

# *The Circular Economy: A strategic perspective for Europe and the world*

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*More of Joy of Life with less Resource use*

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SUSTAINABLE EUROPE  
RESEARCH INSTITUTE

SERI

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BECAUSE IT MATTERS!



The challenge

Less resource use

The goal

Joy of life

The way

We need targets

The tool

You can't manage  
what you can't  
measure

The Challenge:

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**Less resource use**





# Global environmental problems



...caused by **extensive resource use** related to production and use of products.



Mitigate environmental problems by **reducing resource use in absolute terms.**





## Overall objective

to reduce the overall  
resource use  
caused by products

Carbon is not enough!



**The sustainable development goal:**

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**Well-being/Joie de Vivre ?!**



# What is a good life?





**Burnout and Climate Change  
...have the same roots:  
we work too much and too intensively!**







# Back to the roots of Sustainable Development

*“Sustainable development is a development that meets the **needs** of the present without compromising the ability of future generations to meet their own **needs**.”*

- What are needs?
- What is their link to well-being, capabilities, values, quality of life, „a good life“?
- How can they be addressed in our work?



# What means „quality of life“?

„Quality of life ... defined as subjective well-being and personal growth in a healthy and prosperous environment.“ (Lane 1996)



Our **economy** is the institution we created to produce what we want to have:

**a good life!**

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The „good economy“ should serve „the good life“!  
E.Phelps (Nobel Laureate in Economics, 2006)





**The way**  
**We need targets!**

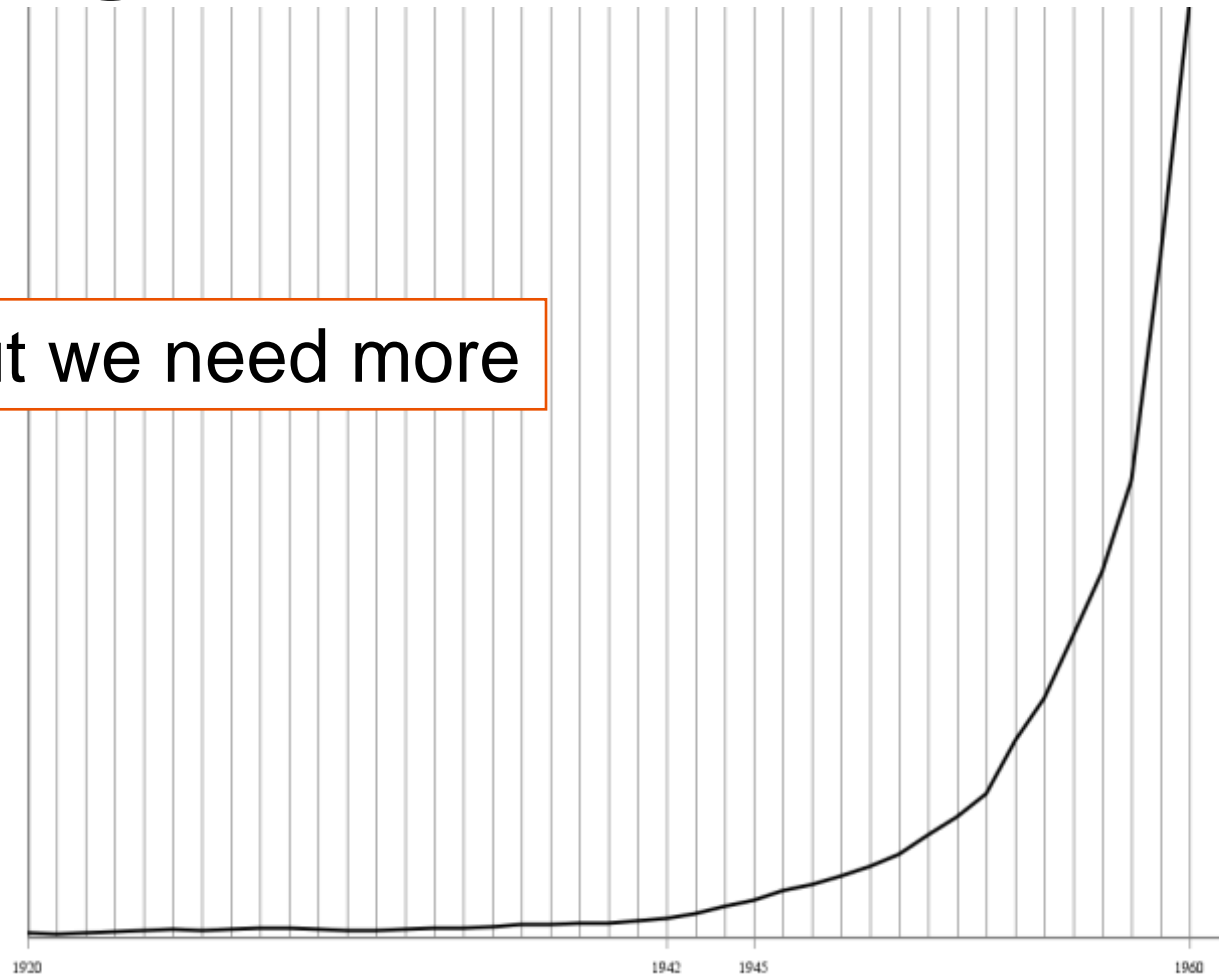




„We“ have one target!

