

Für Mensch & Umwelt

Umwelt  
Bundesamt 

European Resources Forum (ERF) 2022

# Transformative approaches for sustainable resource use and a circular economy

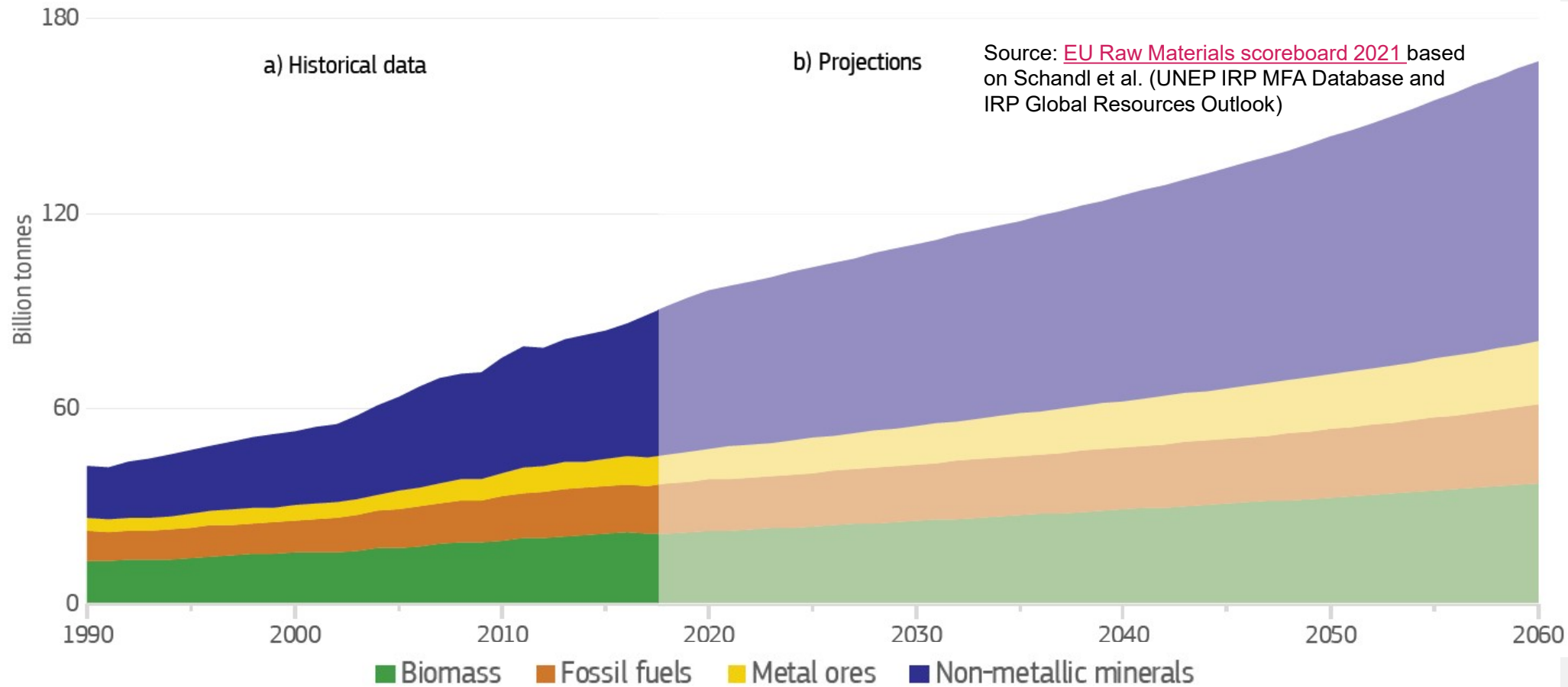
Opening speech by Prof. Dr. Dirk Messner

President of the German Environment Agency (UBA)

