Sentinel Landscapes- Phase I set-up and key results

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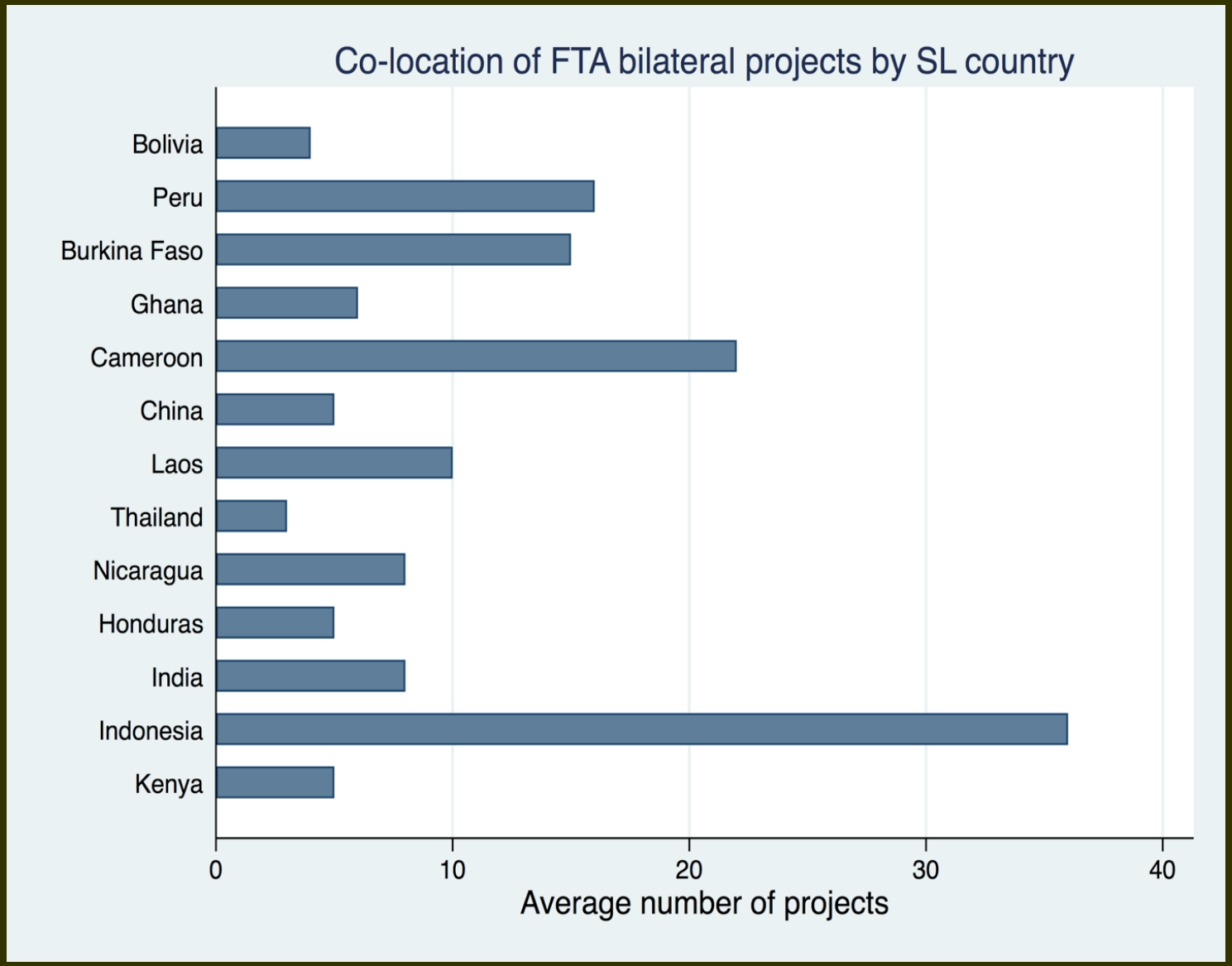
Objectives 2012-2016
FTA Phase I

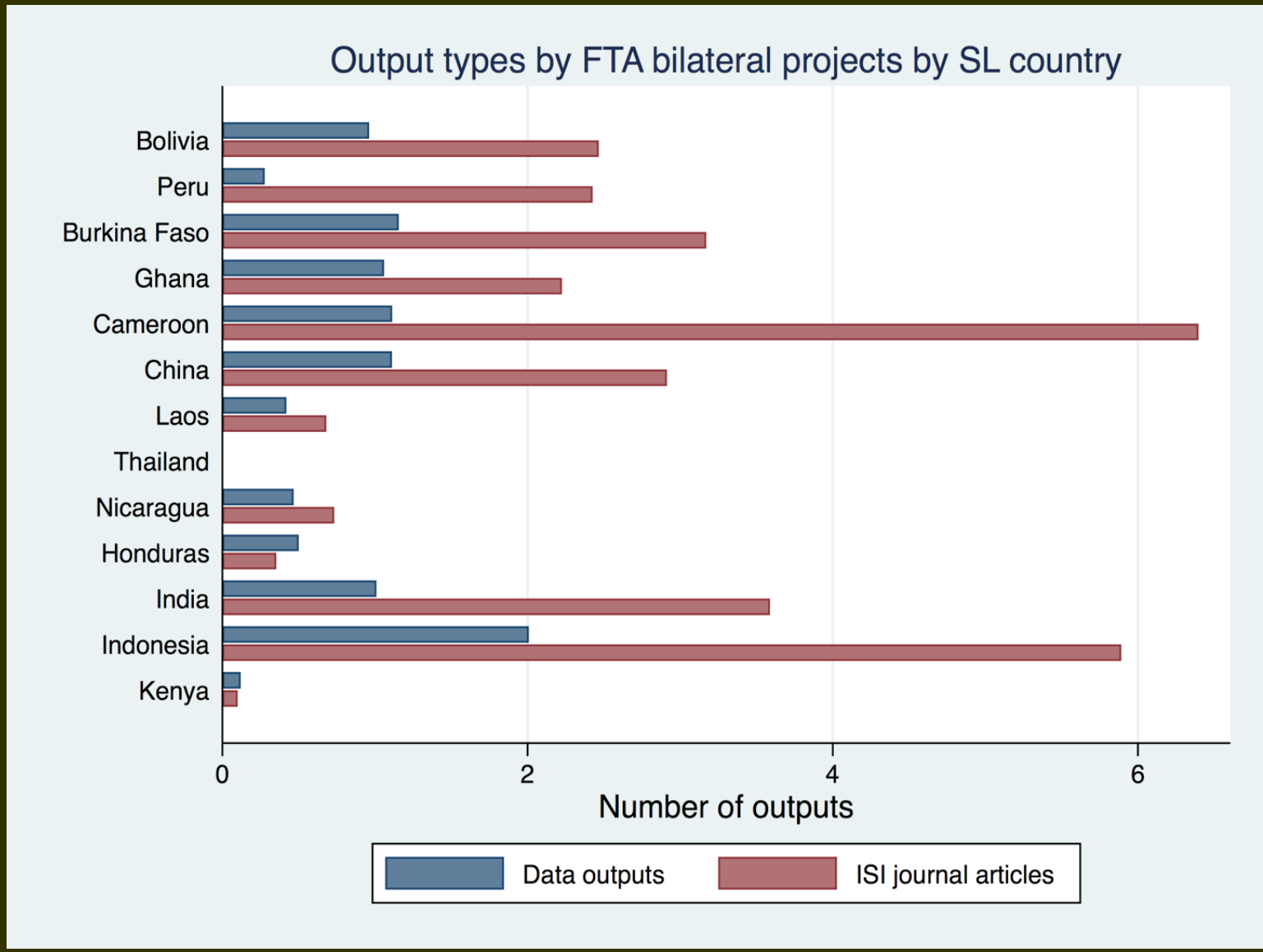
1. Cross regional comparison
2. Integrating Biophysical & Social data
3. Long-term presence
4. Opportunity to test landscape hypothesis based on good understanding of landscape variation
5. Co-locating research activities (share resources)
   - Between Components
   - With Partners
   - With other CRP's

Co-location

- Integration of Bilateral projects in Mekong and Burkina Faso, the BMZ-funded Green Rubber project, Biocarbon and Rural Development (BIODEV), Ministry of Foreign Affairs Finland
- Collaboration with IUCN on landscape restoration in Peru and Uganda DFID-funded KnowFor project
- Cross CRP efforts in Burkina Faso, Uganda, Nicaragua Honduras



Chiputwa , Gassner, Lay.Co-location of FTA Bilaterals projects (Phase I) and the Sentinel Landscape Network – a preliminary analysis

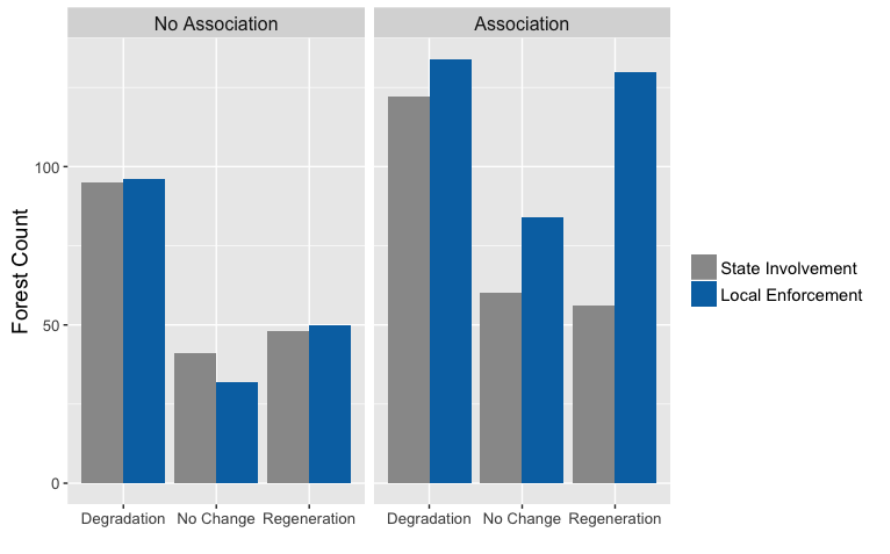


Chiputwa , Gassner, Lay. Co-location of FTA Bilaterals projects (Phase I) and the Sentinel Landscape Network – a preliminary analysis

