

Resource Efficiency: Insights from reports of the International Resource Panel

A presentation to the G7 Alliance for Resource Efficiency
with guests from the G20

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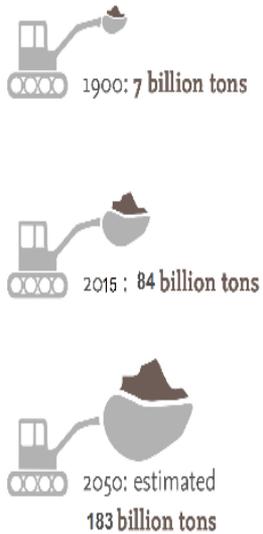
On line

Thursday 23rd September, 2021

Why focus on resource efficiency?

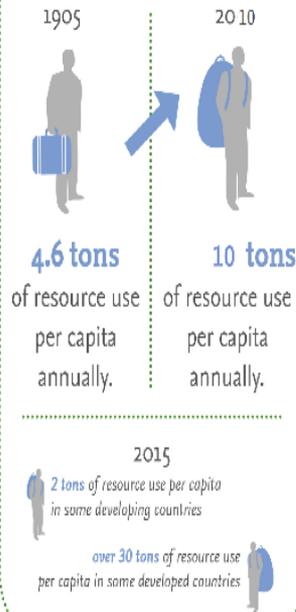
DEMAND FOR RESOURCES

Annual material* extraction rate



* Materials = fossil fuels, minerals, metals and biomass.

Increase in resource use per capita annually



Drivers for resource demand

- Growing population from 7 billion today to 9 billion by 2050
- Economic development and increasing global trade
- Increasing consumption of biomass
- Growing middle-class with changing consumption patterns

Results of resource demand

- Increasing resource extraction
- Greenhouse gas emissions
- Increasing resource scarcity
- Land degradation
- Price increases and volatility
- Water pollution
- Loss of biodiversity
- Air pollution

Impact on human health

Global Resources Outlook 2019



- ✓ **Global status and trends** on natural resources (metals, non-metallic minerals, fossil fuels, biomass, water, land).
- ✓ **Environmental, economic and social impacts** from current and future use of natural resources
- ✓ **Projections by 2060** on natural resource use and impacts under two scenarios: ‘Historical Trends’ and ‘Towards Sustainability’
- ✓ **Policy recommendations** for economically attractive and technologically viable action to achieve sustainability goals.



Resources provide the **foundation** for the goods, services and infrastructure that make up **our current economies**



- **Biomass** (wood, crops, including food, fuel, feedstock and plant-based materials)



- **Fossil fuels** (coal, gas and oil)



- **Metals** (such as iron, aluminum and copper...)



- **Non-metallic minerals** (including sand, gravel and limestone)



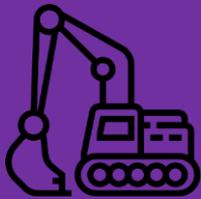
- **Land**



- **Water**



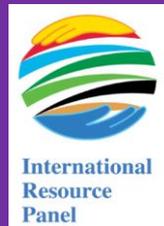
The **USE** of natural resources has more than **tripled** from 1970, and continues to grow