## Global raw materials extraction is strongly increasing

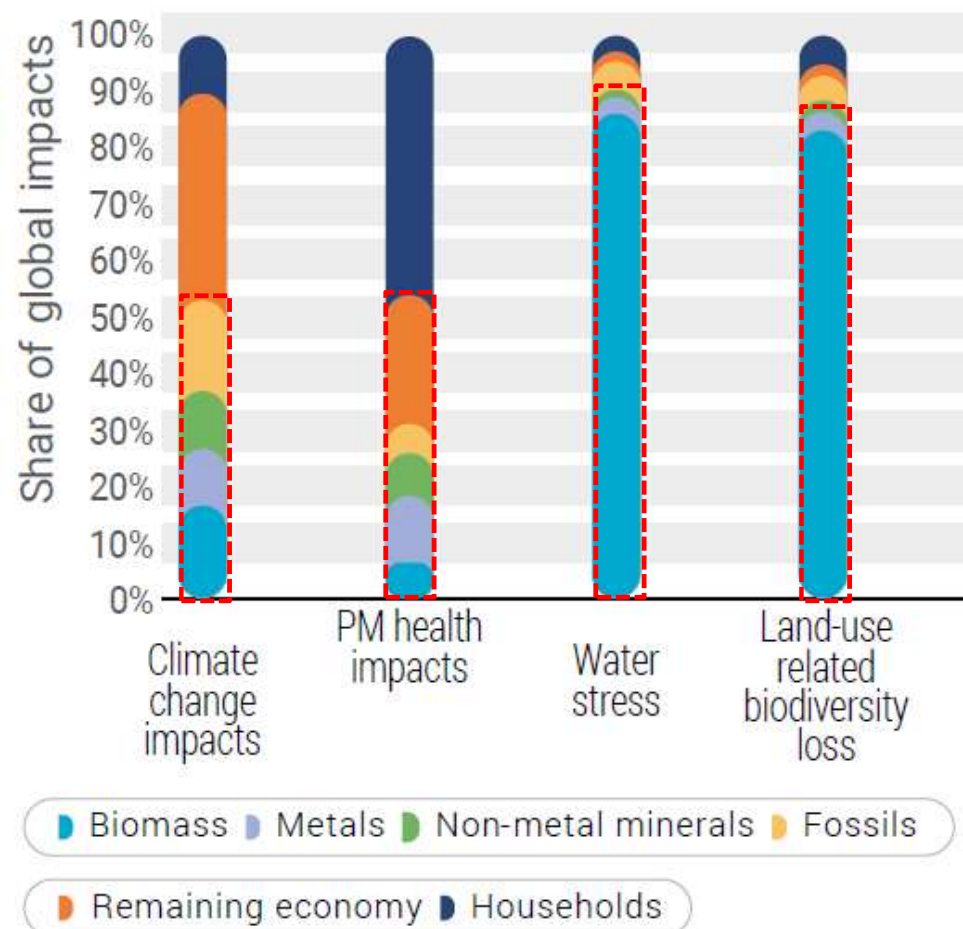
Global material extraction (billion tonnes) by resource

type: a) historical (world, 1990-2017) and b) projected data (world, 2017-2060)



## A more sustainable production and use of raw materials is also important for achieving climate and other environmental goals

