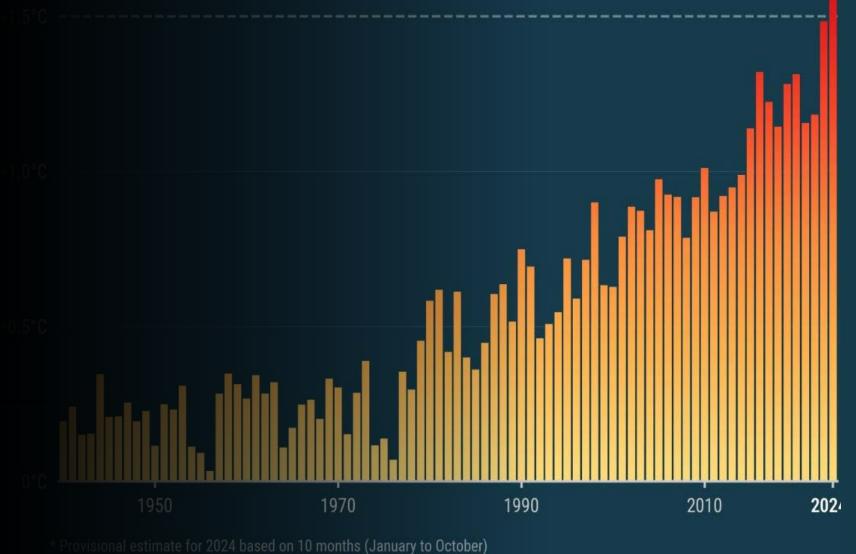






The current climate crisis









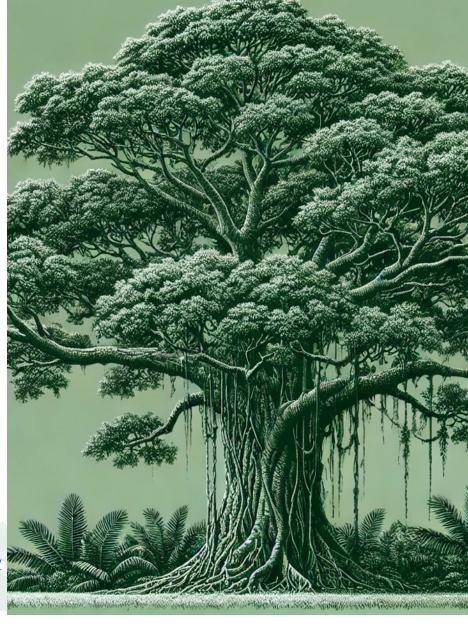


Tropical Forests and the Climate Crisis

- Carbon Storage: Tropical forests store ca. 250 billion tons of carbon¹
- Deforestation releases around 2.6 billion tons of CO₂ annually²
- Biodiversity: Tropical forests are home to 50% of the world's species³
- Climate Regulation: They influence global rainfall patterns and regulate the climate⁴
- Human Livelihoods: They support 1.6 billion people globally⁵
 - 1) https://bing.com/search?q=tropical+forests+carbon+storage
 - (2) https://ourworldindata.org/carbon-deforestation-trade
 - https://rainforests.mongabay.com/
 - (4) https://bing.com/search?q=tropical+forests+influence+global+rainfall+patterns
 - (5) https://wwf.panda.org/discover/our focus/forests practice/importance forests/tropical rainforest/













Fate of anthropogenic CO₂ emissions (2013–2022)





35.3 GtCO₂/yr 88%



12%4.7 GtCO₂/yr

Sinks

18.9 GtCO₂/yr



26% 10.4 GtCO₂/yr







Budget Imbalance:

(the difference between estimated sources & sinks)

4%

-1.6 GtCO₂/yr

NBS

Climate mitigation potential of 20 natural pathways (Griscom et al. 2017)

Climate mitigation potential in 2030 (PgCO₂e yr⁻¹) **Forests** Reforestation Avoided Forest Conv. Natural Forest Mgmt. Improved Plantations Avoided Woodfuel Fire Mgmt. Ag. & Grasslands Biochar Trees in Croplands climate mitigation Nutrient Mgmt. maximum with safeguards Grazing - Feed Conservation Ag. <2°C ambition</p> Improved Rice low cost portion Grazing - Animal Mgmt. of <2°C ambition Grazing - Optimal Int. Grazing - Legumes other benefits Avoided Grassland Conv. Wetlands biodiversity Coastal Restoration water Peat Restoration Avoided Peat Impacts Avoided Coastal Impacts Bronson W. Griscom et al. PNAS 2017;114:44:11645-11650