International Forestry Resources and Institutions (IFRI) +Sentinel Landscapes

= 994 forest commons, 23 countries

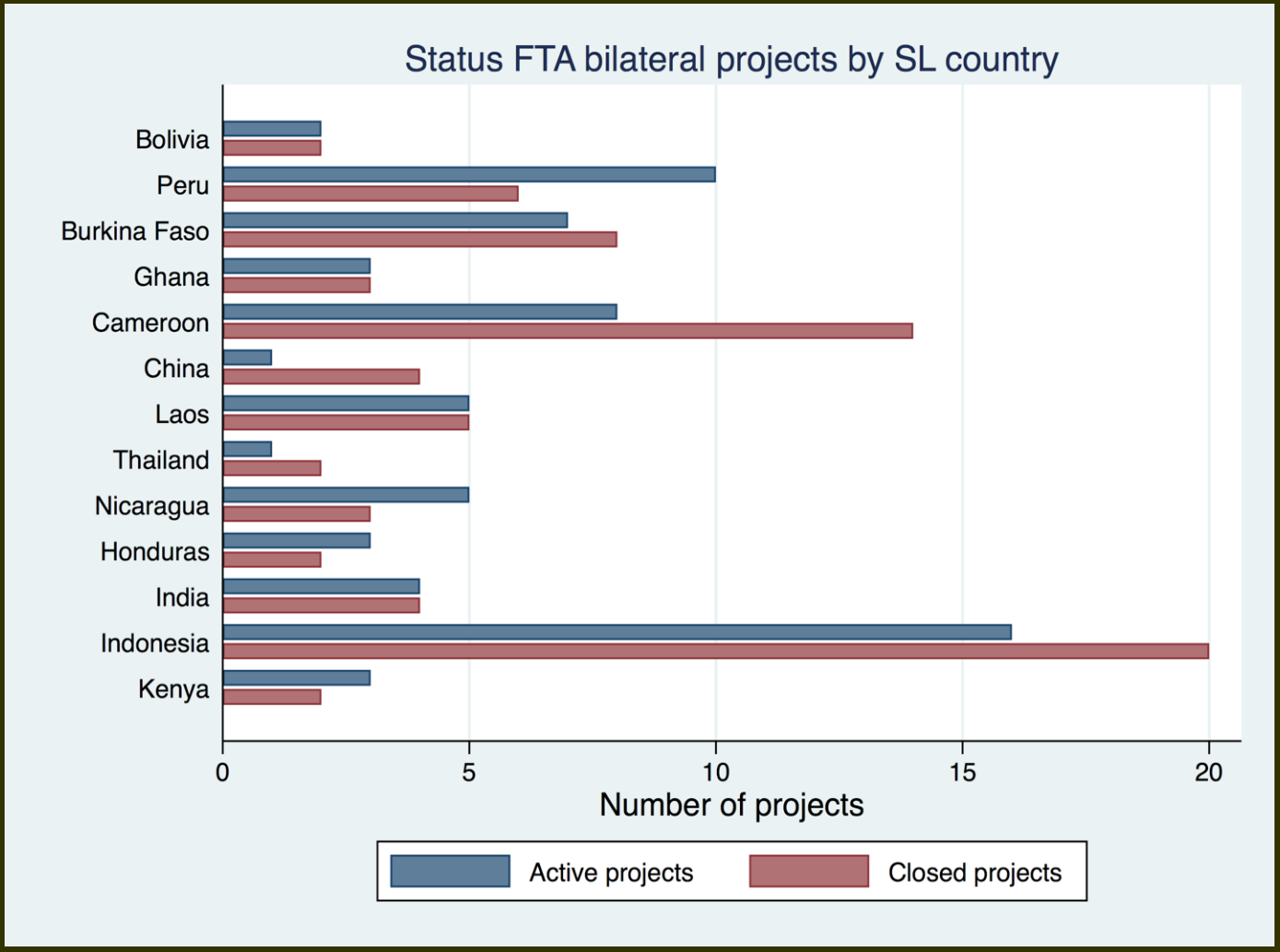
Ongoing analysis of institutional pathways to improve forest conditions in forest commons, collaboration Swedish University of Agricultural Sciences, University Michigan, ICRAF, CIFOR, Indian school of Business Hyderabad



Odds Ratio	Degradation versus No Change	Regeneration versus No Change
Presence of association	-.386 (.025)	--
Log of forest size	--	-.102 (.021)
# of operational rules	--	.354 (.000)
Appropriate rules	-1.07 (.000)	--
Rule Compliance	-.284 (.002)	.309 (.002)
Technology	--	.421 (.000)
Local enforcement	--	.410 (.025)

Fischer, Chhatre, Agrawal, Gassner

Long-term presence



6 Mio Euro IKI –17_IV_064_Global_A_Trees on Farms

Outcome

To improve countries' abilities to meet Aichi Target 7 (Sustainably Managed Agricultural Areas) by advancing knowledge of trees on farms for biodiversity and human wellbeing.

Outcome Indicators

Number of national governmental and non-governmental organizations that, by **Q3 2021,** include TonF targets in their strategy papers or reports.

Number of national governmental and non-governmental organizations that present a system for financing specific TonF targets by Q4 2020.

Secured collaborations between relevant governmental agencies to invest in joint projects with civil society, private and public sector actors to implement TonF targets by **Q3 2021.**

GEORG-AUGUST-UNIVERSITÄT GÖTTINGEN

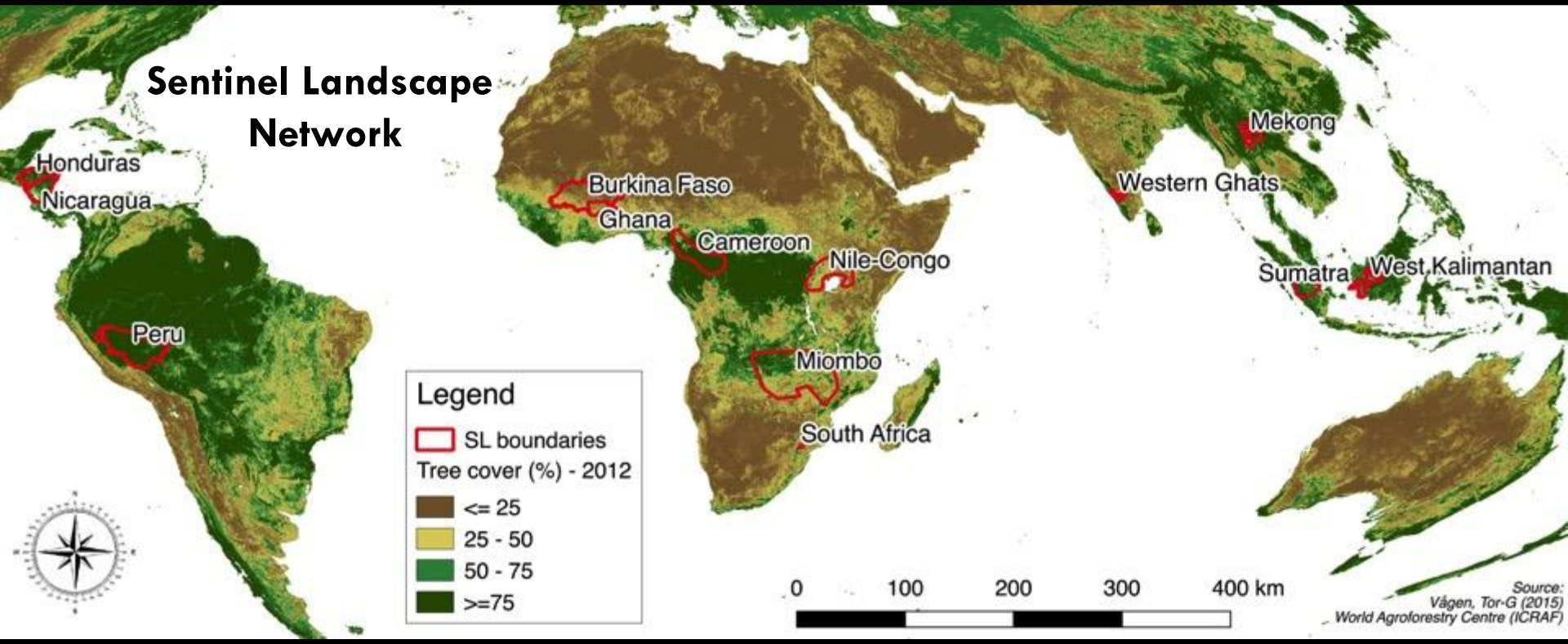
Leibniz Universität Hannover

CATIE Solutions for environment and development / Soluciones para el ambiente y desarrollo