### Environmental Impacts of Resource Extraction and Processing



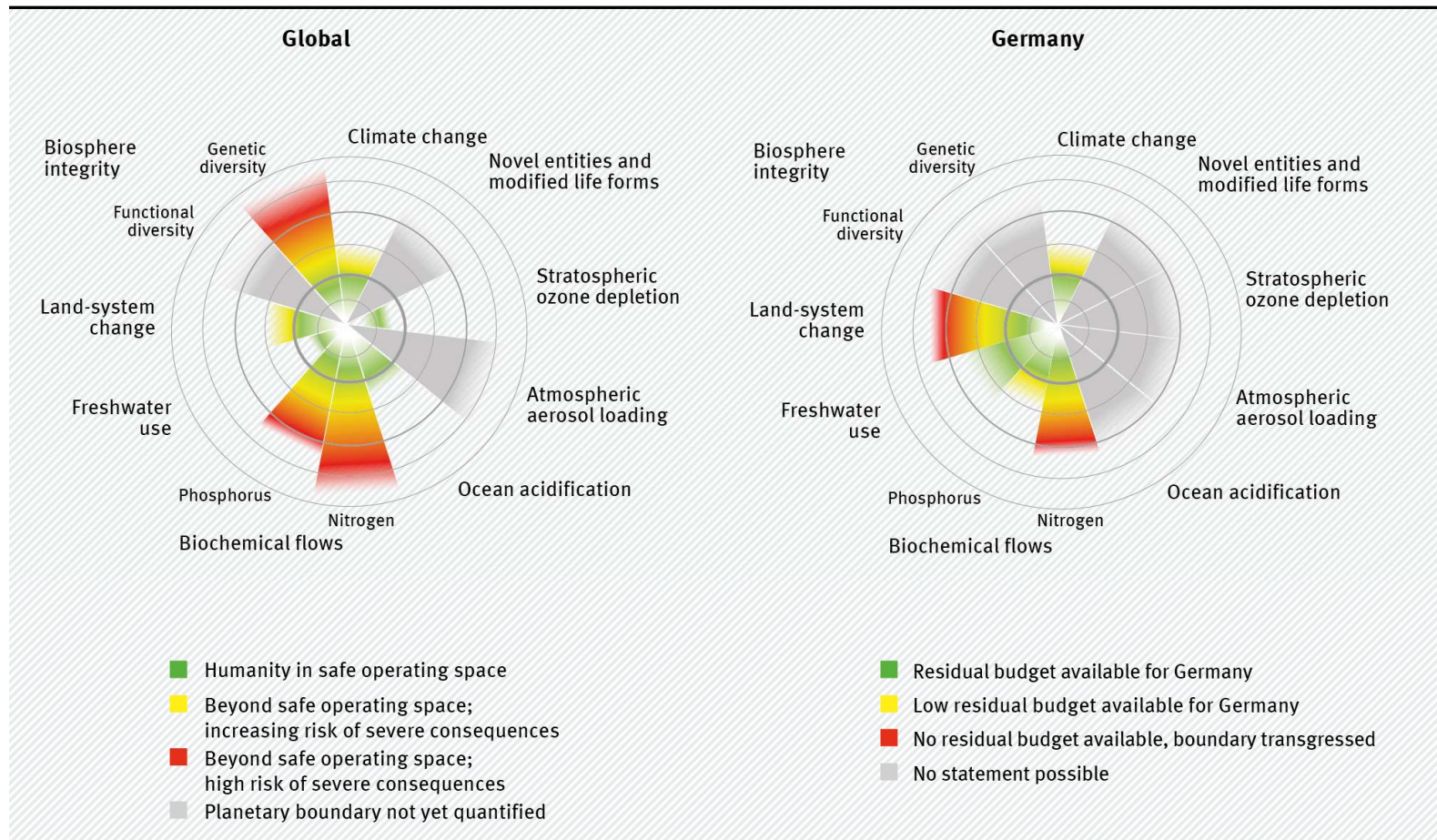
*Share of impacts due to raw materials extraction and processing (UNEP IRP)*

Reference year: 2011; UNEP GRO 2019 (Data sources: Exiobase 3.4 (Stadler et al. 2018) combined with land use data from UNEP (2019)).

