



# Assessing Global Resource Use: A systems approach to resource efficiency and pollution reduction

Presentation at the  
Side-event of the World Resources Forum „Increasing  
Scarcity of Raw Materials – what are the effects on  
achieving the SDGs?“

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Resource Use“

## Goal of the IRP Regular Reports

- To offer decision-makers relevant **information for long-term policy** on resource management
- To provide the most **comprehensive**, most **condensed** and most **up-to-date** information of **problems and perspectives of global resource use**

First Inaugural Regular Report published in 2017

Second Regular Report expected in 2019

## ToC IRP Regular Reports

Introduction: Framework (global level, SDGs and decoupling)

State of the Resources: present situation and past trends

Outlook: expectations for the future

Policy relevance: addressing the challenges

Special Featuring topic

## Involved experts Inaugural Report

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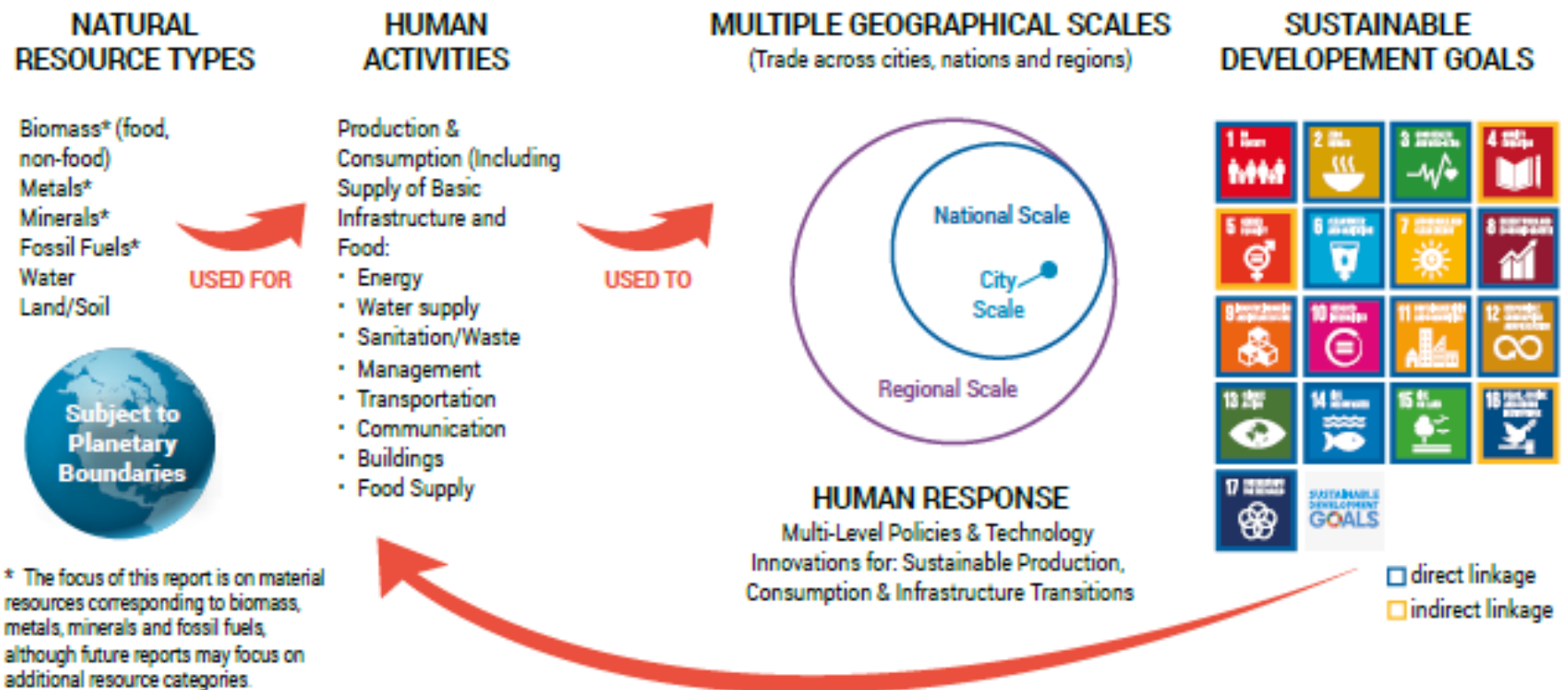
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# Resource use and the SDGs

