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受賞者記念講演会

2019 Blue Planet Prize
Commemorative Lectures

エリック・ランバン教授
講演スライド集

持続可能な土地利用の
効果的解決法

Prof. Eric Lambin
Slides for the Lecture
Scaling up solutions for
sustainable land use

Scaling up solutions for sustainable land use

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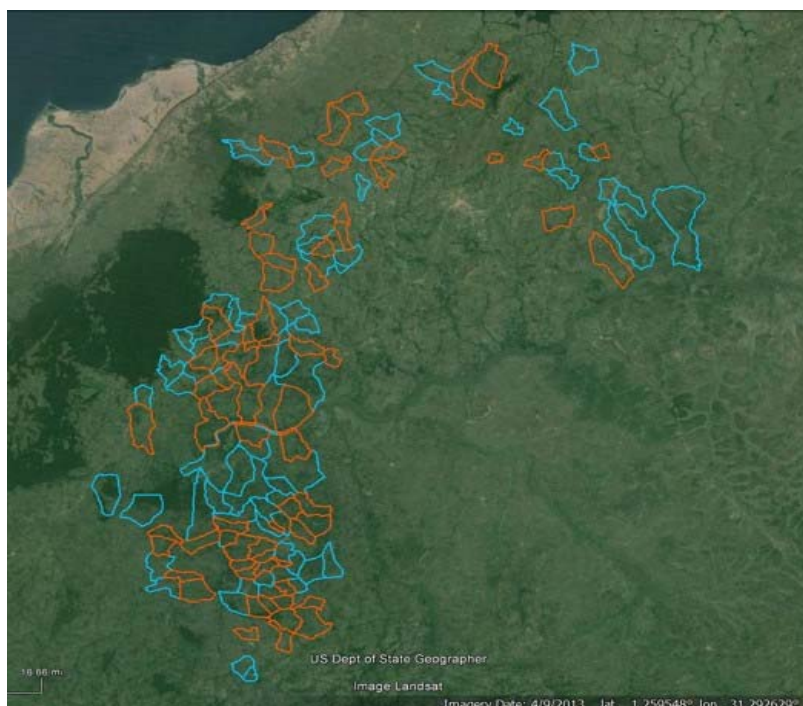
Premises

- A sustainability transition is required
- Most solutions are already known
- These solutions are already successfully implemented in pilot projects
- Up-scaling is the problem

Tropical deforestation

- 8 million hectares per year
- CO₂, biodiversity, water cycle, soils
- Indigenous communities
- Palm oil, soy, beef, timber
- International policies

1. Payments for ecosystem services



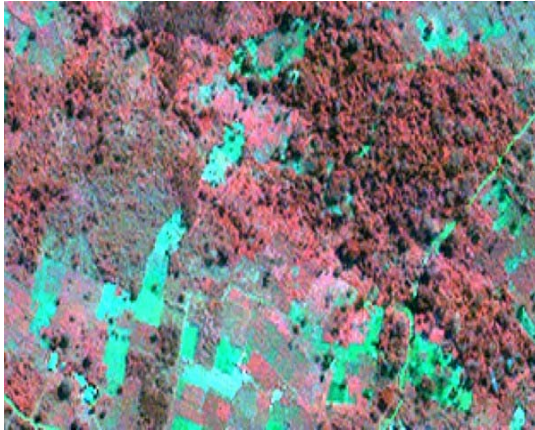
120 villages

Jayachandran, de Laat, Lambin et al., *Science*, 2017

Tree cutting, Uganda

Before and after

Baseline



Endline



Red: forest Cyan: crop fields

Jayachandran, de Laat, Lambin et al., *Science*, 2017

| | Village boundaries | | |
|-------------------|--------------------------|--------------------------|----------------------------|
| | Δ Tree cover (ha) | Δ Tree cover (ha) | Δ Log of tree cover |
| | (1) | (2) | (3) |
| Treatment group | 5.549* | 5.478** | 0.0521** |
| | [2.888] | [2.652] | [0.021] |
| Control group | -13.371 | -13.371 | -0.095 |
| Control variables | No | Yes | Yes |
| Observations | 121 | 121 | 121 |

Regressions:

- Subcounty fixed effects
- Village-level baseline variables
- (2) (3) control for forest area

- 32% enrollment in treatment villages;
- Tree cover declined by **4.2% in treatment** vs **9.1% in control villages**;
- PES caused 5.5 ha relative increase in tree cover per village;
- No evidence of leakage to nearby villages;
- Value of delayed CO₂ emissions: 2.4 times as large as program costs.

