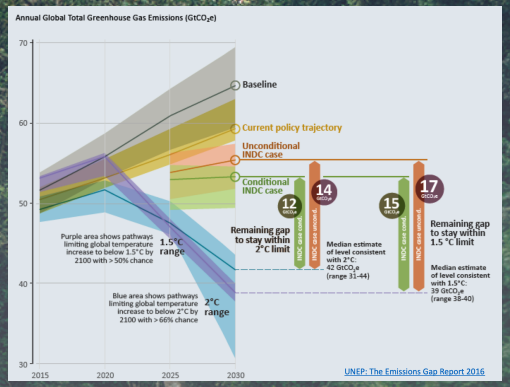
Do donuts grow on trees?

Delivering the circular bioeconomy for low-emissions development



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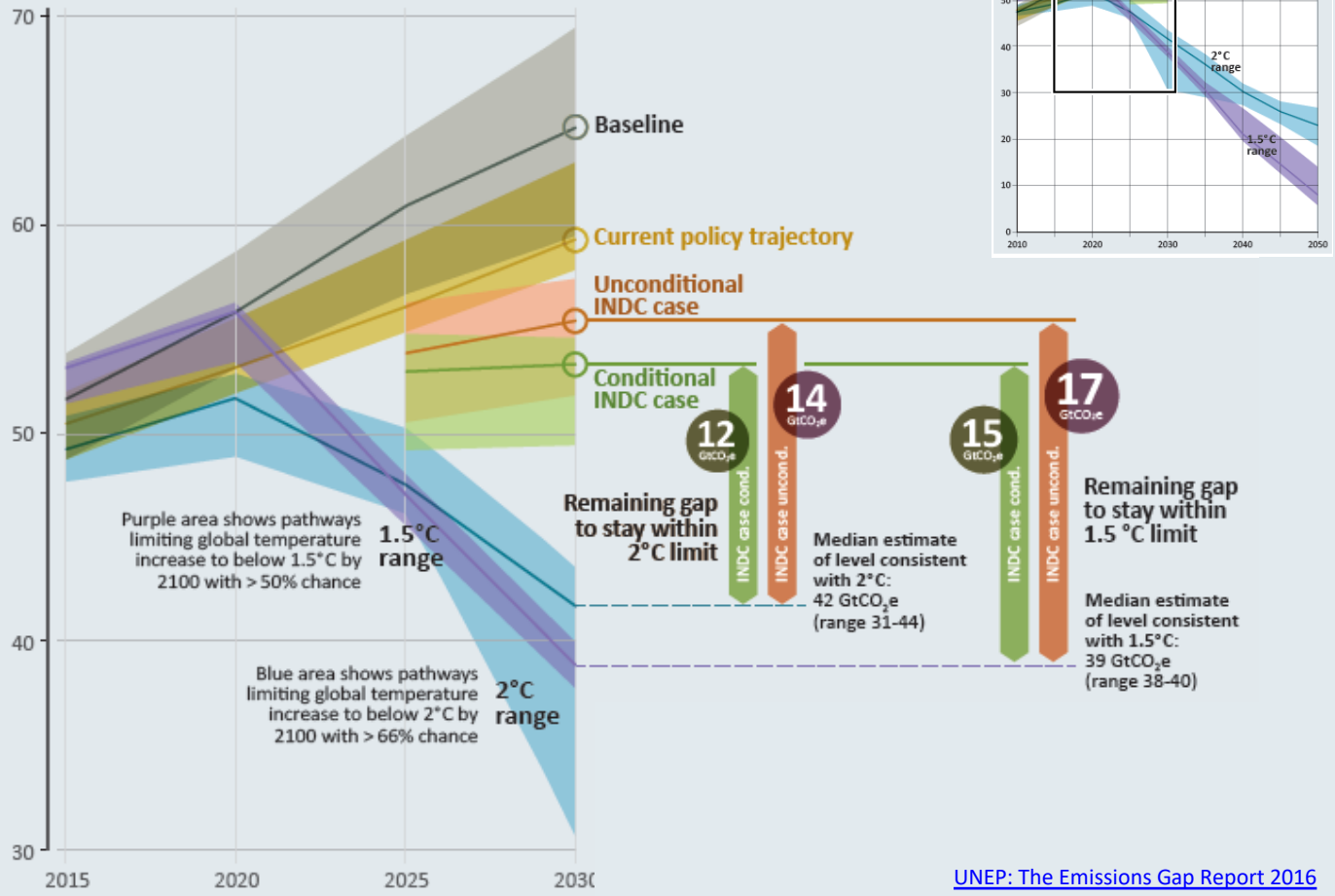
CIFOR Bonn, Germany
c.martius@cgiar.org