**FIGURE 1.1** Natural resources flow through society via production, consumption and infrastructure provisioning - impacting Sustainable Development Goals at different scales

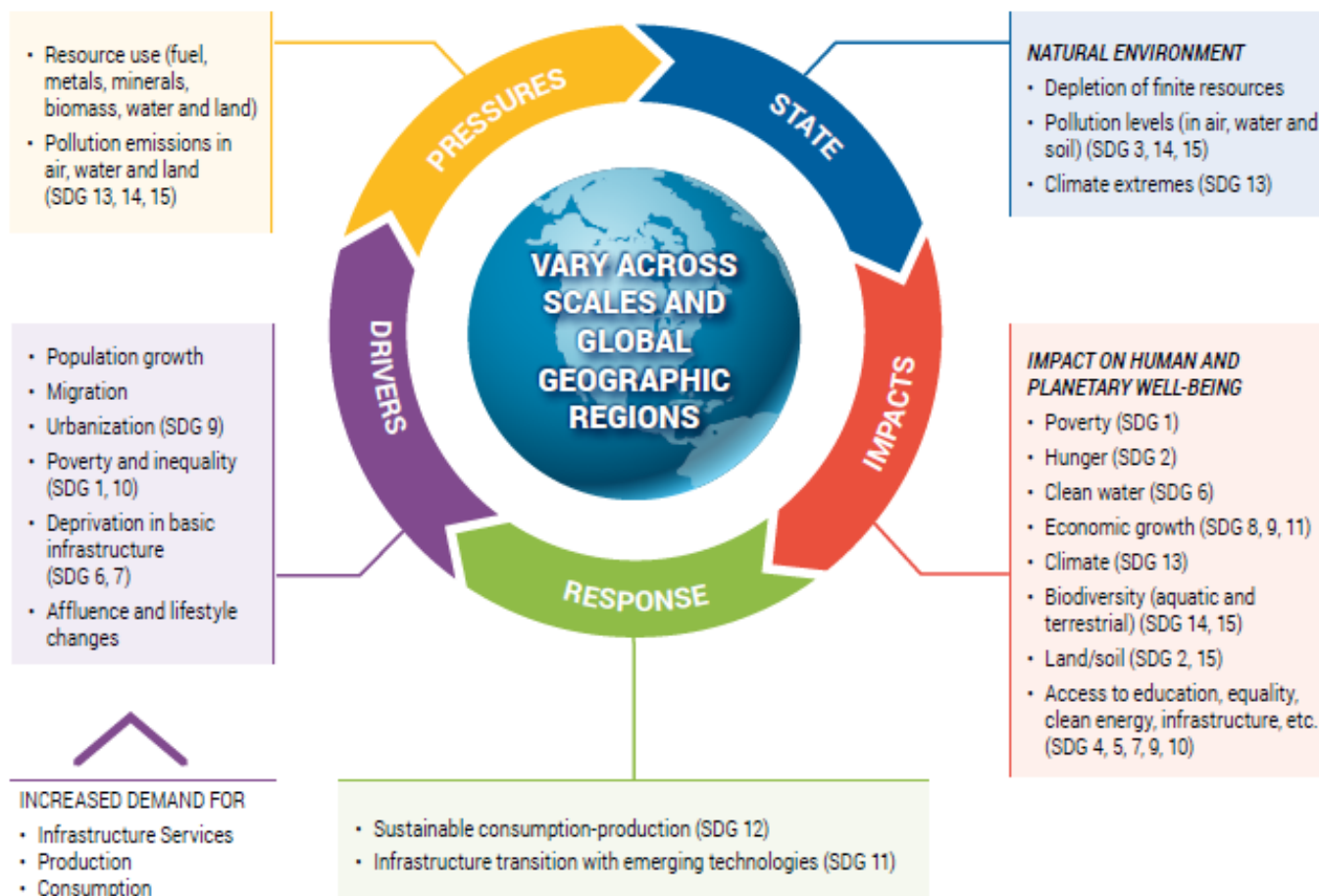


## Resource use and the SDGs

- Resource use provides huge benefits for society
  - development involves building up a country's infrastructure
  - this requires resources
  
- But the scale at which we use resources also causes challenges
  - supply challenges
  - waste generation
  - environmental and social impacts
  
