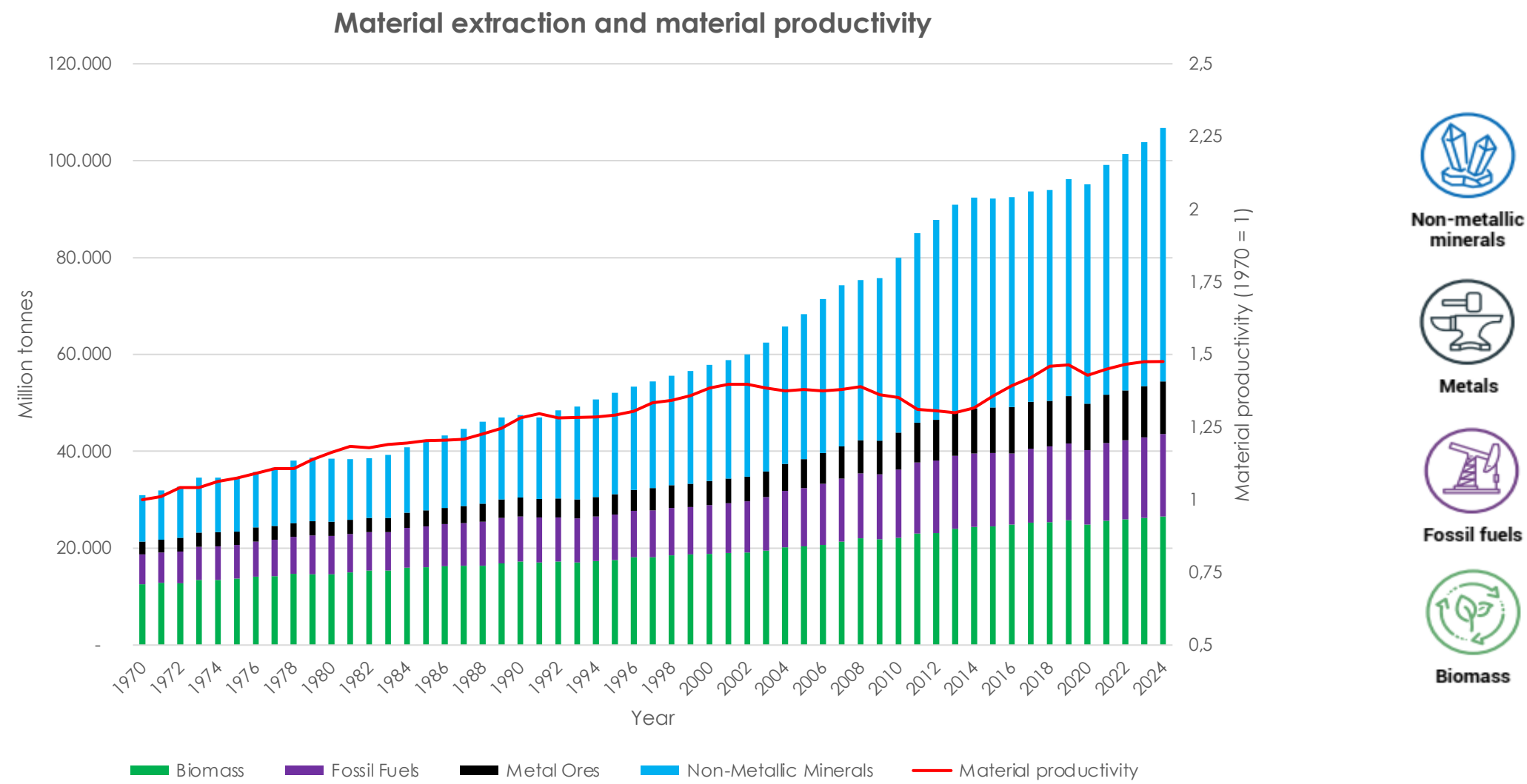

Global Resources Outlook 2024: Insights for the energy transition

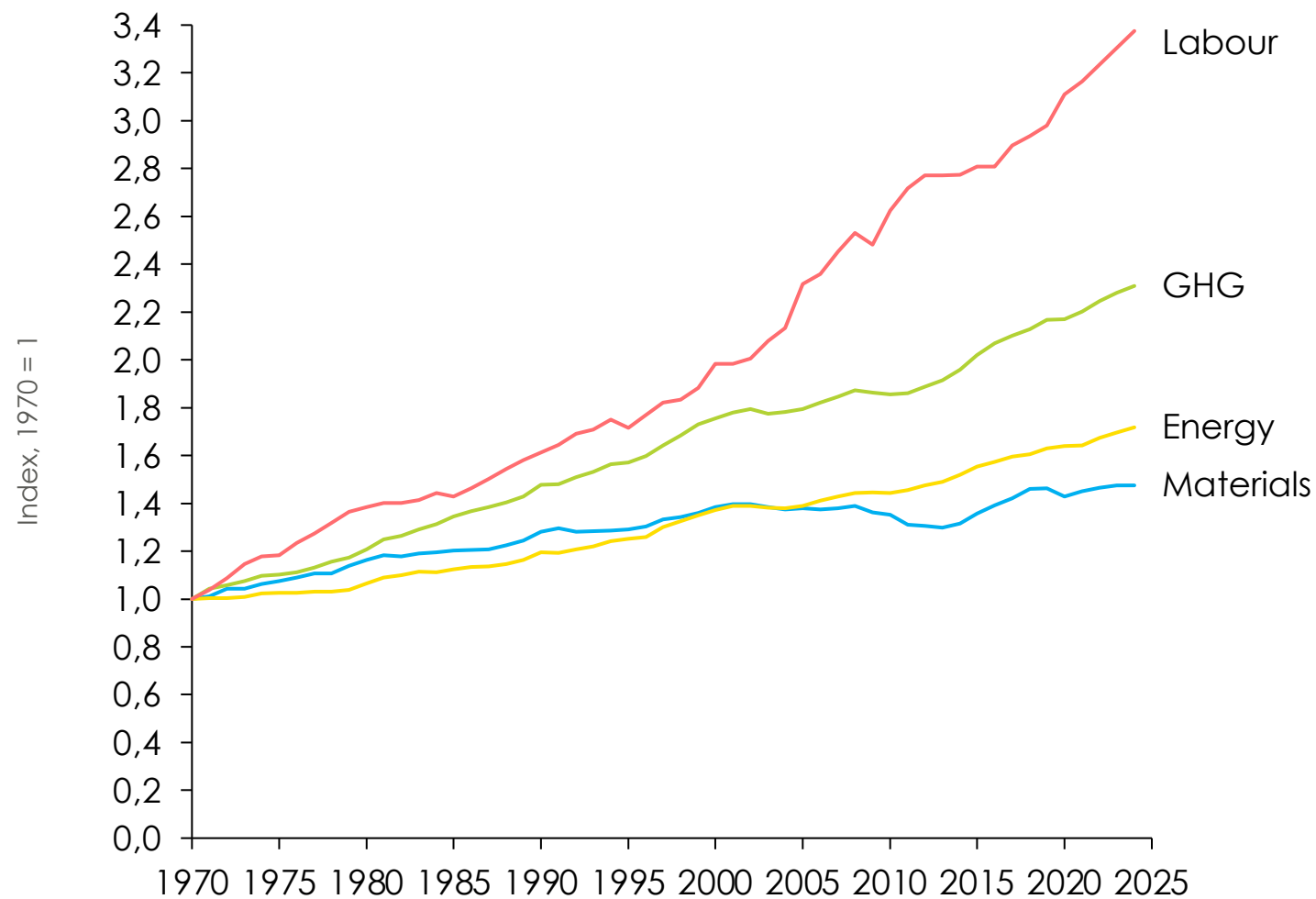
Rebecca Nohl

26th June 2024

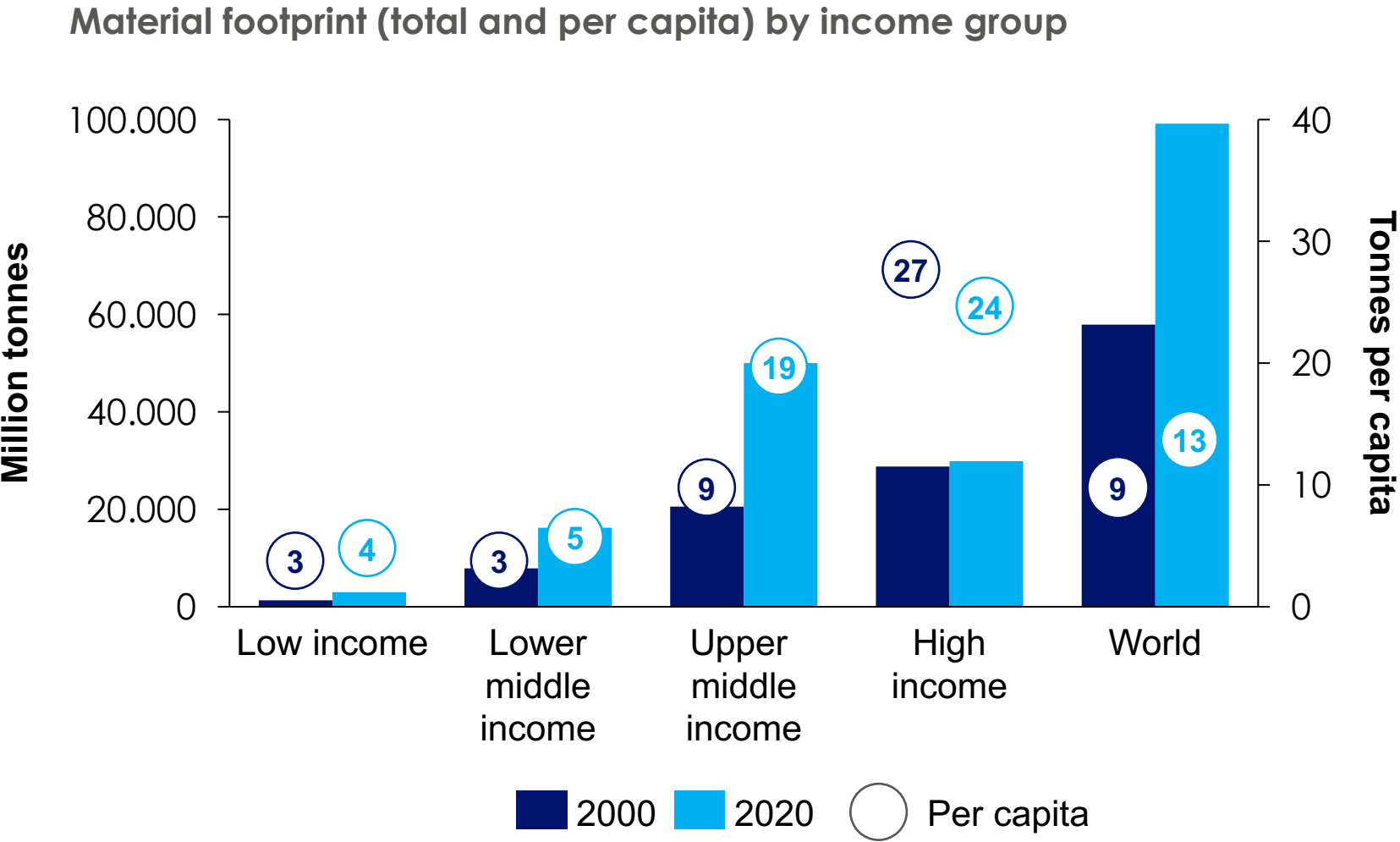
Resource use is rising (almost) faster than ever, while productivity stagnates



Meanwhile, other productivities soar...

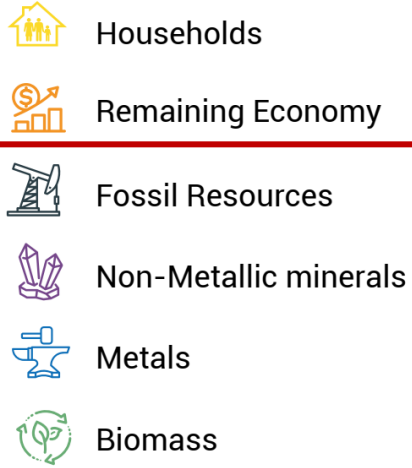


High-income countries use six times more materials per capita than low-income countries...