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

# Humanity is already overshooting several planetary boundaries

## The planetary boundaries-concept applied to the World and Germany

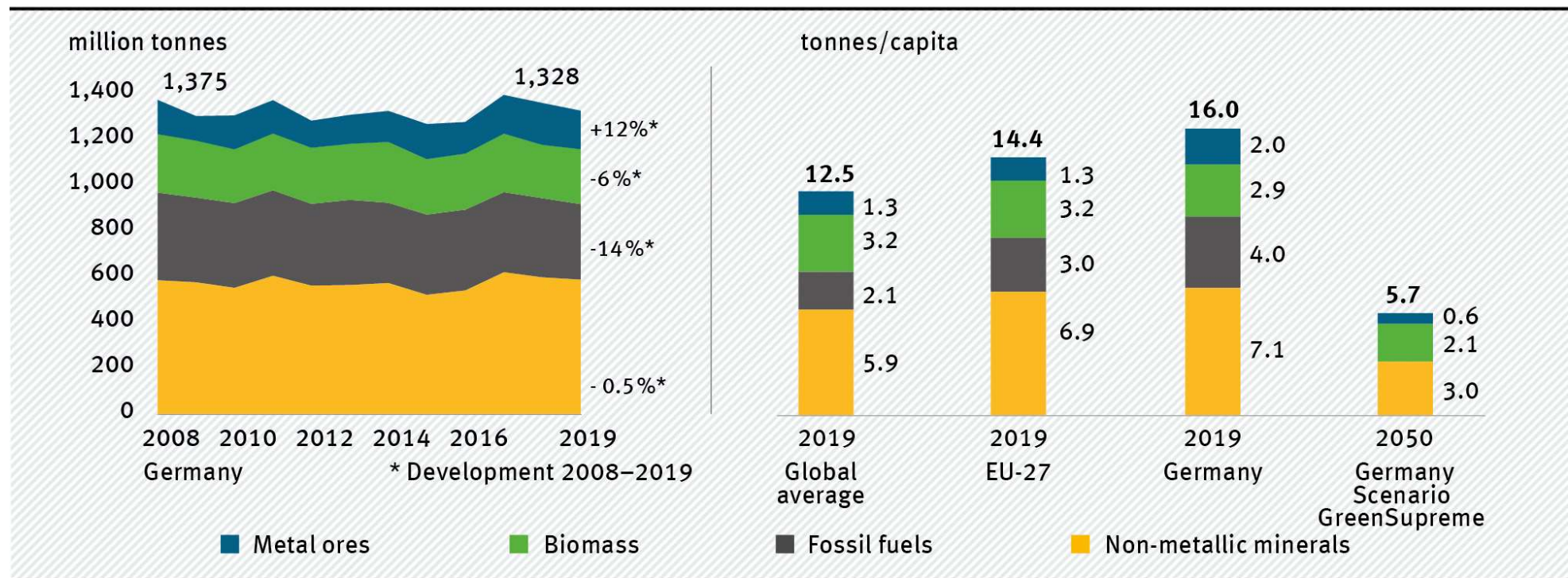


Source: UBA Resources Report 2022



## Germany's material footprint is 30 % above the global average

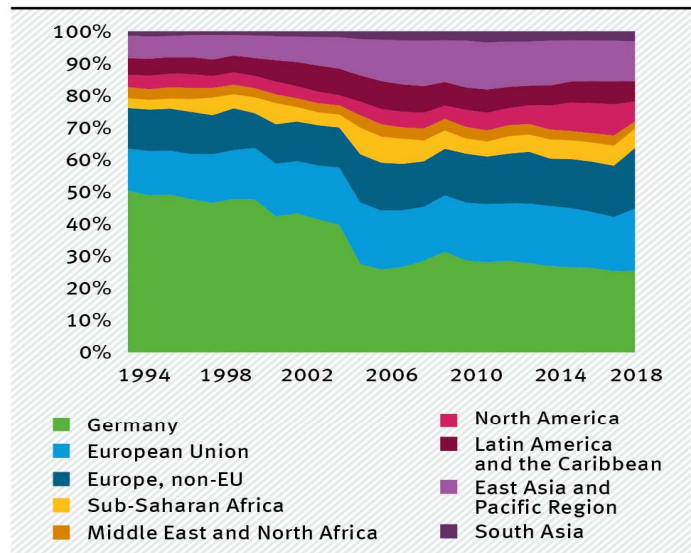
Development of raw material consumption (RMC) in Germany, 2008–2019, and comparison of RMC per capita for the world, EU-27 and Germany, 2019 and 2050



Source: UBA Resources Report 2022

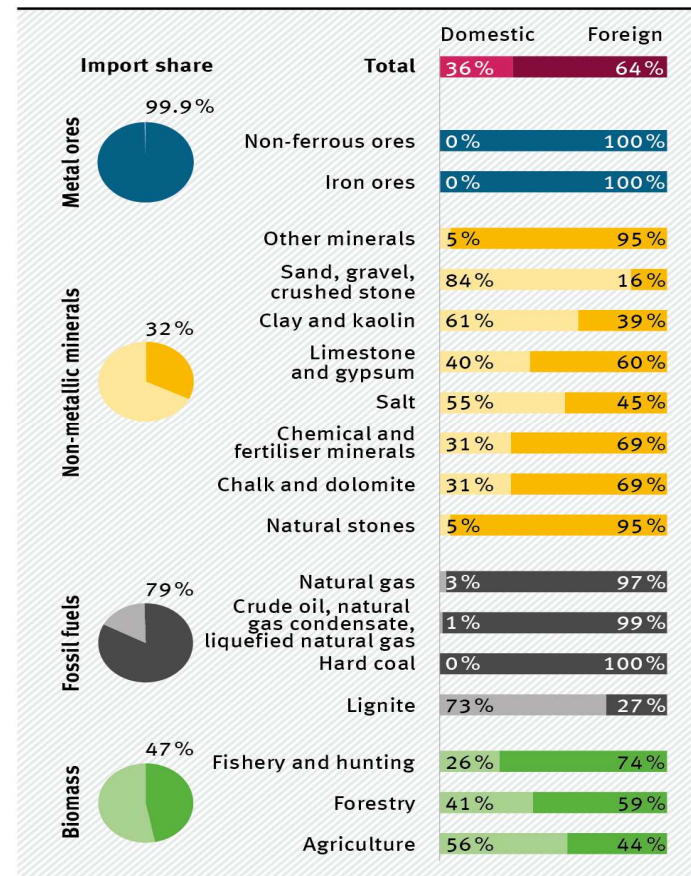
Germany is also highly dependent on resource imports (outsourcing of environmental impacts). This can also lead to higher security of supply risks (e.g., energy crisis due to war in Ukraine)