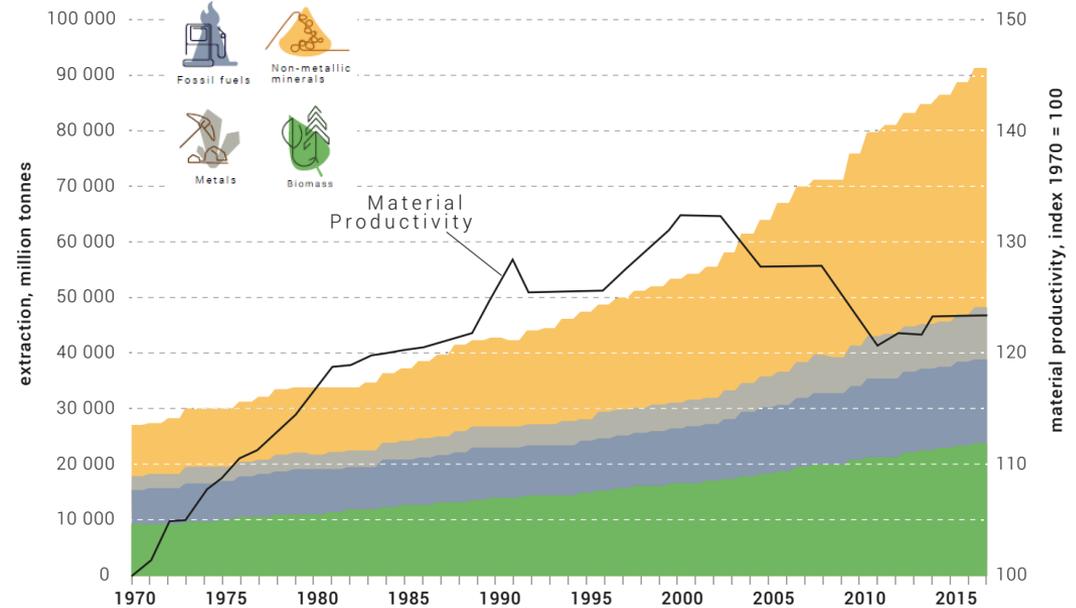
92 billion tons of global extraction



12.2 tons materials demand per capita



Global material extraction and material productivity, 1970 - 2017



Myth: Technological advancement is making the global economy more resource efficient.

Fact: Some (high-income) countries are becoming much more efficient but **global productivity has not improved** in the last 20 years

Historical and current patterns of natural resource use are resulting in **increasingly negative impacts** on the environment and human health



50% of global climate change impacts



90% of global biodiversity loss and water stress



11% of global species loss

The per capita material footprint from high-income countries is:



60% higher than the upper-middle-income group

13x the level of the low-income groups.

The per capita environmental impacts high-income countries is:



3-6x those of the low-income groups.

The **use** of natural resources and the related **benefits** and environmental **impacts** are **unevenly distributed** across countries and regions

Rise of the upper-middle-income nations

56% of the global share of domestic material consumption in 2017

Higher per capita material consumption than the high-income group as of 2012

Practically **no change** for low income countries despite needing it the most

Domestic Material Consumption
tonnes per capita

● 1970
● 2017



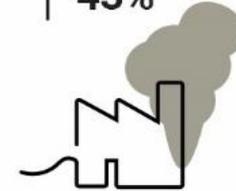
Without **urgent and concerted action**, rapid growth and inefficient use of natural resources will continue to create **unsustainable pressures** on the environment.