- IRP contributes to identify these challenges, but also aims to assess options to address them
  - from a systems perspective
  - including attention for trade-offs between resources / between SDGs

# Framework for analysis: DPSIR links resource use to SDGs

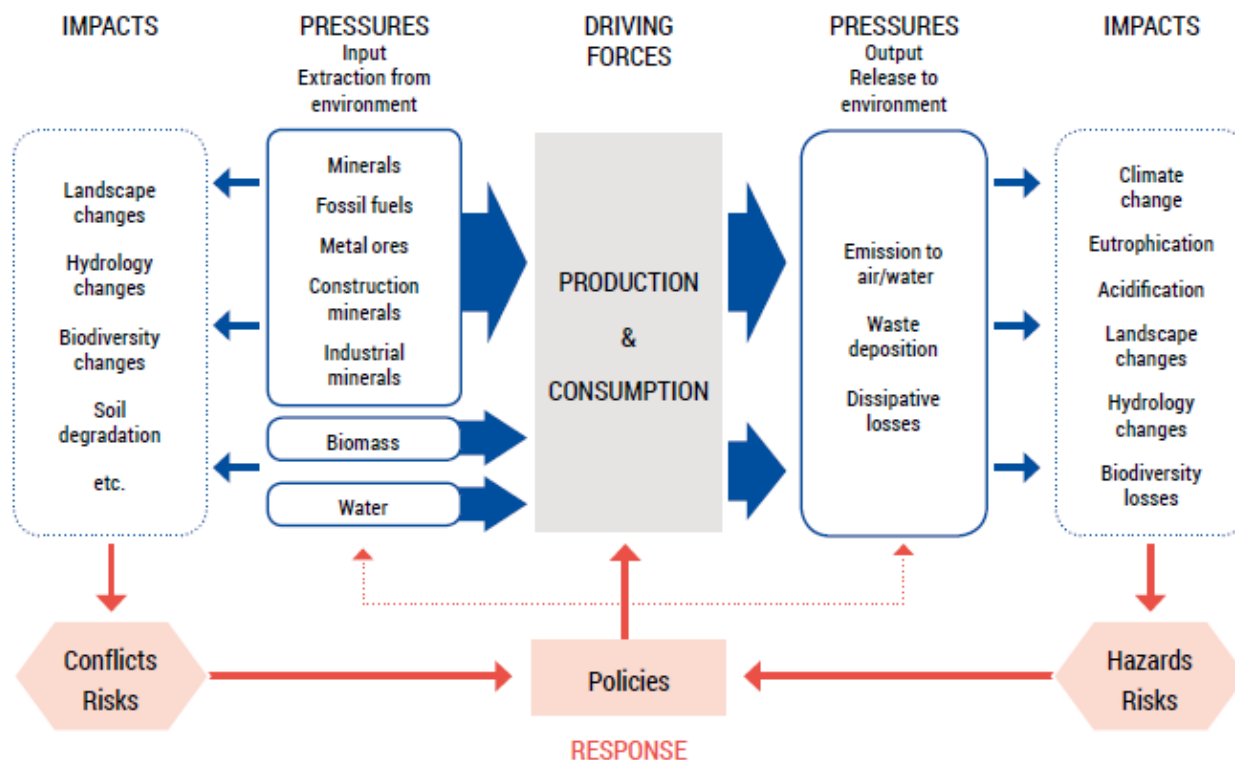
**FIGURE 1.2** Natural resource use linked to the Sustainable Development Goals via the Drivers-Pressures-State-Impact-Response Framework



## Inputs and outputs

- Impacts related to inputs (extractions) as well as to outputs (emissions and waste)

