Transparency and sustainability in global commodity supply chains

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CDL Conservation & Development Lab

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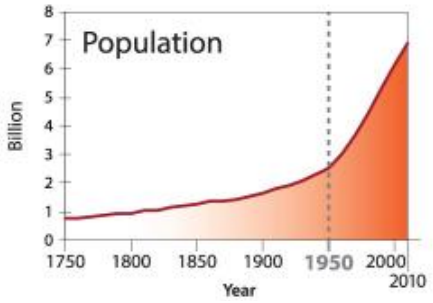
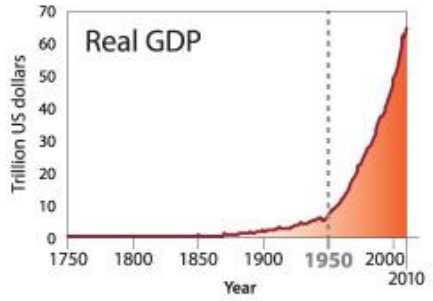
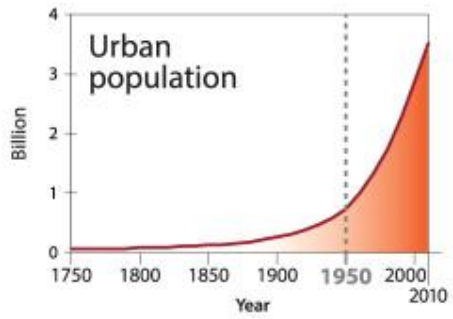






Steffen et al. 2015

Increased food demand

Production locations decoupled from consumption locations

Consolidation & expansion of agri-food businesses linking distant places

Europe and China dominate imports of some commodities

36% European share of global gold trade in 2019

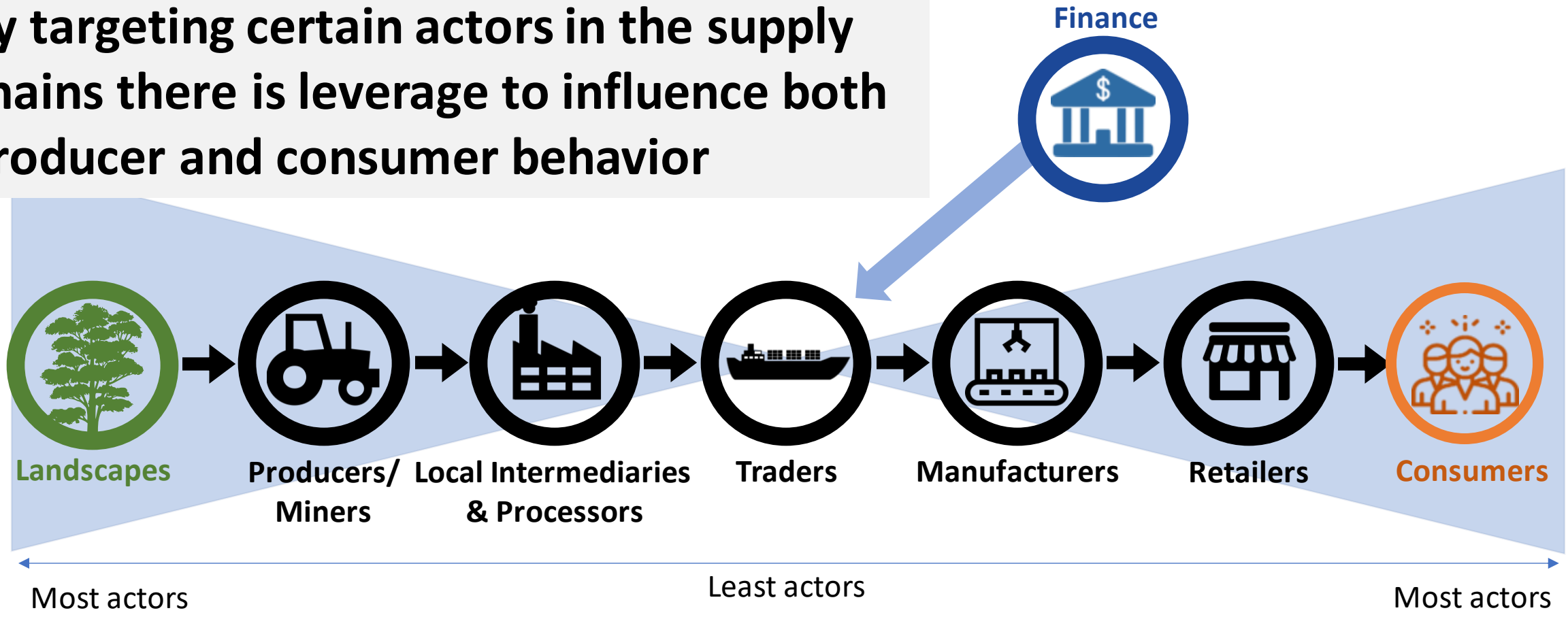
58% China's share of global soya-bean trade in 2019