Jayachandran, de Laat, Lambin et al., *Science*, 2017

2. Eco-certification



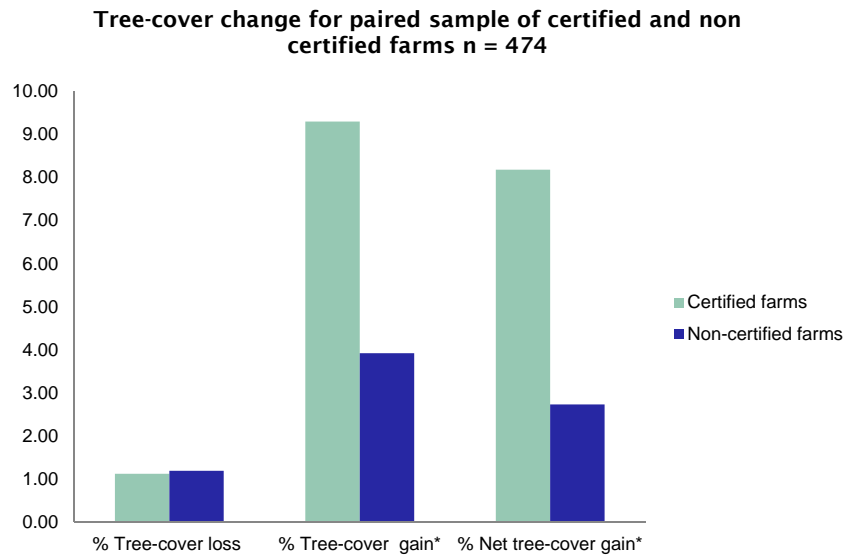
Forest cover change, Colombia *Landsat 2003-2009*