25 June 2020

CIFOR

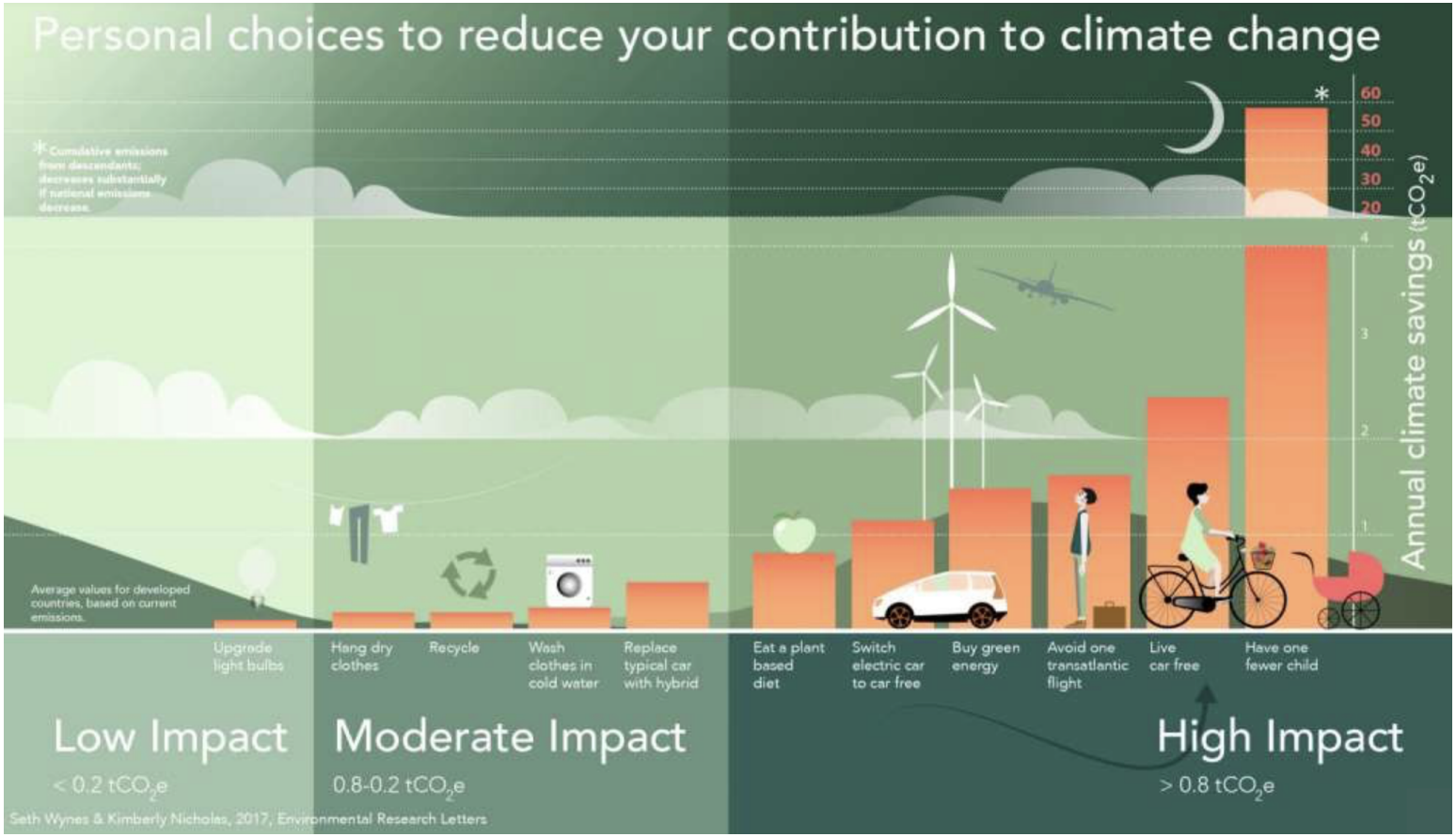
CGIAR RESEARCH PROGRAM ON Forests, Trees and Agroforestry

