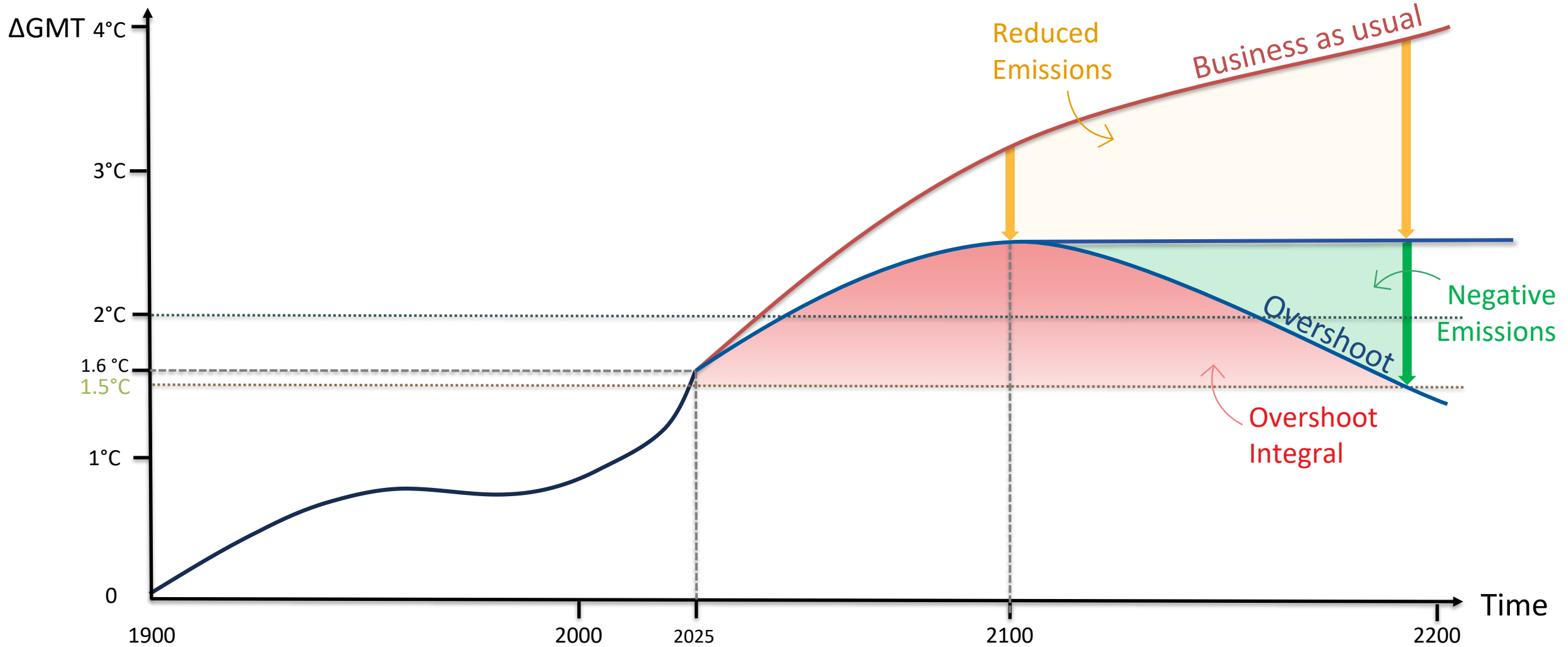


Science Talk

Hans Joachim (John) Schellnhuber

*Director General, International Institute for Applied System Analysis (IIASA);
Distinguished Visiting Professor, Tsinghua University;
Founder, Bauhaus Earth gGmbH*

Climate Restoration: Repair or Despair!



The Forestry-Construction Pump

Anthropogenically disturbed / controlled system

Forestry-Construction Pump

To restore the climate

- (i) add and support 500 billion trees
- (ii) build 2 billion homes from harvested biomass

The nature-based solution!

Fossil energy sources
(-)

Net flow

Replaying the Carboniferous Game?