474 farms



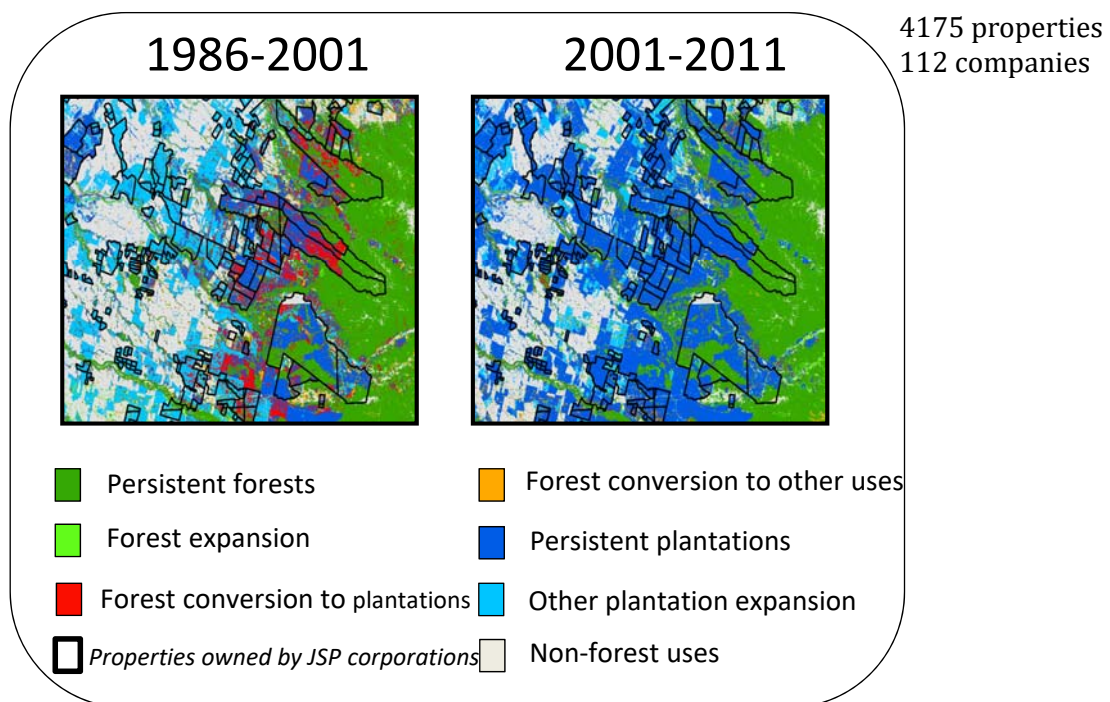
Rueda & Lambin, *World Dev.*, 2014

Reforestation on eco-certified farms in Colombia



Rueda & Lambin, *World Dev.*, 2014

Chile: natural forest conversion to plantations



Heilmayr & Lambin, *Proc. Nat. Ac. Sci.*, 2016



3. Company code of conduct “Farming for the future”, South Africa

228 farms, 953 audits

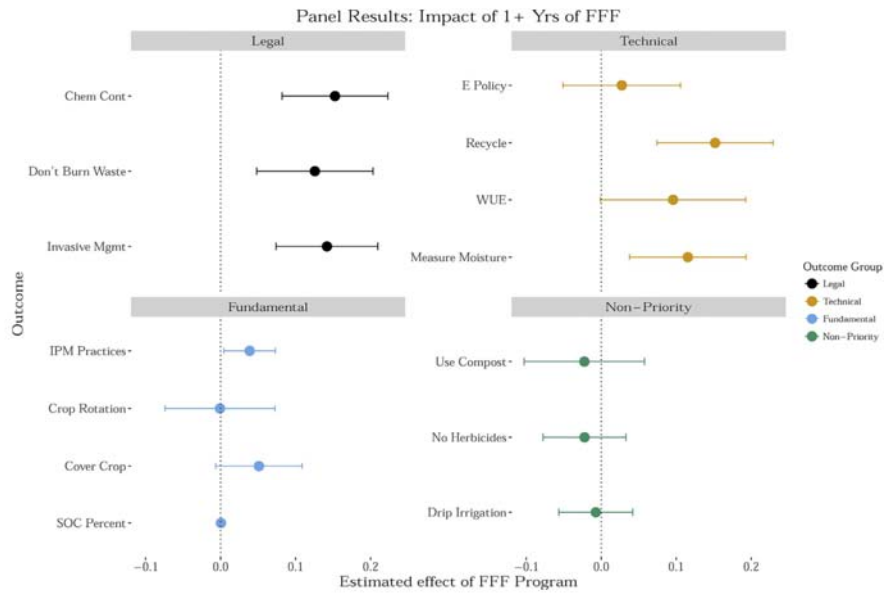
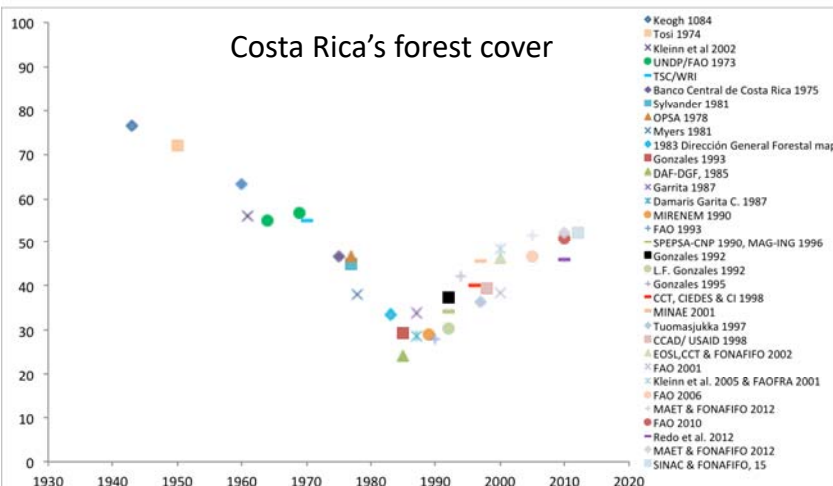
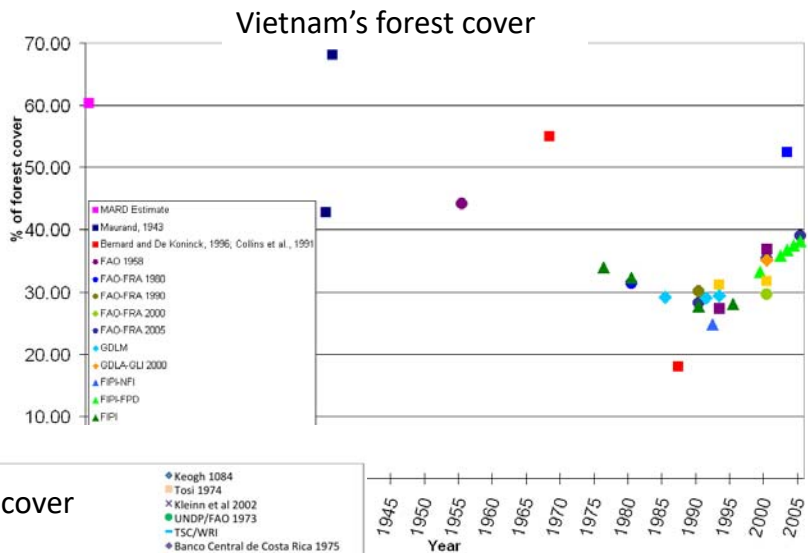