NBS

Climate mitigation potential of 20 natural pathways (Griscom et al. 2017)

Climate mitigation potential in 2030 (PgCO₂e yr⁻¹)



Bronson W. Griscom et al. PNAS 2017;114:44:11645-11650



Avoided Coastal Impacts

Challenges in preserving tropical forests as carbon sinks

- **Dwindling Role**: Tropical forests' capacity to absorb carbon is declining due to deforestation and climate change
- Carbon Source: Some tropical forests are now emitting more CO² than they absorb, turning into carbon sources¹
- **Regional Variations**: While some regions show increased carbon uptake due to reforestation, others are losing their carbon sink capacity²
- Restoration is not the same as conservation: more costly, more complex
- Pledges are too high (Land Gap Report)³



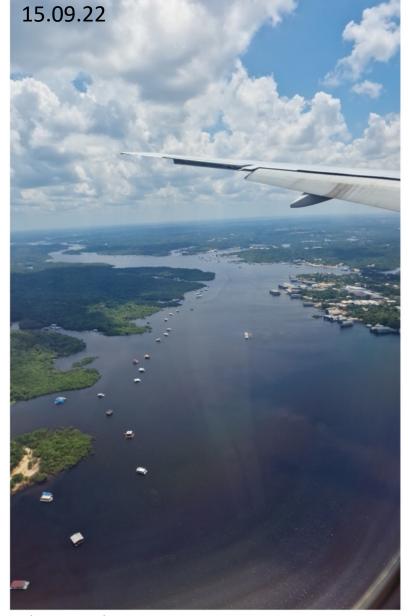
⁽¹⁾ https://www.nature.com/articles/d41586-022-00934-6

⁽²⁾ https://www.weforum.org/stories/2023/03/regrowth-of-degraded-tropical-forests-offsets-a-quarter-of-deforestation-emistorial-forests-offsets-a-quarter-of-deforestation-emistorial-forests-offsets-a-quarter-of-deforestation-emistorial-forests-offsets-a-quarter-of-deforestation-emistorial-forests-offsets-a-quarter-of-deforestation-emistorial-forests-offsets-a-quarter-of-deforestation-emistorial-forests-offsets-a-quarter-of-deforestation-emistorial-forests-offsets-a-quarter-of-deforestation-emistorial-forests-offsets-a-quarter-of-deforestation-emistorial-forests-offsets-a-quarter-of-deforestation-emistorial-forests-offsets-a-quarter-of-deforestation-emistorial-forests-offsets-a-quarter-of-deforestation-emistorial-forests-a-quarter-of-deforestation-emistorial-forests-a-quarter-of-deforestation-emistorial-forests-a-quarter-of-deforestation-emistorial-forests-a-quarter-of-deforestation-emistorial-forests-a-quarter-of-deforestation-emistorial-forests-a-quarter-of-deforestation-emistorial-forests-a-quarter-of-deforestation-emistorial-forestation-e

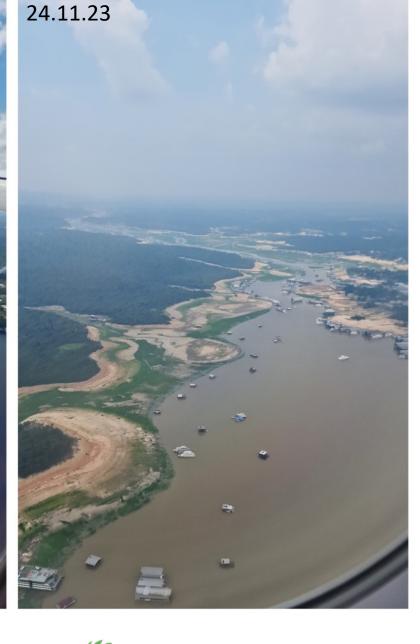
⁽³⁾ https://landgap.org/

The Tipping Point for Amazonia

- Amazonia risks reaching an irreversible tipping point, potentially shifting from a carbon sink to a carbon source
- Deforestation above 50% is pushing Amazonia towards this critical (no-return?) threshold















Forest-Related Instruments under the Paris Agreement (PA)