IUCN

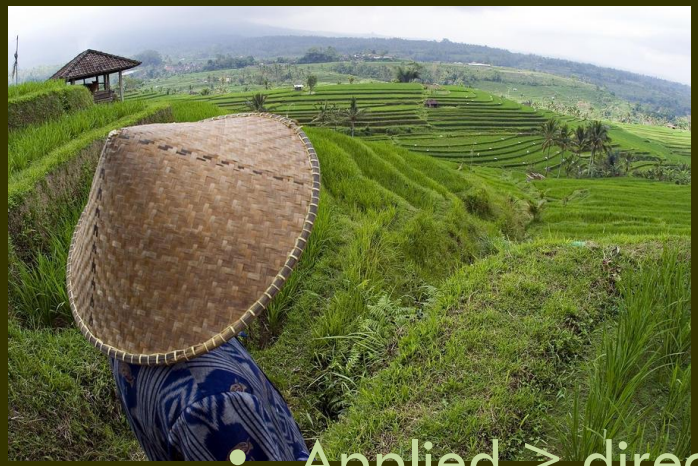
CIFOR

World Agroforestry Centre



A standardized methodology to understand and monitor rural livelihoods and their environment

280 Villages; 8500 Households, 4480 ground truthing points



Research in Development

- Applied > direct use effect, demand driven
- Unbiased data and information, derived through a sound research process to inform decision makers…
- And to contribute to the reduction of hunger, poverty and environmental degradation

Set up -Key Hypothesis

1. **Is their a relationship between the variation in Tree cover/Tree quality and the variation of any of the four system level outcomes**

reduction in poverty

increased global food security

improvement of nutrition.

better management of natural resources.

2. What explains spatial and temporal variation of tree cover?

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reduction in poverty

increased global food security

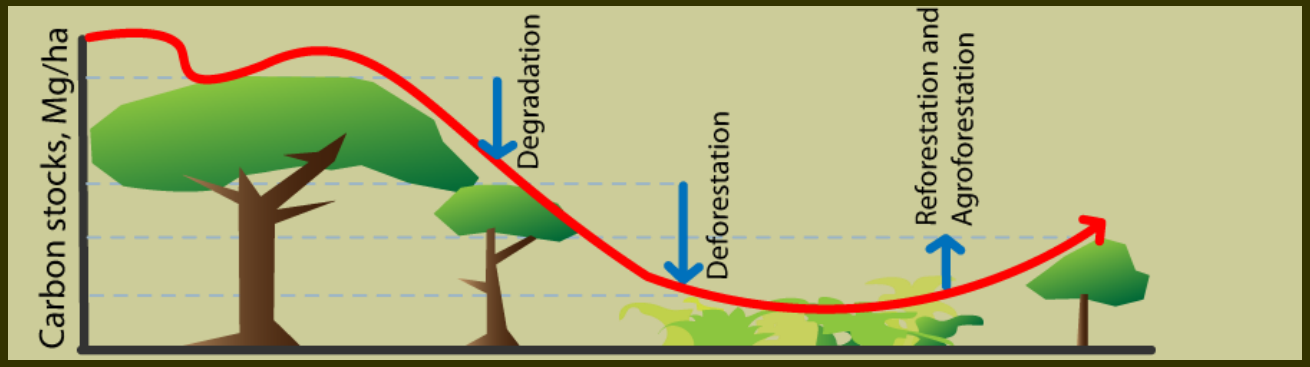
improvement of nutrition.

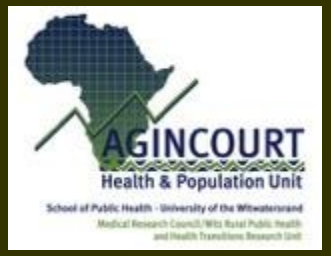
better management of natural resources.

2. What explains spatial and temporal variation of tree cover?

Set up -Design

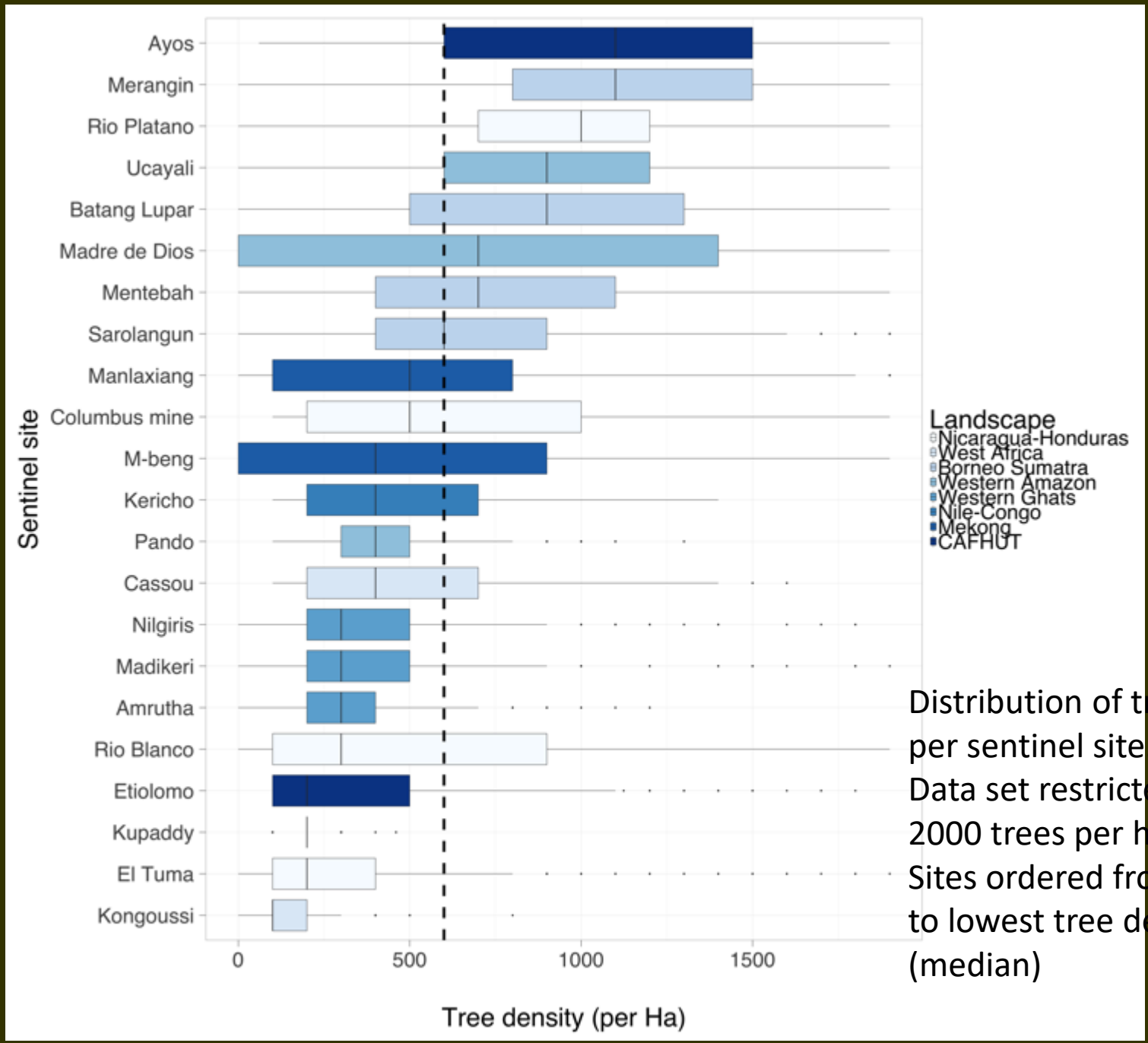
- Most different system design
- Each sentinel site as different as possible from the others
- Only communality – each site located in a forested landscape, that has been severely altered by humans
- Use existing methodologies as much as possible