Fig. 2. Plot of outcome coefficients for FFF involvement from panel analysis using farm and year fixed effects. Error bars represent 95% confidence intervals. Colors represent the outcome groups suggested by the literature. See SI for regression table.

Thorlakson, Hainmuller & Lambin, *GEC*, 2018

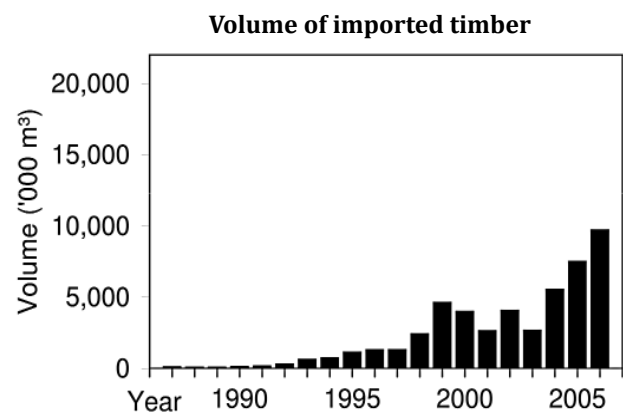
4. National-scale forest transitions



Spillovers, leakage



Off-shoring of deforestation, Vietnam



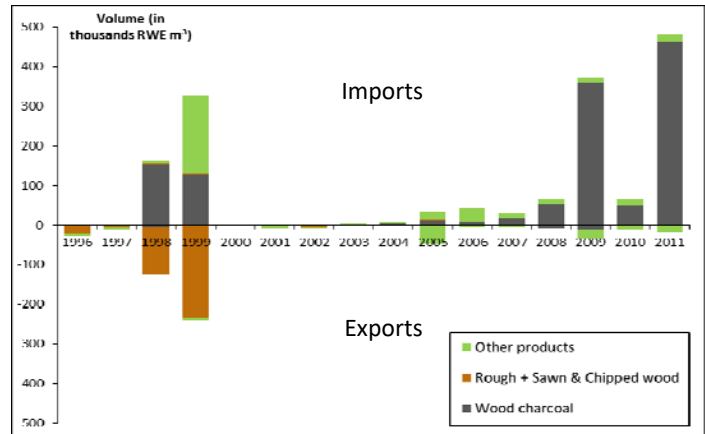
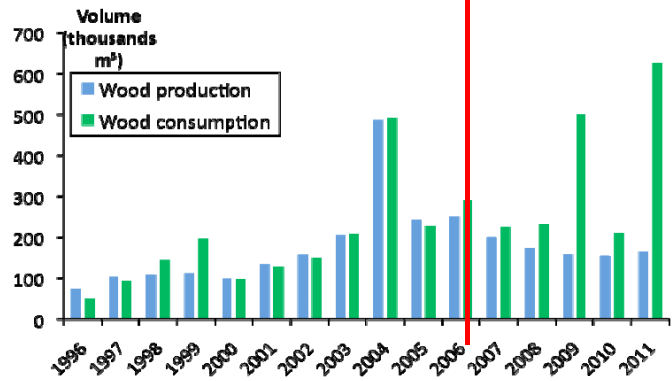
From EIA / Telapak