Figure ES2: Global greenhouse gas emissions under different scenarios and the emissions gap in 2030.



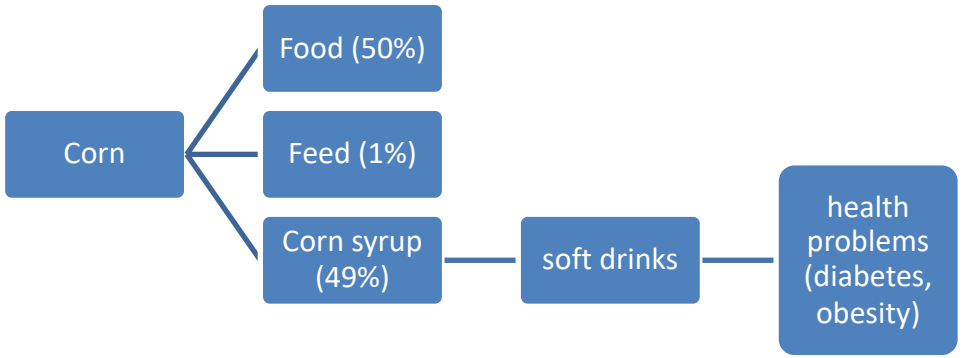
UNEP: The Emissions Gap Report 2016

Voluntary lifestyle changes?



Emission avoidance
Questioning production objectives

e.g. *high-input, high-productivity corn production (USA)*



→ Cheap food has very expensive consequences (health crisis, environmental crisis, climate change)

- ***This is not food security***

Alexander Müller, IKI workshop on NDCs; November 2017, Bonn

Emission avoidance
Managing "A country called food waste"