↑ more than **doubles**



Global material extraction

↑ increases by **43%**



Greenhouse gas emissions

↑ increases by more than **20%**



Area of agricultural land

↑ increases by **25%**



Global pasture land

↓ reduces by over **10%**



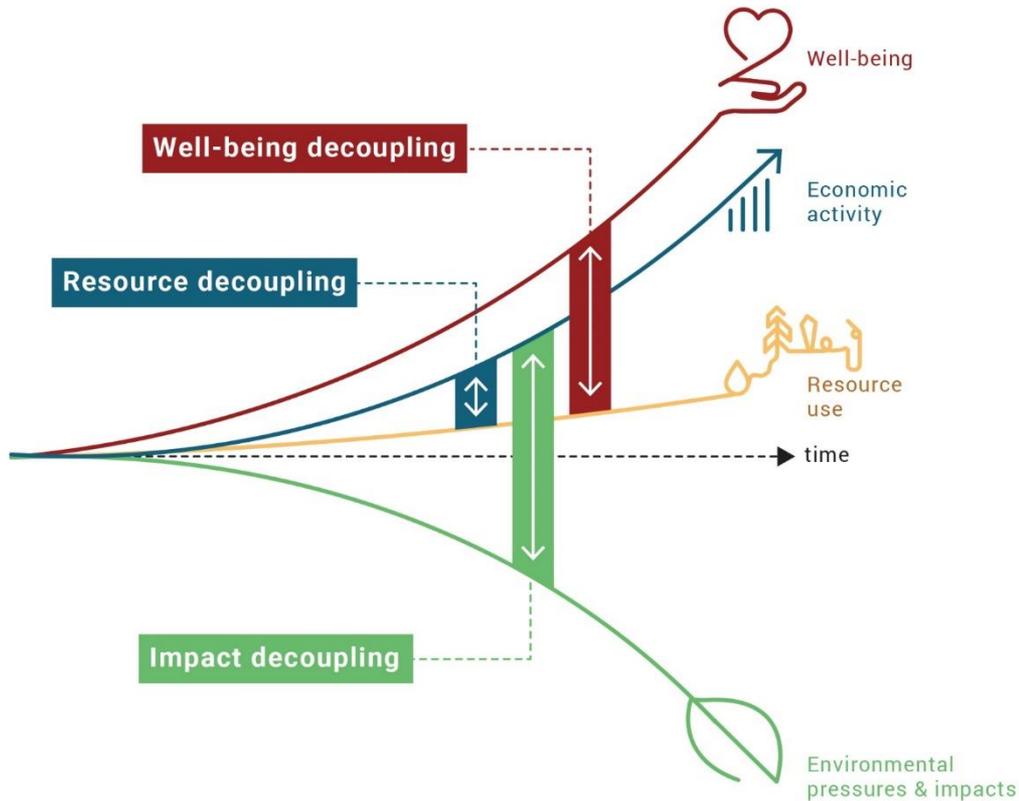
Forests

↓ reduces by around **20%**



Other natural habitat





The **decoupling** of natural resource use and environmental impacts from economic activity and human well-being is an **essential** element in the transition to a **sustainable future**.



Report for the G7 on Resource Efficiency

Key messages from the

Summary for Policy Makers of the G7 report

<http://www.unep.org/resourcepanel/KnowledgeResources/AssessmentAreasReports/Cross-CuttingPublications/tabid/133337/Default.aspx>

Headline Message:

“With concerted action, there is significant potential for increasing resource efficiency, which will have numerous benefits for the economy and the environment”

By 2050 policies to improve resource efficiency and tackle climate change could

- **reduce global resource extraction** by up to **28%** globally.
- **cut global GHG emissions** by around **60%**,
- boost the value of **world economic activity** by **1%**



Business and Sustainable Development Commission

BSDC 2017 'Better Business, Better World', January, http://report.businesscommission.org/uploads/BetterBiz-BetterWorld_170215_012417.pdf

- Achieving the Sustainable Development Goals (the SDGs, the Global Goals) is a \$12 trillion business opportunity in just four broad sectors: food and agriculture, cities, energy and materials, health and well-being