FAO-IIASA Forest Sector Outlook Study 2030 and 2050 (forthcoming)

Aim: provide strategic foresight for decision-making by exploring pathways for the development of a forest-based bioeconomy that facilitate achievement of global targets



Emerging bioeconomy demands
incl. wood in construction
FAO and Bauhaus Earth study



Bioenergy and climate targets
IEA Net Zero Roadmap



Restoration and protection targets
Global Biodiversity Framework



Forest area target
UN Strategic Plan for Forests



Food security improvements

Preliminary insights:



Forest plantations

- Productive plantations on degraded land can supply a large share of new biomass demand, support climate mitigation, and minimize impacts on food security and biodiversity



Circular economy

- Enhanced circularity key to fulfill bioeconomy demand while reducing pressure on ecosystems
- Producing long lived products for construction enhances HWP contribution to climate mitigation



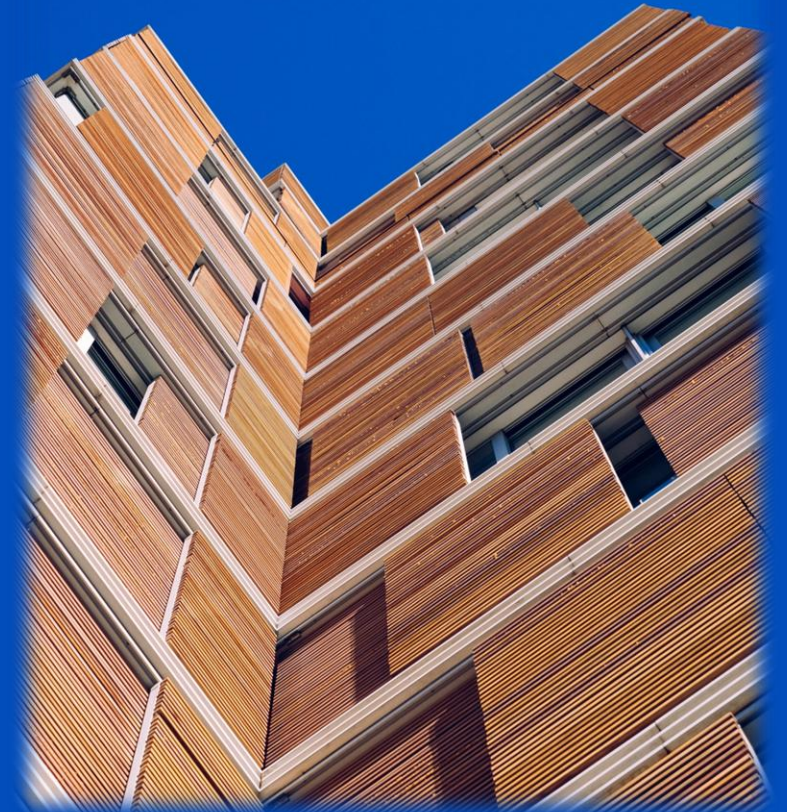
Forest stewardship

- Deforestation to remain large emission source in absence of stringent forest protection policies

Potential and main leverage points to advance a forest-based bioeconomy globally

Prof. Dr. Daniela Kleinschmit
Chair of Forest and Environmental Policy/University of Freiburg
IUFRO President

Presentation at the COLI Global Summit, Vienna 23 February 2026



Potential for transformation towards a global forest-based bioeconomy: the construction sector

- Ecological Potential
- 34% energy consumption
- 37% global CO2 emissions**
- 50% worldwide garbage
- 50% global resource use

(Source: UNEP 2022, IEA 2023, Ribeirinho et al. 2020, Sobek 2023)

Recycling Potential for 2050:

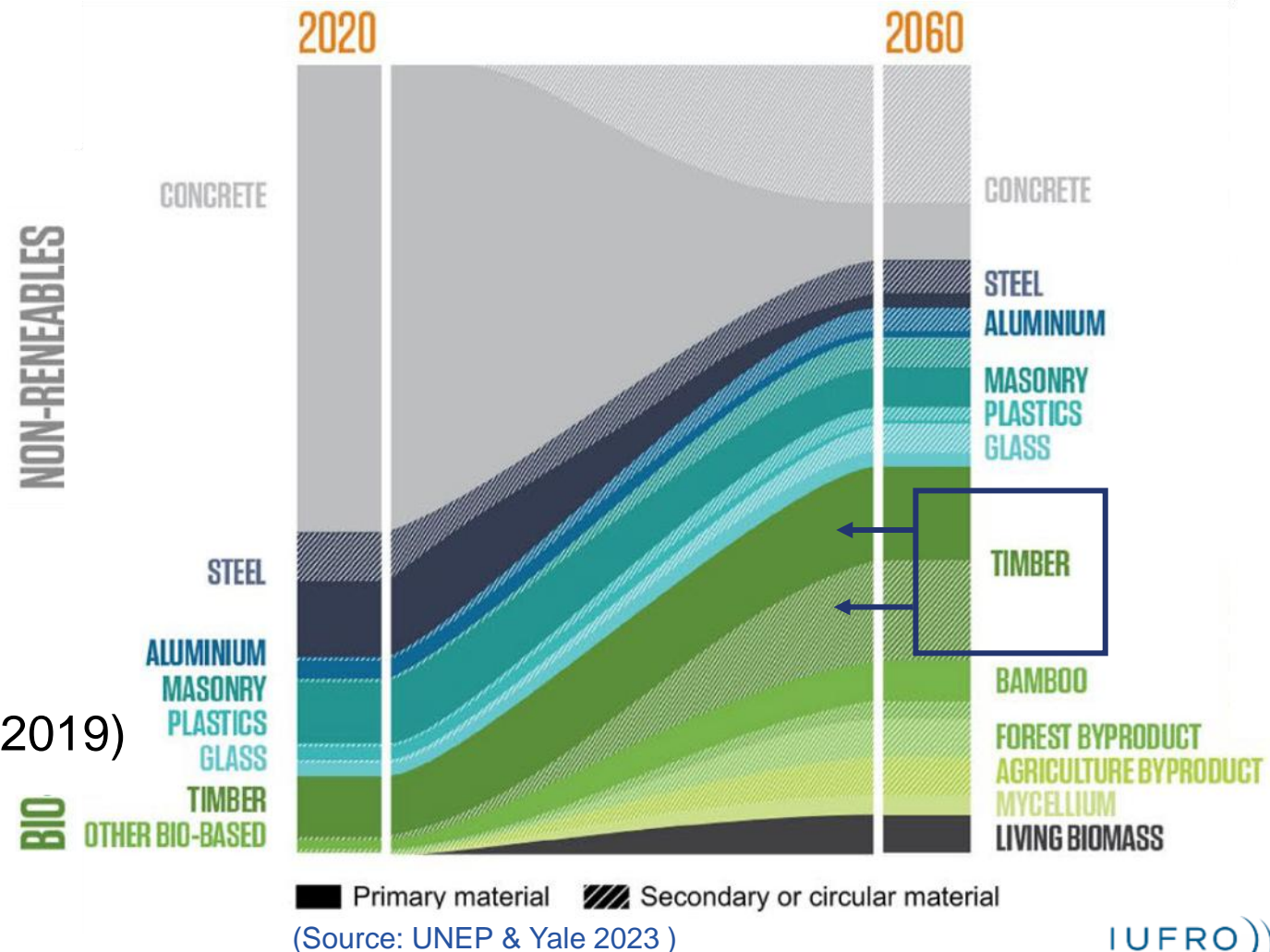
20 % reduced roundwood demand (in total)

(Kayo et al. 2022)

Example Germany:

~10% increase of recovered wood (comp. to 2019)
52% from the construction sector

(Szichta et al. 2022)



Leverage points to advance a global forest-based bioeconomy: the construction sector

Strengthen knowledge, communication and coordination

Invest in knowledge about forest-based bioeconomy, incl. wood construction

Integrate policy processes and actors horizontally and across multiple-levels (including cities)

Foster global knowledge exchange and collaboration

Incentivise the (re-)use of forest-based products in construction

Promote place-based value chains and territorial integration

Facilitate public procurement

Support R&D to foster innovations

Adapt norms and standards

Accelerate regulations for the use of (circular) forest-based materials

Mandate reliably certified products ensuring social and ecological sustainability





About CIFOR-ICRAF

CIFOR-ICRAF harnesses the power of trees, forests, and agroforestry landscapes to address biodiversity, climate, food, livelihoods and equity.