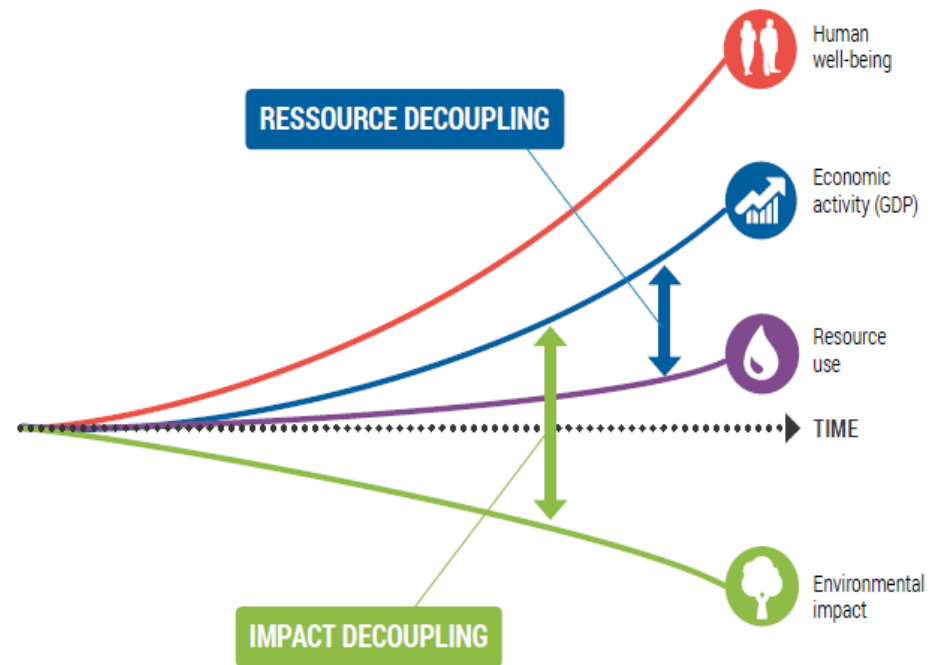
FIGURE 1.4 Systems approach considering material flows and their environmental impacts resulting from production and consumption activities





# Decoupling necessary to reach SDGs

Decoupling economic activity and human well-being from resource use – i.e. enhanced resource efficiency – is necessary to achieve the Sustainable Development Goals for all.



## Summary of Key Messages

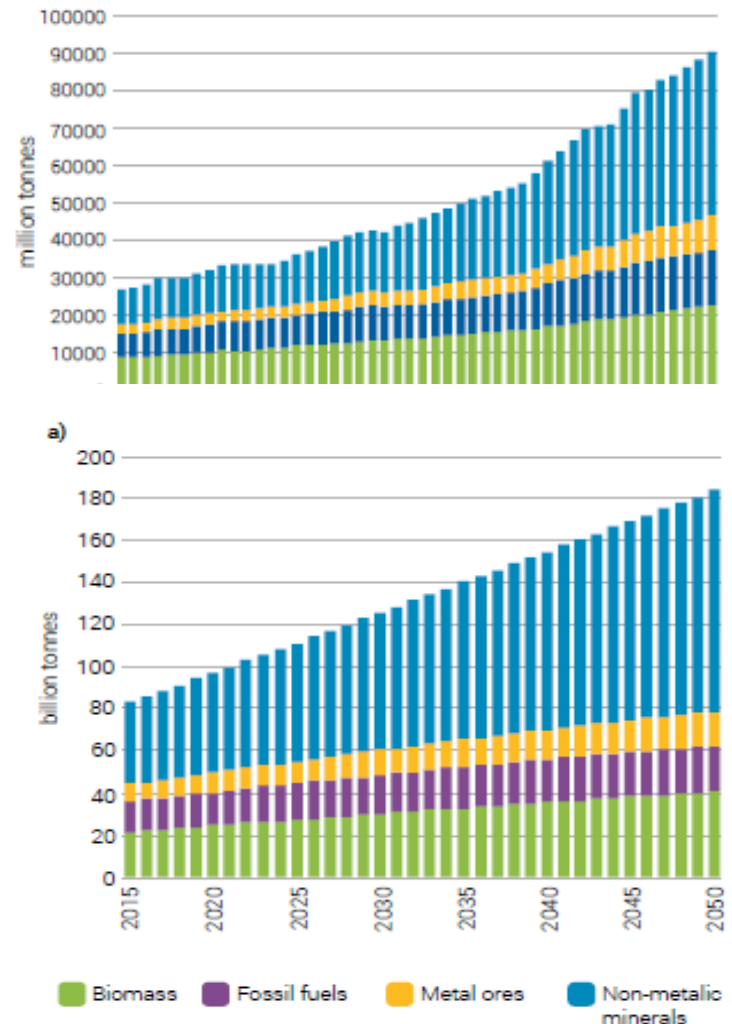
- Demand for resources will grow to satisfy development related SDGs
- Environmental impacts will grow as well, which will impair SDGs related to climate and environment
- Decoupling is necessary, but
  - “direct” impact decoupling by emission reduction is important, but not sufficient
  - a more efficient production and use of resources is important, but not sufficient
  - to reduce resource extraction we need to move towards a circular economy making “new” resources from “old”
- Moving toward a circular economy may bring other benefits as well
- We need to be wary of side-effects and burden shifting
- We are a long way from a fair distribution of resources over the world, and this is not expected to be realised without targeted effort.