50% China's share of global cobalt trade in 2019

61% European share of global cocoa trade in 2019

Sellare et al. 2022

By targeting certain actors in the supply chains there is leverage to influence both producer and consumer behavior



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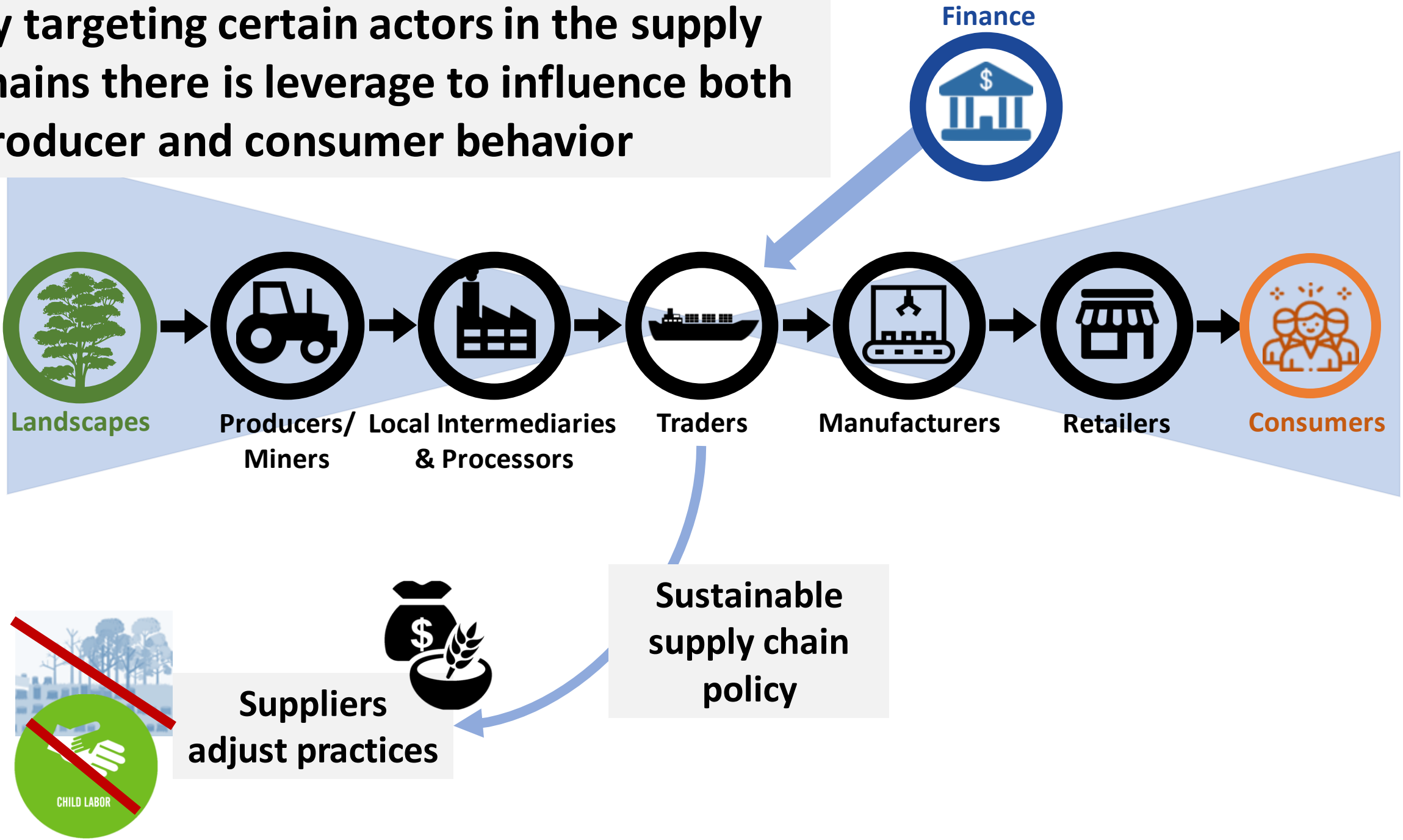