- **REDD**+: A framework to reduce emissions from deforestation and forest degradation, and promote sustainable forest management and carbon stock enhancement in developing countries
 - Warsaw Framework for REDD+: methodological and financing guidance for REDD+ activities
- Carbon Credits (Article 6)
 - Article 6.2: Allows countries to trade emission reductions (Internationally Transferred Mitigation Outcomes) to meet their NDCs
 - Article 6.4: Establishes a centralized mechanism for trading emission reductions, similar to the Clean Development Mechanism
 - Article 6.8: Promotes non-market approaches for cooperation on mitigation and adaptation, including finance and technology transfer
- ETF (Enhanced Transparency Framework): A system for tracking and reporting progress on climate actions and support, ensuring transparency and accountability under the PA
- NDCs (Nationally Determined Contributions): Climate action plans submitted by countries outlining their efforts to reduce national emissions and adapt to climate impacts

Not PA related

• Clean Development Mechanism (CDM) is part of the Kyoto Protocol

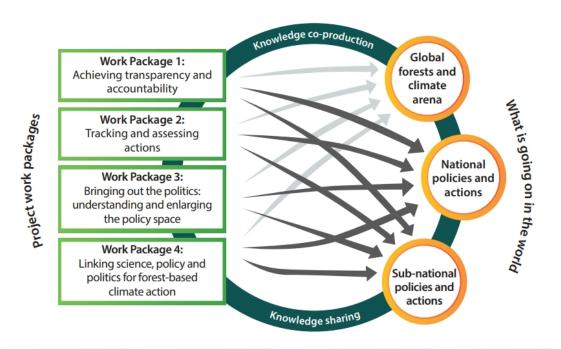








Global Comparative Study on REDD+



2009 - 2012

Building a strong knowledge base and community to apply REDD+ expertise in achieving the 3Es 2013 - 2015

Generating new knowledge to inform and facilitate transformational change 2016 - 2020

Supporting decision-makers and practioners in achieving outcomes and assessing REDD+ impacts 2021 - 2023

Knowledge for action to protect tropical forests and enhance rights





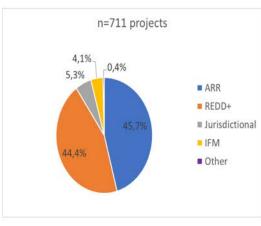


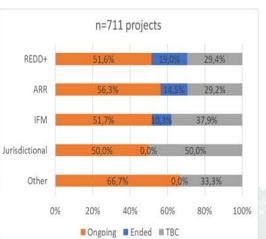




ID-RECCO

The most comprehensive and updated global database and analysis of REDD+ projects 193,000 global users

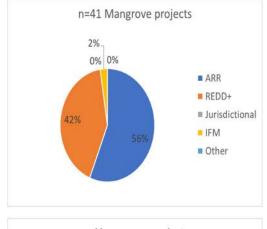


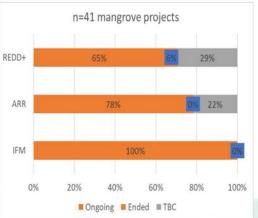


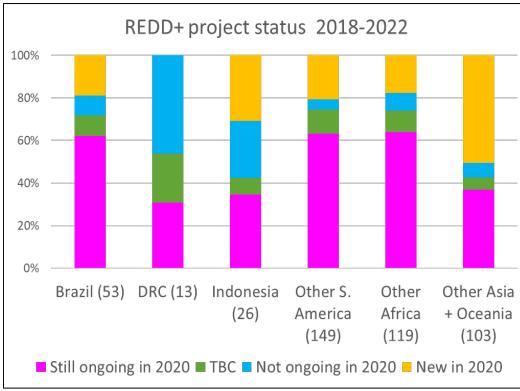


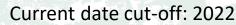












Sources: Atmadja et al. forthcoming; Pham et al. forthcoming











REDD+ Knowledge Products and Impact



- + REDD+ legal studies: http://www.cifor.org/gcs/publications/redd-legal-studies/
- + Safeguards: http://www.cifor.org/gcs/publications/redd-safeguards/
- + over 1200 scientific publications: http://www.cifor.org/gcs/publications/ and https://www.cifor-icraf.org/gcs/redd-lit/



UNFCCC: stepwise MRV

ID-RECCO

Indonesia: REDD+ strateg;, FREL

refinement

Peru: legal recognition of peatlands;

protected areas

Guyana: forest monitoring capacity

Vietnam: payments for forest

environmental services

https://www.ciforicraf.org/gcs/knowledge/publications/specialcollections/stories-of-change/





