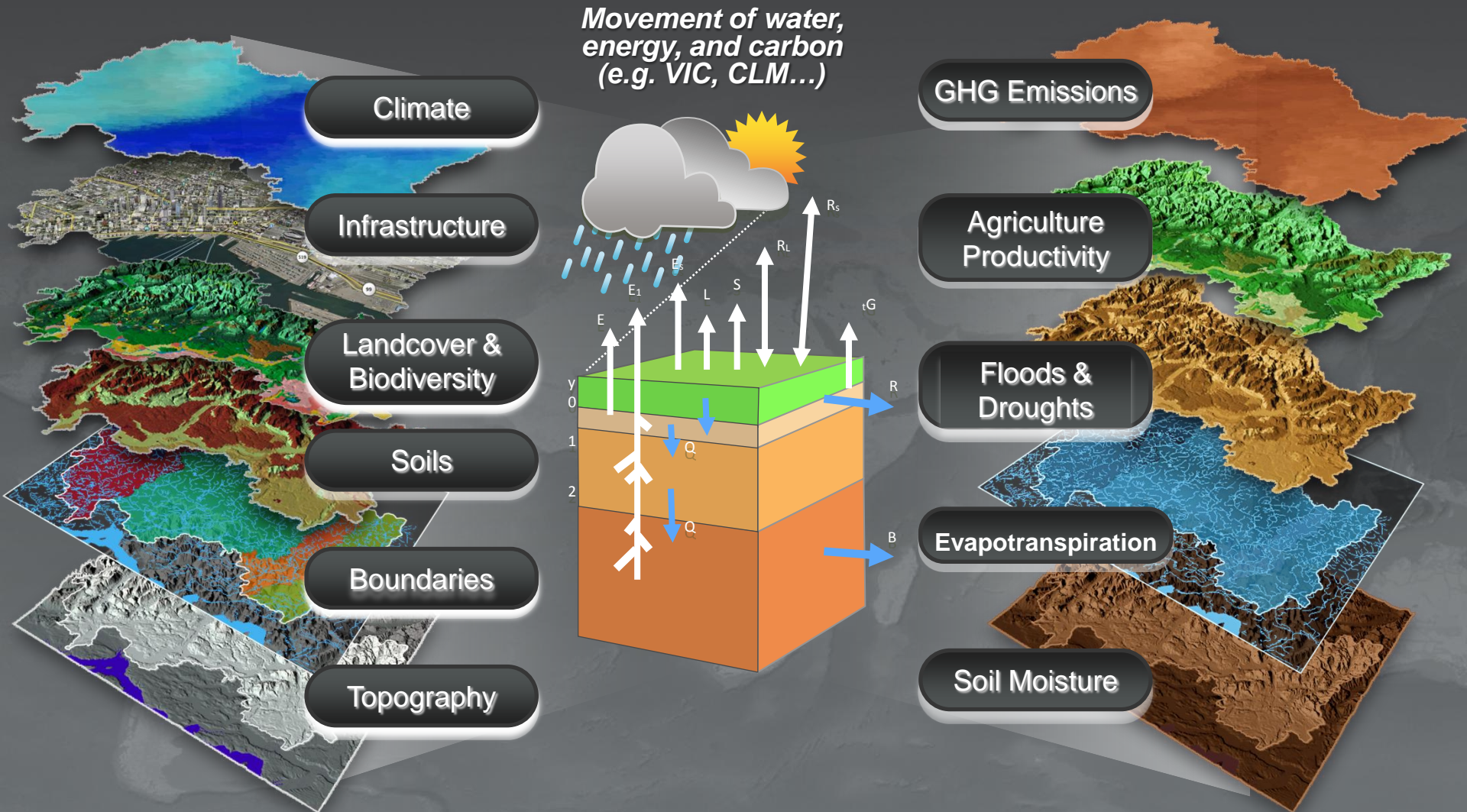
# Areas for Further Work for Afforestation and Reforestation

- Encourage research on and implementation of plantations of native tree species in tropical countries, for timber or ecosystem services
- Seek integration with payments for other ecosystem services (e.g., hydrology)



# The Framework – “Earth System Models”

Geospatially-Explicit/Process-Based , Coupled landscape, climate, hydrology & biogeochemistry



# Future Goal?

- Integrate Agriculture, Forestry, and Other Land Uses (AFOLU) into a single carbon emission monitoring and payment scheme



**Thank you!**

**Questions?**