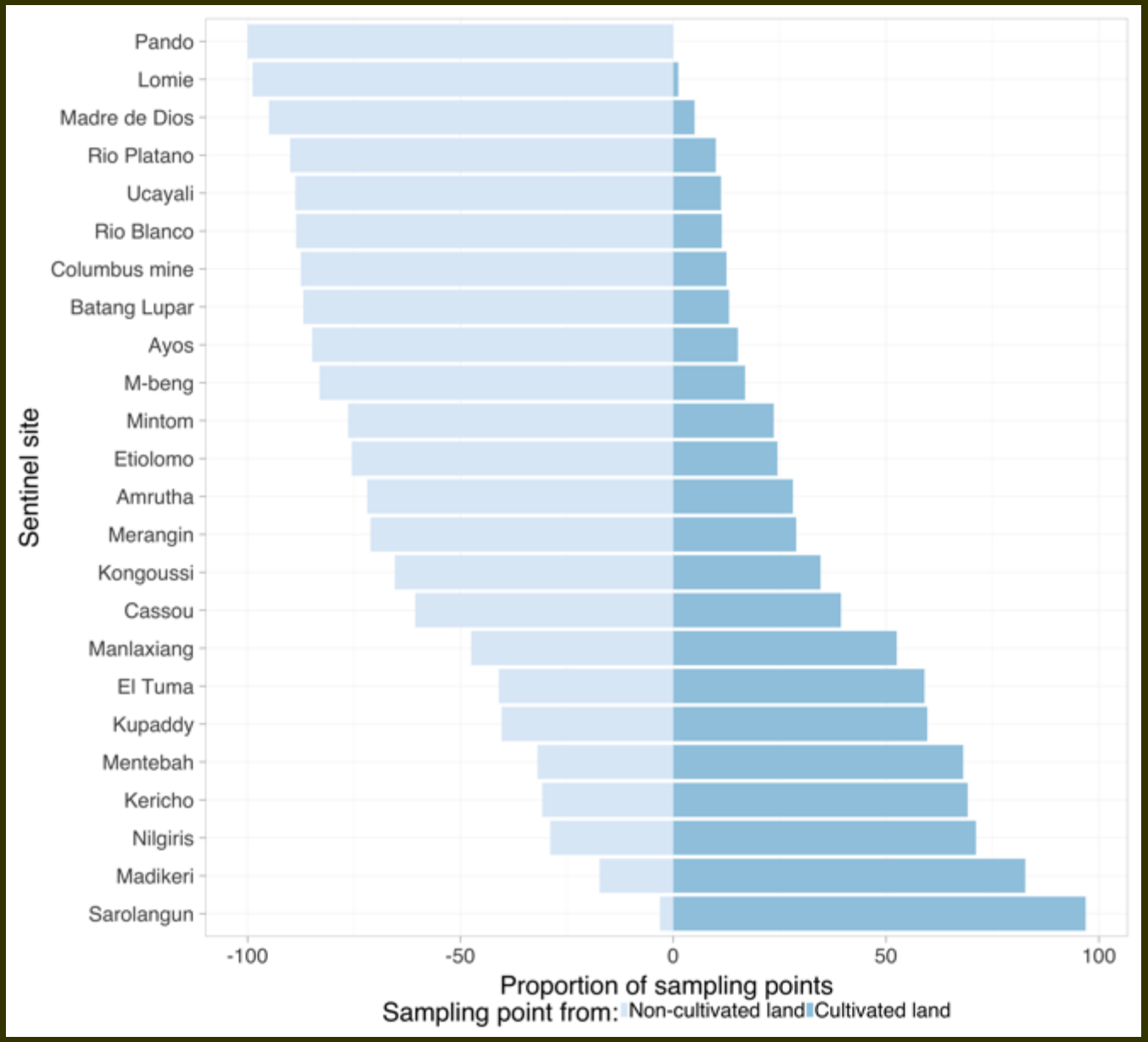


UNIVERSIDAD NACIONAL AGRARIA

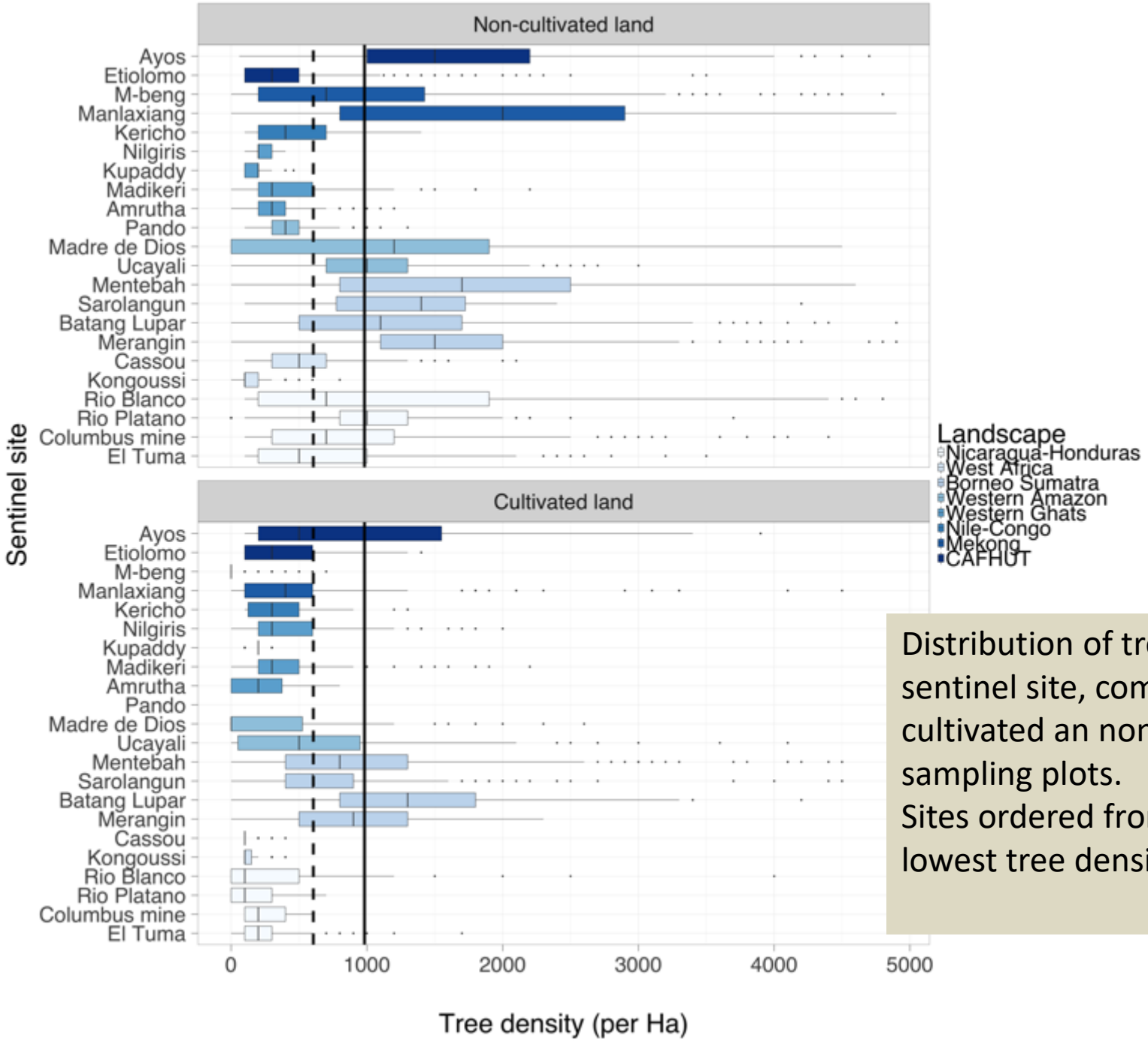
"Por un Desarrollo Agrario Integral y Sostenible"



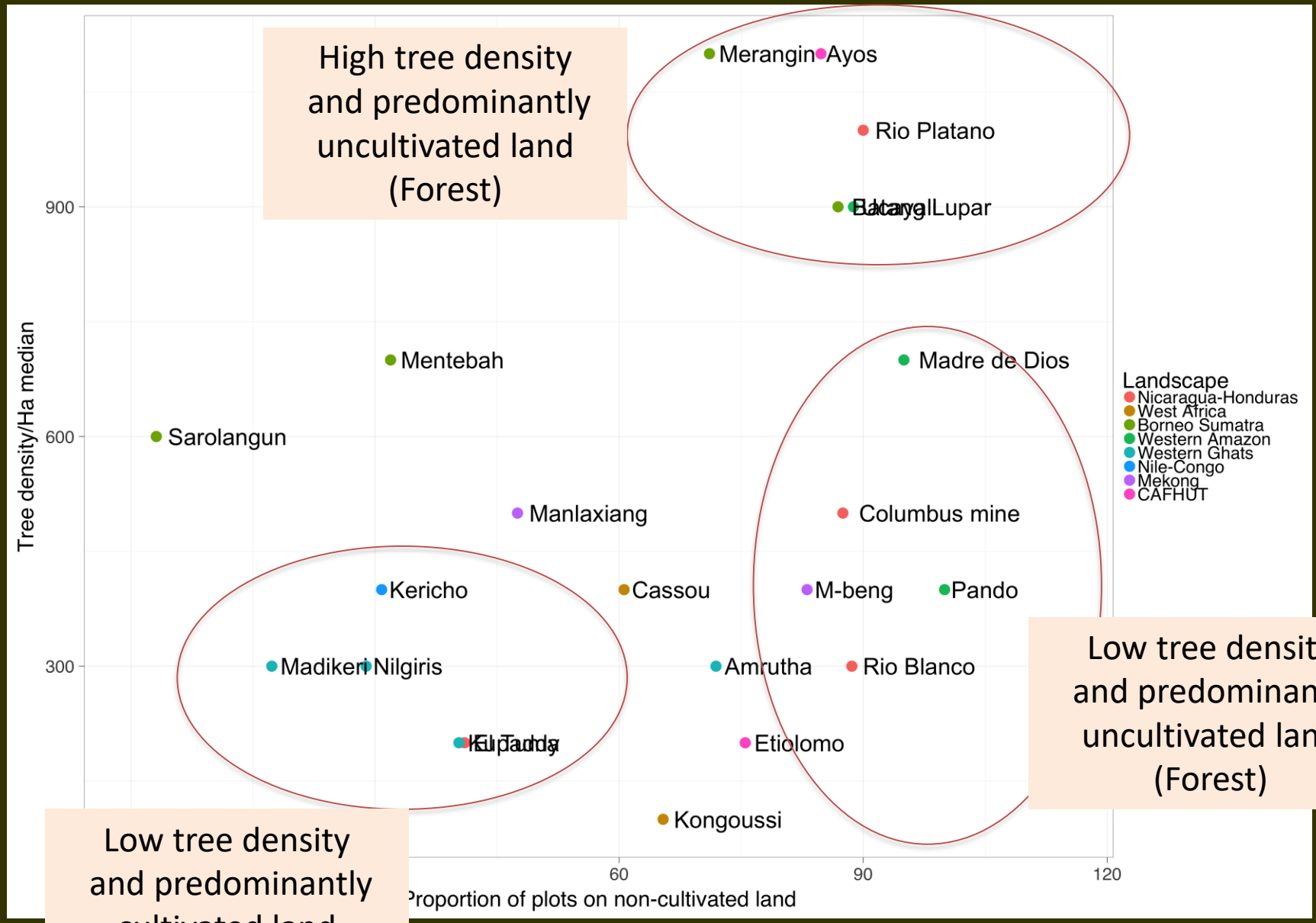
Distribution of tree density per sentinel site.
Data set restricted to max 2000 trees per ha.
Sites ordered from highest to lowest tree density (median)