...And it's driving climate change, biodiversity loss, pollution and more

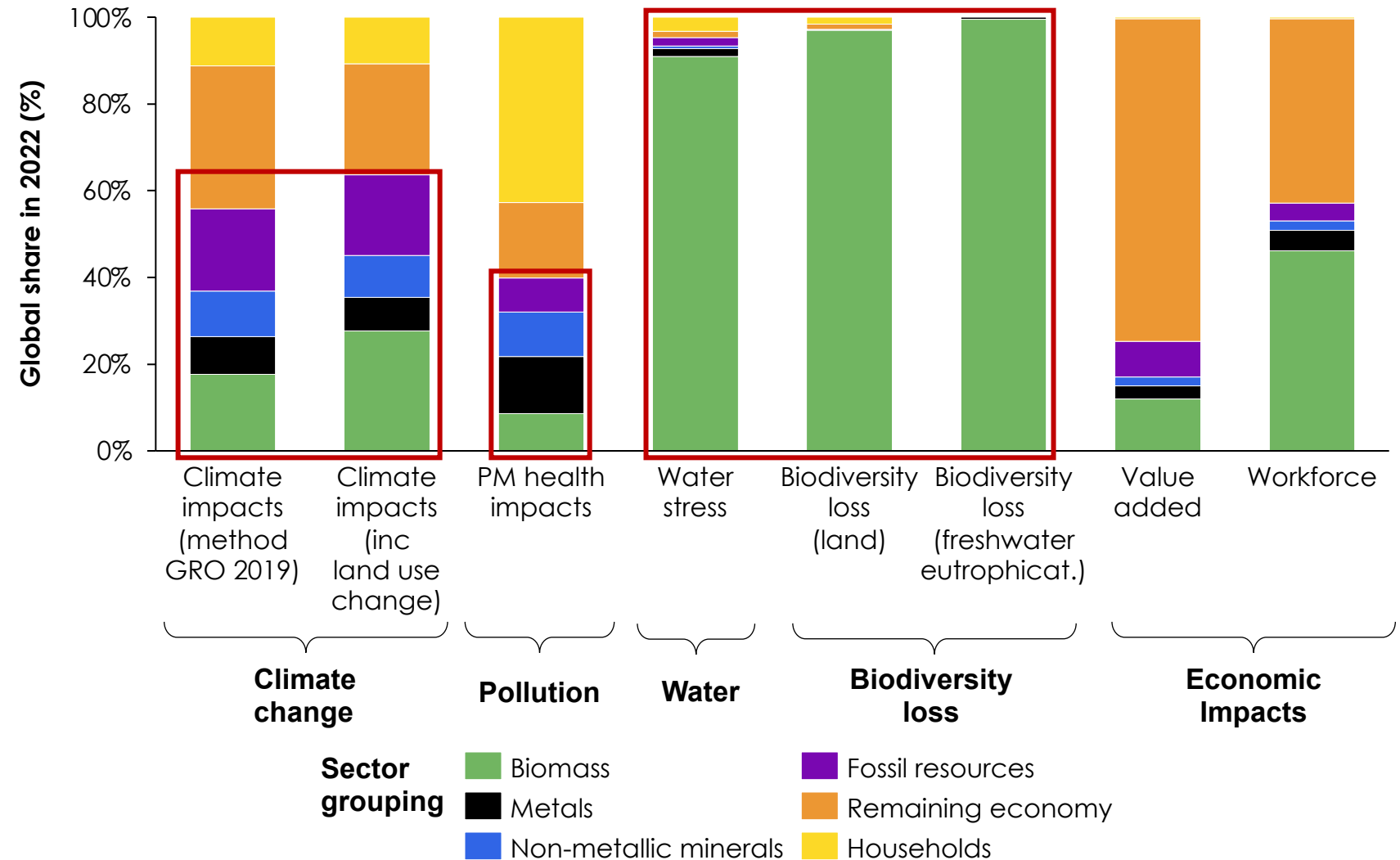
Environmental impacts of materials in the value chain in **extraction and processing** phase



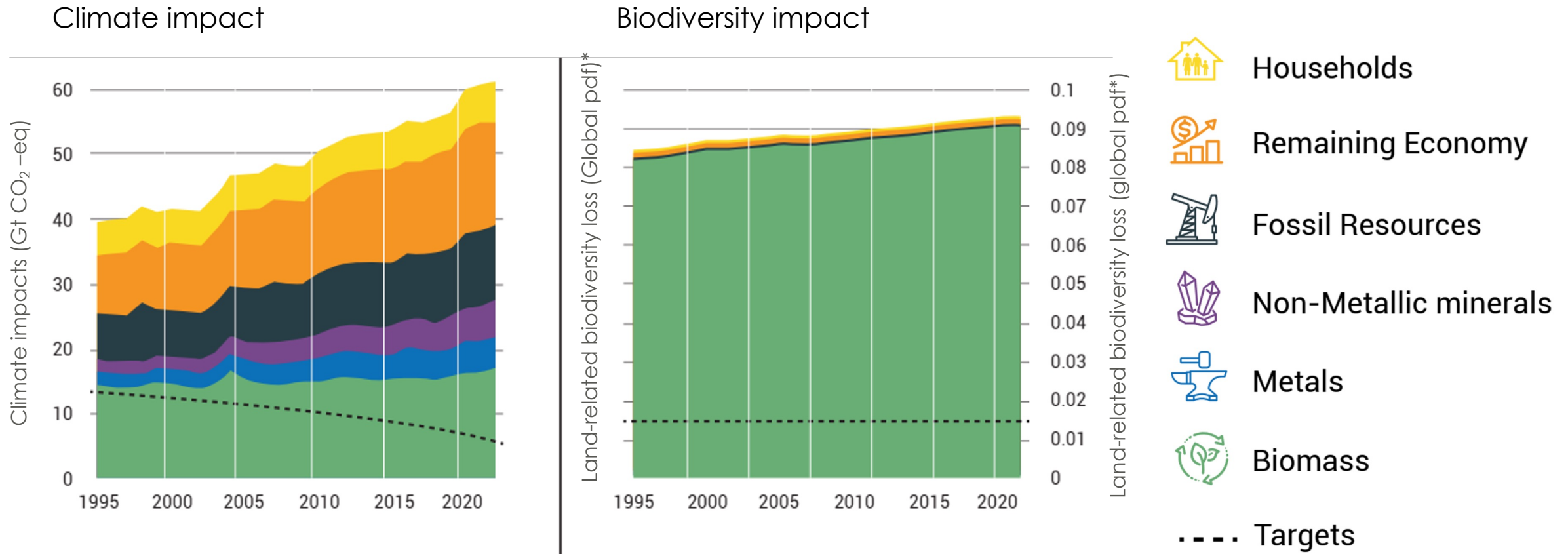
60% of global climate change impacts including land use change

40% of air pollution health impacts

> 90% of water stress and global land and water eutrophication related biodiversity loss