# GDP growth

But we need more





# GDP and well-being



**But also:**

**Link to jobs is weak!**



# „Frontpage indicators“: the **BIG3**



Economic Income (GDP)



Quality of life



The ecological rucksack





Project:

IntRESS



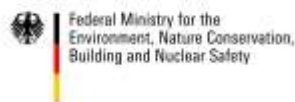
exploring options for  
global resource use

1. We elaborate scientifically-derived suggestions for global resource targets

⇒ Scientific analysis and expert discussion

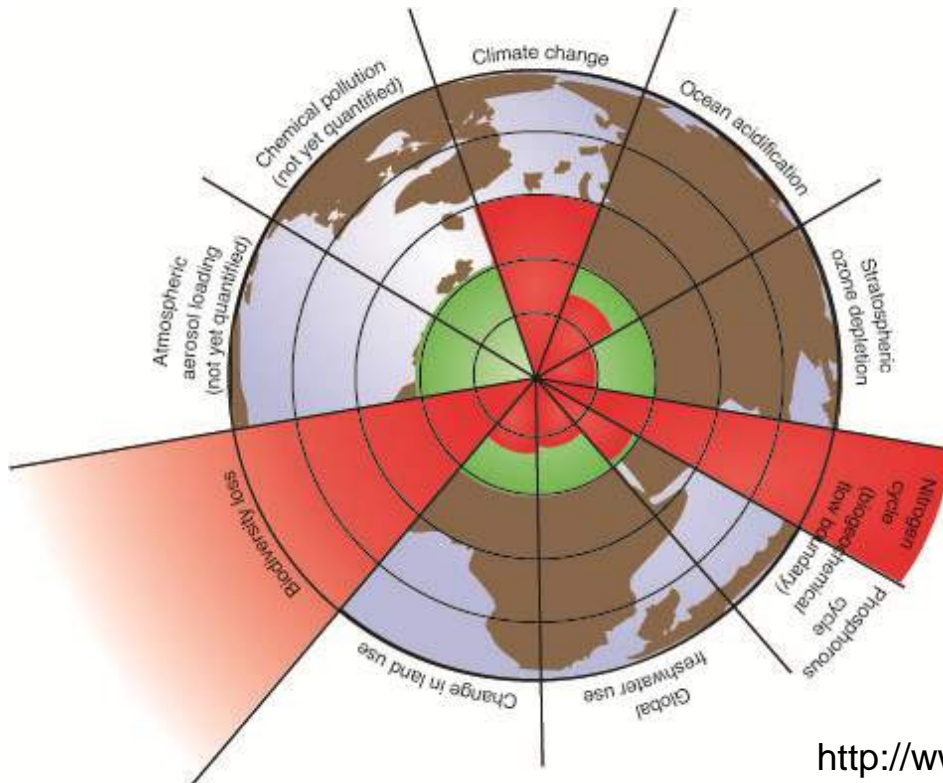
2. We identify and analyze international options, processes and instruments for the implementation of a international sustainable resource use policy (“Windows of Opportunities”)