# Growing and more disparate resource use

Key message no. 1: resource extraction grows and will continue to grow

Global material resource use is expected to reach nearly 90 billion tonnes in 2017 and may more than double from 2015 to 2050, with high-income countries currently consuming 10 times more per person than low-income countries.

FIGURE 2.2 Global material extraction in four main material categories, 1970–2017, million tonnes

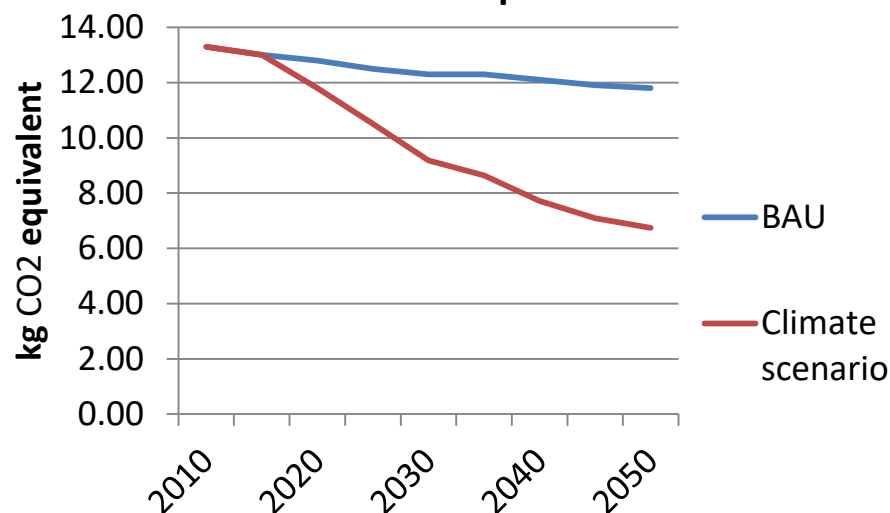


## Input determines output

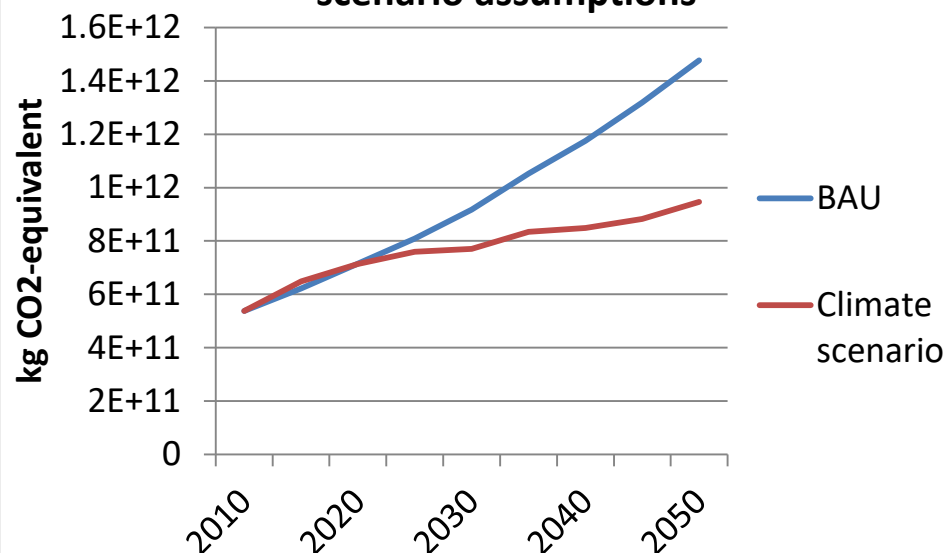
Key message no. 2: reducing emissions is essential, but not sufficient

Environmental impacts – including climate change and pollution – cannot be effectively mitigated by focusing on emission abatement alone. The level of resource use determines the magnitude of final waste and emissions released to the environment, making resource management and efficiency key strategies for environmental protection.