Sustainable Global Supply Chains

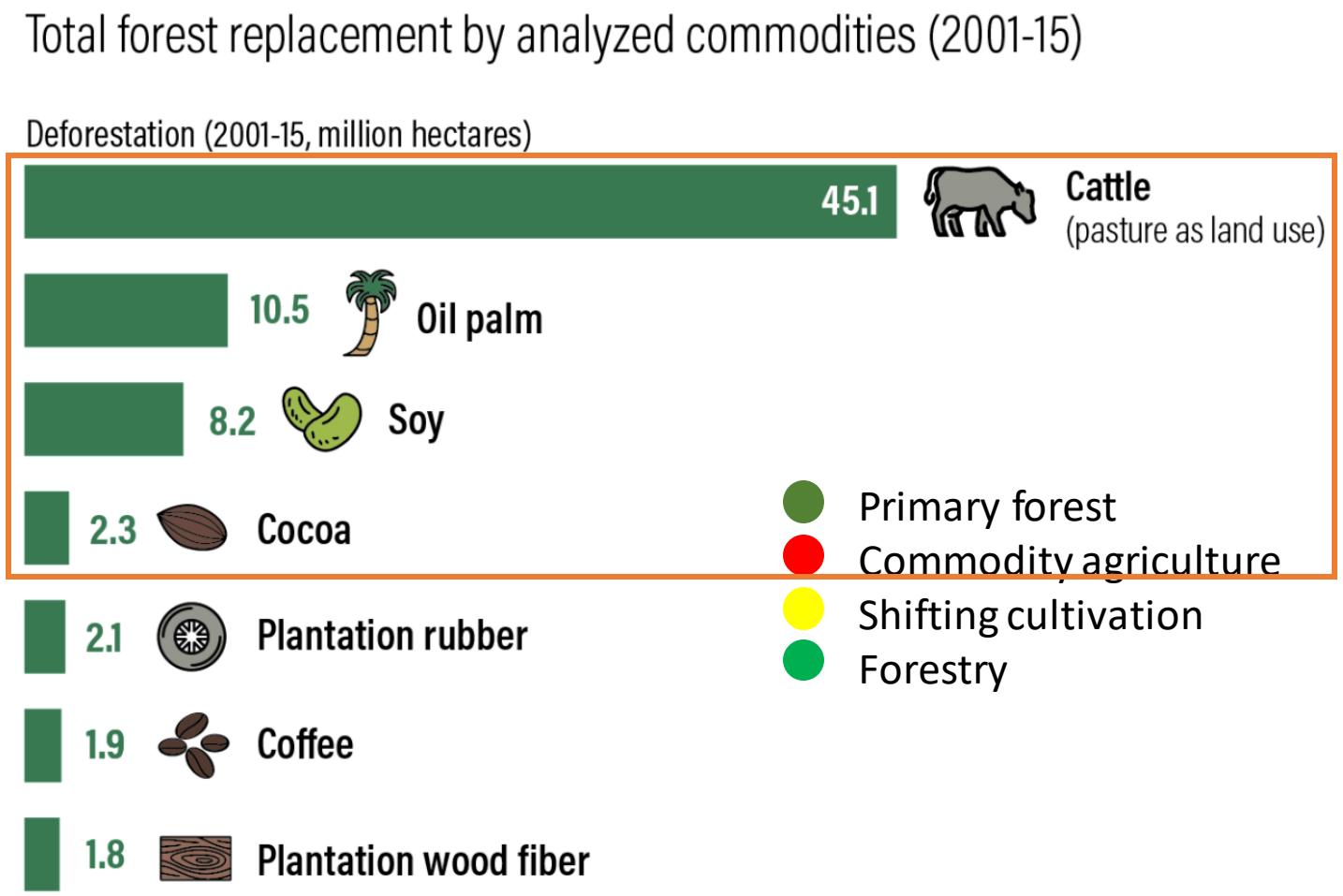
Work of conservation and development group at Cambridge

- Identify **hotspots of enviro. & social impacts** in supply chains
- Assess **adoption drivers, effectiveness, and equity** of existing policies
- Assess **feasibility** of new policies
- **Tensions or synergies** between policy outcomes under different contexts