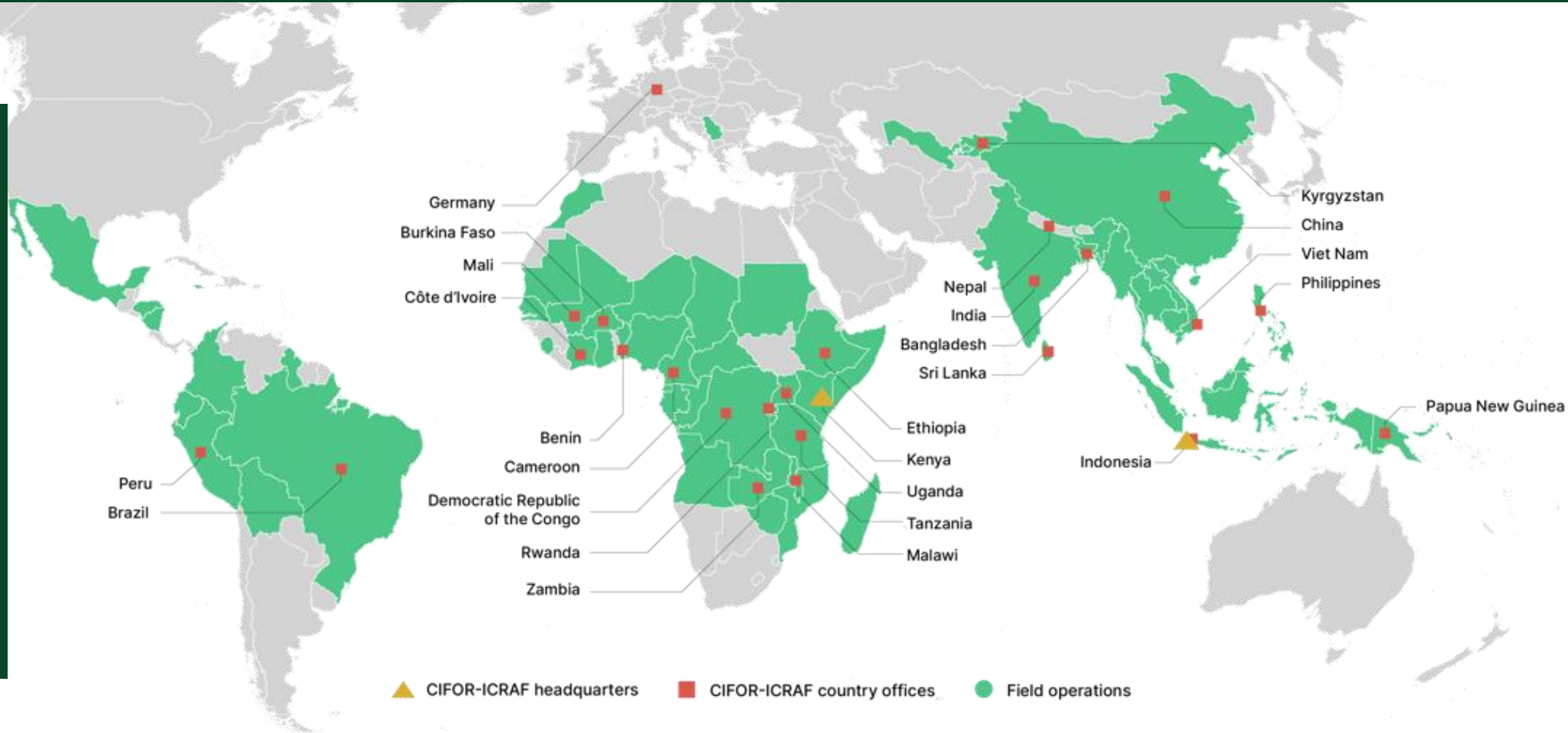
CIFOR and ICRAF are both international organizations and CGIAR Research Centres.



Our Geographical Reach and Strategic Focus

Our Research Expertise

- Climate change mitigation and adaptation
- Biodiversity conservation and sustainable use
- Food and nutrition security
- Secure and sustainable livelihoods and well-being



USD 2 billion
total invested
in research

192
active
partnerships

2,200+
projects completed
in 92 nations

20,000+
Knowledge
products

900+
Staff in 27
country offices