every year around the globe
1.3 BILLION TONNES OF

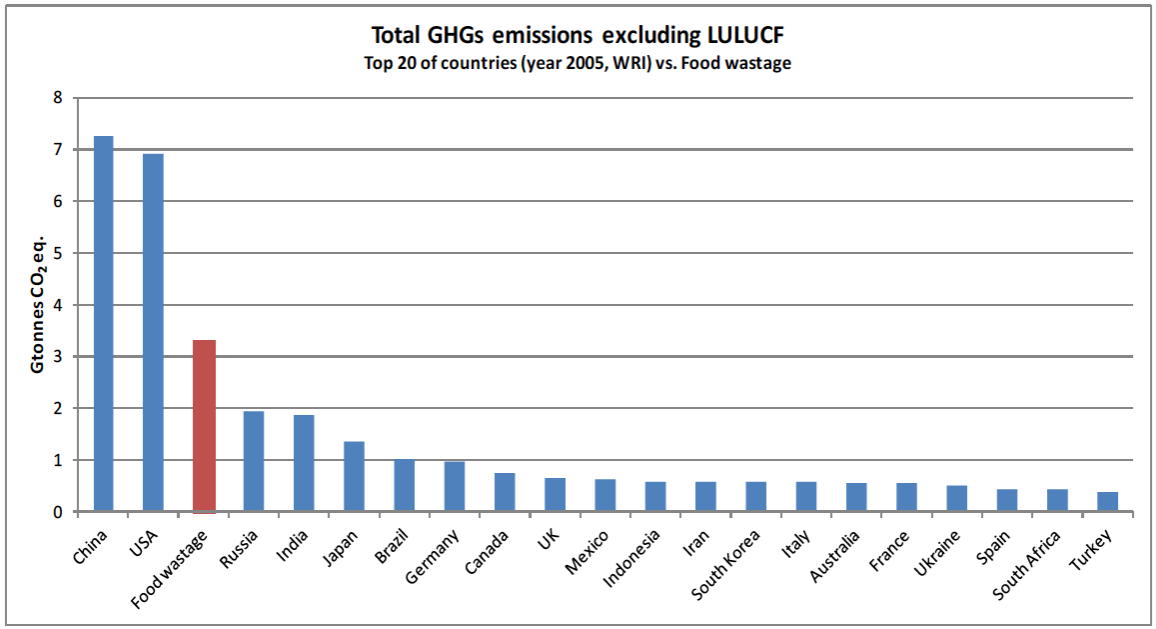
is
lost or **wasted**
that is
1/3 OF ALL FOOD PRODUCED FOR HUMAN CONSUMPTION

Alexander Müller, IKI workshop on NDCs; November 2017, Bonn

https://en.wikipedia.org/wiki/Food_waste

Carbon footprint of food waste up to 3.3 Gt CO_2

If food wastage was a country, it would rank as the 3rd top emitter.



Source for blue bars: WRI, 2012. Climate Analysis Indicators Tool. Available at: http://cait.wri.org.