**GHG emissions related to production of 1 kg aluminium under different scenario assumptions**



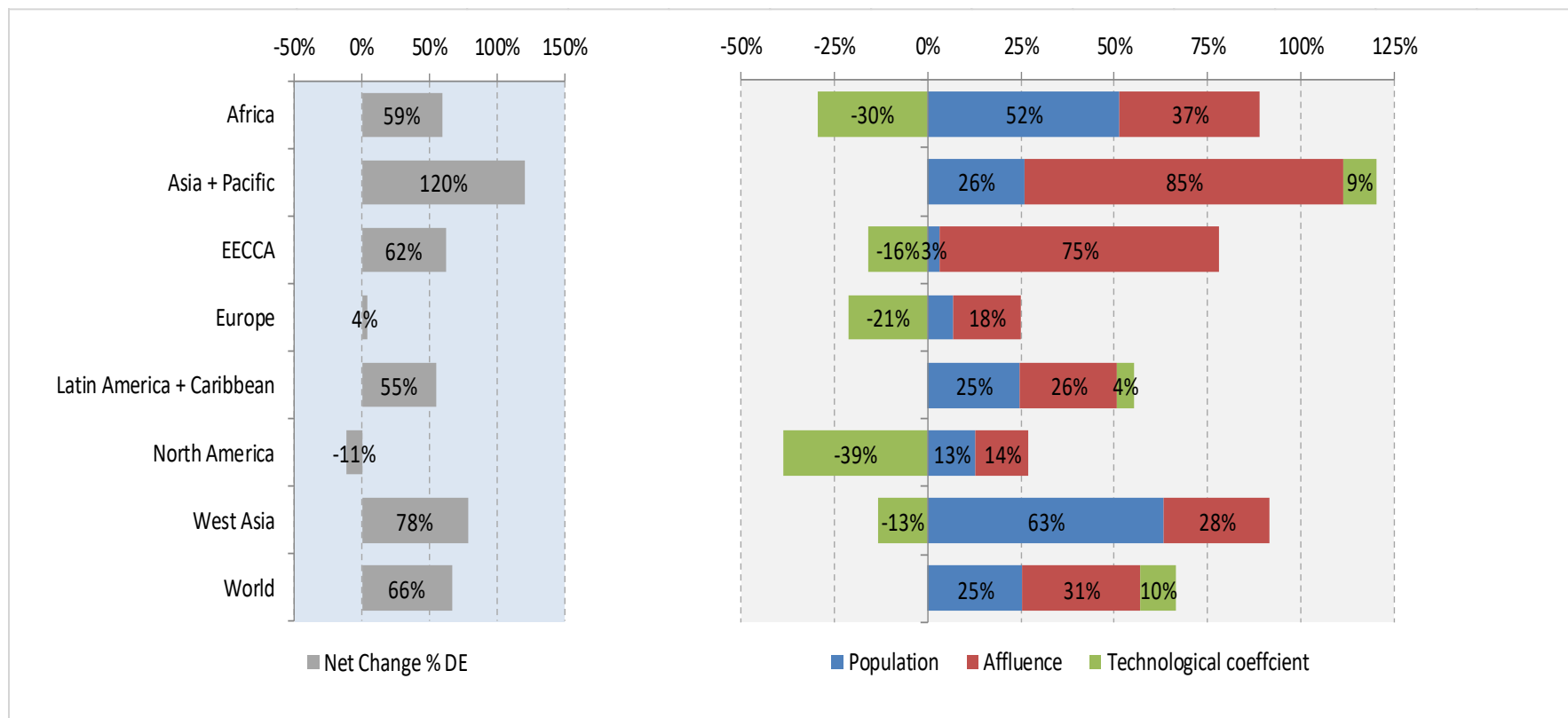
**GHG emissions related to global aluminium production under different scenario assumptions**



# Circular economy helps decoupling

Key message no. 4: improving efficiency is essential, but not sufficient

To achieve effective decoupling, today's linear material flows must become circular through a combination of intelligent infrastructure and product design, standardization, reuse, recycling and remanufacturing.

