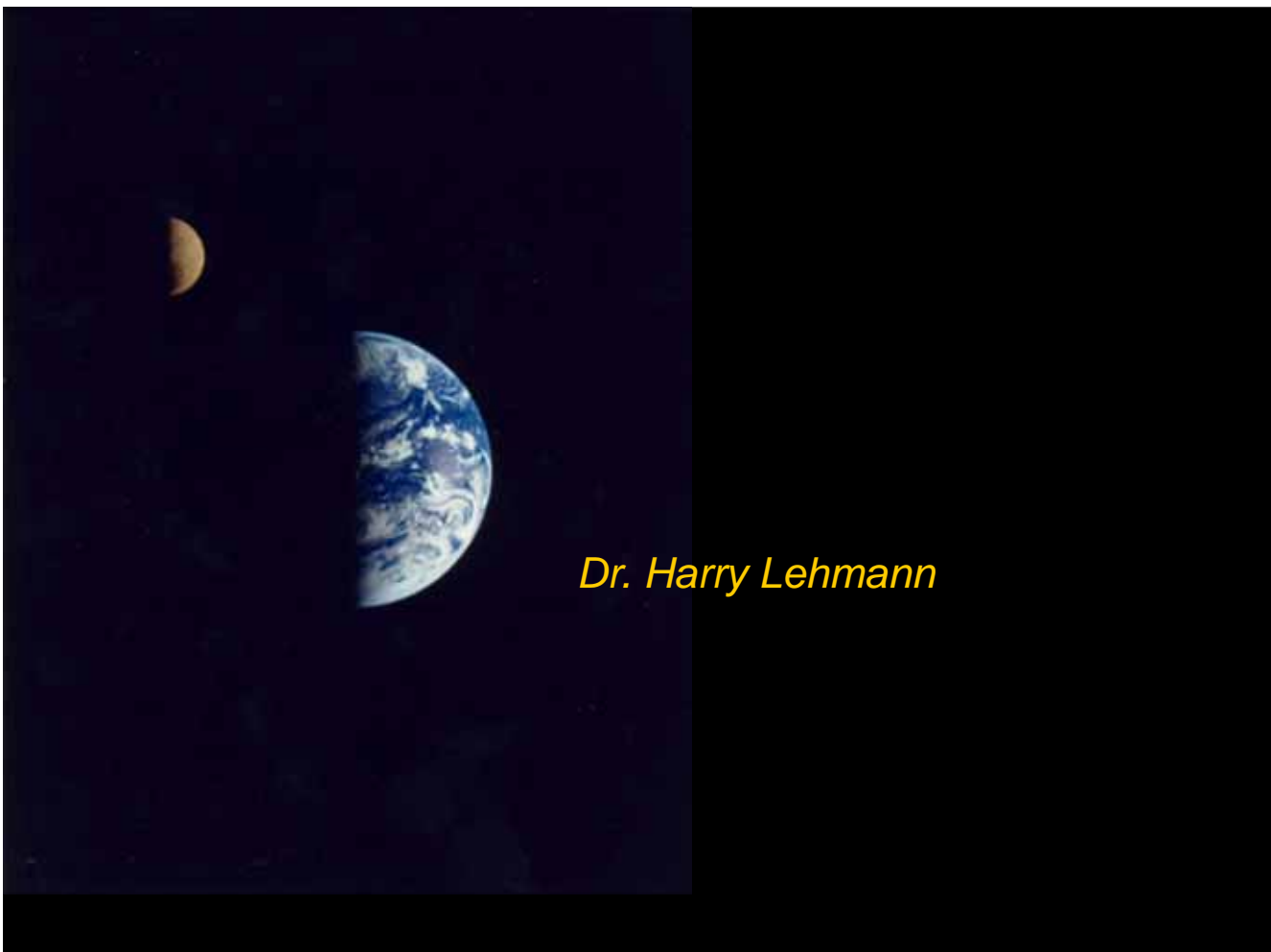


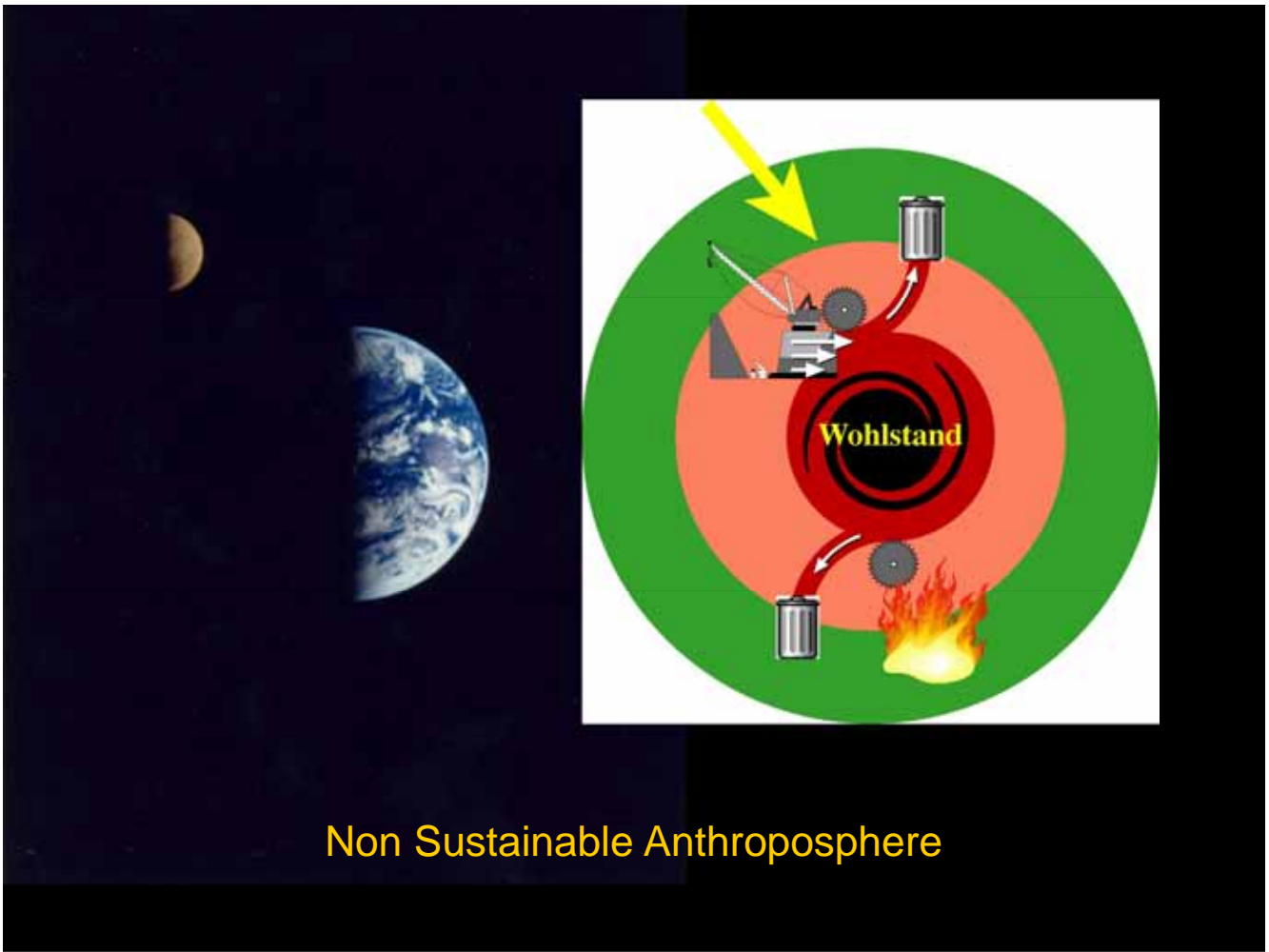


Resource Efficient Europe

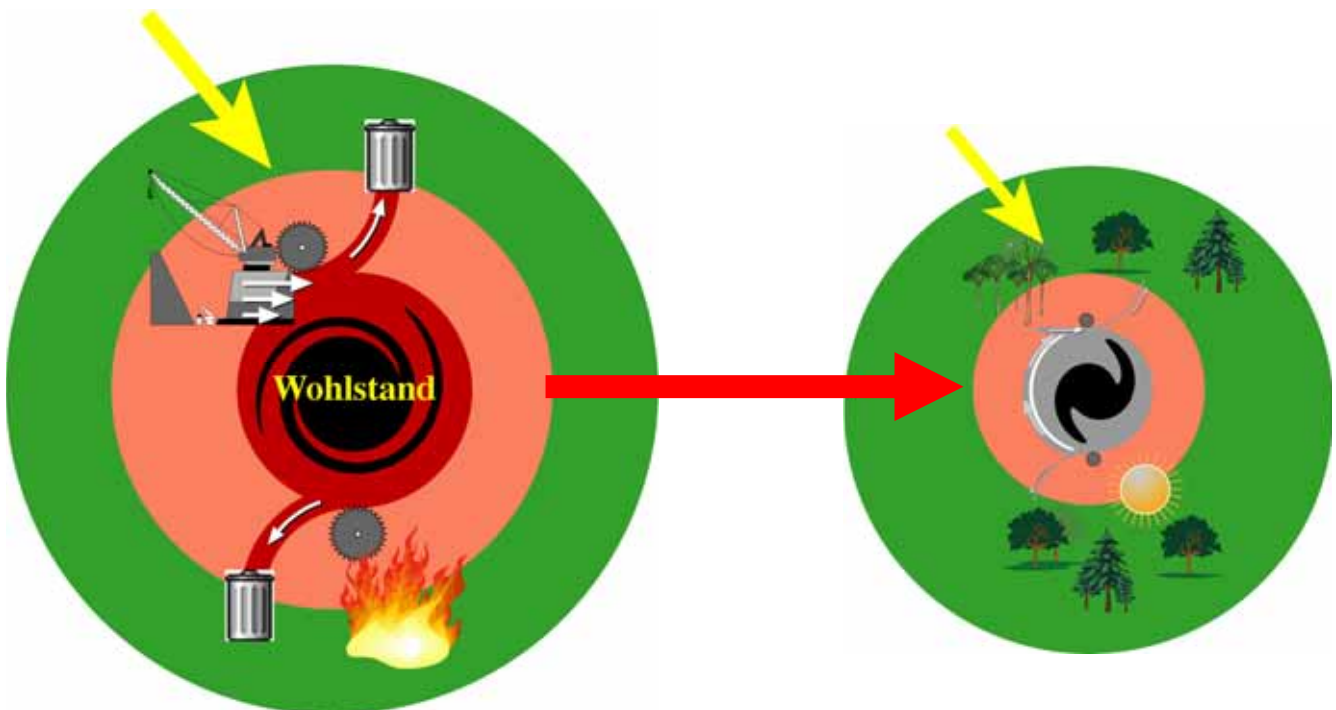
Harry Lehmann

SUSTAINABLE INNOVATION 2012 Resource Efficiency, Innovation and Lifestyles
Part of the 'Towards Sustainable Product Design' series of conferences
17th International Conference, 29th-30th October 2012, Alanus University, Bonn, Germany