Green New Deal

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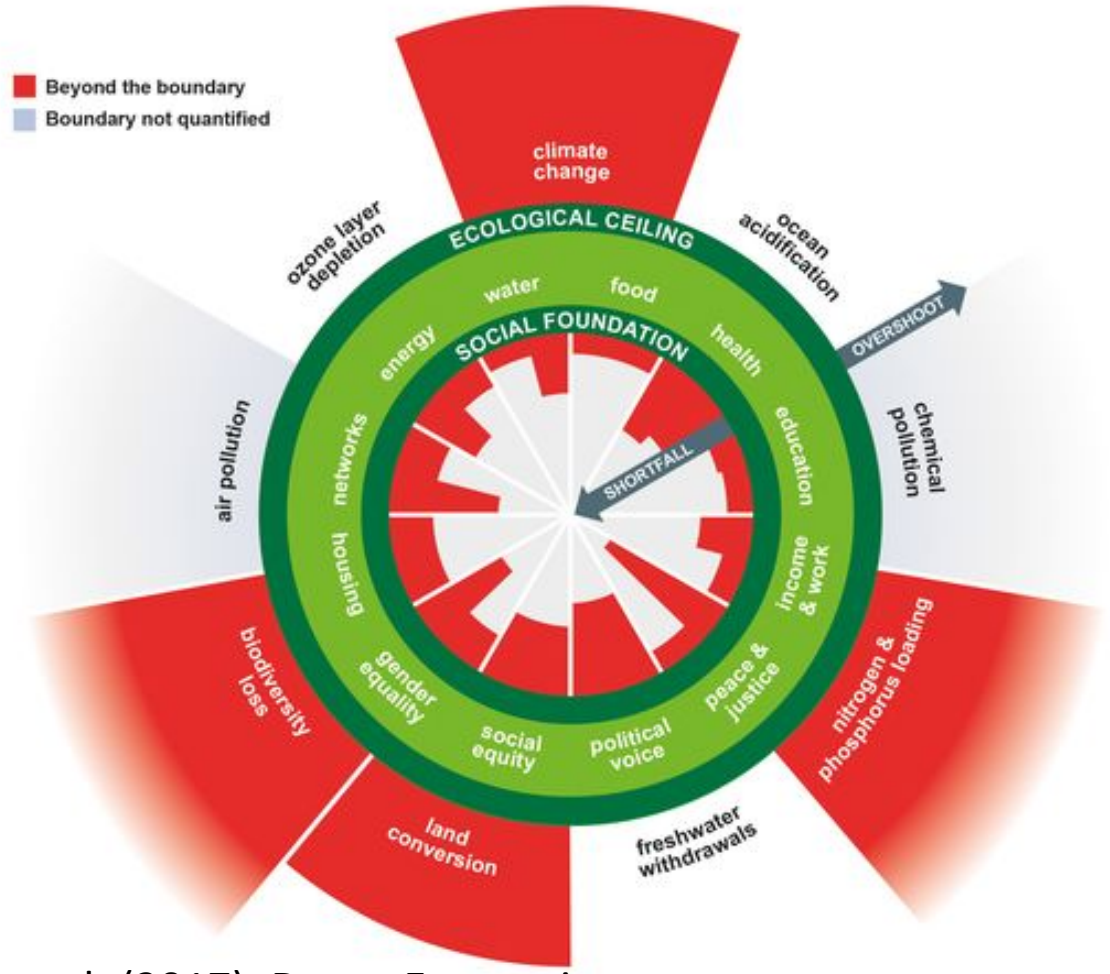
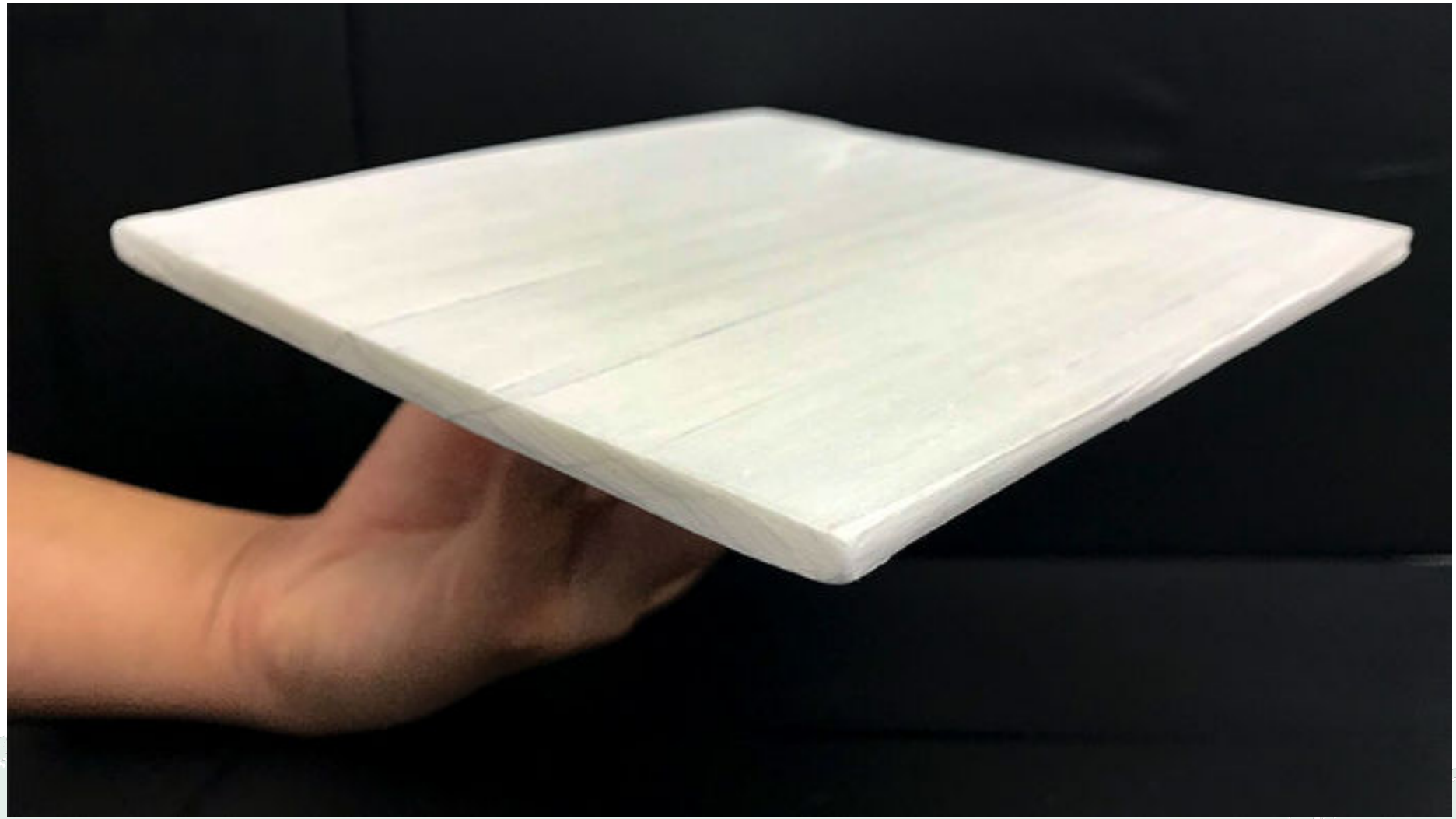