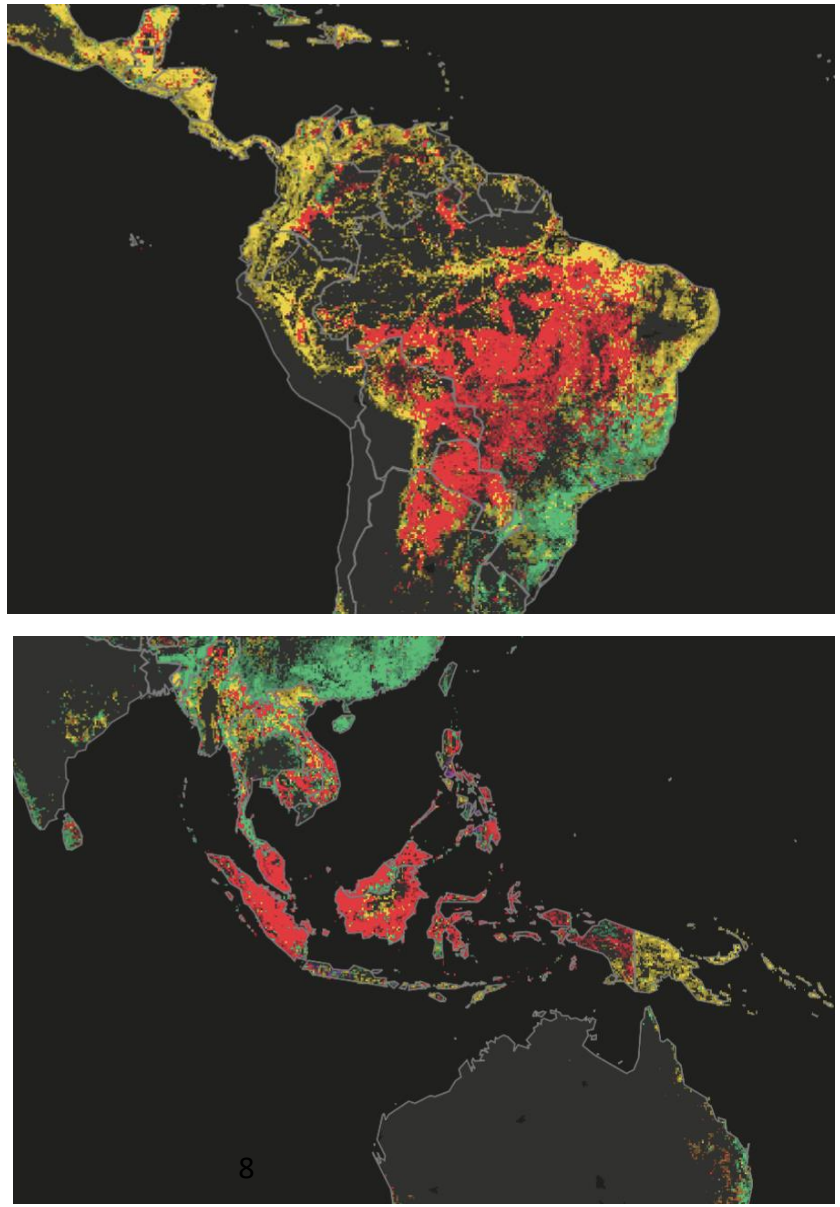
2.5 times the size of UK in tropical forest loss since 2000

- Including degradation accounts for ~18% of gross global CO2 emissions
- More than all emissions than the EU

Regionally concentrated impacts by a handful of commodities



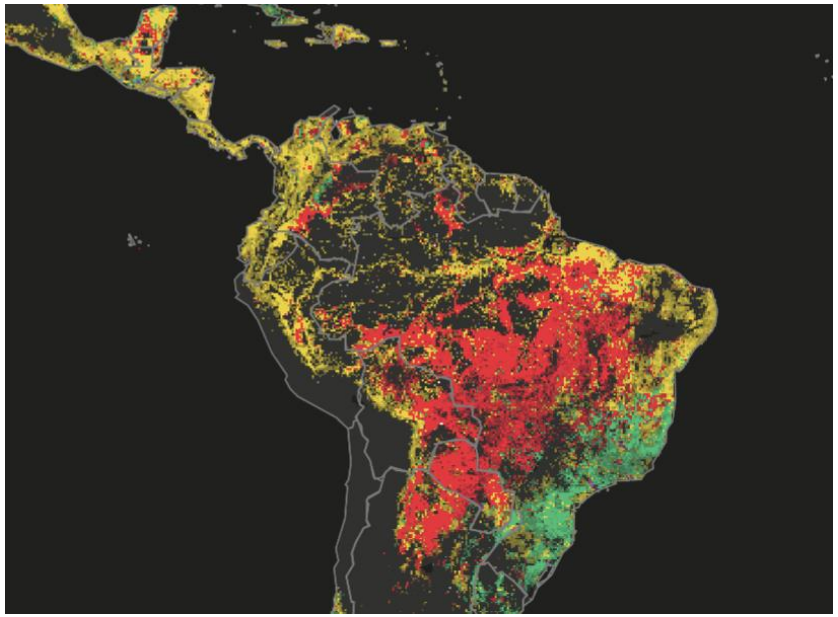
Source: *World Resources Institute based on Hansen*