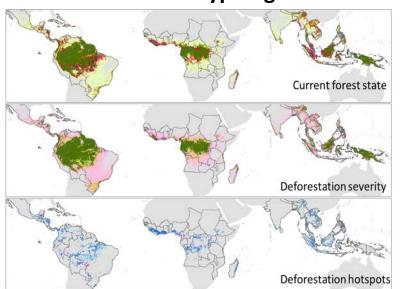




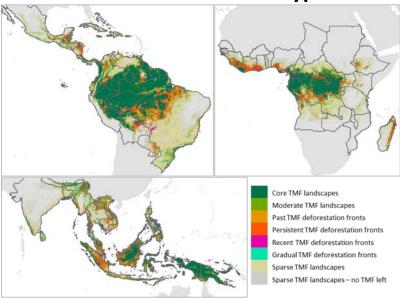


Deforestation diagnostic and typology

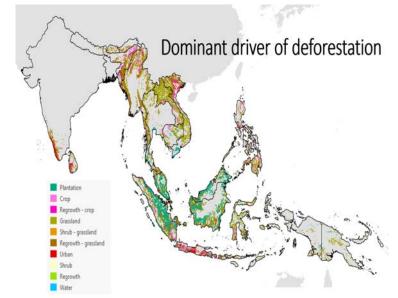
Deforestation typologies



Deforestation archetypes



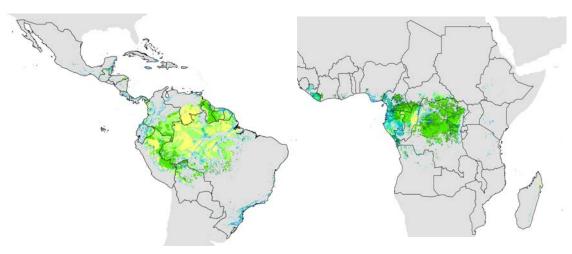
Dominant drivers of deforestation

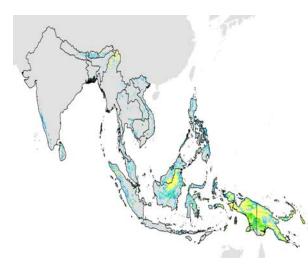


Deforestation risk

	Low	Medium	High
Accessibility (h)	> 12	4-12	0-4
Suitability	0-25	25-40	40-100

RISK	Low suitability	Medium suitability	High suitability
Low access	Very low	Low	Moderate
Medium access	Low	Moderate	High
High access	Moderate	High	Very high









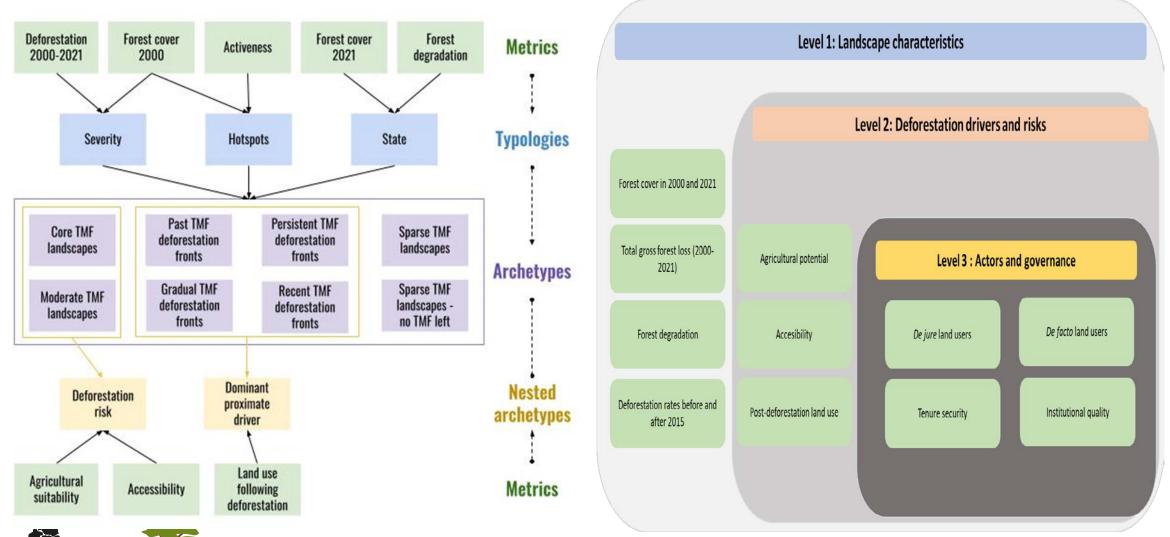
Source: Niki de Sy et al. forthcoming





Innovative, science-based deforestation diagnostics approach

A decision making and research tool to address which policies and measures are likely to work where, and why to address deforestation and degradation?