Raworth (2017): Donut Economics

Ocasio-Cortez, U.S. congress resolution

Rifkin (2019): The Green New Deal

„SUPER-WOOD“
New wood building and processing technologies



„SUPER-WOOD“
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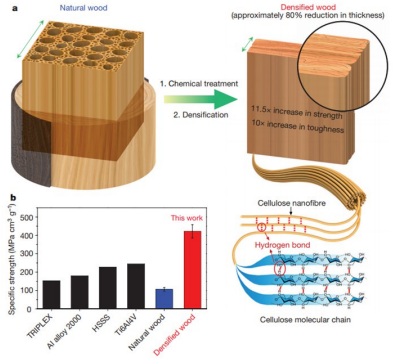
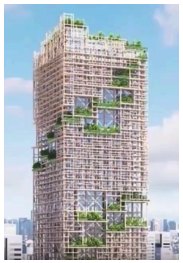
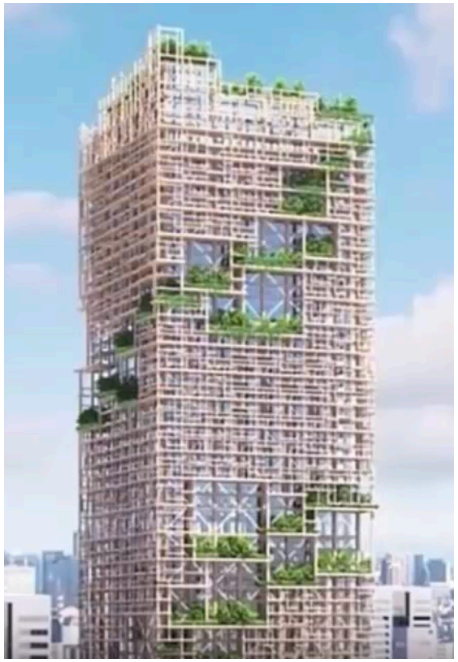




- New building technologies/strategies
- Hardening, stabilizing
- Softening
- Impermeabilization
- Adding transparency
- Adding new qualities such as energy storage

New wood technologies grow sinks and reduce emissions from timber harvesting, cement etc.