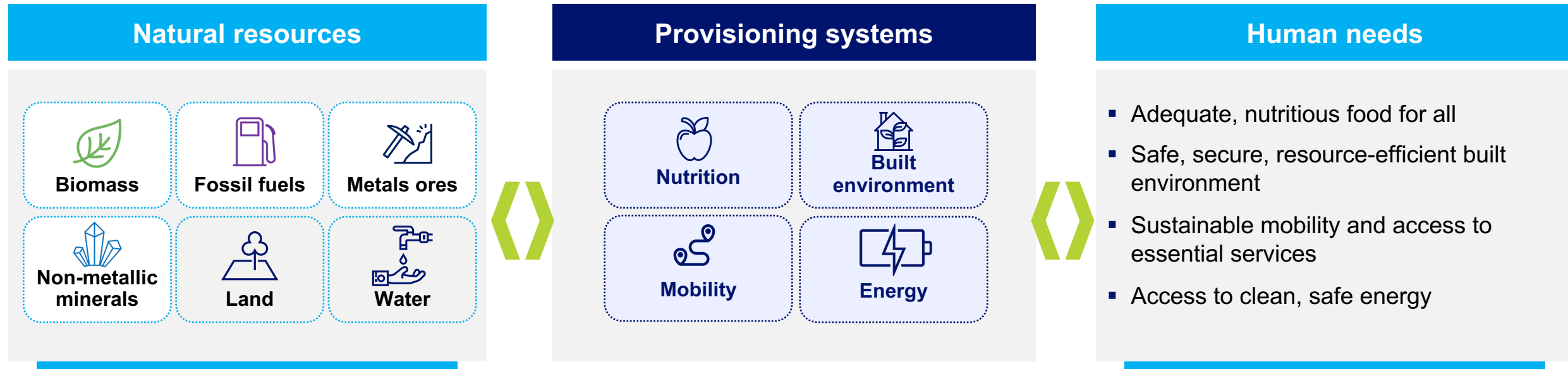


Impacts are increasing, and massively exceed globally agreed targets



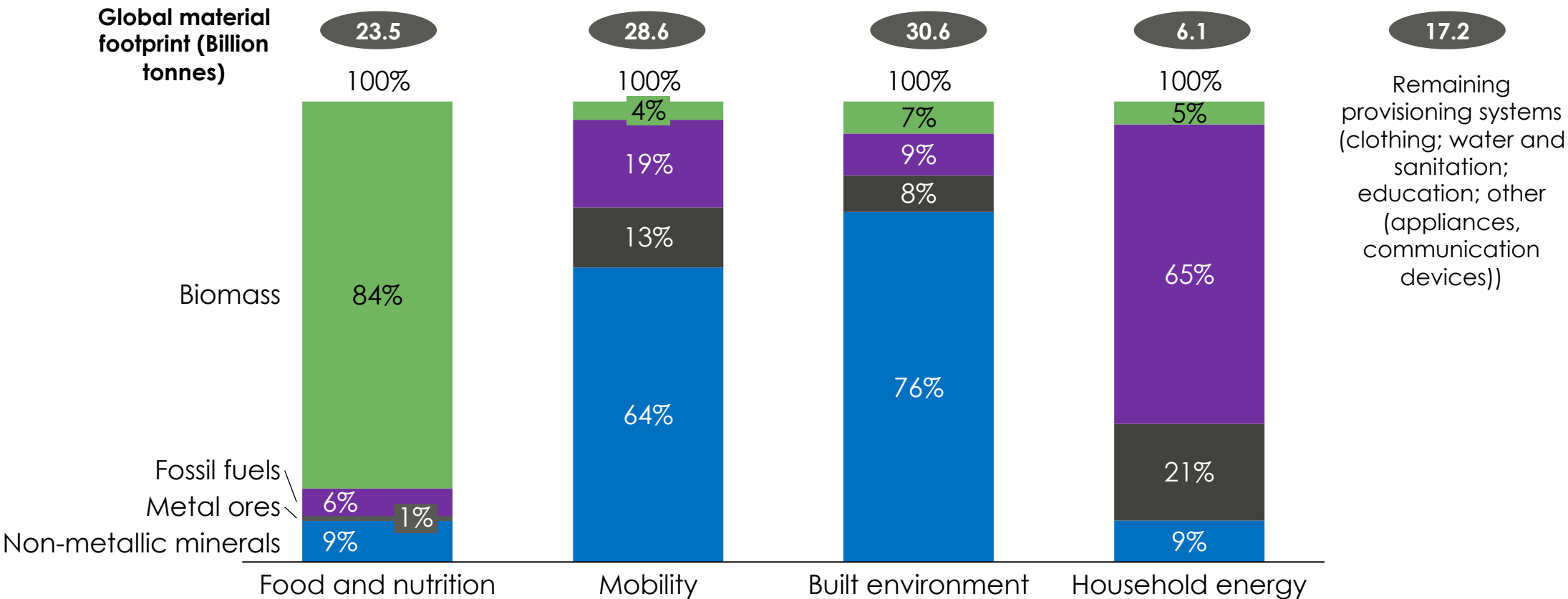
** Global pdf: Global potentially disappeared fraction of species

Resources should be targeted to human needs through **provisioning systems**



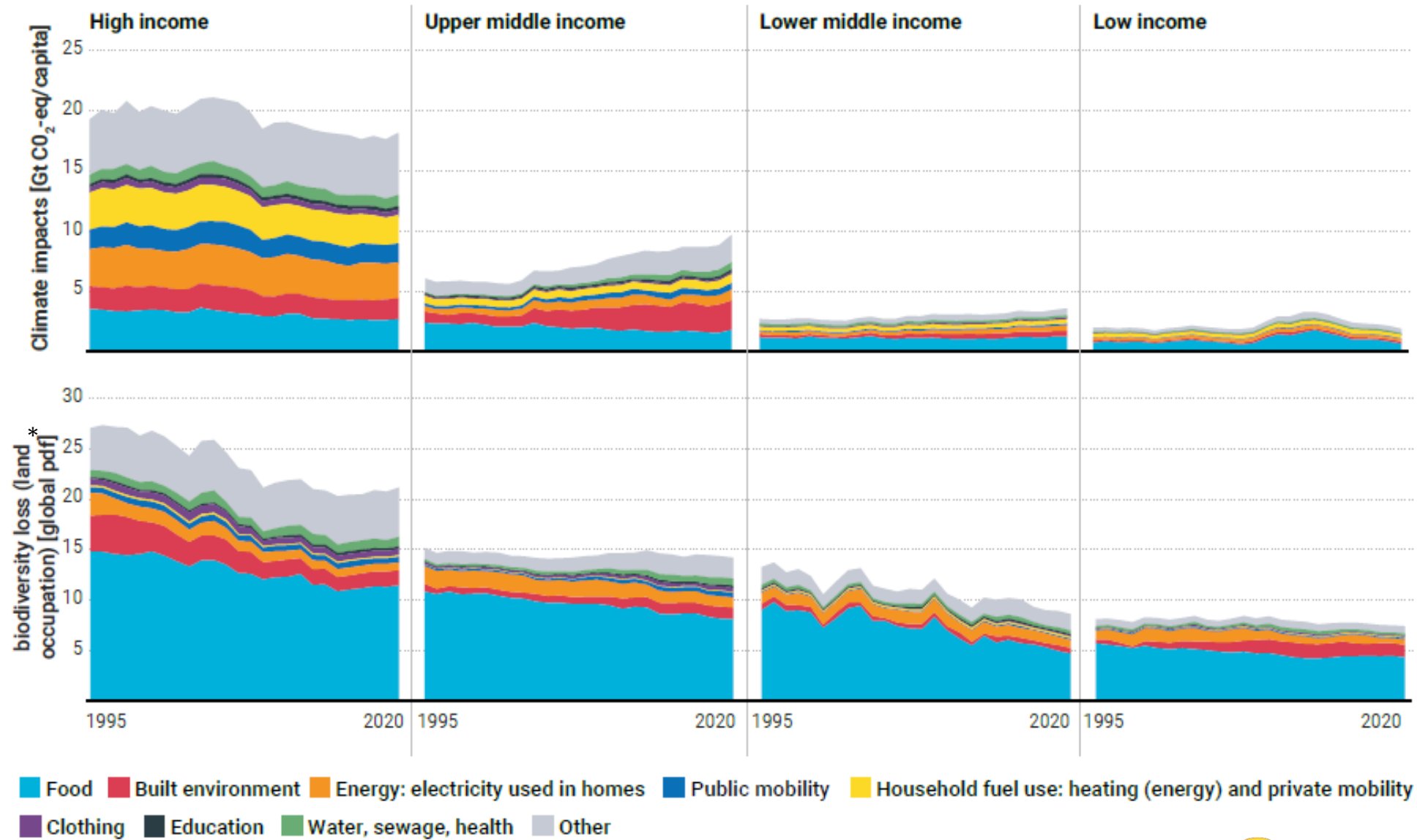
Major provisioning systems have different material footprint breakdowns: nutrition mainly biomass, household energy mainly fossil fuels