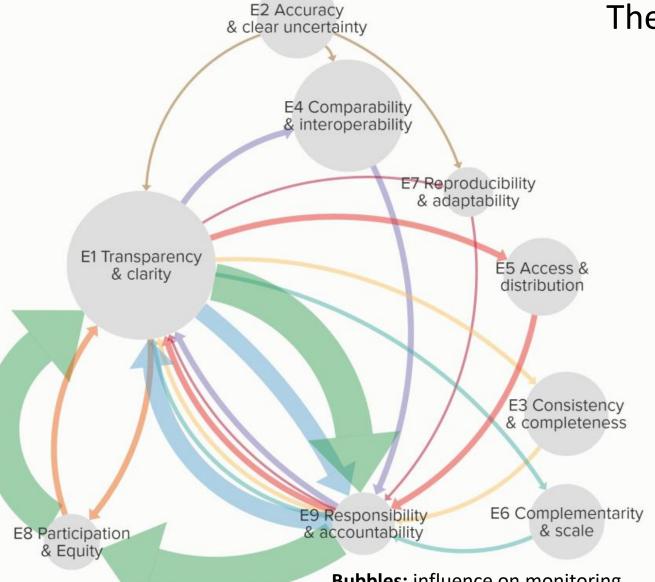




Source: Julia Naime et al. forthcoming







The Eight Elements of Transparency

- Transparency and clarity
- Accuracy and communicating uncertainty
- Consistency and completeness
- Comparability and interoperability
- Complementarity and scale
- Reproducibility and adaptability
- Access and distribution
- Participation and equity
- Responsibility and accountability

Bubbles: influence on monitoring

Arrows: positive feedbacks (size = impact of feedback)

Own compilation with http://www.consideo.com/imodeler24.html







Project working towards increased transparency

Data dimension

Accuracy
Clear communication of
uncertainty
Reproducibility
Adaptiveness

Space→

Coverage in two dimensions

Comparable | consistent | inter-operational Complete, or complementary

Time→

Social (community)
& policy dimension

Participation Access Capacity Equitability

Private sector dimension

Participation
Access
Capacity
Equitability

responsibility

accountability

trust

legitimacy

scale

Paris
Agreement
transparency
framework
supported

Land sector

304.0

Indirect outcomes

impact

activities

Factors hindering transparency

ack of information and data | Lack of access to information and data | lack of confidence and trust.





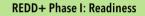




Overview of REDD+

REDD+ is a key mechanism to mitigate emissions from deforestation and degradation

pre-REDD+ Outputs **Activities** Outcomes debates Elements of national **Eligible REDD+ actions Actual interventions** (as observed in practice) REDD+ a. Reducing emissions Emissions from from deforestation National strategy or Incentives deforestation reduced action plan b. Reducing emissions Conditional livelihood enhancement Emissions from forest Land sector's from forest degradation Safeguards Non-conditional livelihood degradation reduced contribution c. Conservation of forest information system enhancement Forest carbon stocks to climate National forest carbon stocks Policies and measures conserved change monitoring system d.Sustainable State regulation, tenure clarification, Forests sustainably mitigation • Forest reference level management of forests registries achieved managed • Restrictions on forest access and conversion e. Enhancement of forest Forest carbon stocks CP/2010/7/Add.1: Art.71 carbon stocks Enabling measures enhanced Forest enhancement CP/2010/7/Add.1: Art.70 Environmental education REDD+ offsets Cancún safeguards implemented Benefit-sharing mechanisms a. Complementarity/consistency with national forest programmes, international conventions and agreements b. Transparent, effective national forest governance c. Respect for knowledge and rights of indigenous peoples and local communities d. Full and effective participation of relevant stakeholders, in particular indigenous peoples and local communities Parties (esp. developed countries) to e. Consistency with conservation of natural forests and biological diversity; incentivising protection and support (multilaterally/bilaterally) development of national strategies/action conservation of natural forests and ecosystem services; enhancement of social and other environmental plans, policies and measures, capacity benefits f. Actions to address risks of reversals development; national implementation g. Actions to reduce displacement of emissions CP/2010/7/Add.1: Art.76 CP/2010/7/Add.1, Appendix I: 2



REDD+ Phase II: Implementation

REDD+ Phase III: Results-based payment



Figure 2.2 The UNFCCC REDD+ decisions in a theory of change (Warsaw Framework)

Note: Green and blue boxes represent formal decisions on carbon (green) and co-benefits (blue). Yellow boxes represent crucial elements in the ToC that are not formally part of the Warsaw Framework. The corresponding ToC steps are shown in grey boxes at the bottom.