Timber towers

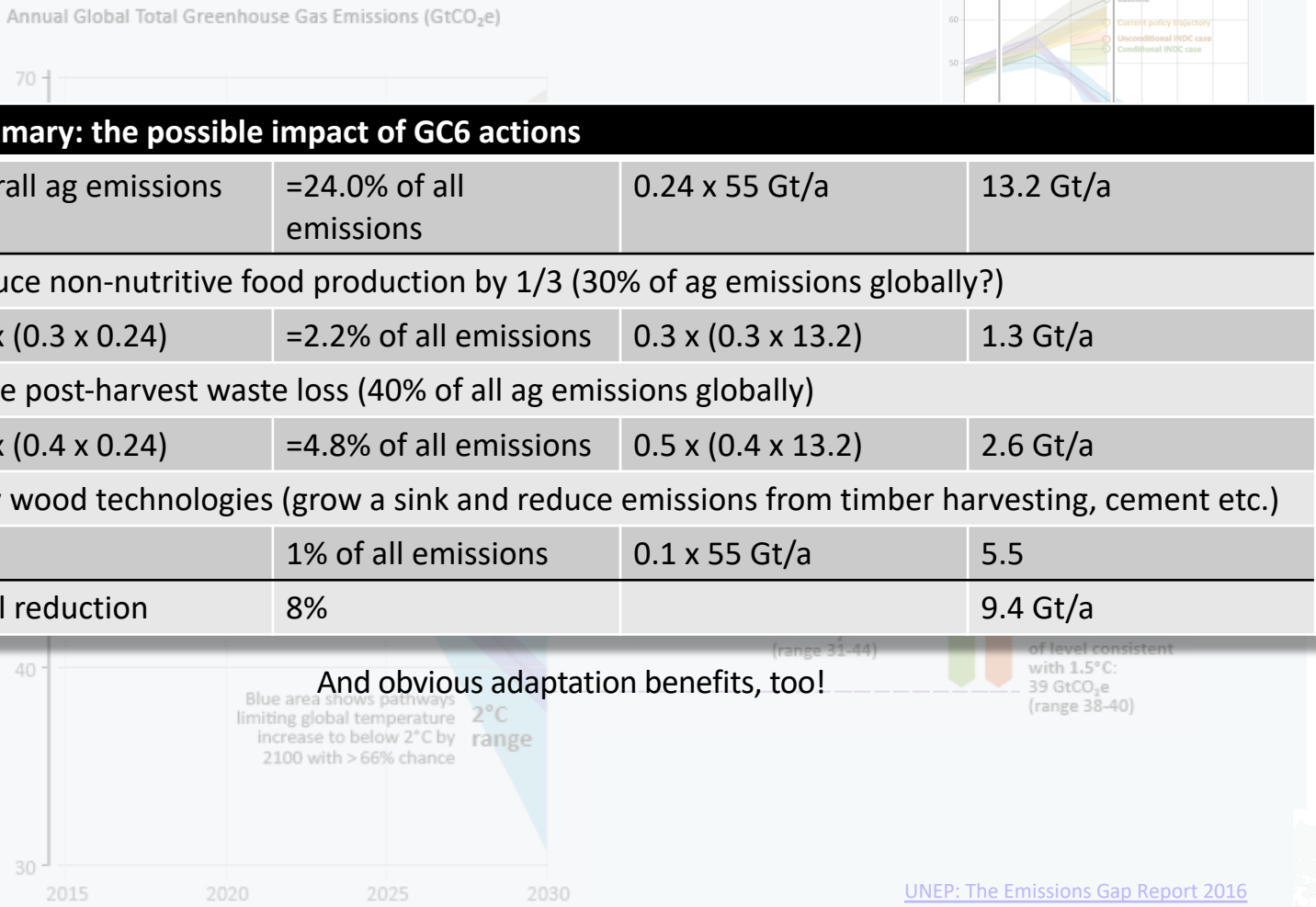


- https://www.azuremagazine.com/article/plyscrapers-timber-towers-green-skyscrapers/

Anually, every person on the planet uses 0.5 cubic meters of wood

- Future trends?
  - Consumer decisions & expectations
  - Society demands /industry needs
- Decisions?
  - How to integrate with restoration and C farming?
  - Where to source the wood needed for the bioeconomy?
  - Should we grow more or less biofuel?
  - Or use wood to build post-harvest carbon sinks?
  - Efficient resource use through more Integrated value chains, e.g. post-harvest biomass management?