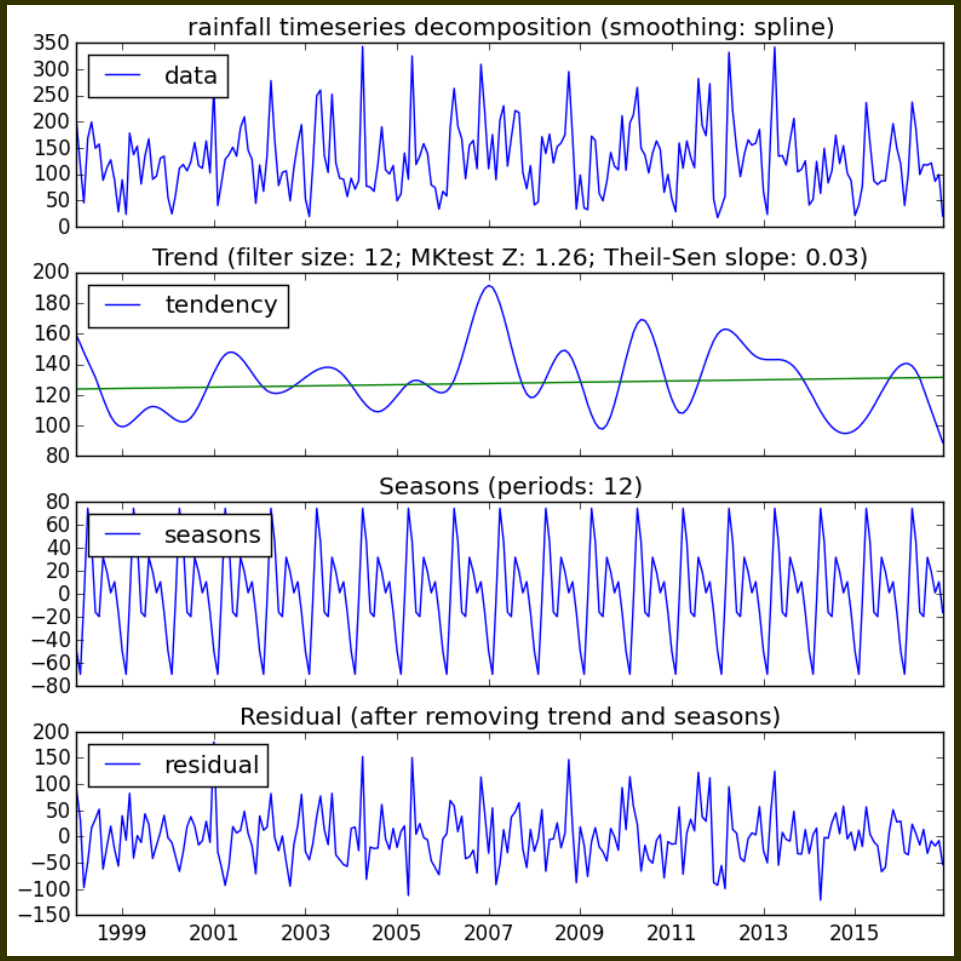
Land use ratio cultivated vs non-cultivated sampling points for each sentinel site.

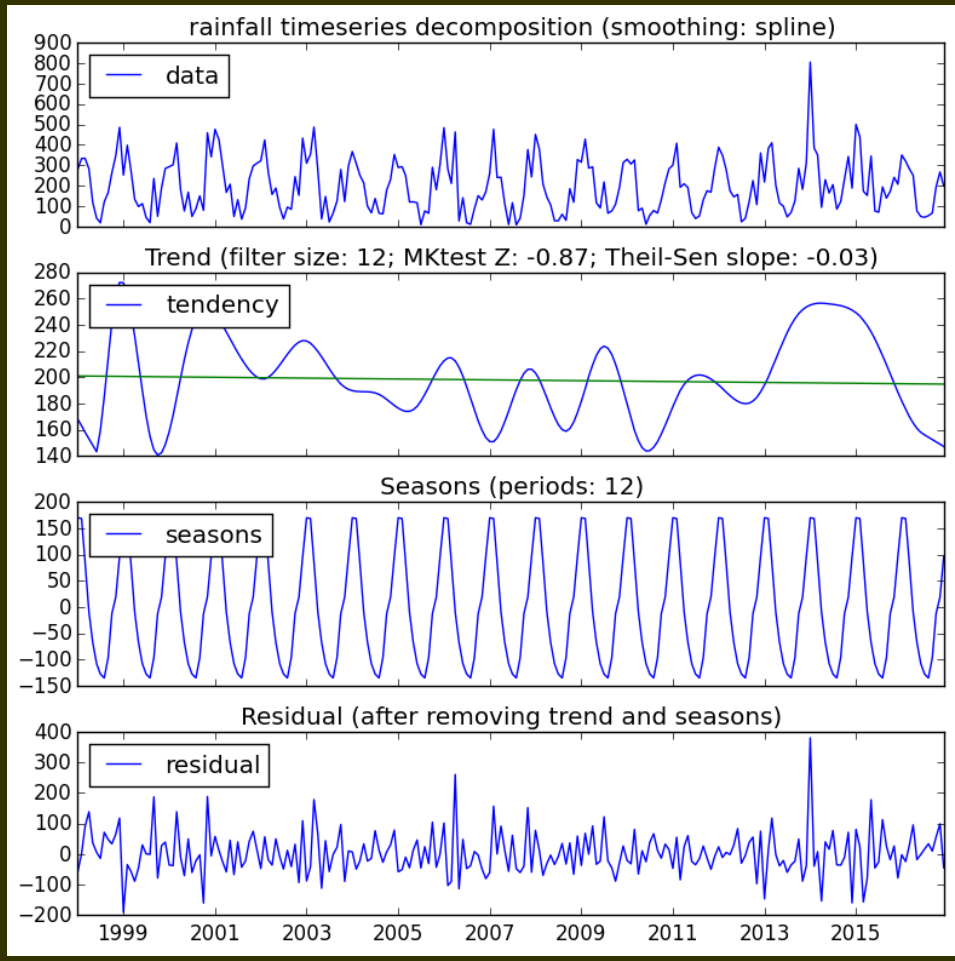


Distribution of tree density per sentinel site, comparing cultivated an non cultivated sampling plots.
Sites ordered from highest to lowest tree density (median)


High tree density and predominantly uncultivated land (Forest)
Merangin
Ayos
Rio Platano
Lupar
Mentebah
Madre de Dios
Sarolangun
Manlaxiang
Columbus mine
Kericho
Cassou
M-beng
Pando
Madiken
Nilgiris
Amrutha
Rio Blanco
Etiolomo
Kongoussi
Low tree density and predominantly uncultivated land (Forest)
Low tree density and predominantly cultivated land Agriculture
Tree density/Ha median
900
600
300
60
90
120
Proportion of plots on non-cultivated land
Landscape
Nicaragua-Honduras
West Africa
Borneo Sumatra
Western Amazon
Western Ghats
Nile-Congo
Mekong
CAFHUT