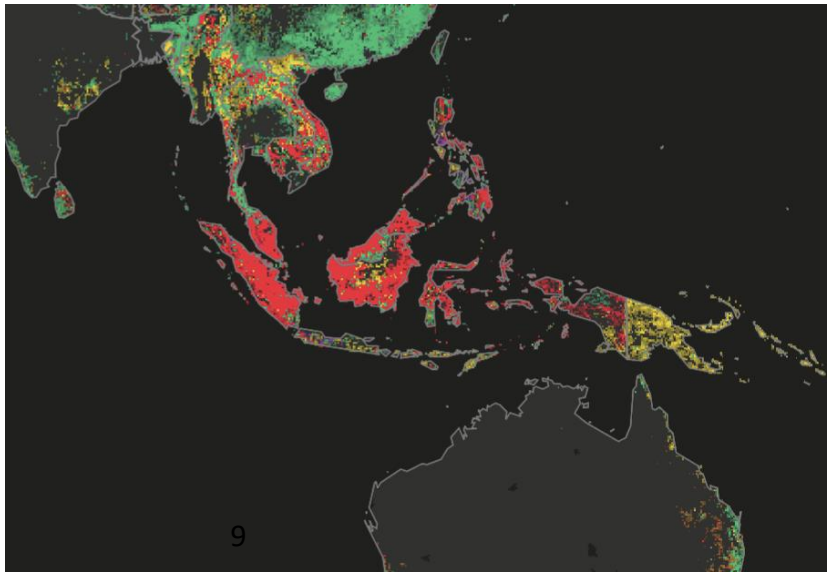


Sources: *Global Forest Watch; Curtis et al. 2018*

Mostly for domestic consumption, but share of deforestation for exports grew significantly over past 20 years
(with differences across the tropics)

	Domestic demand	Export demand
Africa	90-95%	5-10%
Latin America	65-70%	**30-35%**
Asia	60-65%	**35-40%**





Pendrill et al. 2022 Science

Sources: *Global Forest Watch*; *Curtis et al. 2018*

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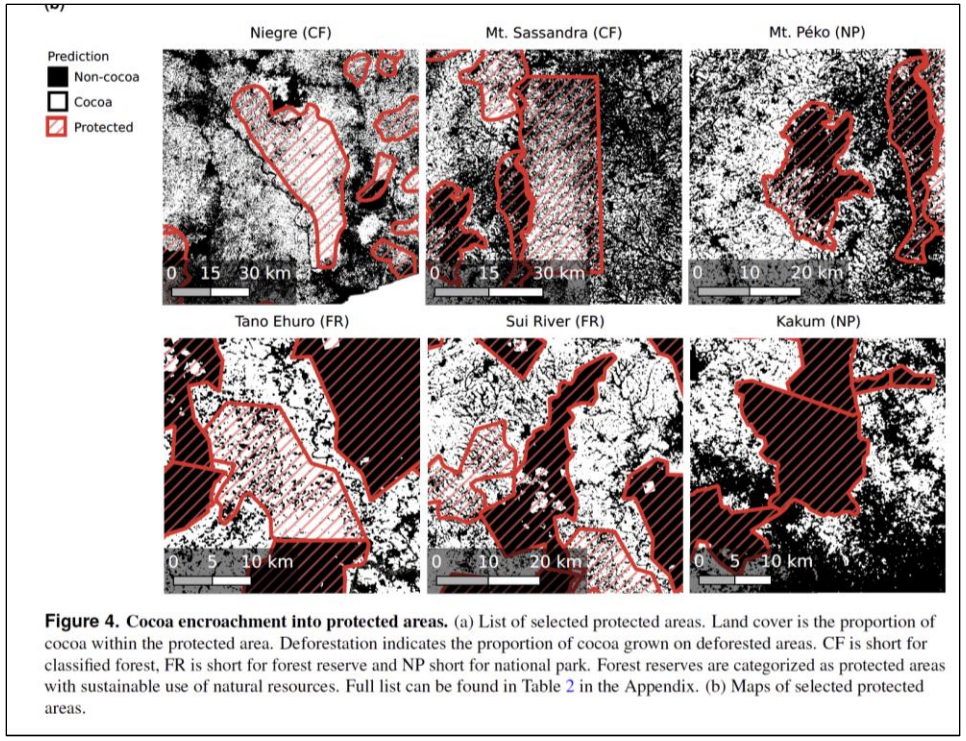

Figure 4. Cocoa encroachment into protected areas. (a) List of selected protected areas. Land cover is the proportion of cocoa within the protected area. Deforestation indicates the proportion of cocoa grown on deforested areas. CF is short for classified forest, FR is short for forest reserve and NP short for national park. Forest reserves are categorized as protected areas with sustainable use of natural resources. Full list can be found in Table 2 in the Appendix. (b) Maps of selected protected areas.