Material footprint by provisioning system and material type (2022)

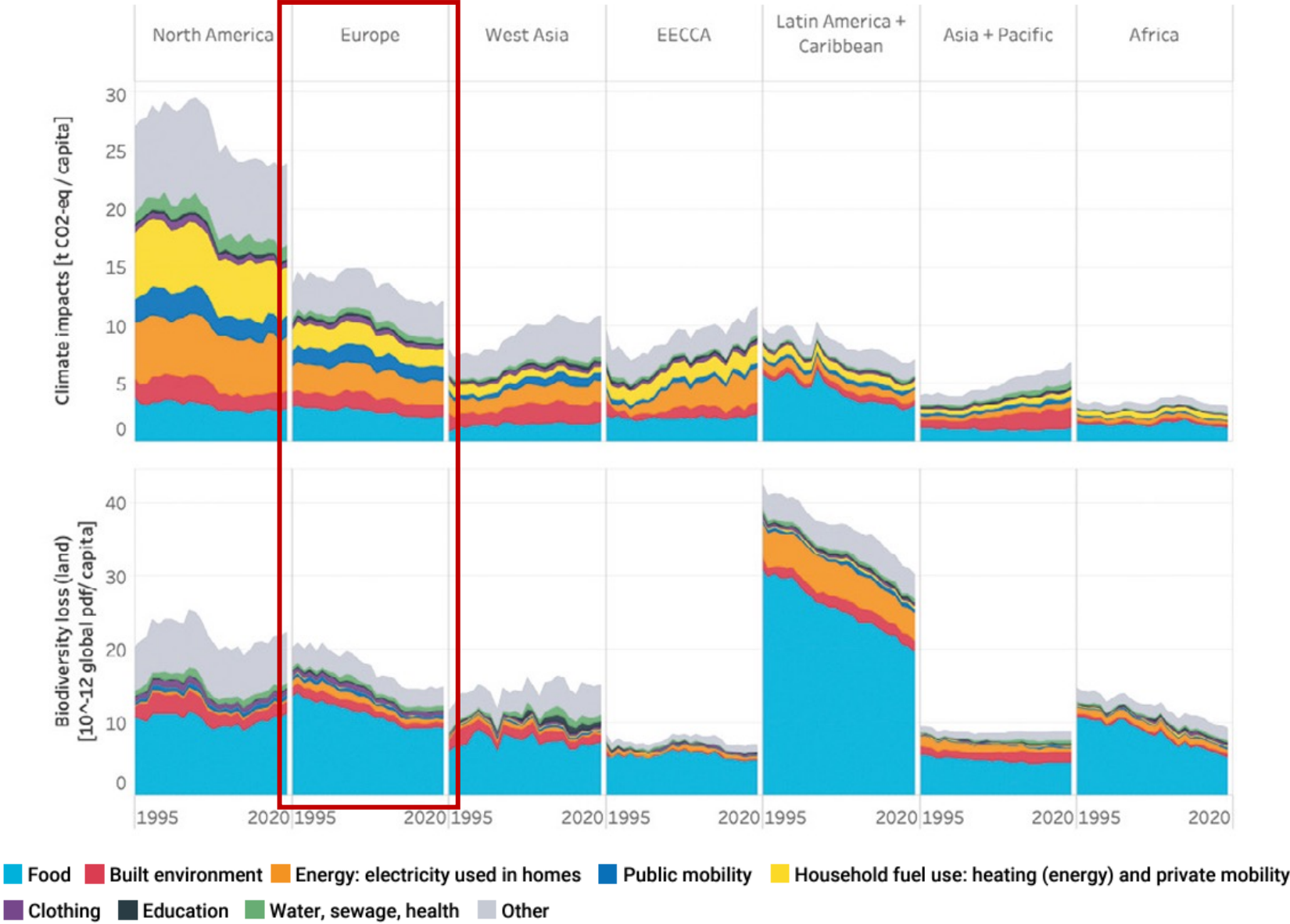


(All provisioning systems include material footprints of energy embodied along their value chains; household energy solely represents energy directly used by consumers)