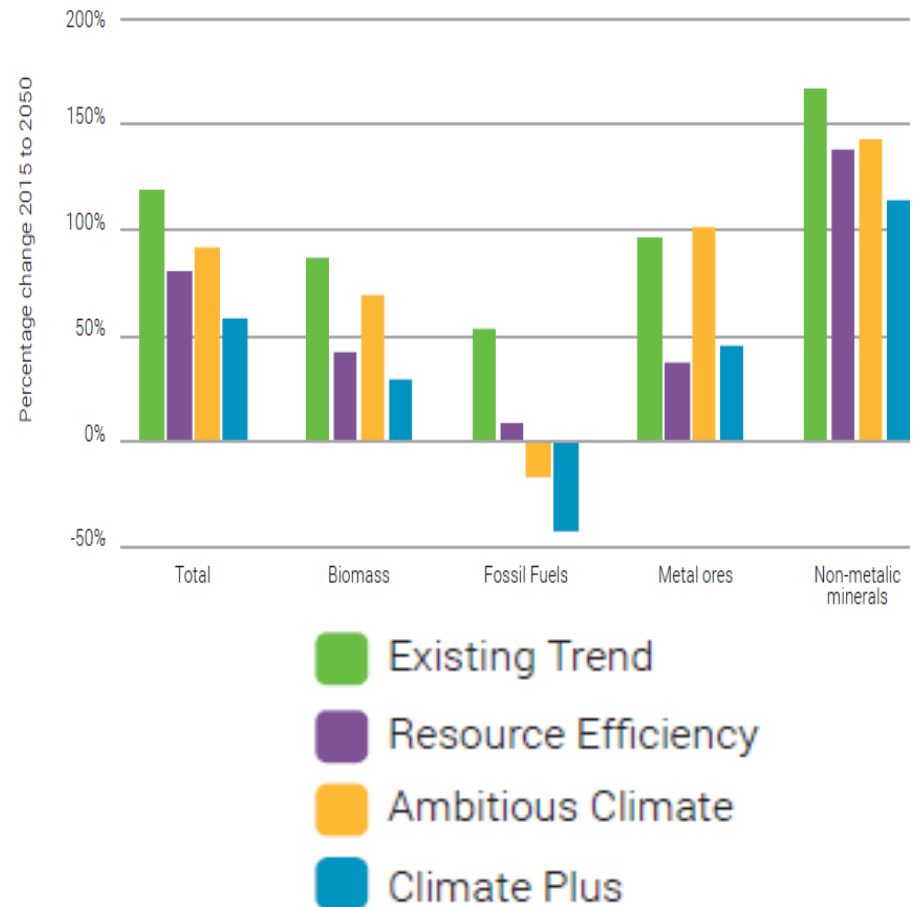


# Systems approach to avoid problem shifts between resources

Key message no. 7: such a systems approach is essential and works

and it is possible:

A systems approach that avoids burden shifting between sectors, regions, resources and impacts is needed to transform production and consumption systems toward the SDGs.



# Set relevant targets and indicators

Key message no. 9: targets both territorial and „footprint“ based

Targets and indicators, such as material footprints, are needed at all levels of governance to monitor material flows and steer socio-economic transitions toward the SDGs.



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Key indicators for monitoring natural resource use

	Territory or national perspective	Global supply chain or international perspective
<b>Materials</b>	Domestic extraction <ul style="list-style-type: none"><li>- abiotic</li><li>- biotic</li><li>- used</li><li>- unused</li></ul>	Total primary material resource requirements <ul style="list-style-type: none"><li>- direct (domestic)</li><li>- indirect (foreign)</li></ul>
<b>Land</b>	Artificial land or built-up area	Direct and indirect land use for consumption of biomass-based products focussing on cropland
<b>Water</b>	Water exploitation index	Direct and indirect water consumption (e.g. water footprint)
<b>Air</b>	GHG emissions	Direct and indirect GHG emissions (both carbon and non-carbon emissions)

## Driving the learning cycle

Key message no. 10: : we're talking about a real transition!

Technical, business and policy innovation across the whole product life cycle, as well as reform of financial instruments, will be crucial for the transition to resource efficient economies -as will policy learning, capacity building and knowledge sharing.







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# THANK YOU VERY MUCH

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SUMMARY FOR POLICYMAKERS

## ASSESSING GLOBAL RESOURCE USE

A systems approach to resource efficiency  
and pollution reduction

# Many options for making profit from sustainable resource use

## Key message no. 6

Countries face differing circumstances and therefore have varying opportunities for decoupling wealth creation and resource use, including leapfrogging.