Meyfroidt & Lambin, *Proc. Nat. Ac. Sci.*, 2009

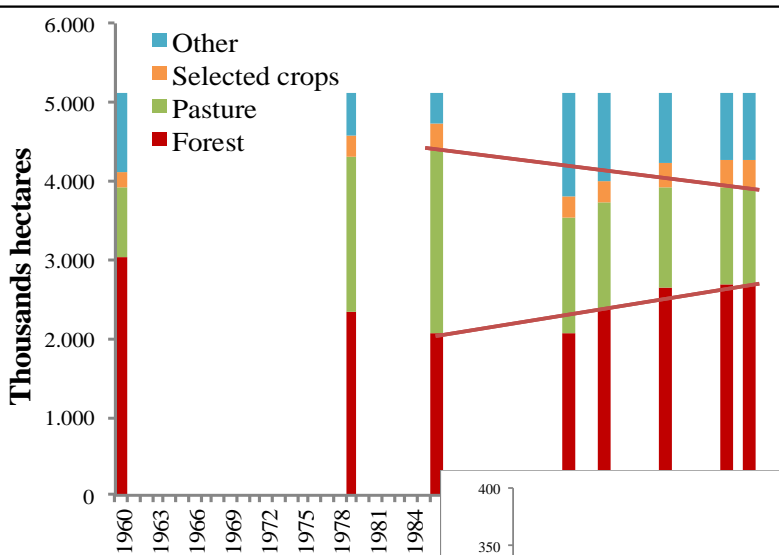
Off-shoring of wood extraction, Bhutan

40% of the wood consumed in Bhutan is from India

(1996-2011)