Origin of raw material consumption (RMC) in Germany by world region, 1995–2018



Source: UBA Resources Report 2022

Domestic and foreign share in raw material input (RMI) of Germany by raw material groups, 2019

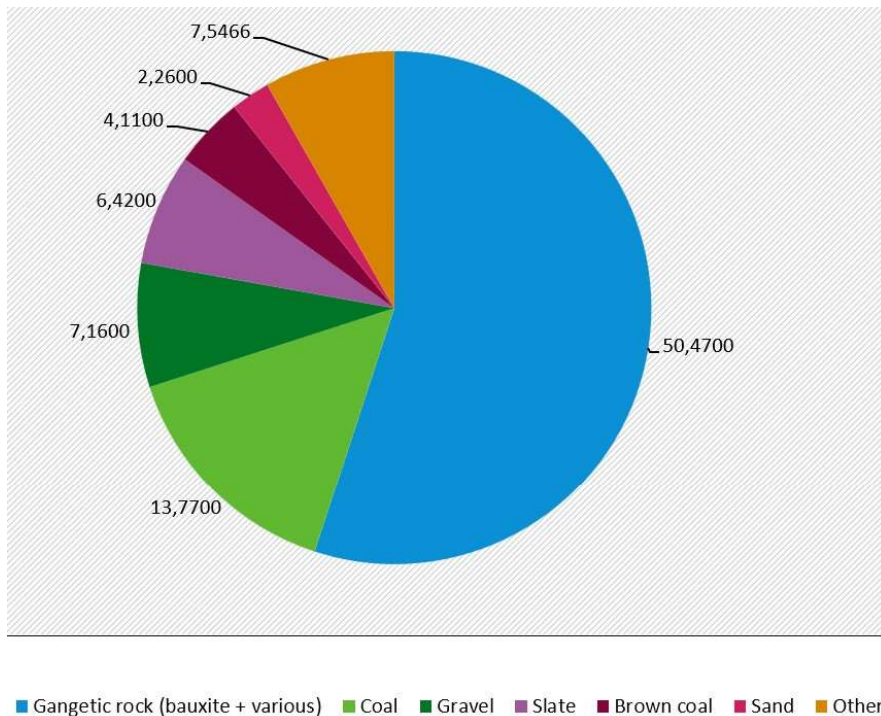


Source: UBA Resources Report 2022



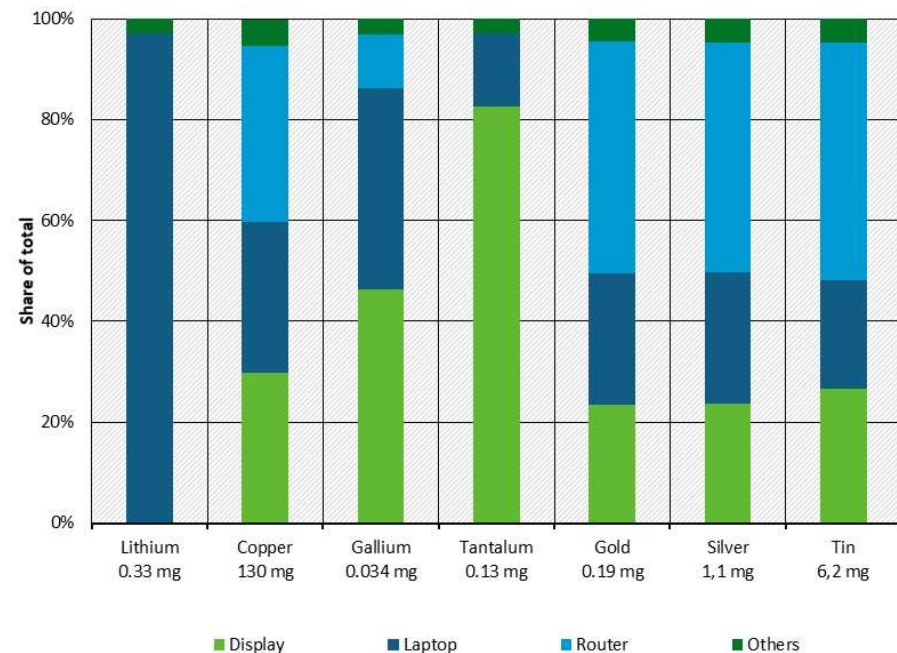
## Mass flows versus strategic materials of the future. The example of digitization: “1 hour video conference” (calculated with LCA software, production phase only)