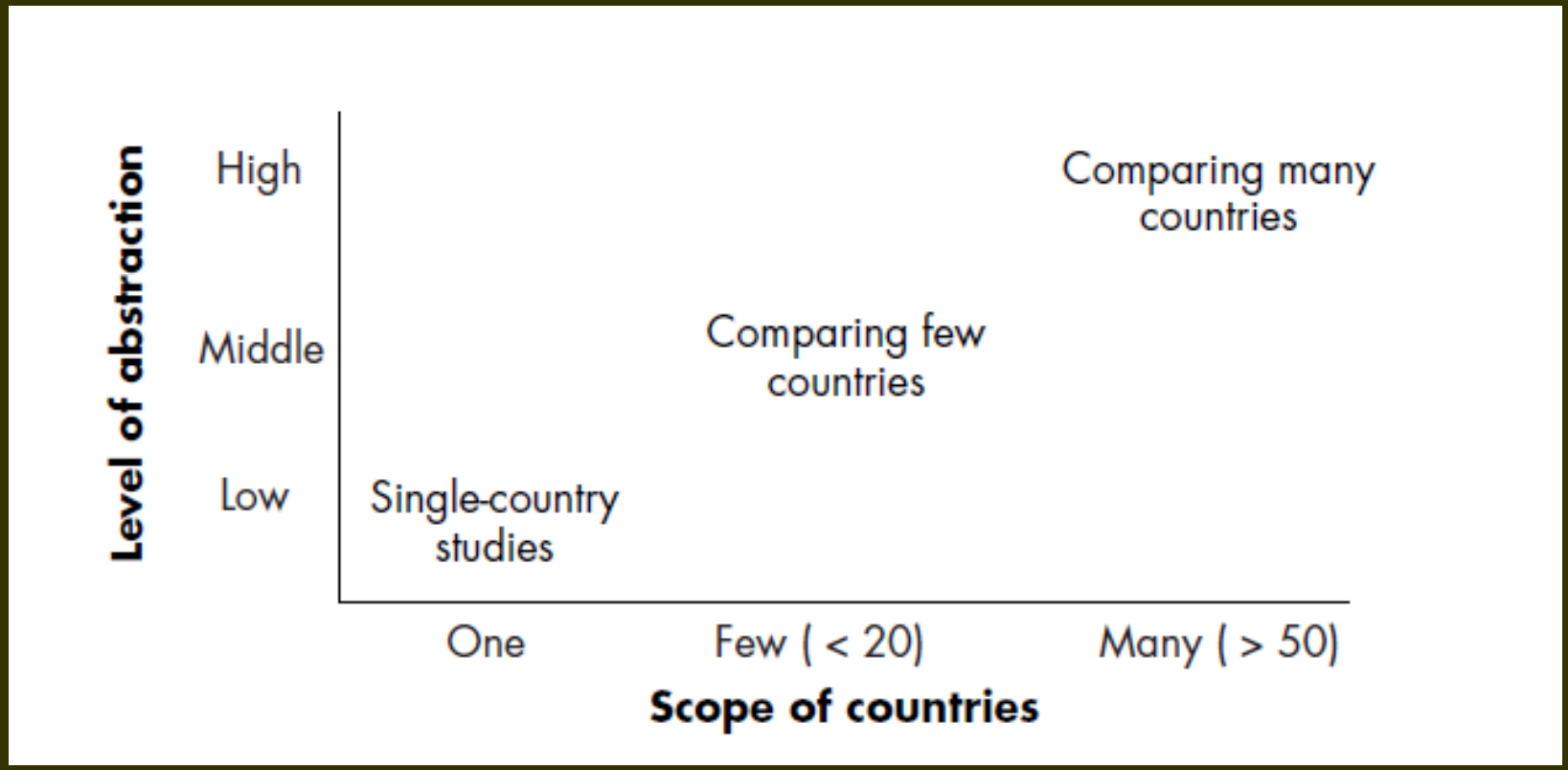
Climate modeling





Thomas Gumbricht Sentinel landscapes rainfall and rainfall trends
1998 – 2016, unpublished data 2017

Should we invest in comparative research – global vs local relevance?

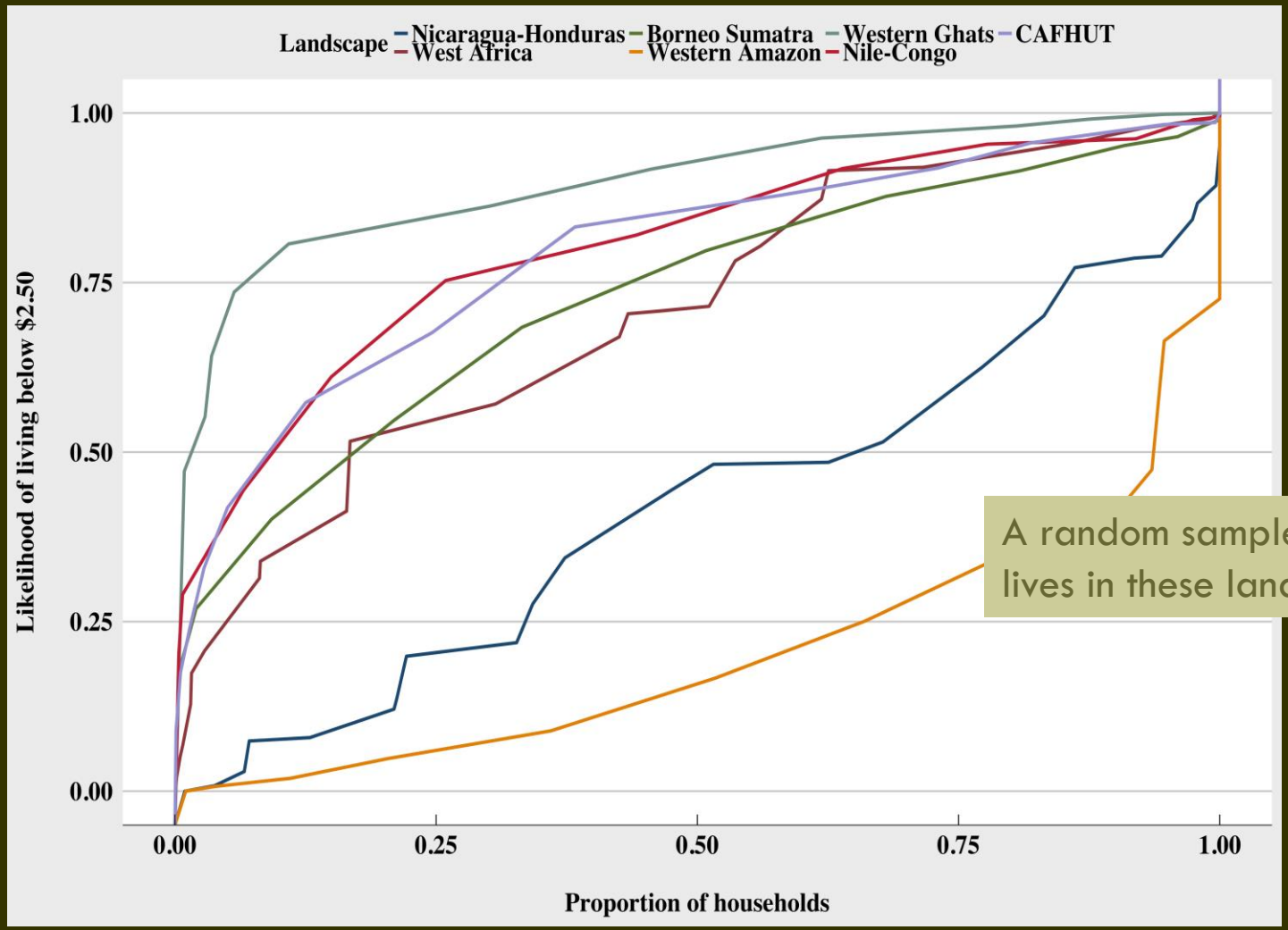


Sources: Based on Sartori (1970) and Mair (1996)

Underlying Paradigm

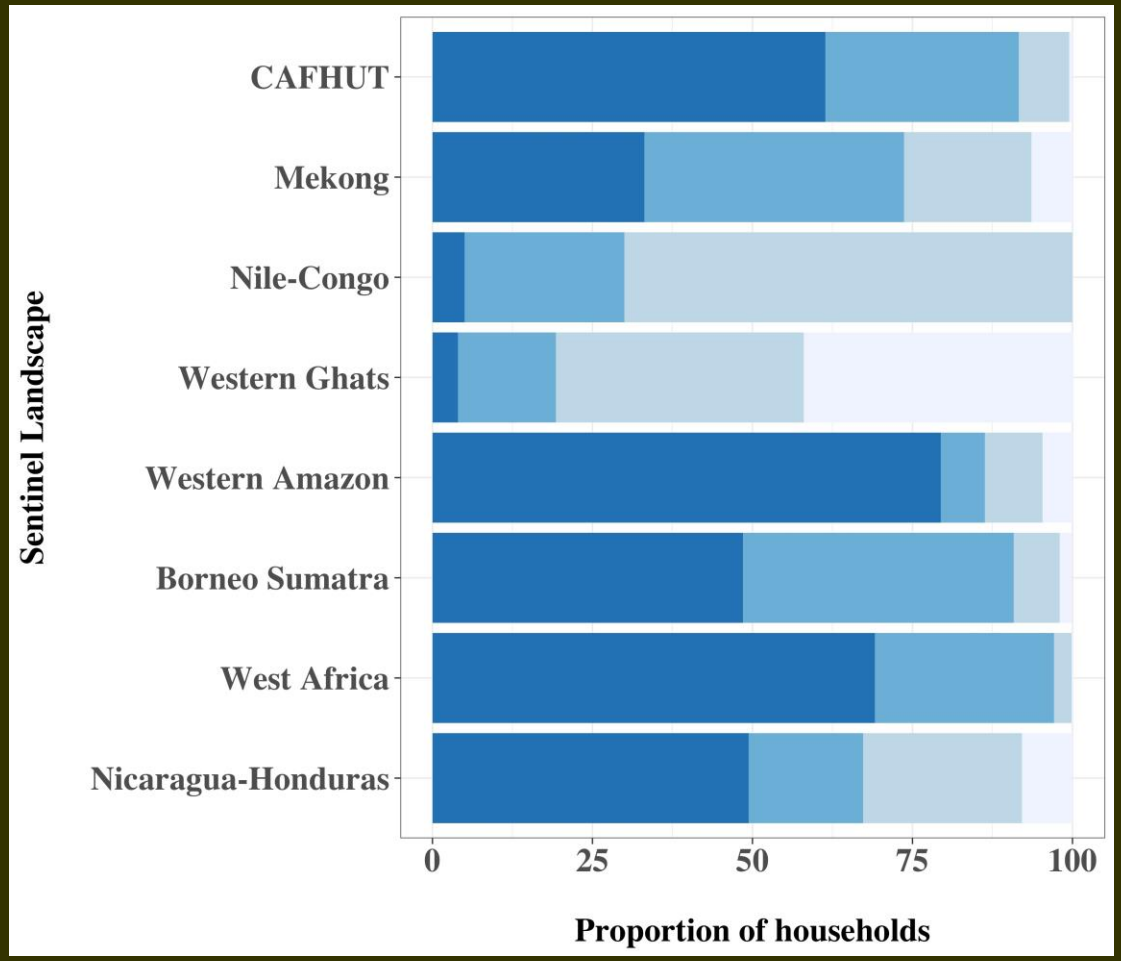
Targeting agricultural productivity of smallholders as the key to achieving the twin goals of alleviating poverty and ensuring food security.