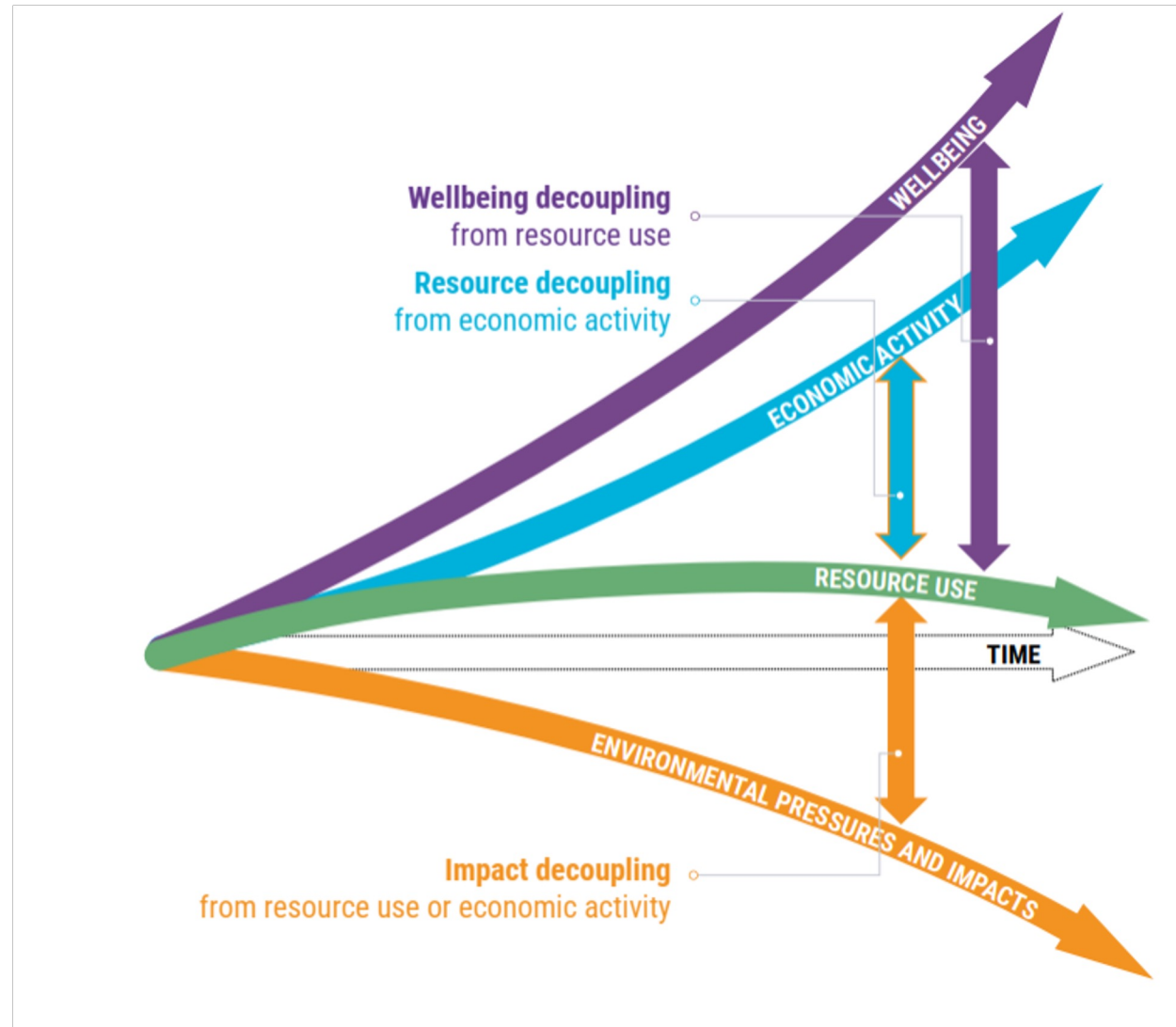
High-income countries drive ten times ten times more climate impacts per capita than low-income countries



Regional differences are significant



The solution: decoupling resource use from economic activity and human wellbeing



Sustainability Transition Scenario is built up as three 'shifts' plus measures to support just transition, and measures to optimise key provisioning systems

Sustainable Consumption
and Production (SCP)

Resource Efficiency

Climate and Energy

Food and Land

Just Transition

BUILT ENVIRONMENT

shelter & mobility

ENERGY SYSTEM

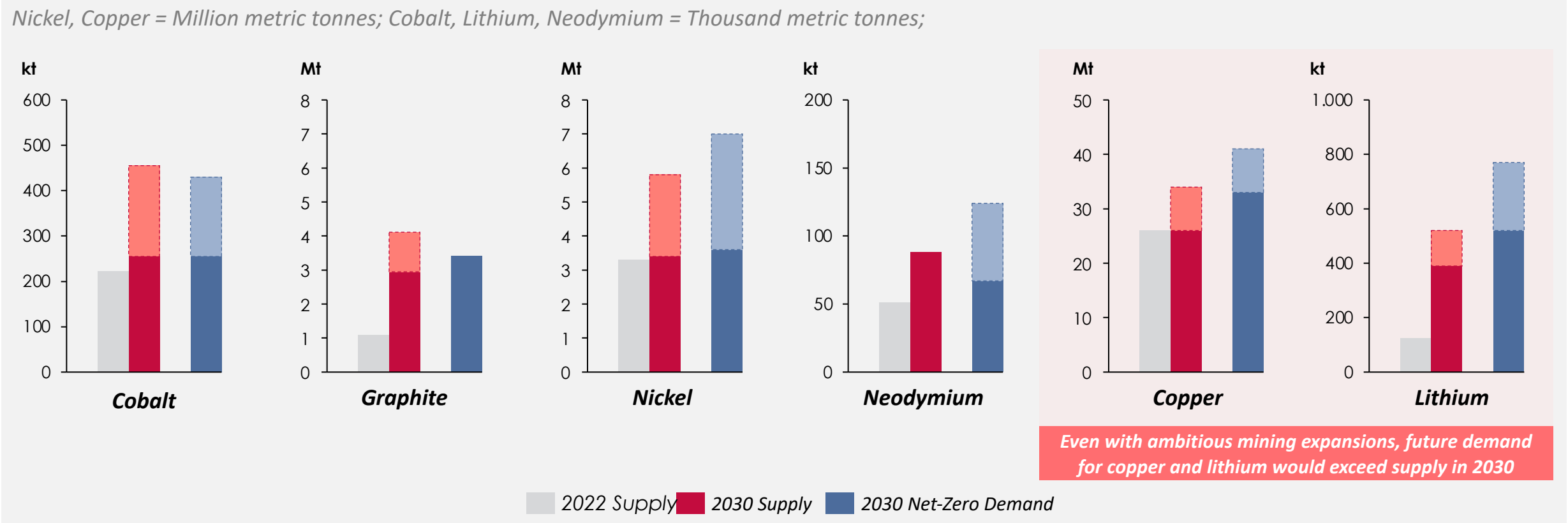
(includes transport)

FOOD SYSTEM

agriculture & land use

Sustainability Transition assumes full energy transition: ambitious mining expansion is unlikely to meet fast-growing transition material demand

Demand and supply forecasts for key energy transition materials in 2030



Source: Systemiq analysis for the ETC; IEA (2023), *Energy technology perspectives* and IEA (2022), *World Energy Investments*; BNEF (2023), *Transition Metals Outlook*; ICF/RMI (2023), *Net zero roadmap to 2050 for copper & nickel mining value chains*; S&P Global (2022), *The future of copper*; &P Global Market Intelligence (2022), *Lithium project pipeline insufficient to meet looming major deficit*; Benchmark Mineral Intelligence (2023), *Albemarle’s turbo-charged demand data showcases lithium’s growing supply problem*; Albemarle (2023), *Strategic update*; McKinsey & Co. (2023), *Bridging the copper supply gap*; McKinsey & Co. (2022), *Lithium mining: How new production technologies could fuel the global EV revolution*