Raw material demand  $\Sigma \sim 92 \text{ g}$



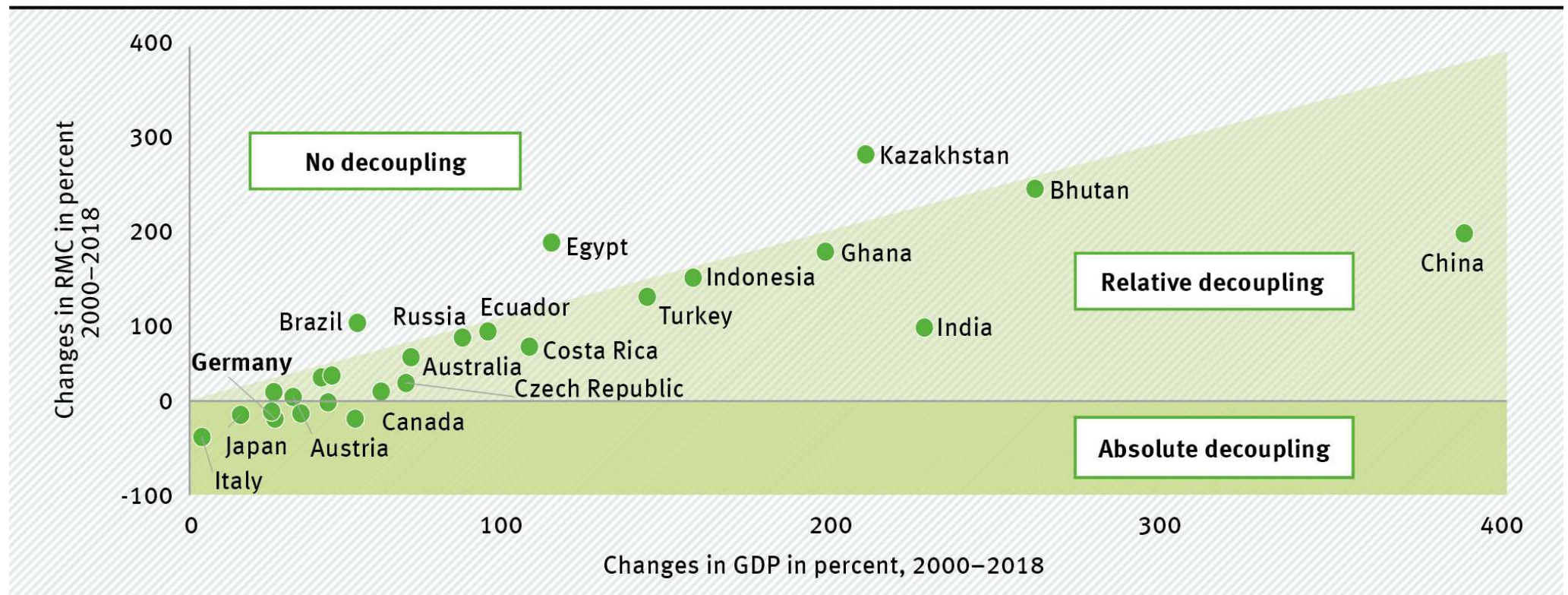
Source: UBA research project “DigitalResources”  
([www.umweltbundesamt.de/digitalresources](http://www.umweltbundesamt.de/digitalresources))

Strategic materials demand - particularly important materials for digitization  $\Sigma \sim 0,138 \text{ g}$   
(seven most important)