⇒ Scientific analysis and stakeholder discussion



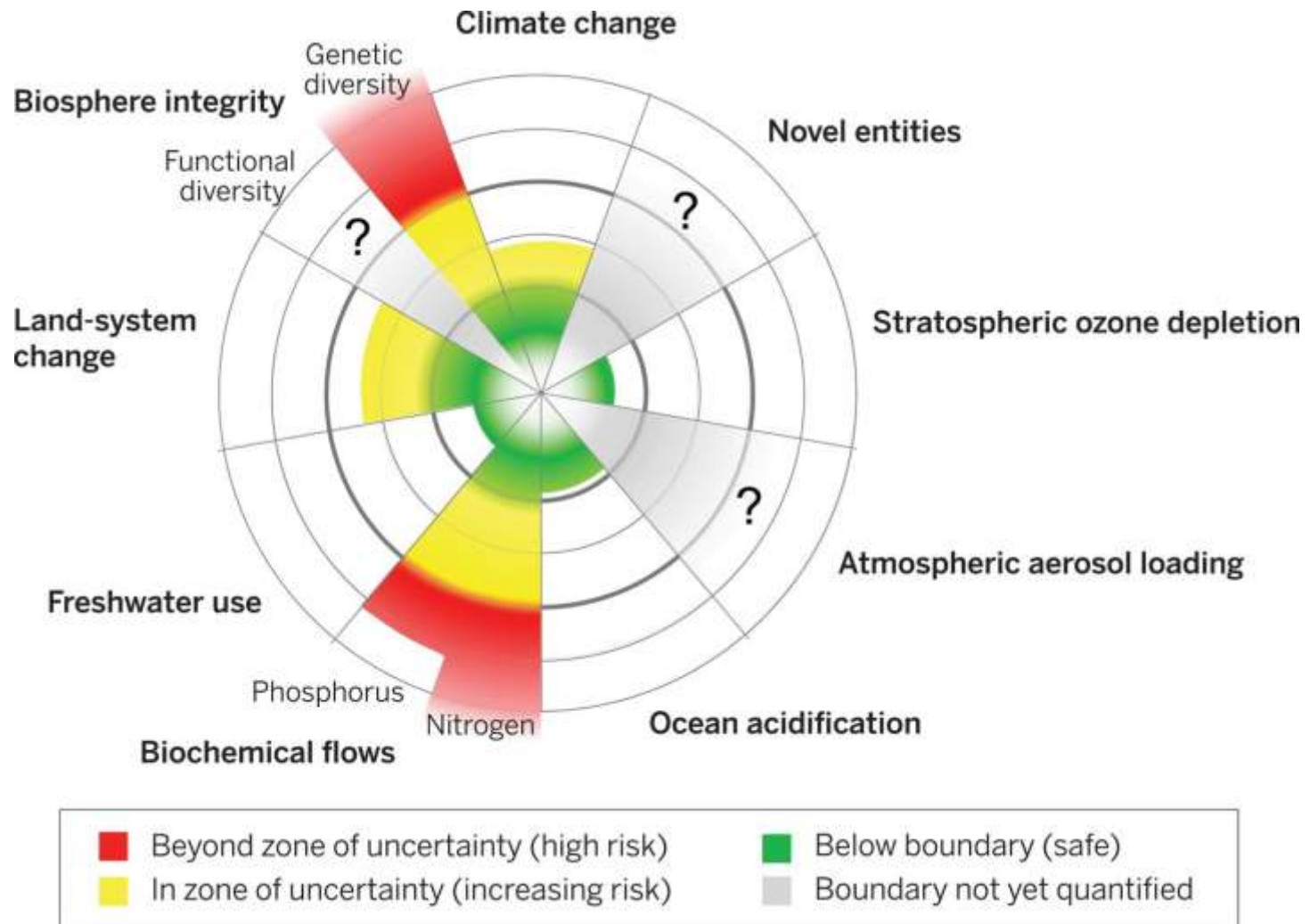


**Johan Rockström et al. (2009):** Nine Earth system processes of crucial importance to prevent unacceptable environmental change on a global scale. These boundaries define the “safe operating space” for humanity with respect to the Earth system.





# Current status of the control variables for seven of the planetary boundaries in 2015



Will Steffen et al. Science 2015;347:1259855





# Rockström et al.: the concept of Safe Operating Space (SOS)

**Defining SOS:** framework within which the functioning of the Earth system, its ecological sub-systems and societies is not at jeopardy

**transgression** of two planetary boundaries already in 1970s and 1980s:  
N-cycle and climate boundary

**Biodiversity loss:** boundary passed at local and regional scales

**Critics claim** that thresholds cannot be determined exactly

→ Resource use is a crucial driver

→ **precautionary principle should be applied**



## Resource targets derived from SOS

**Total material consumption** absolute and per capita relative to the socio-economic situation of the country, at an order of magnitude of some 5 decades ago.

→ 1970?

→ at least a factor 10 reduction requirement for Europe

More details:

**IntRESS**

exploring options for  
global resource use



**The tool**

**you can't manage  
what you can't measure**



## Targets need indicators (not the other way round)

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The concept of ecological **rucksacks/footprints** (=resource consumption)

traces back resource consumption, emissions, environmental impacts over the whole chain of production or **value chain**.



## Why is measuring important?

**Targets** can only be defined based on clear measurement systems and robust indicators.

Clear **communication** in an understandable way is key to reach target audiences.

Policy makers demand solid **information** to design appropriate **policy** responses.

(Self-) **Evaluation** and (cyclical) re-design of policies.

→ **scoping, visioning and learning!**

([www.matisse-project.net](http://www.matisse-project.net))



# Resource use categories



Abiotic materials (incl. fossil fuels)

A horizontal band showing a close-up of grey, jagged rocks or stones, representing abiotic materials and fossil fuels.

Biotic materials

A horizontal band showing a stack of cut logs, representing biotic materials.

Water

A horizontal band showing turbulent, white-capped blue water, representing water resources.

Land area

A horizontal band showing a wide, flat landscape of golden-brown fields under a clear sky, representing land area.

Greenhouse gas emissions

A horizontal band showing a blue sky with soft, white clouds, representing greenhouse gas emissions.