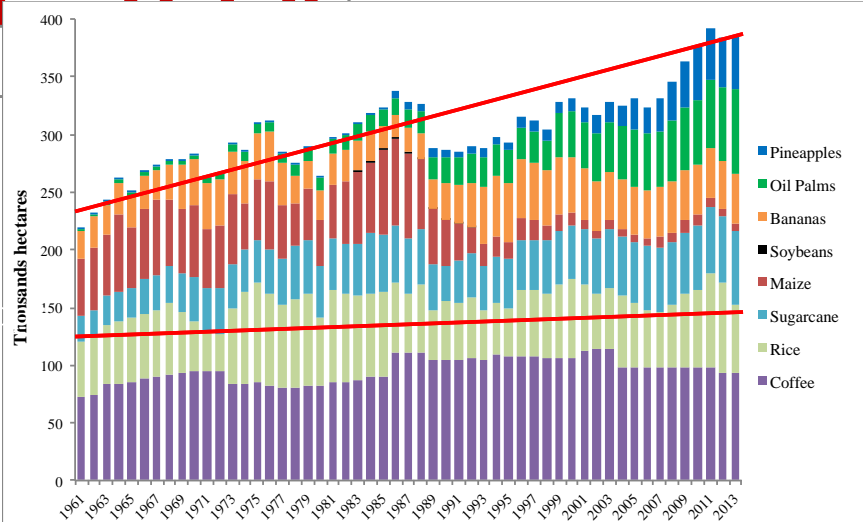
Jadin, Meyfroidt, Lambin, 2015

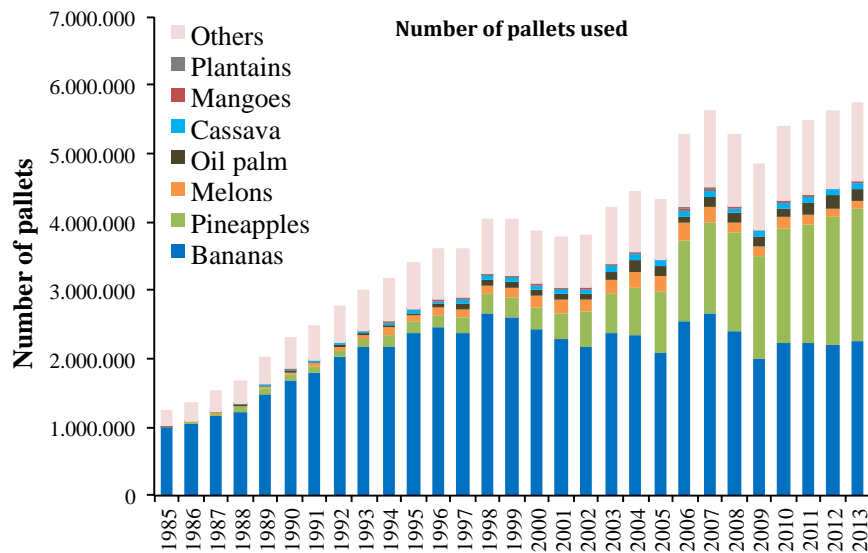


Costa Rica

Reforestation on old pastures

Expansion of fruit crops





Wood pallets to export fruits
are a threat to new forests

Jadin, Meyfroidt, Lambin, *Land*, 2016



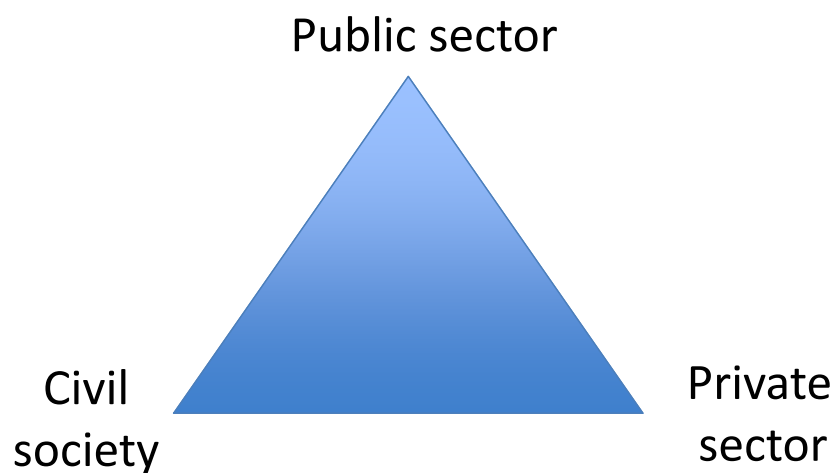
- Small solutions tend to stay small
 - 550 PES programs (2018): 36-42 \$ billion in annual transactions = < 0.1% of value of international trade
 - Market shares of eco-certified products: 2-22%
 - 300 progressive multinational companies among 80,000
 - 5 to 7 forest transition countries
- “Small is beautiful, but big is necessary”

Attributed to BRAC

Up-scaling

The challenge is not so much the speed of transformation, but rather its scale.

Multiple stakeholders



Sustainability standards

Amplification mechanisms to create tipping points of adoption:

1. **Public policies** that support or endorse sustainability standards or practices, or make them mandatory,
1. Adoption by **private companies** as part of their internal codes of conduct and their sustainable sourcing commitments.

Lambin et al. (2019) In: *Green Growth That Works*, Island Press

1a. Role of governments in *producing* countries

Integrate sustainability standards in public policy:

- **Bolivia:** forest code in 1990s inspired by Forest Stewardship Council (FSC) standards
- **Mozambique:** government embedded Better Cotton principles and criteria in national regulations
- **Minas Gerais'** State government developed "Certifica Minas Café" standards based on the Utz's standards for coffee
- **Peru:** forest concession holders reduce yearly lease payment by 70% if they adopt FSC standards
- **Guatemala:** FSC certified producers obtain 25-year land-use concessions

1b. Role of governments in *consuming* countries

Increase demand for eco-certified commodities:

- Public procurement policies
- **EU's Forest Law Enforcement, Governance and Trade (FLEGT)** action plan accepts FSC and PEFC certifications for legality assurance and licensing
- **US Lacey Act** recognizes private timber certification schemes as providing evidence of "due care"
- **EU's Renewable Energy Directive** accepts International Sustainability and Carbon Certification (ISCC), Roundtable on Sustainable Biofuels (RSB), RSPO for market entry.
- **France:** duty of vigilance law (2017)