## Relative versus absolute decoupling

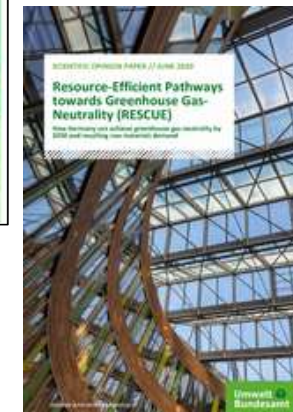
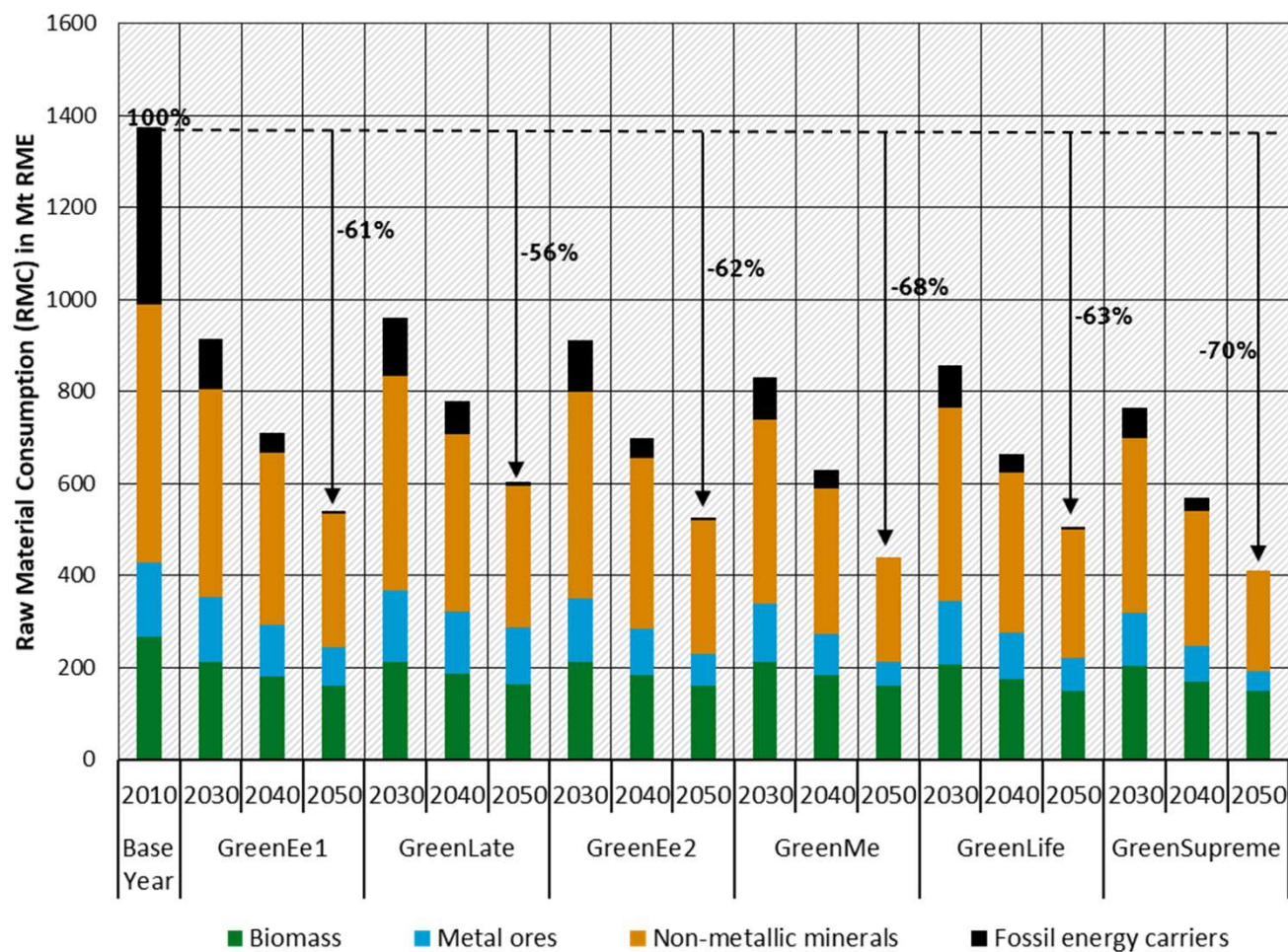
### Decoupling trends of raw material consumption (RMC) from gross domestic product (GDP)



Source: UBA Resources Report 2022



## Lowering Germany's material footprint is possible but requires systemic changes to our production-consumption system (see UBA RESCUE study)