## Ecological rucksacks: some examples

<b>product or activity</b>	<b>biotic kg</b>	<b>abiotic kg</b>	<b>land m<sup>2</sup>a</b>	<b>water l</b>	<b>CO<sub>2</sub>e kg</b>
pork, 200g	0,8	0,4	1,3	13,1	1,2
coffee, 2 cups	0,0	0,3	8,6	361,6	0,6
LCD flat screen, 17 inches, at plant	4,4	1391,5	22,4	11,4	336,4
car	42,9	10533,7	151,3	138,2	4247,5
driving a car, 200km	0,1	34,1	1,4	0,3	36,5

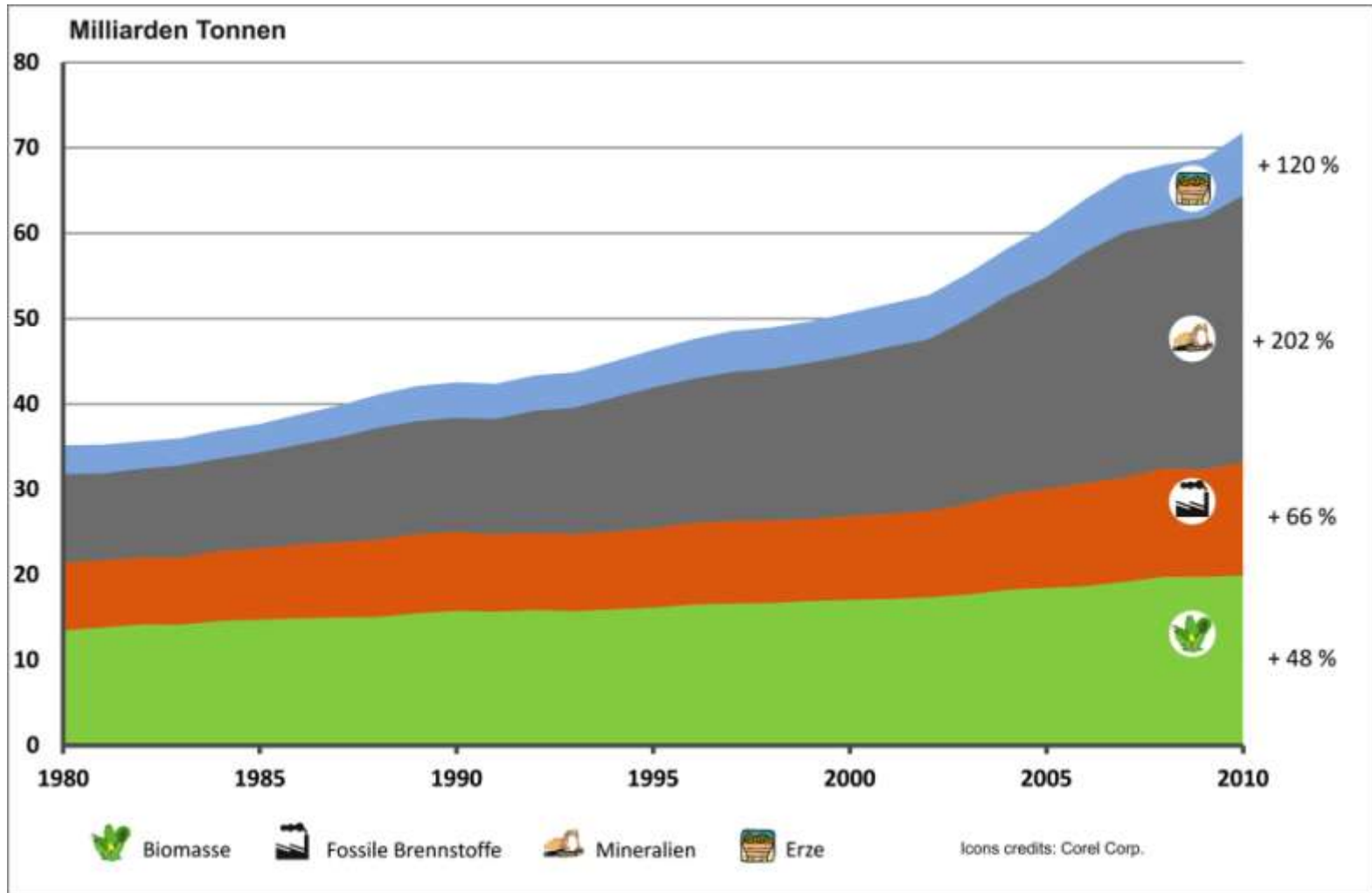


water footprint of 1 espresso :  
140 litres





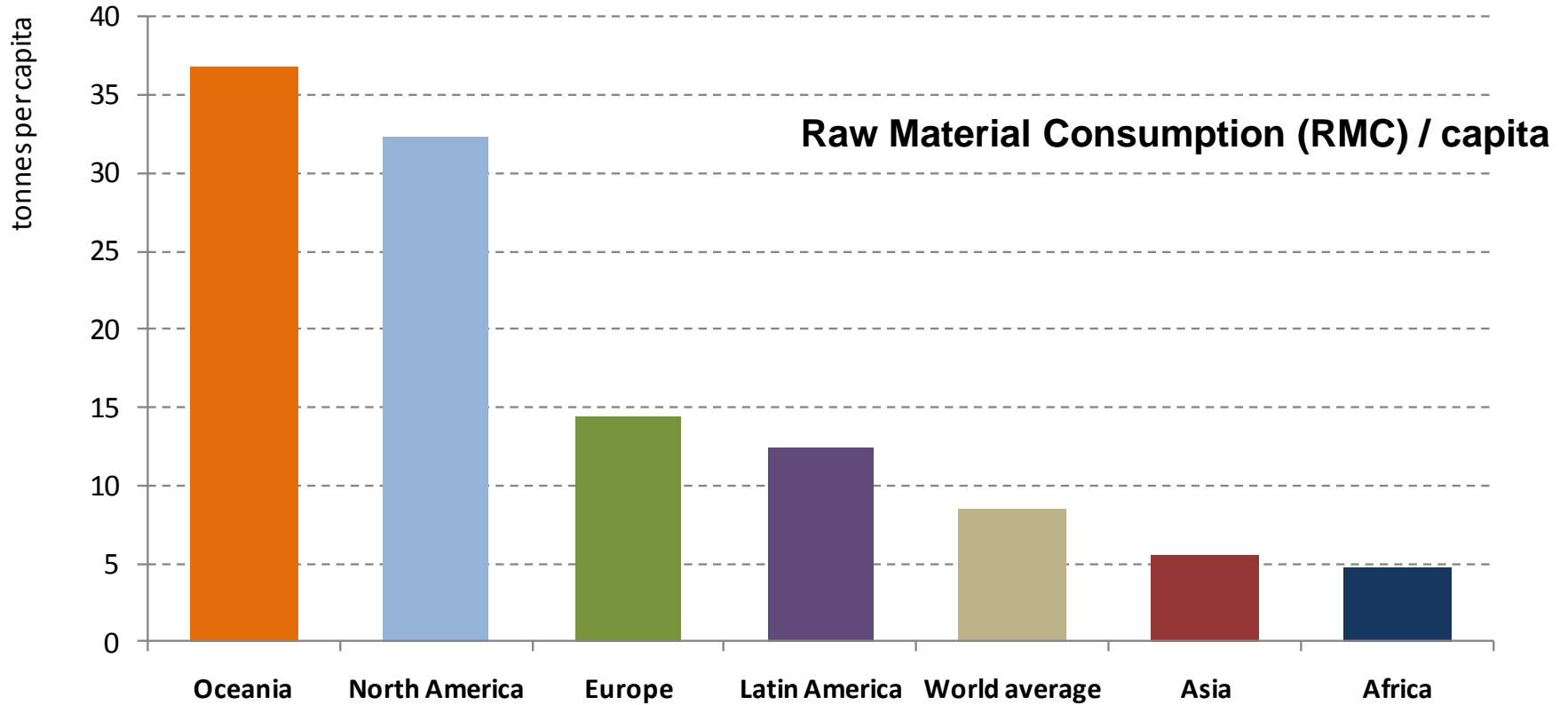
# GDP grows with resource use



Source: SERI

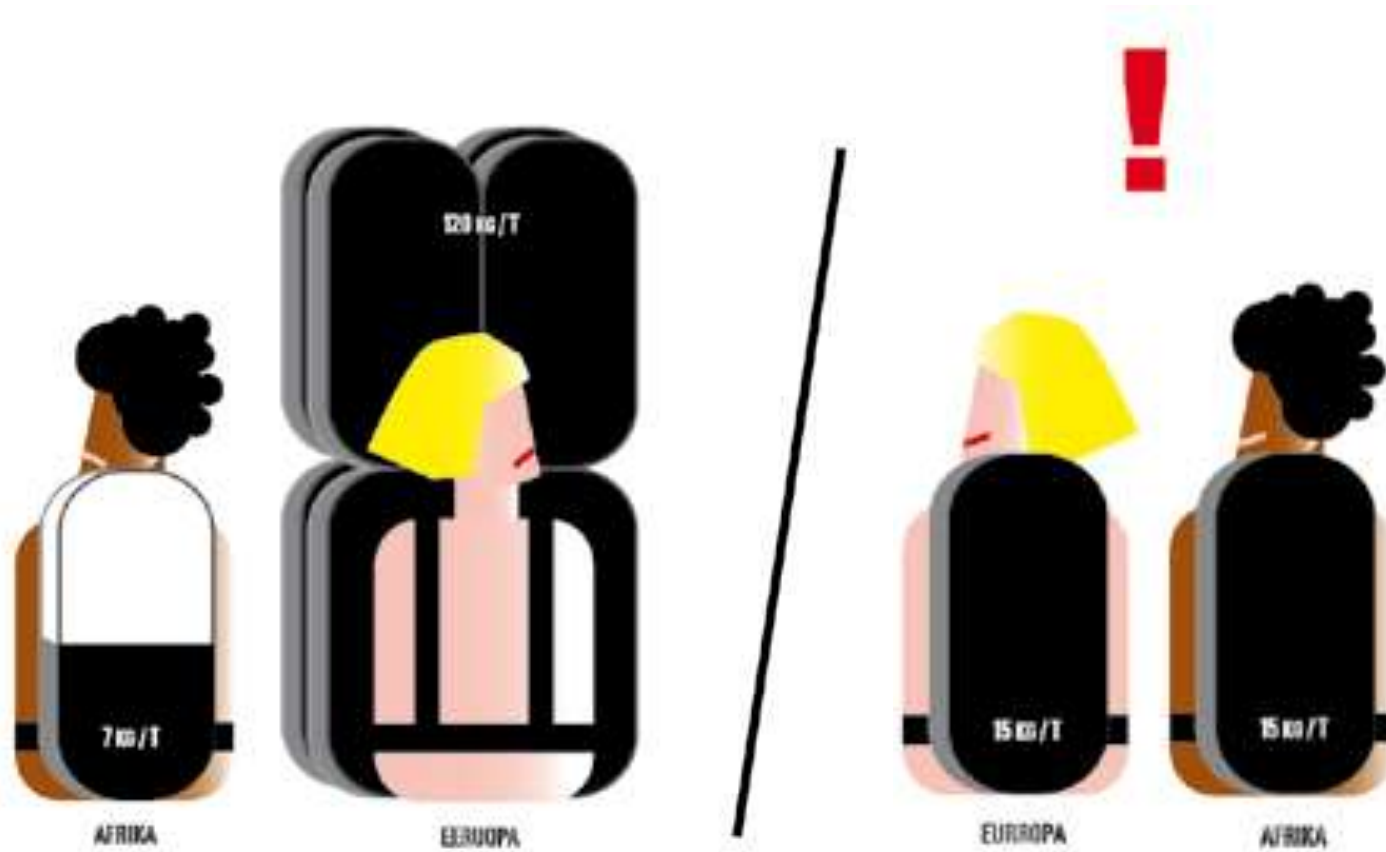