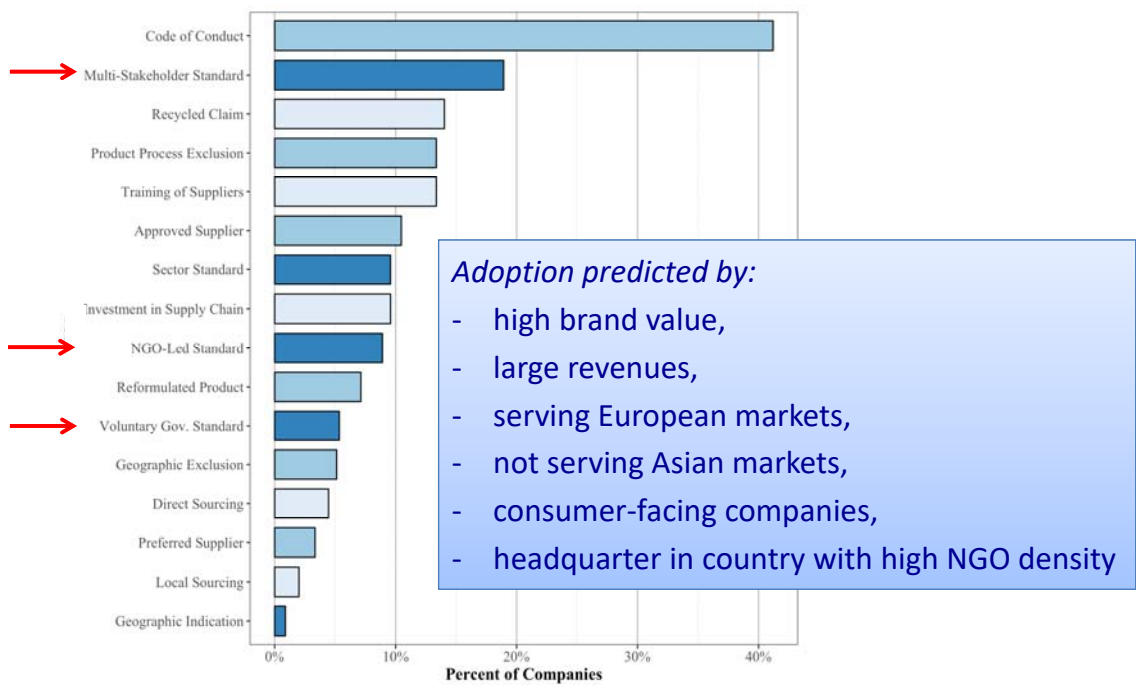
2. Role of private companies

Integration of voluntary sustainability standards in **internal codes of conduct** and **sourcing practices**:

- >85% of companies with a **Zero Deforestation Commitment** relied on 3rd party certification to identify commitment-compliant commodity supply (2015)
- 87% of companies with a palm oil ZDC relied on **RSPO** (2018)
- Starbucks: largest US buyer of **Fair Trade** coffee
- IKEA's sustainability commitments rely on **FSC** and **Better Cotton Initiative** (BCI)

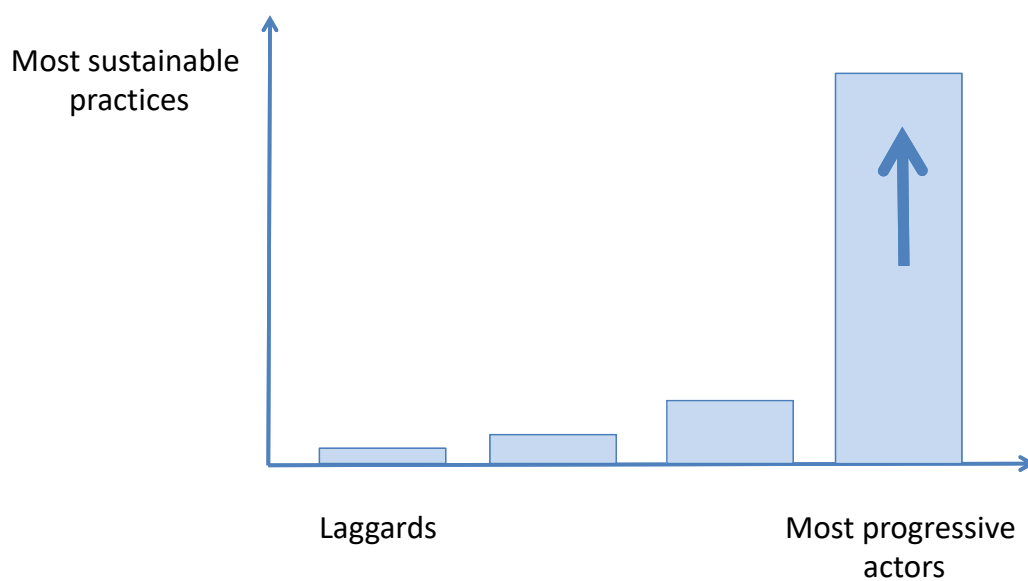
Sustainable sourcing practices by companies