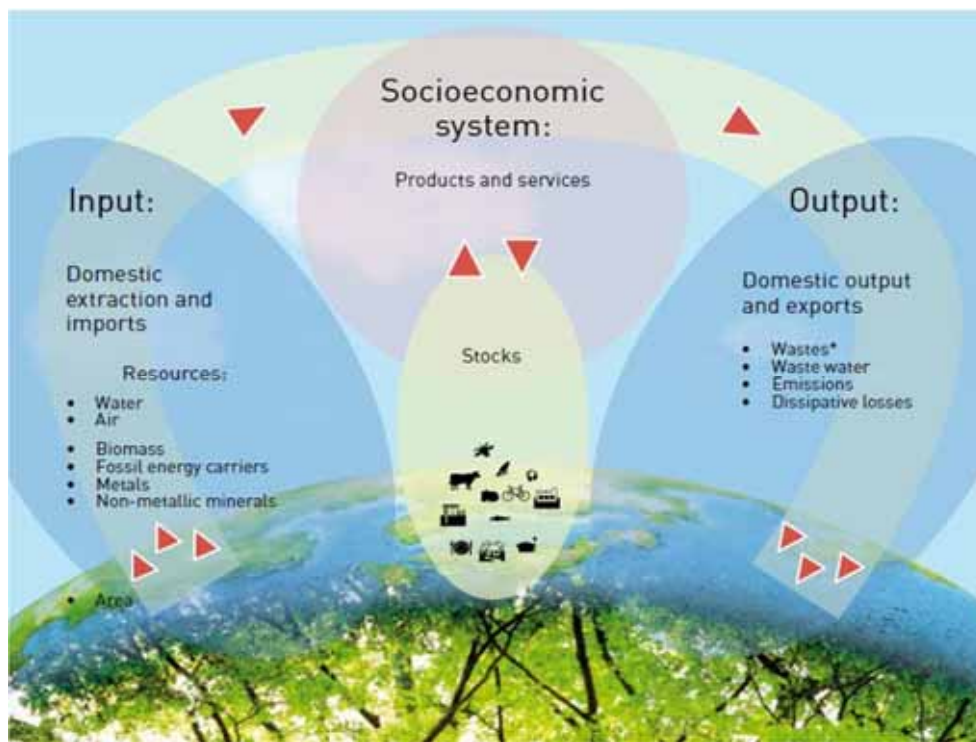




„Great Transformation“

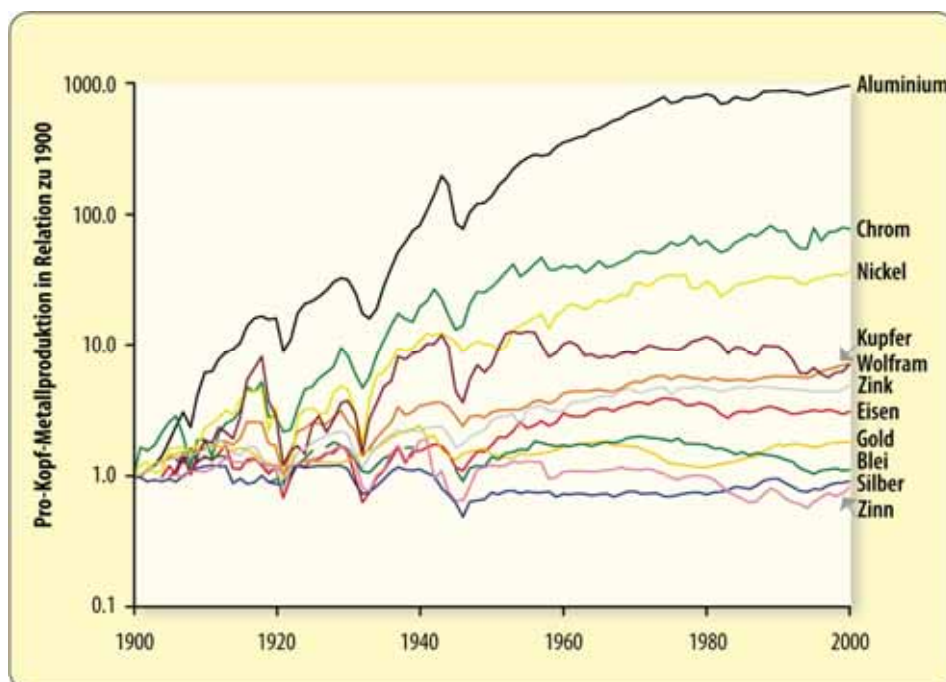


Socioeconomic system and metabolism



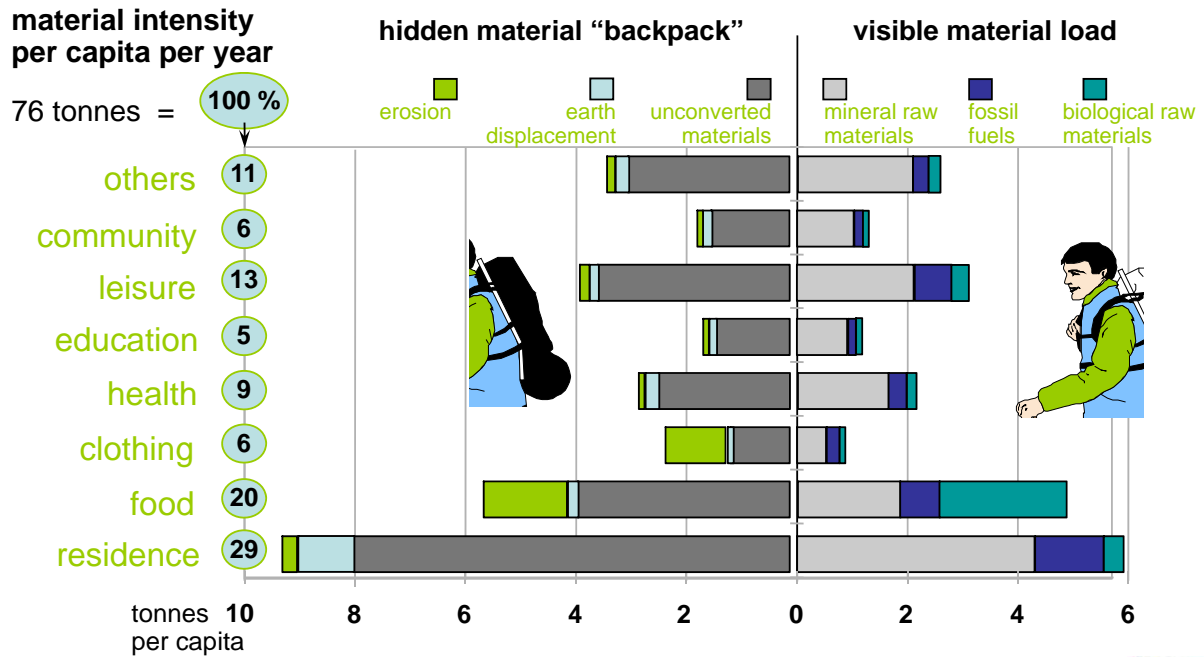
Source: Lebensministerium Austria, 2011

Per capita consumption of metals in the 20th century



Source: Hennicke / Kristof / Dorner 2009