Who lives in the SL ?

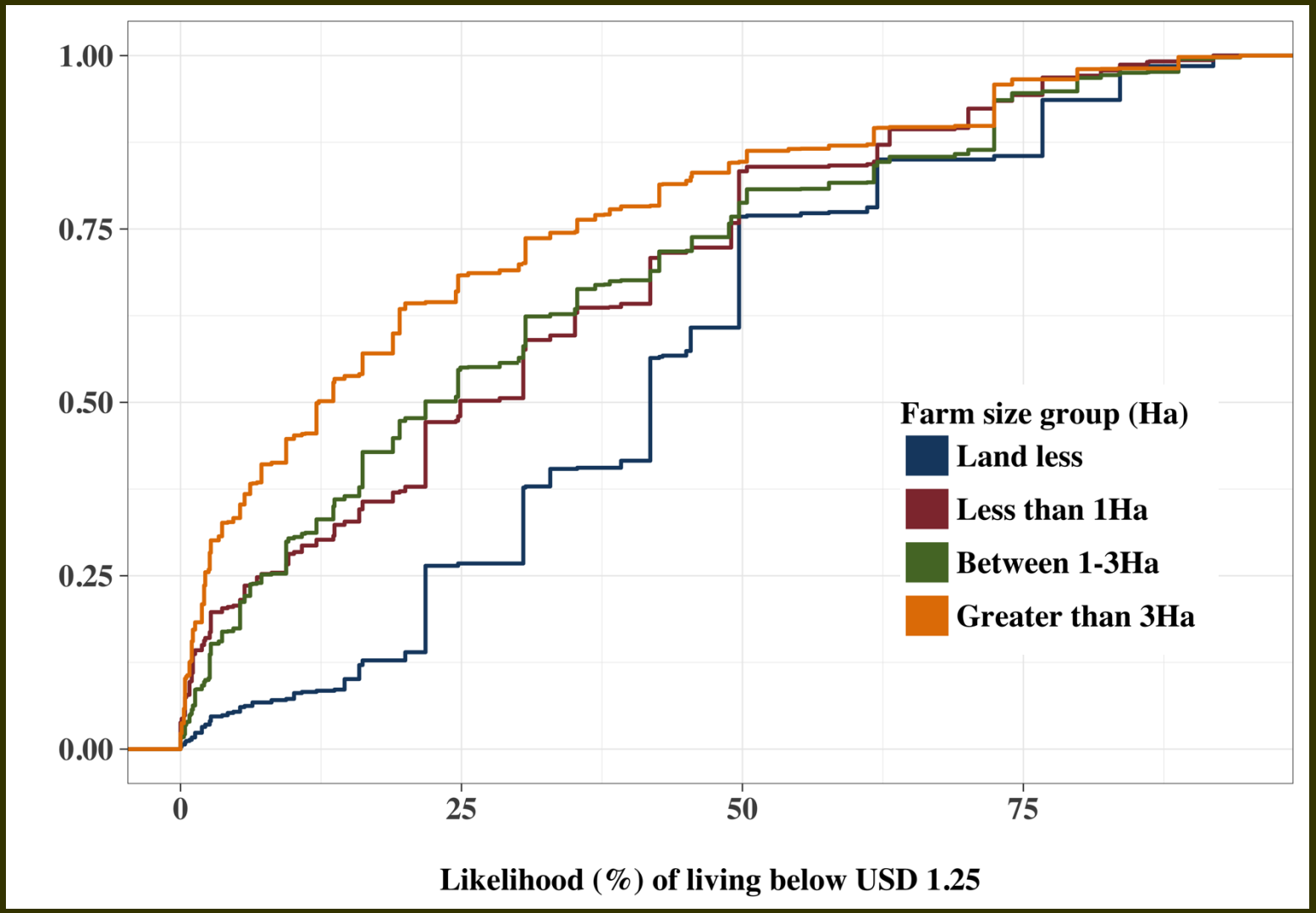


A random sample of who lives in these landscapes

Who has land?


CAFHUT
Mekong
Nile-Congo
Western Ghats
Western Amazon
Borneo Sumatra
West Africa
Nicaragua-Honduras
Sentinel Landscape
0
25
50
75
100
Proportion of households
Land less
Between 1-3Ha
Less than 1Ha
Greater than 3Ha

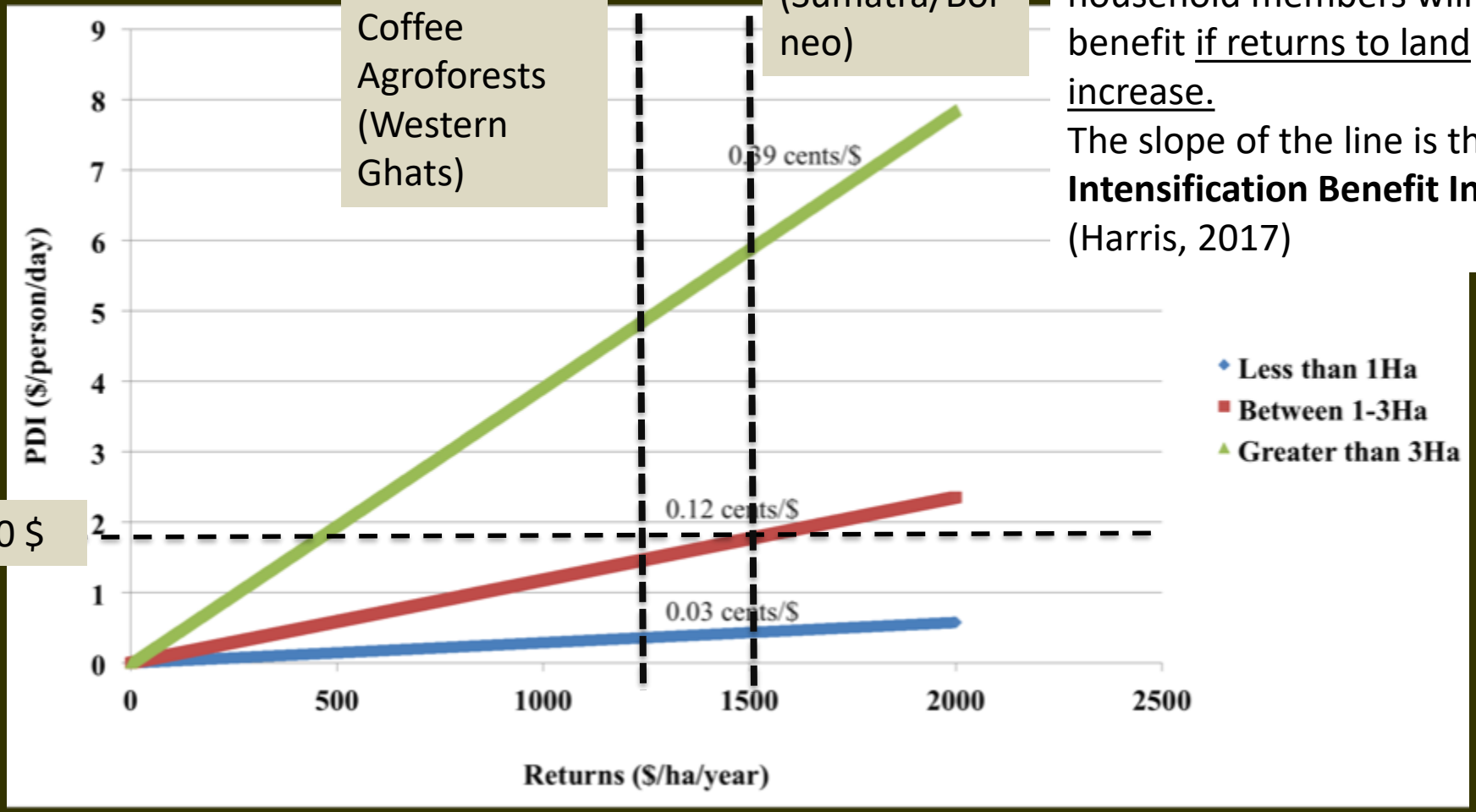
How important is land?



Does land size matter?