Indispensable pillars for material resilience

1



Supply Transition Materials with highest environmental and social standards

Securing enough supply: ensuring supply is sufficient to power the energy transition

Aligning expanded supply with **sustainable development**

Improving **supply resilience** by improving TM **geographic diversification**

2



Activate policies which encourage all circularity levers

Recycling: Capturing future secondary Transition Materials

More intensive use: Using products that contain transition materials more intensively

Light weighting: Reducing the weight of products that contain transition materials

Lifetime extension: Increasing the lifetime of products that contain transition materials

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3



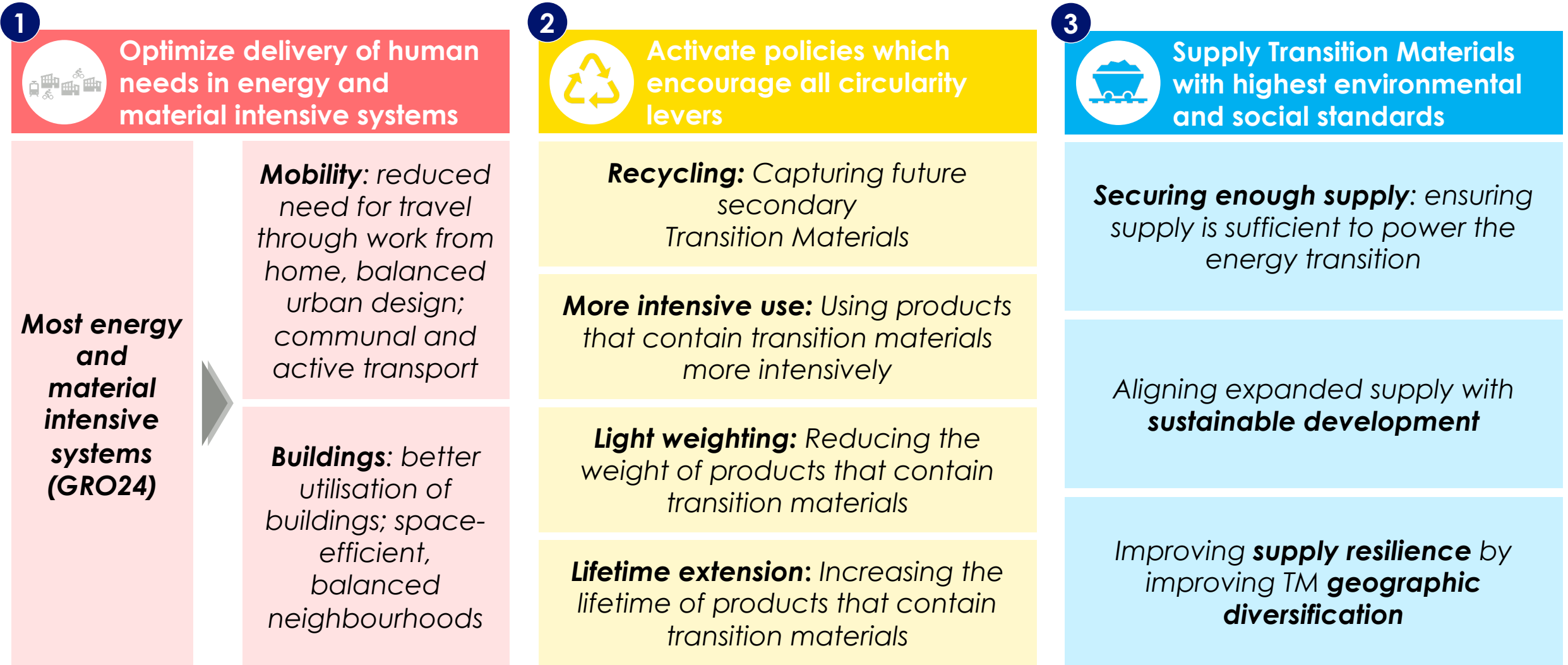
Optimize delivery of human needs in energy and material intensive systems

Most energy and material intensive systems (GRO24)

Mobility: reduced need for travel through work from home, balanced urban design; communal and active transport

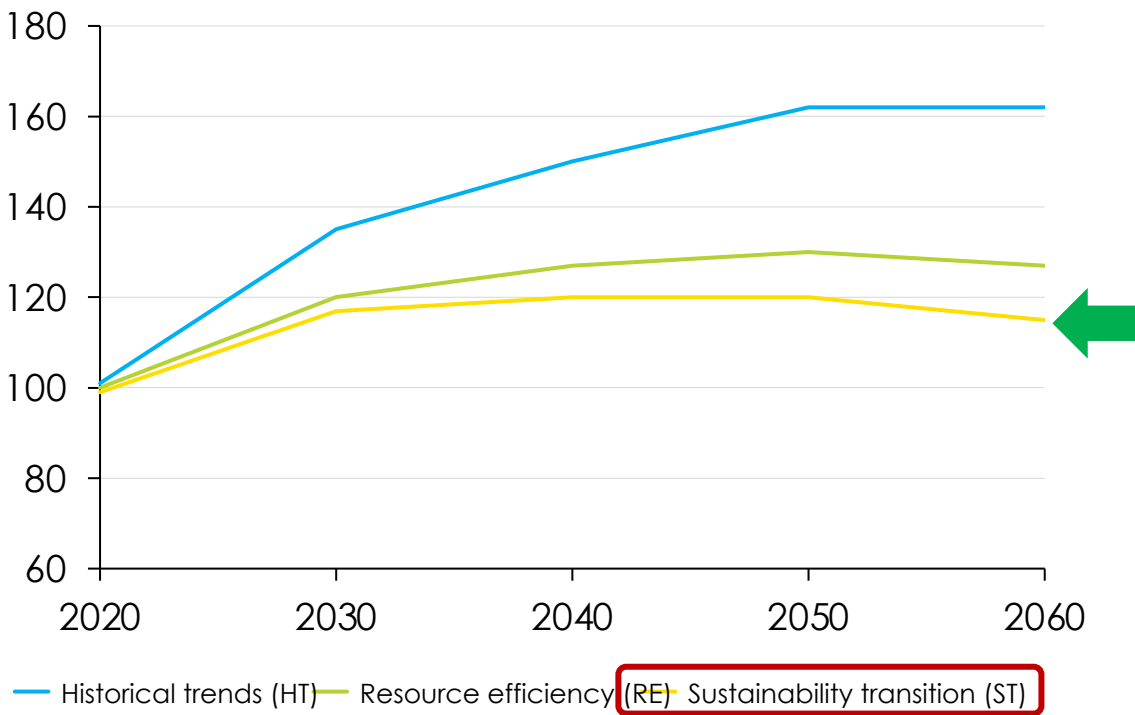
Buildings: better utilisation of buildings; space-efficient, balanced neighbourhoods