Kalischek et al. 2023 Nature Food

2000-2019

2.5 Mha of cocoa defor. and degrad. (46% of all

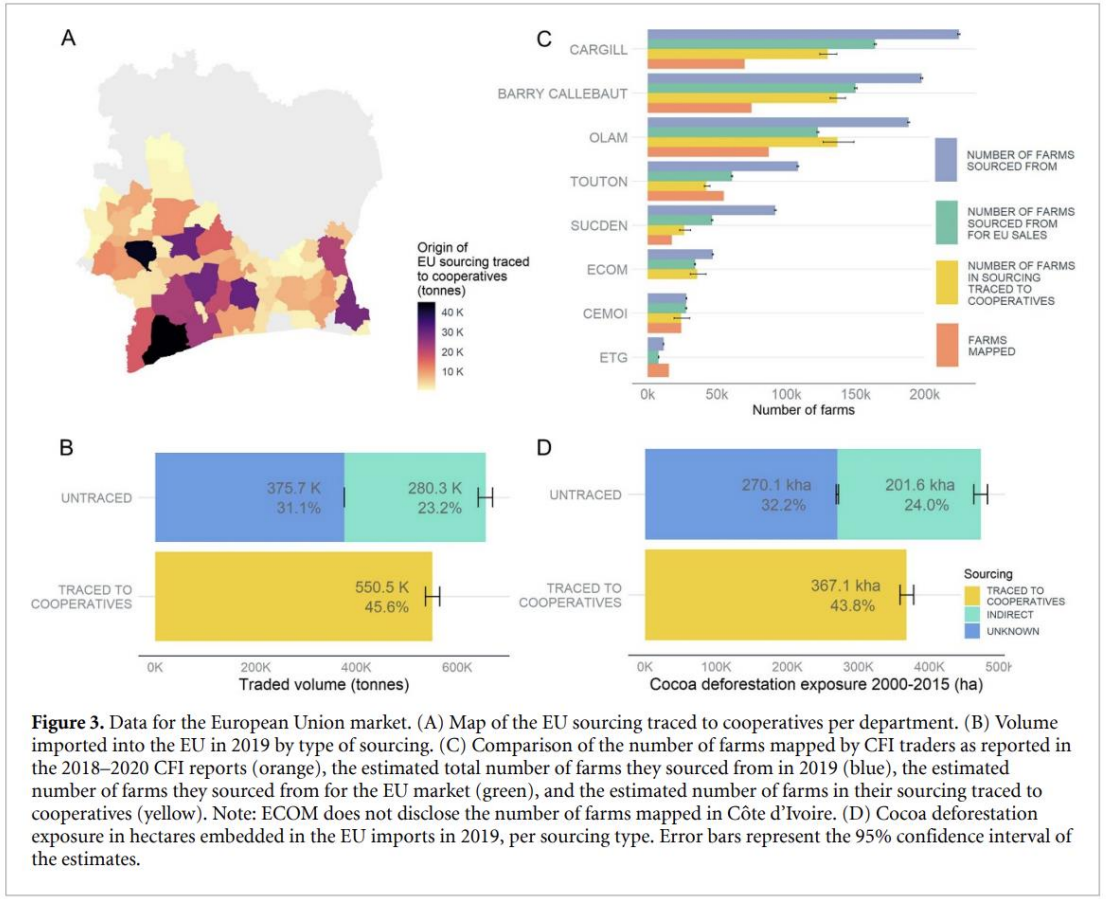

Figure 3. Data for the European Union market. (A) Map of the EU sourcing traced to cooperatives per department. (B) Volume imported into the EU in 2019 by type of sourcing. (C) Comparison of the number of farms mapped by CFI traders as reported in the 2018–2020 CFI reports (orange), the estimated total number of farms they sourced from in 2019 (blue), the estimated number of farms they sourced from for the EU market (green), and the estimated number of farms in their sourcing traced to cooperatives (yellow). Note: ECOM does not disclose the number of farms mapped in Côte d'Ivoire. (D) Cocoa deforestation exposure in hectares embedded in the EU imports in 2019, per sourcing type. Error bars represent the 95% confidence interval of the estimates.