Source: UNFCCC 2011

Impact

Table 2.1 Main rationales underlying REDD+ theories of change

Rationale	Description	Main policy	Underlying ideology	Key proponents
Economic incentives	Excessive emissions are a market failure, to be corrected though PES	Payments for environmental services (PES/ market approach)	Neoclassical environmental economics (rational choice); 'bio- environmentalists' (Hiraldo and Tanner 2012)	Key donors, World Bank, UN-REDD, Green Climate Fund (GCF), many NGOs
Institutional change and coordination	Good climate policy will be enshrined in laws, regulations and institutions	Institutional reforms; laws and regulations related to climate change	Institutionalism Managerial paradigm (Sunderlin 2002)	UN-REDD Programme
Empower local people, women and marginalised groups	'All you need is rights' to achieve long-lasting impact	Tenure reforms and local rights; gender mainstreaming	Deforestation resulting from unbalanced power, which allows forest exploitation by commercial outsiders	Rights and Resources Initiative (RRI), indigenous peoples' organisations, gender organisations, civil society organisations
Information	Equipped with the right and sufficient information, stakeholders can make the right decisions	Public information and transparency; information exchange and coordination among stakeholders	Available information and enlightened public debate producing socially and environmentally optimal outcomes ¹	UN-REDD Academy; academics
Planning	Rational planning by governments at various levels and in its diverse sectors is the key	Planning, and command and control measures	Deforestation is a result of insufficient (landscape) planning and zoning	National administrations; some donors









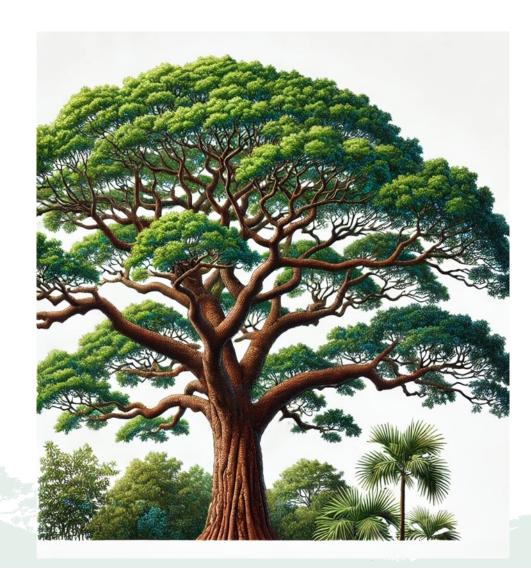
Learning from REDD+ Challenges and Insights

REDD+ offers important lessons for climate policy design, finance, and implementation

- Key elements are not defined and left for countries to decide
- Types of interventions not defined
- Monitoring and Forest Reference Levels in tiers
- Participation
- Benefit sharing mechanisms: equity
- Safeguards loosely defined

Learning from REDD+ means paying attention to these elements from the start, in any new mechanism

→ e.g. high-integrity carbon credits









Best science to answer the big questions

"forest finance that is good for forests, climate, biodiversity, forests and people"

how to integrate social and environmental objectives

- Complexity versus simplicity in a holistic world
- Social safeguards
- Fair and equitable benefit sharing

how to achieve permanence

- Solve technical questions around leakage
- How to inoculate against policy swings
- address anticipated demand for forest products (from defossilization)

shifting the trillions

- the land use sector vs.
 fossil fuels and energy:
 ending perverse subsidies
- Designing financing mechanisms, stepping up finance / Carbon markets
- How to achieve zerodeforestation



cifor-icraf.org | globallandscapesforum.org | resilient-landscapes.org

The Center for International Forestry Research (CIFOR) and World Agroforestry (ICRAF) envision a more equitable world where trees in all landscapes, from drylands to the humid tropics, enhance the environment and well-being for all. CIFOR and ICRAF are CGIAR Research Centers.