Figure ES2: Global greenhouse gas emissions under different scenarios and the emissions gap in 2030.



Summary: the possible impact of GC6 actions			
Overall ag emissions	=24.0% of all emissions	0.24 x 55 Gt/a	13.2 Gt/a
Reduce non-nutritive food production by 1/3 (30% of ag emissions globally?)			
0.3 x (0.3 x 0.24)	=2.2% of all emissions	0.3 x (0.3 x 13.2)	1.3 Gt/a
Halve post-harvest waste loss (40% of all ag emissions globally)			
0.5 x (0.4 x 0.24)	=4.8% of all emissions	0.5 x (0.4 x 13.2)	2.6 Gt/a
New wood technologies (grow a sink and reduce emissions from timber harvesting, cement etc.)			
?	1% of all emissions	0.1 x 55 Gt/a	5.5
Total reduction	8%		9.4 Gt/a

And obvious adaptation benefits, too!

UNEP: The Emissions Gap Report 2016

Sources: The 20th–80th-percentile ranges are shown for the baseline and the

Delivering the circular bio-economy for low emissions development

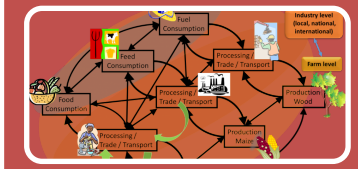
New work under "2-degree" grand initiative

Going green

Developing new biomaterials from forests, plantations and agriculture

Choosing goals

Global societal debates and decisions on diets, products, land use, and emissions



Weaving it together

Advising businesses and developing coordination, integration and efficiency across value webs

Why Periurban context?

- Embodies many of the problems and pressures: food production, energy, pollution, waste
- Ideal for advanced thinking
- City mayors advanced and well organized (ICLEI, C40, URBAL)
- Novel sources of funding?

Martius 2019

What are we doing already?

- Bamboo value chains, cultivation, training materials (Ethiopia, India, Ghana etc.) (INBAR)
- Growing bioenergy on marginal lands (CIFOR): species, markets, private sector
- Furniture value chains (Ethiopia, Indonesia) – efficiency, certification (CIFOR)
- Nutrition
  - Forests, food security, and nutrition in the Congo Basin / Wild Food Statistics in Zambia / Mangroves and fish consumption in Indonesia
- Restoration: Humid and dry forests, bamboo, zai method
- Jurisdictional approaches
- Impact assessment

Where and how does rubber come in?

- Sustainable bio-production
- Improved value chains
- …

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CIFOR

cifor.org
forestsnews.cifor.org
ForestsTreesAgroforestry.org

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(Picture sources)

- Donut economy /planetary boundaries: https://i.guim.co.uk/img/media/d75c8810902aa7813549c89685183d76ecd6a9e1/17_27_2360_1949/master/2360.jpg?width=620&quality=45&auto=format&fit=max&dpr=2&s=8782507f6c1394de6b5b41e24fea2fd8
- Reflecting wood: https://www.sciencemag.org/news/2019/05/engineered-wood-radiates-heat-space-potentially-slashing-cooling-costs
- Cubic meter of wood: https://i.pinimg.com/originals/d3/cc/49/d3cc491abbbfdd9d6c0f1f12fc9af028.jpg
- Wooden buildings: https://www.azuremagazine.com/wp-content/uploads/2018/03/wood-towers-were-watching-gif.gif
- Circular economy: https://wearepath.com/wp-content/uploads/2019/02/circular-economy-eu-commission-472x316.png
- Value web: https://www.biomassnet.org/wp-content/uploads/2017/02/valuewebapproach-700x487.png