Indispensable pillars for material resilience

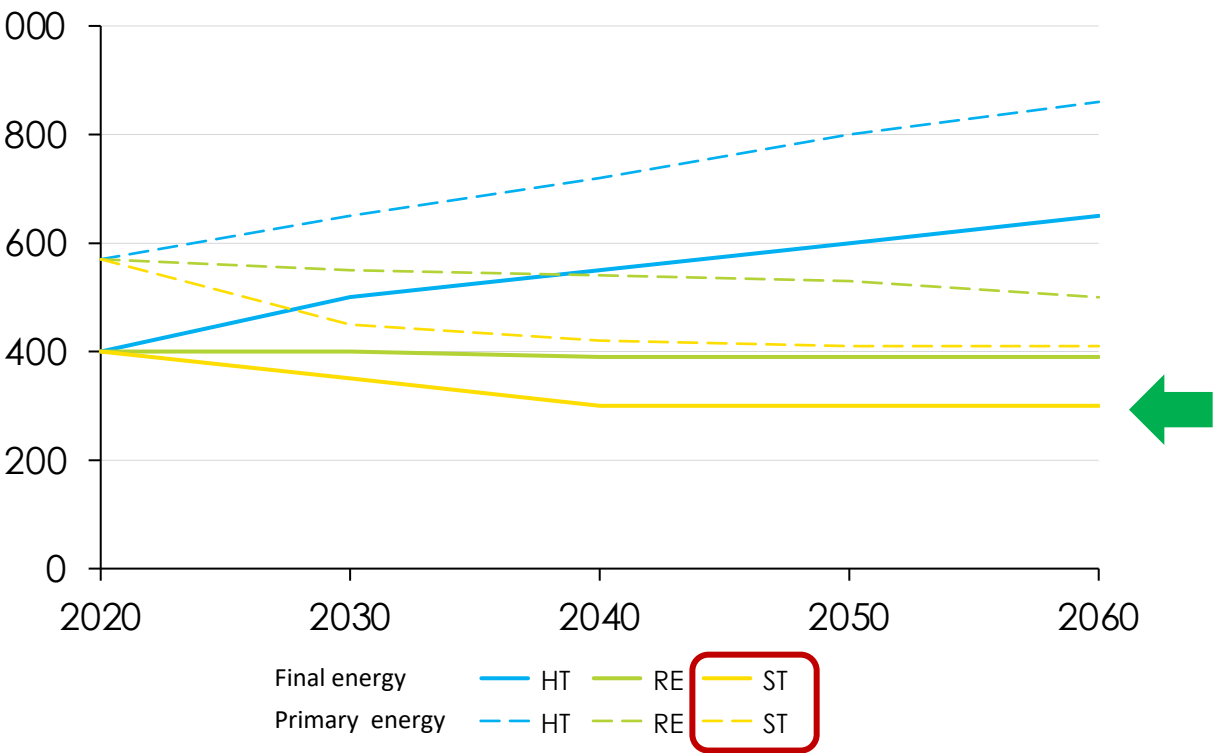


Pillar 3 gains could be huge

Global material extraction, Bn tons



Global energy demand, EJ/yr



*We can **mitigate growth in material use by 30%** by 2060, compared to continued historic trends...*

*... and **reduce energy demand by 25%** by 2060, compared to 2020 levels.*

Bold policy action can make the Sustainability Transition Scenario real



Institutionalizing resource governance and defining resource use paths

- Global and national institutionalization of natural resource use within global sustainability agendas and action on environmental agreements
- Definition of global and national resource use paths



Directing finance towards sustainable resource use

- Internalizing the environmental and social costs of resource extraction
- Redirecting, repurposing and reforming public subsidies for sustainable resource
- Channeling private finance towards sustainable resource use
- Incorporating resource-related risk into Public and Central Bank mandates



Making trade an engine of sustainable resource use

- Trade governance for fairness and sustainable resource use
- Enabling local resource value retention in producer countries



Mainstreaming sustainable consumption options

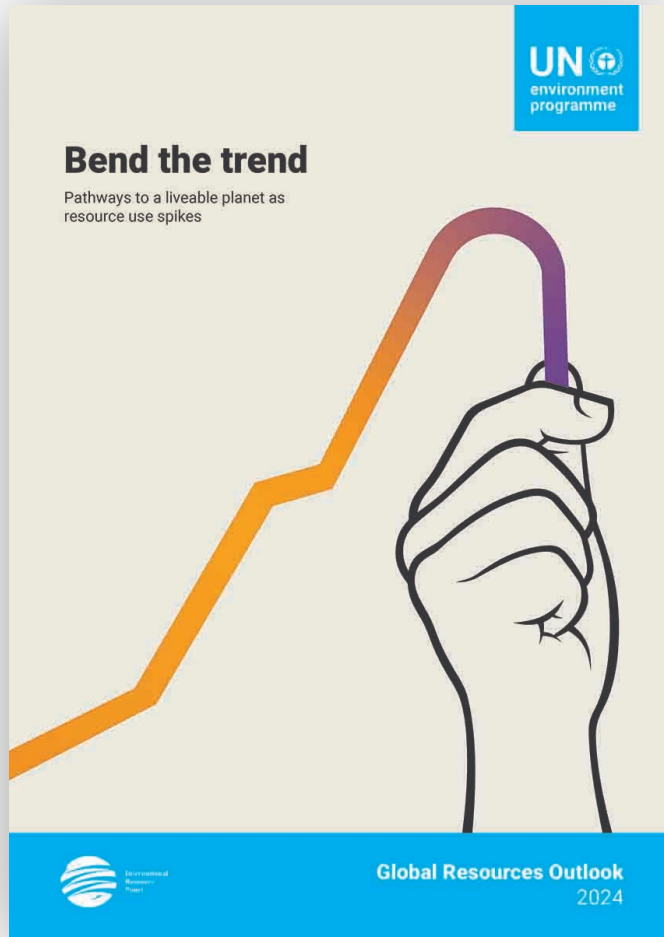
- Developing action plans to improve access to sustainable goods and services
- Regulating marketing practices leading to over- consumption, and raising awareness



Creating circular, resource-efficient and low-impact solutions and business models

- Setting up monitoring systems to identify priorities and develop ambitious circular economy action plans
- Developing and reinforcing regulation to boost circular economy business models
- Building circular economy capacity and coalitions

Global Resources Outlook 2024



Bend the trend

Pathways to a liveable planet as resource use spikes

Download the report



<https://www.resourcepanel.org/reports/global-resources-outlook-2024>

<https://www.unep.org/resources/Global-Resource-Outlook-2024>



Thanks for your attention!