450 food, wood & textile companies

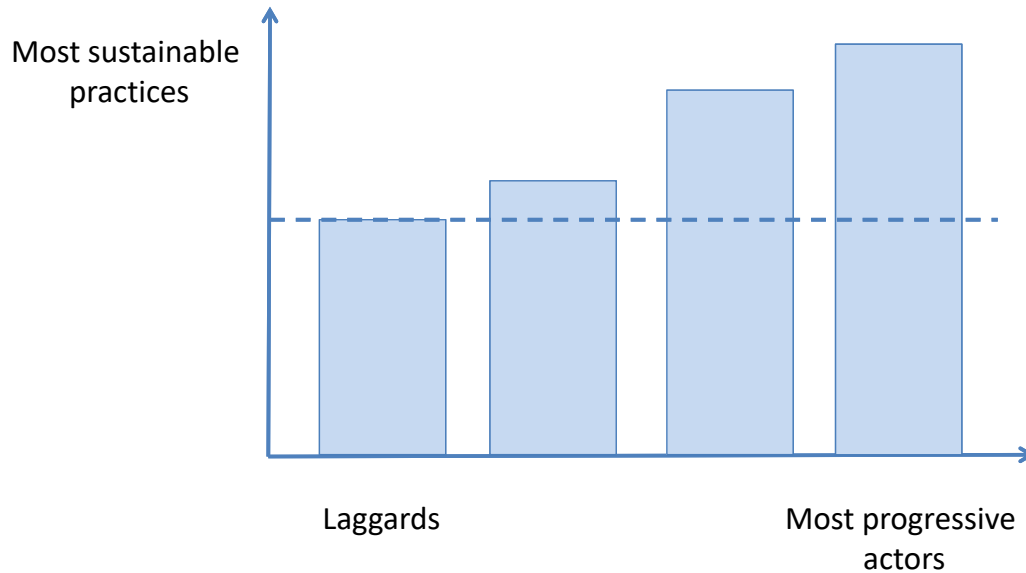


Thorlakson, de Zegher and Lambin, *Proc. Nat. Ac. Sci.*, 2018

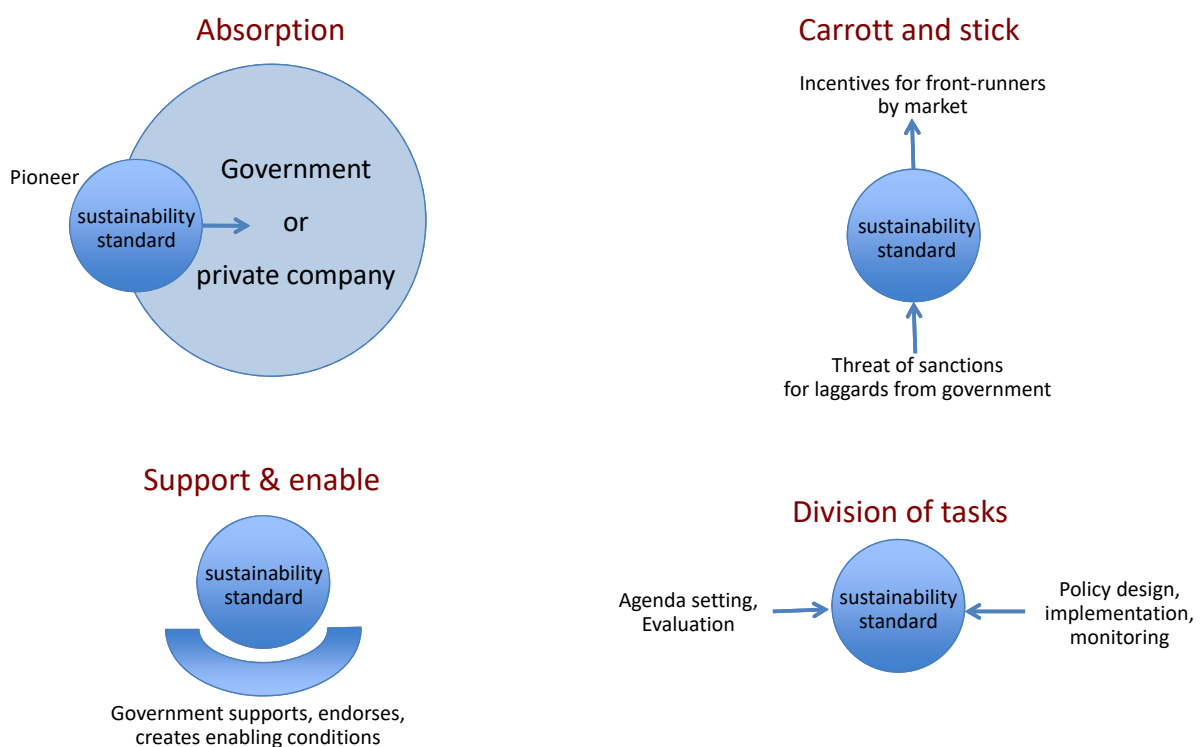
Market differentiation



System-wide transformation



Complementarity between public & private policies



Lambin *et al.*, *Glob. Environ. Ch.*, 2014

Take-home messages

- Need for “small” solutions + up-scaling mechanisms to create system-wide changes
- Develop synergies between voluntary standards, public policies, and supply chain commitments
- Promote public-private partnerships, multi-stakeholder initiatives, hybrid governance
- Account for heterogeneity between actors