# Resource consumption per capita



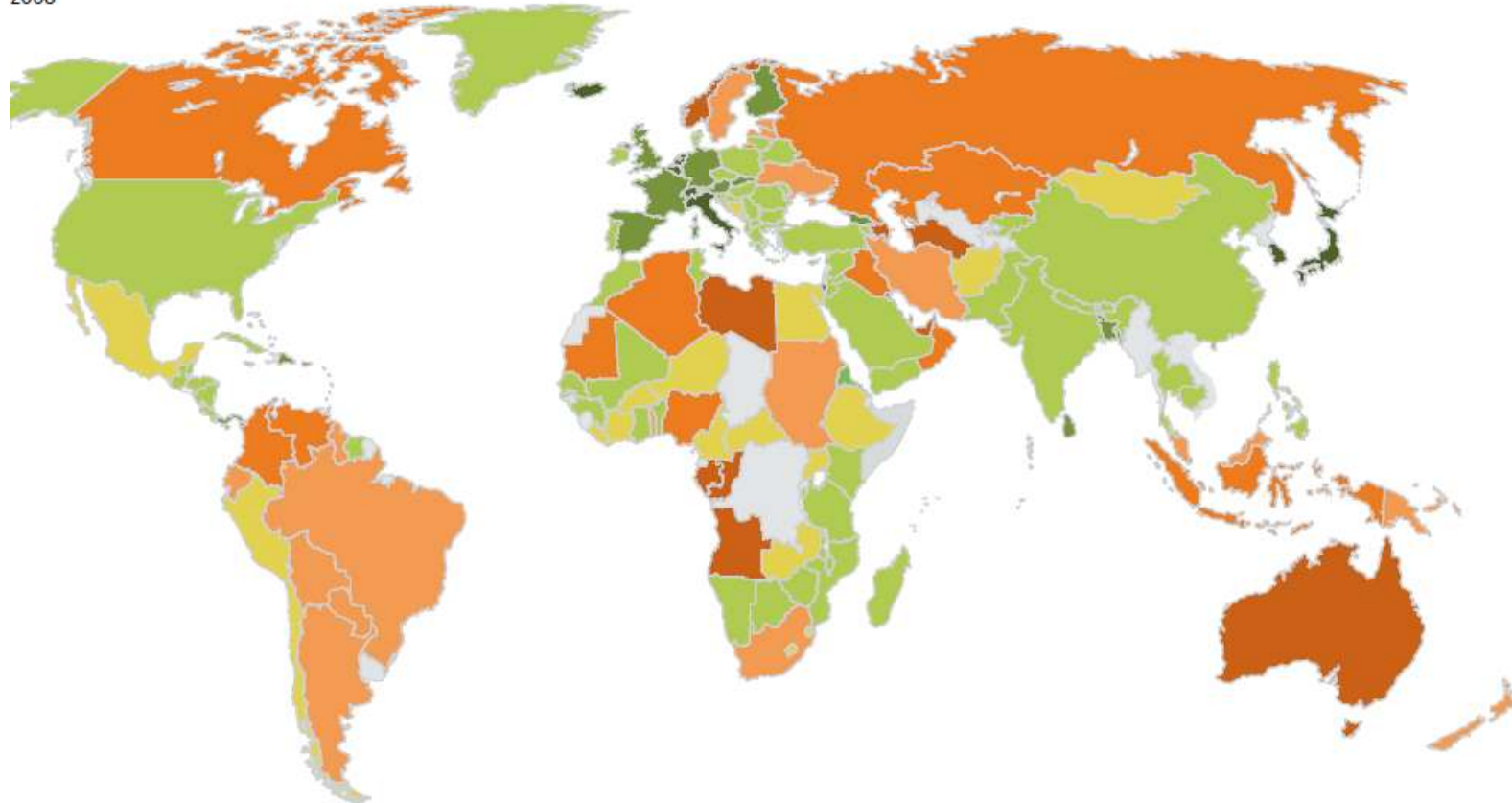


# Ecological rucksacks: a sense of justice



# Trade flows: exporting and importing countries

2008



Net-exporting countries:  
% of extraction which is net-exported

3-14%

15-29%

>30%

Net-importing countries:  
% of consumption which is net-imported

3-14%

15-29%