Renier et al. 2022 ERL

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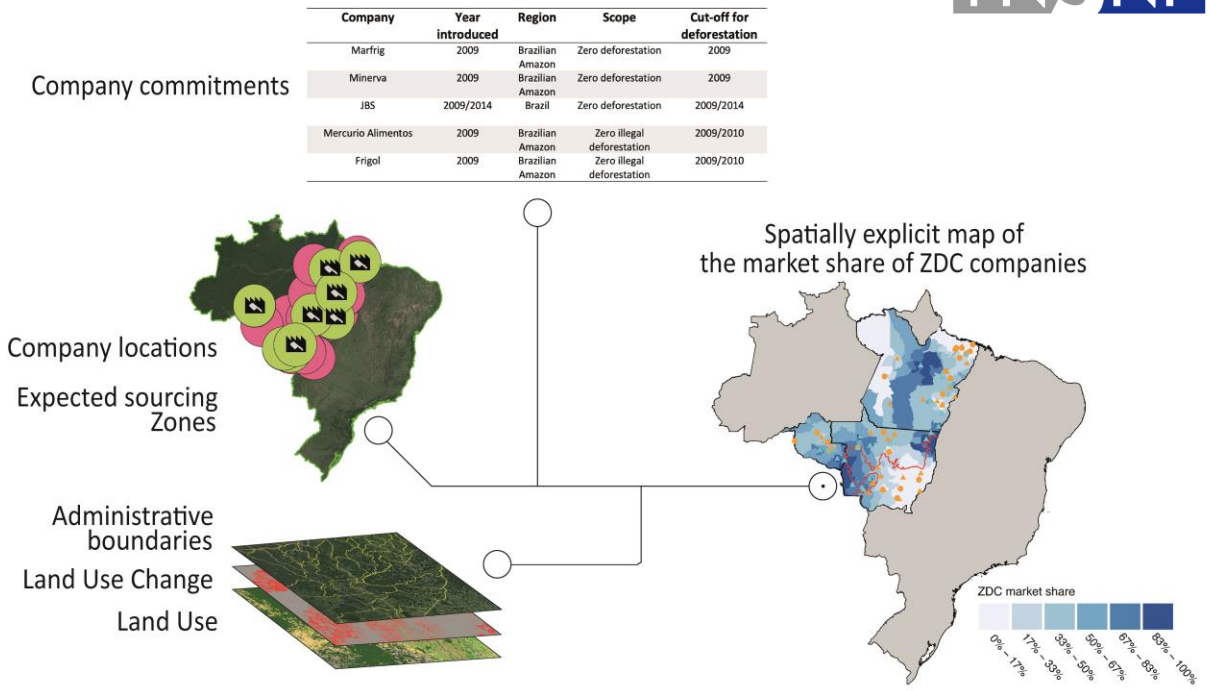
- Adoption of ZDCs is too low:
  - <50% of threatened areas for soy (Amazon)
  - <30% of threatened forests for palm (Indonesia)
  - <50% of cattle (Amazon)
- Current impacts are small
- So far deforestation supply chain policies have protected:
  - 25,000 ha/yr from soy
  - 87,000 ha/yr from cattle
  - 0 from oil palm

  (<2% of annual tropical deforestation)