The Global Goals for Sustainable Development



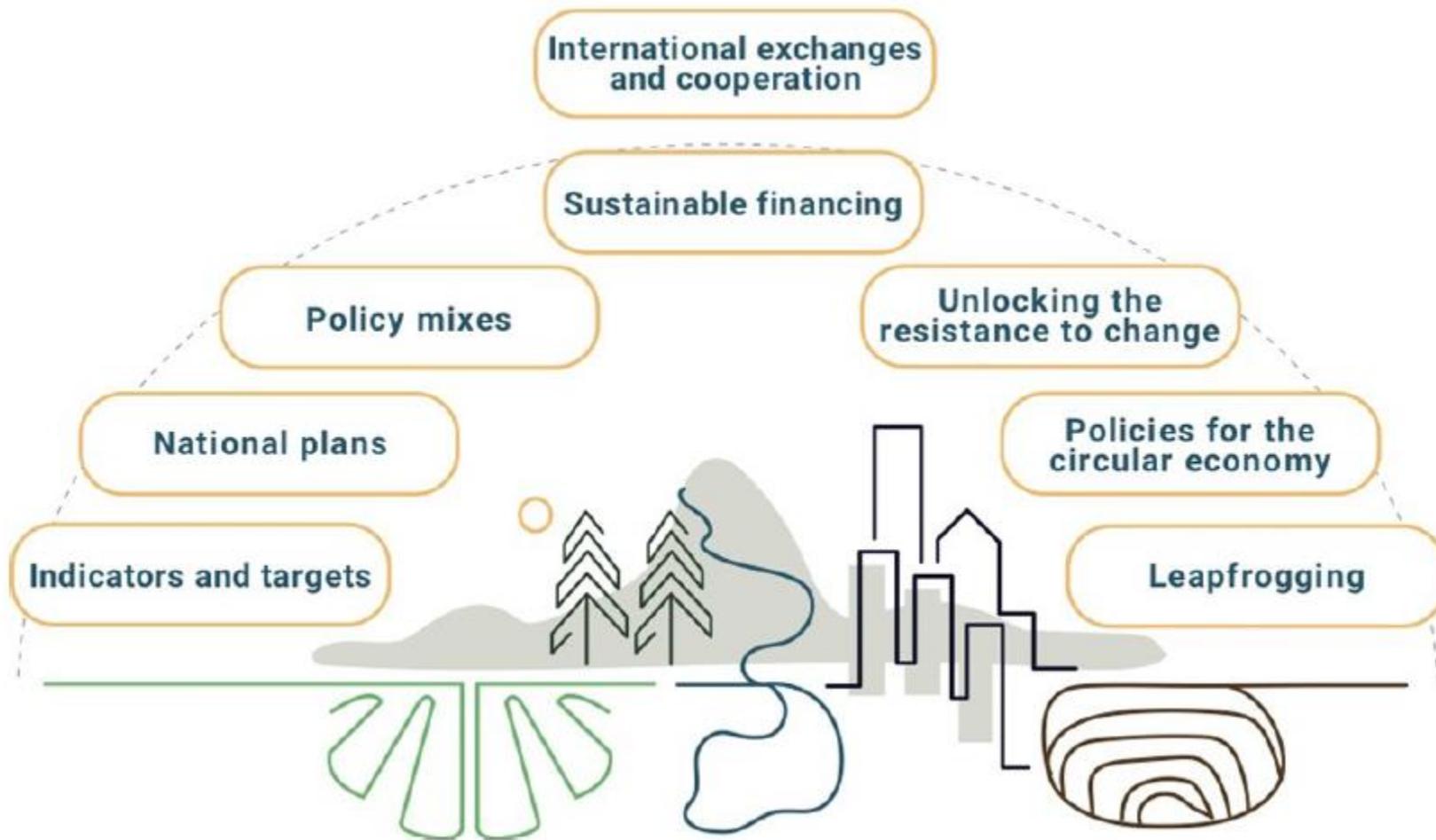
12 largest business themes in a world economy heading for the Global Goals



The
biggest
benefit
areas

* Based on estimated savings or project market sizings in each area. Rounded to nearest US\$ billion.

“[Resource Efficiency Policies] + [Climate Mitigation and Removal Policies] + [Landscape and Biodiversity Protection] + [Healthy Diets and Reduced Food Waste] = *Towards Sustainability*”



Policy concepts for increasing resource efficiency/productivity

- Circular economy (closing the loops, biotic/abiotic materials)
- 3Rs (reduce, re-use, recycle, plus repair, remanufacturing, recover)
- Waste hierarchy (prevention, re-use, recycling, recovery, disposal)
- Extended producer responsibility: producers have responsibility for end-of-life management, or even materials remain the property of the producer
- Industrial symbiosis: producers collaborate to use each others' by-products



Thank you

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www.bartlett.ucl.ac.uk/sustainable