>30%

Balanced trade: +/- 2% of extraction/consumption is net-traded



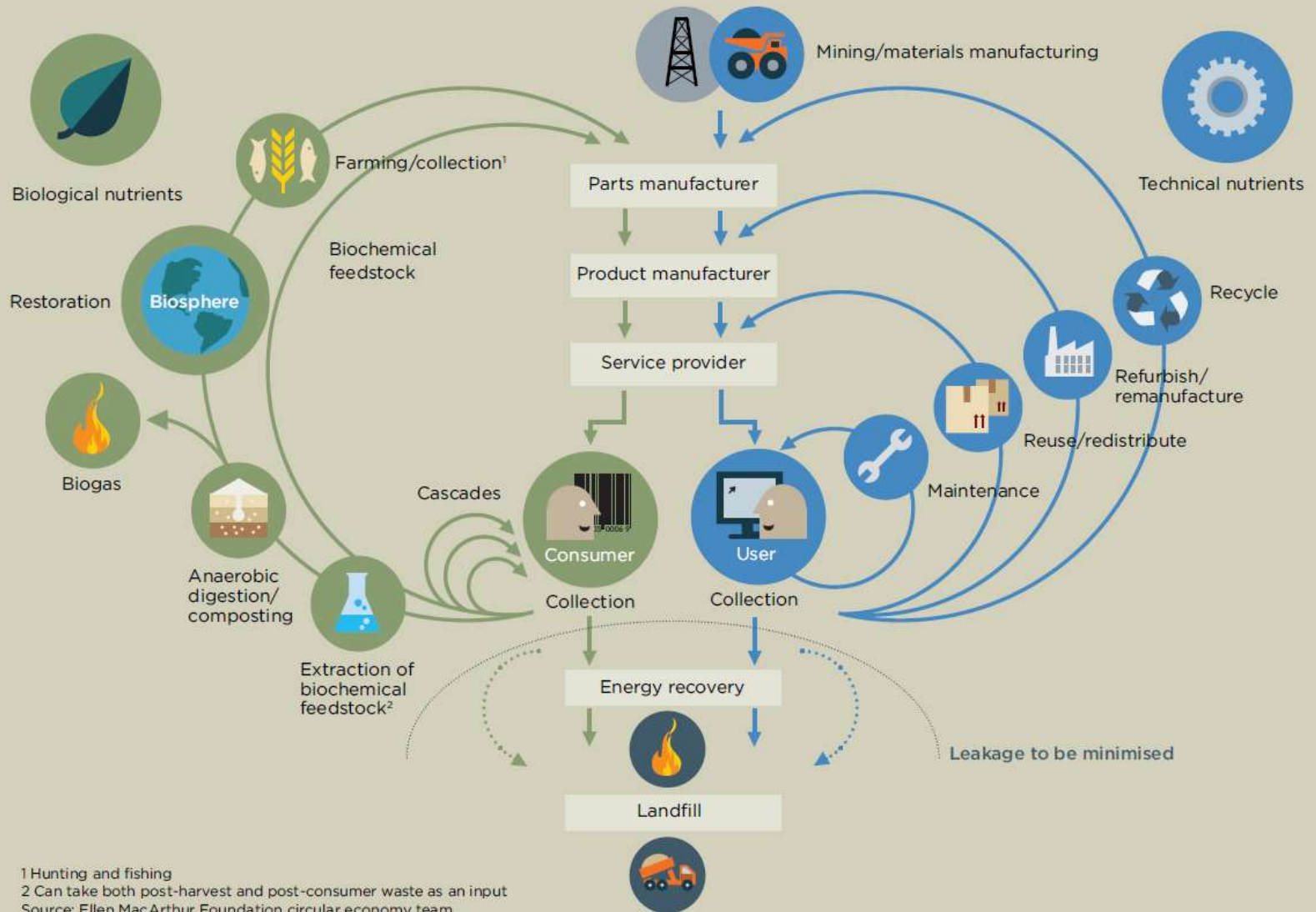
Data not available in acceptable quality





# The Circular Economy

FIGURE 6 The circular economy—an industrial system that is restorative by design





# Eco-efficiency



more quality of life...