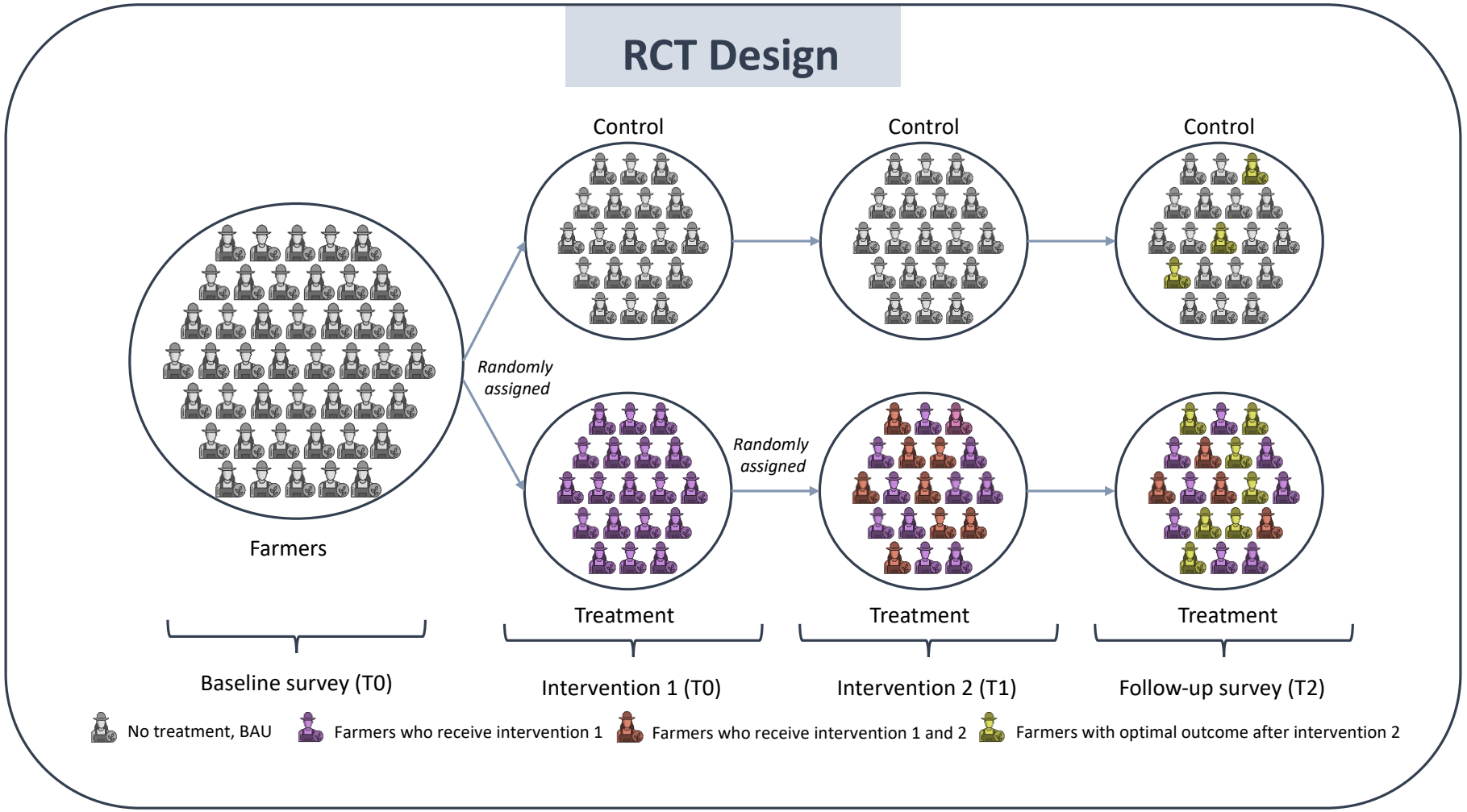


Company	Year introduced	Region	Scope	Cut-off for deforestation
Marfrig	2009	Brazilian Amazon	Zero deforestation	2009
Minerva	2009	Brazilian Amazon	Zero deforestation	2009
JBS	2009/2014	Brazil	Zero deforestation	2009/2014
Mercurio Alimentos	2009	Brazilian Amazon	Zero illegal deforestation	2009/2010
Frigol	2009	Brazilian Amazon	Zero illegal deforestation	2009/2010

Gollnow et al. 2022 ERL; Villoria et al. 2022 Nature Communications; Stigler et al. In Review

Levy et al. 2023 Global Environmental Change

Ongoing work: Randomized control trials examining specific implementation *mixes* of market exclusion policies with palm oil (in Indonesia) and cocoa (in W. Africa) traders



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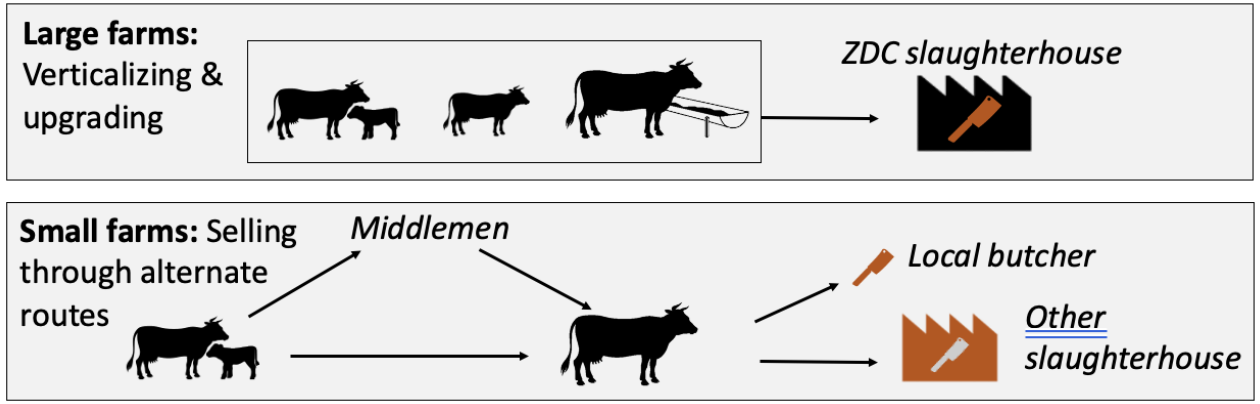
Often have intractable **effectiveness-equity tensions** (at least in the short-term)

- Effectiveness is often prioritized. Exclusion of most vulnerable actors is a problem in many contexts.
- But if equity considerations are taken into account, the commitments may be very watered-down.
- Positive incentive approaches can also exacerbate entitlements to deforest

Bifurcation of cattle chain



Grabs et al. 2021 Global Environmental Change; Cammelli et al. 2022 Journal of Cleaner Prod.; Garrett et al. 2022 World Dev.

Deforestation: proposed EU import ban may fail to protect tropical rainforests and farmers – here's how it should work

Published: January 6, 2023 1.12pm GMT

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Disclosure statement

Rachael Garrett receives funding from the European Research Council and Swiss National Science Foundation. She serves on the UN Science Panel on Voluntary Sustainability Standards and the UN Science Panel for the Amazon, as well as the scientific advisory boards of the Transparency for Sustainability Economies Initiative (Trase), Evidensia, and Conservation Finance Future.

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More promising approaches:

Jurisdictional approaches that mix incentives & have a strong focus on capacity building:

- Include all deforestation-risk commodities, *but*
- Focus on districts/munis, not individuals
- Channel financing to improved ag management rather than avoided deforestation
- Focus on improving information and activating or change norms

Larger scale of implementation helps reduce negative deforestation spillovers.

Coordination between governments and supply chains could reduce costs.

Channels finance to a broader range of actors and activities.

Entitlements negotiated among a broader set of actors.

 = effectiveness  = efficiency  = equity  = legitimacy

Garrett et al. 2022 World Development; Grabs et al. 2021 Global Envrionmental Change


Thank you for your attention!
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