High intensive Coffee Agroforests (Western Ghats)

Oil Palm (Sumatra/Borneo)

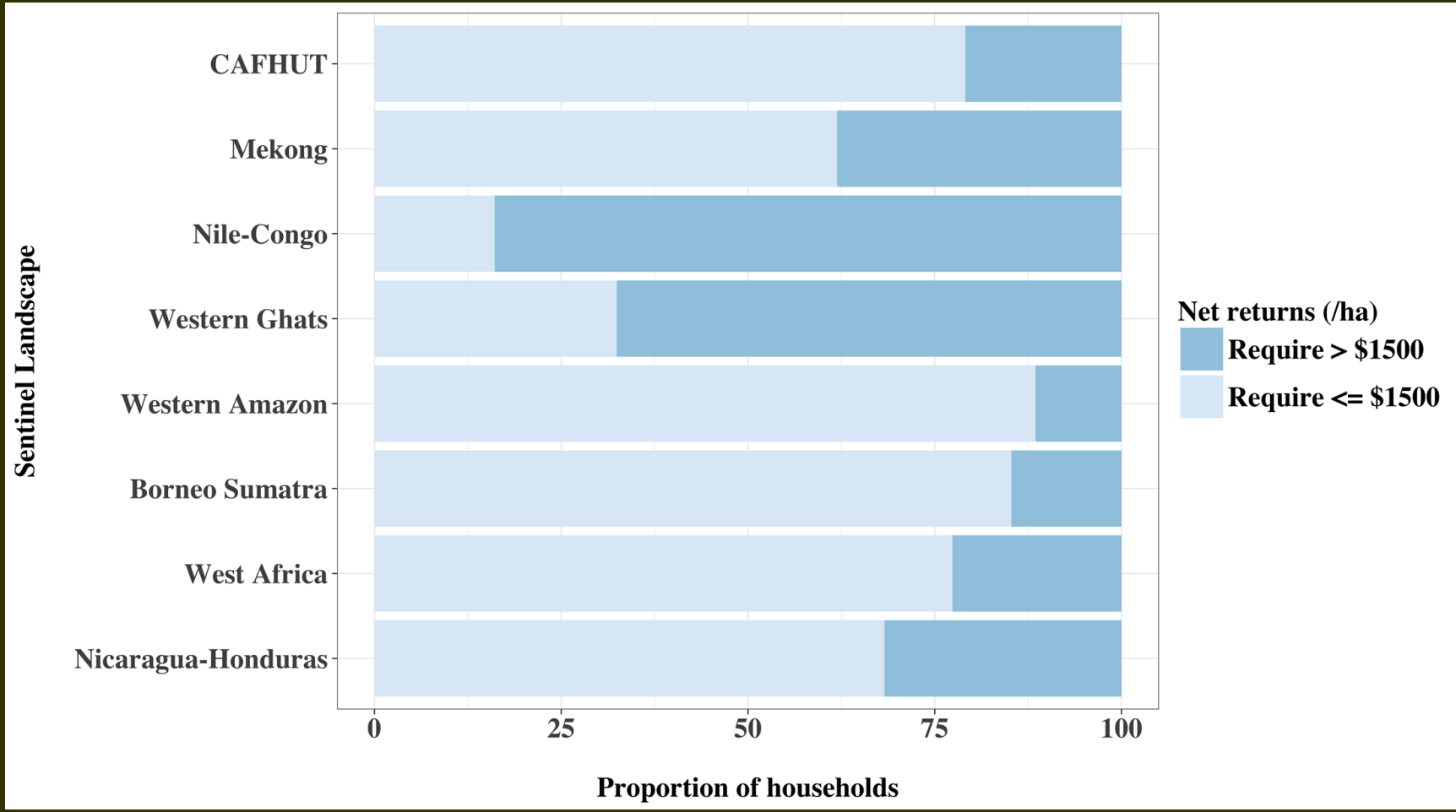


1.90 $

We can calculate how much household members will benefit <u>if returns to land increase.</u>

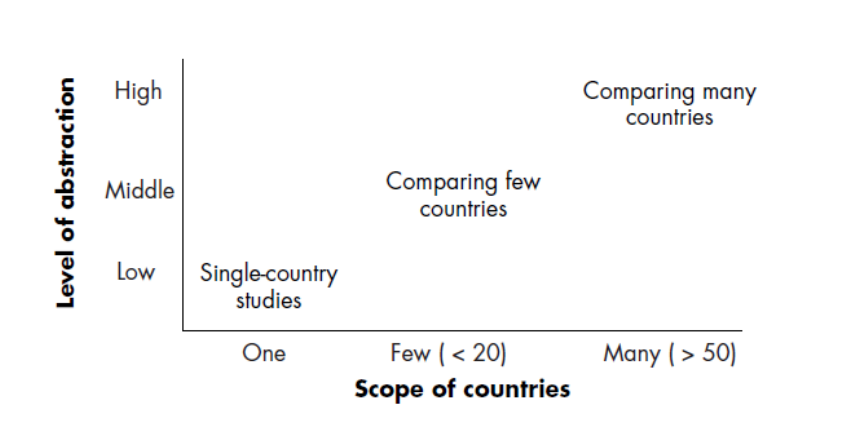
The slope of the line is the **Intensification Benefit Index** (Harris, 2017)

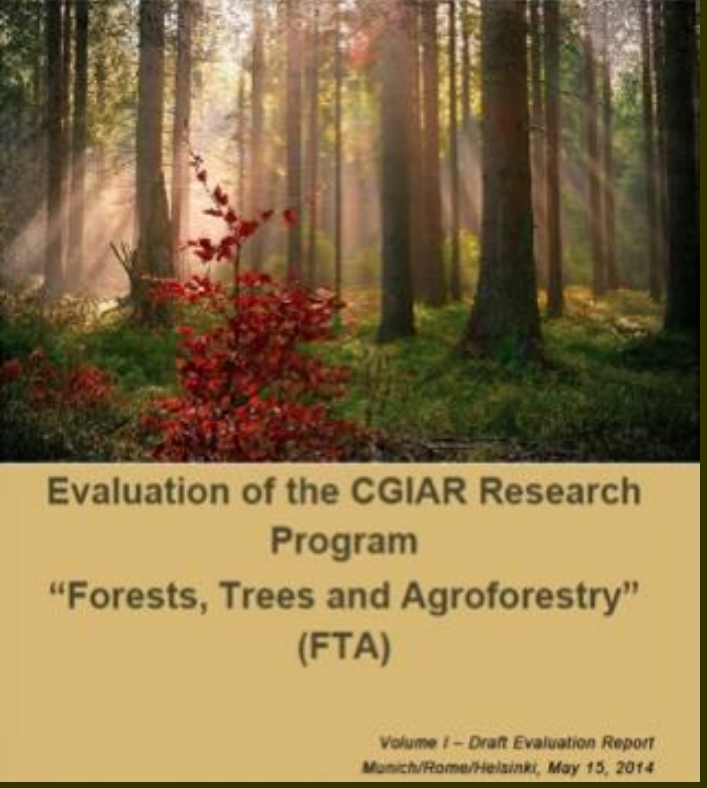
Who has the potential for economies of scale?



Should we invest in comparative research?

- **Yes, as it is necessary to test paradigms and to inform the strategic direction of research**
- **But it does need imbedded place based research to understand site level variation**





External Evaluation

"The Sentinel Landscapes concept has high relevance and holds great promise to produce much-needed, comparable long-term datasets of socioeconomic and biophysical changes along the forest transition curve"

How do we fit with the new SRF?

CGIAR STRATEGY AND RESULTS FRAMEWORK 2016-2030

REDEFINING HOW CGIAR DOES BUSINESS UNTIL 2030

The collation and application of insights from the study of ***large integrated data sets*** is starting to deliver benefits across genetics, economics, agronomy, hydrology, and soil science. *These insights and their associated predictive power* have the potential to increase the resilience of food systems and reduce the risks associated with the management of water and nutrients. ***Data- intensive methods*** and new ways of gathering data will increase our capacity to ***monitor sustainability at different levels.***

CGIAR STRATEGY AND RESULTS FRAMEWORK 2016-2030

REDEFINING HOW CGIAR DOES BUSINESS UNTIL 2030

"Future CGIAR partnerships will be guided by the following principles, based on relevant lessons from experience:

>Shared measurement. ***Collecting data and measuring results consistently across all locations*** ensures that efforts remain aligned and partners hold each other accountable."

Independent Science and Partnership Council

CGIAR

25 September 2015

ISPC Commentary on the Forests, Trees and Agroforestry Phase-II – Pre-proposal (2017-2022)

"While FTA Phase II has a clearer rationale on sentinel sites, now nested within four ecological observatory landscapes, the linkage and integration of activities in these sites (Flagship 6) with other Flagships needs to be clearly articulated. Similarly, site integration plans with other CRPs need better rationale and justification."

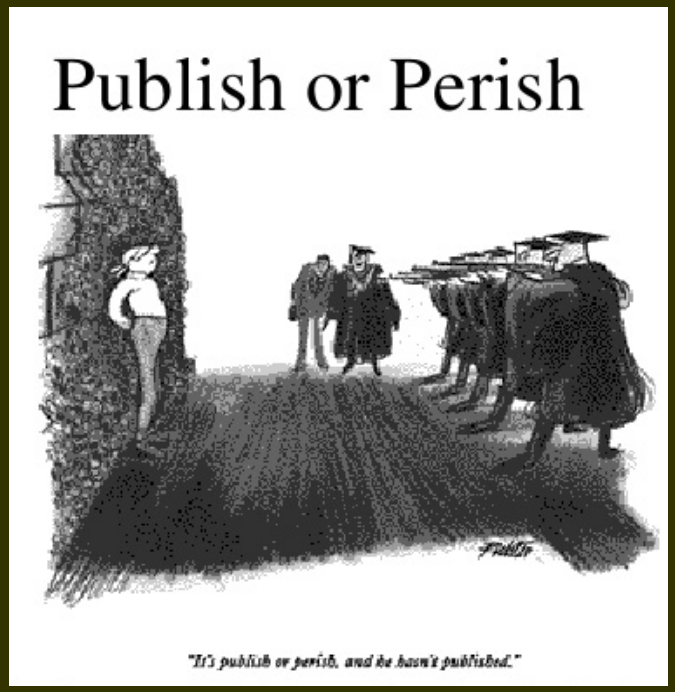
Forests, Trees and Agroforestry:
Landscapes, Livelihoods and Governance

Pre-proposal 2017–2022

17 August 2015

SL successfully absorbed into Flagship 6, but

- What are we going to do with the SL network?
- What are we going to do with the data?
- What is the role of the SL teams from phase I
- Evaluation whether bilateral projects (BMZ, BIODEV) benefitted from colocation?



Thank you

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