... .. **less resource use!**





# The Circular Economy concrete: MIPS

**M**aterial **I**nput

(resources, water, land, carbon...)



**p**er unit of **S**ervice

(eg 1 person travels 1 km or lives on 1 m<sup>2</sup>)

**The goal: reducing resource use by a factor X  
(by 75, 80, 90%) !**



## Principles for sustainable products

- **materials:** light, small „rucksack“, separable, close to natural cycles
- **use:** durable, robust, long-time fashionable  
recyclible, degradable
- **design:** functional, timeless, adaptable, modular, originale (artisan)
- **technology:** re-newable, repairable, upgradable (in technical, organisational and economic terms)
- **regional** cycles for materials, products and services
- **markets:** for products and services, first and second (third, fourth...) hand



# INPUTS and OUTPUTS over the whole value chain

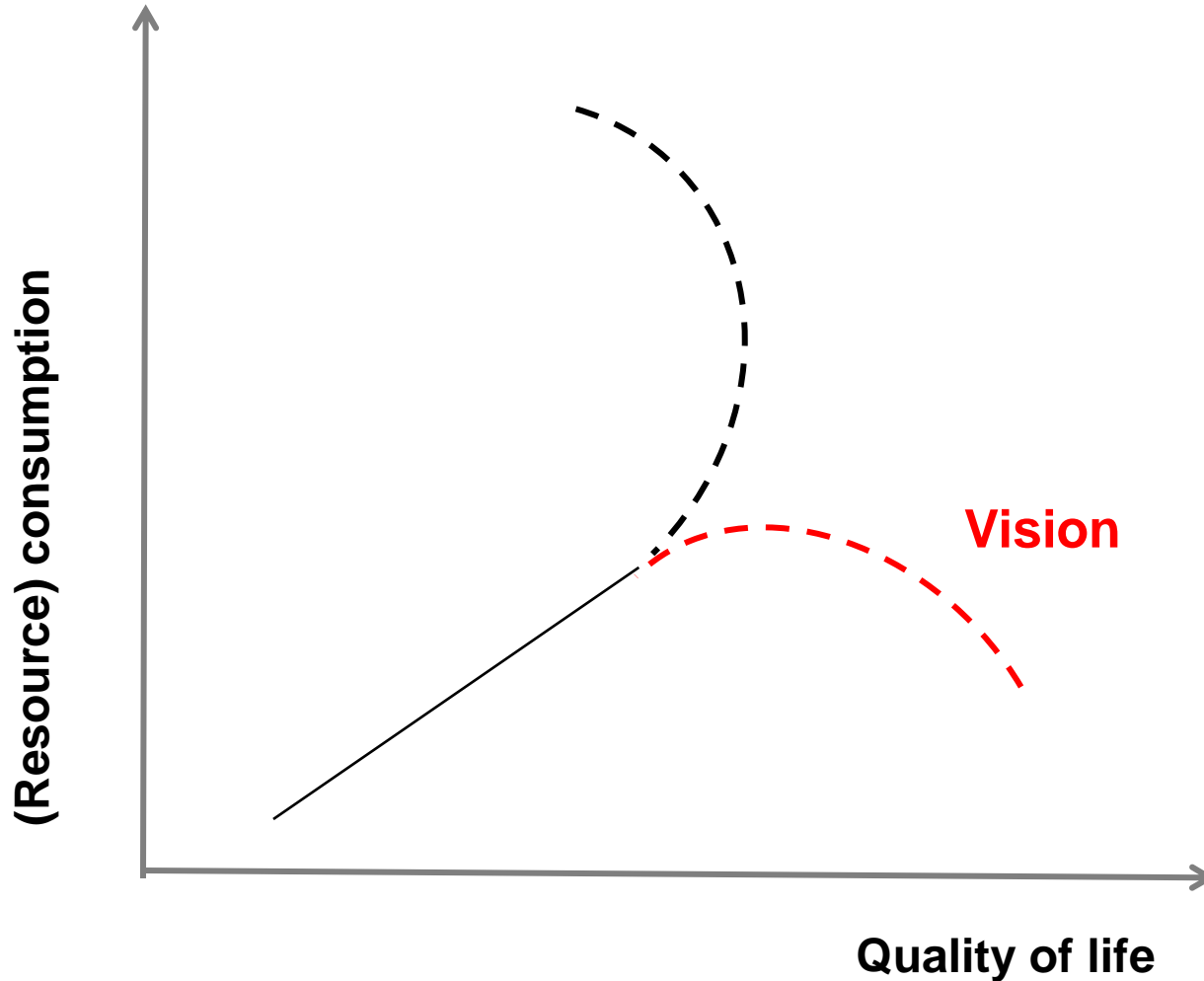
**INPUT: material, water, land**



**OUTPUT: emissions, waste, dangerous substance, etc.**



# Future of (resource) consumption and quality of life: de-linking is necessary



Thank you very much / millegrazie!  
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