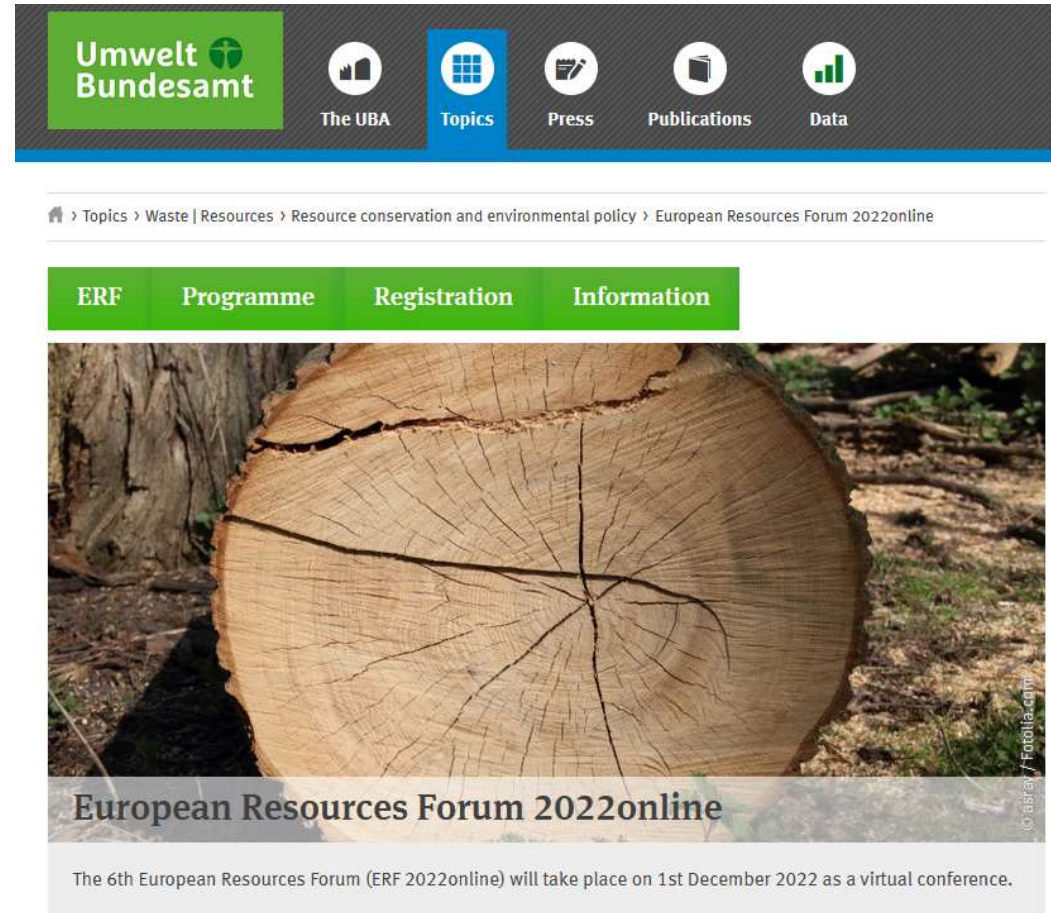
Source: <https://www.umweltbundesamt.de/rescue>

## Key aspects to move towards more sustainable resource use

- **Ensuring Earth system compatibility in all sectors:** systemic approaches, integrating circularity/ resource efficiency, decarbonization, ecosystem-protection/ biodiversity, zero pollution ... still a lot to do
- **Technological innovation is not enough:** Efficiency – sufficiency – well being
- Having **intra- and intergenerational justice in mind:** a) nationally: monitor impacts of sustainability investment on social cohesion; b) internationally: European-African Green Deal; c) next generations perspective: absolute decoupling
- **Incremental change is not enough – transformative change:** Pandemic – Russian aggression – the Earth system crisis ... narrative: highway to hell – attractive futures – transformation is feasible
- **A technocratic solution will not work – societal changes needed:** bold governments, transformative business models of the private sector, societal consensus, science based pathways

## Welcome to the European Resources Forum (ERF) 2022

- Three plenary sessions and more than 15 parallel sessions
- Around 500 participants from over 50 nations
- A “thank you” to 90 speaker
- Thank you for attending and have a nice and successful conference!



Umwelt Bundesamt

The UBA Topics Press Publications Data

Topics > Waste | Resources > Resource conservation and environmental policy > European Resources Forum 2022online

ERF Programme Registration Information

**European Resources Forum 2022online**

The 6th European Resources Forum (ERF 2022online) will take place on 1st December 2022 as a virtual conference.



# Thank you for your attention !

**Prof. Dr. Dirk Messner**

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President of the German Environment Agency

<https://www.umweltbundesamt.de/en>

UBA Resources Report 2022:

[www.umweltbundesamt.de/resourcesreport2022](https://www.umweltbundesamt.de/resourcesreport2022)