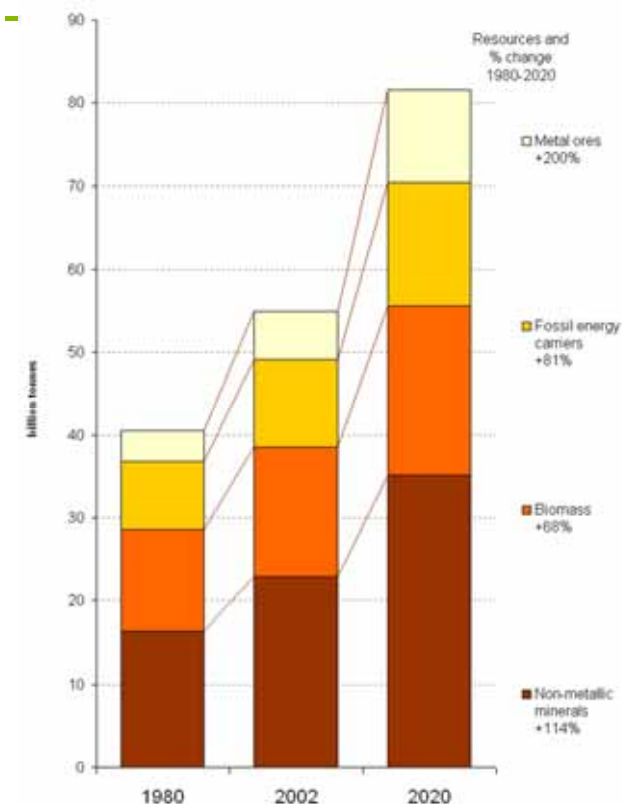
The Ecological Rucksack ("backpack")



Source: Matthews et al. 2000; Bringezu / Schütz 2001



Global resource extraction and use



Resources consumption

- Today's per-capita consumption 22 kilograms per day on global average (DMC)
- Today's per-capita consumption 40 kilograms per day, if we include the unused extraction of materials, the „ecological rucksack“ (TMC)

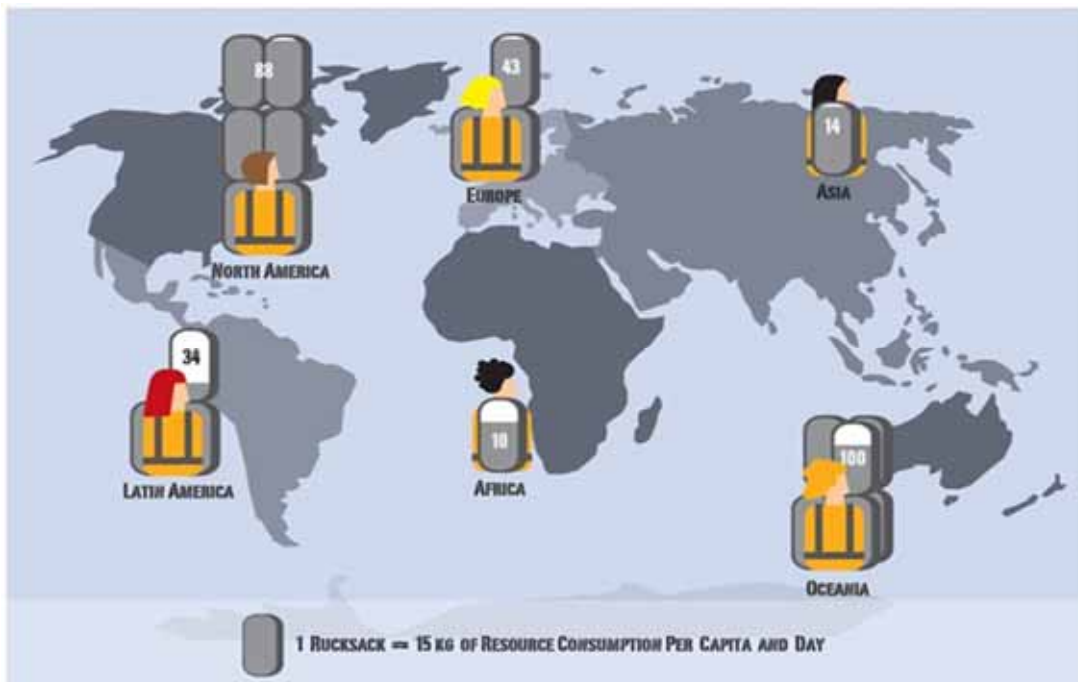
Drivers of increasing resource use

- Growing per-capita consumption especially in emerging economies
- Population growth
- Technological progress

(SERI 2008, OECD 2009)

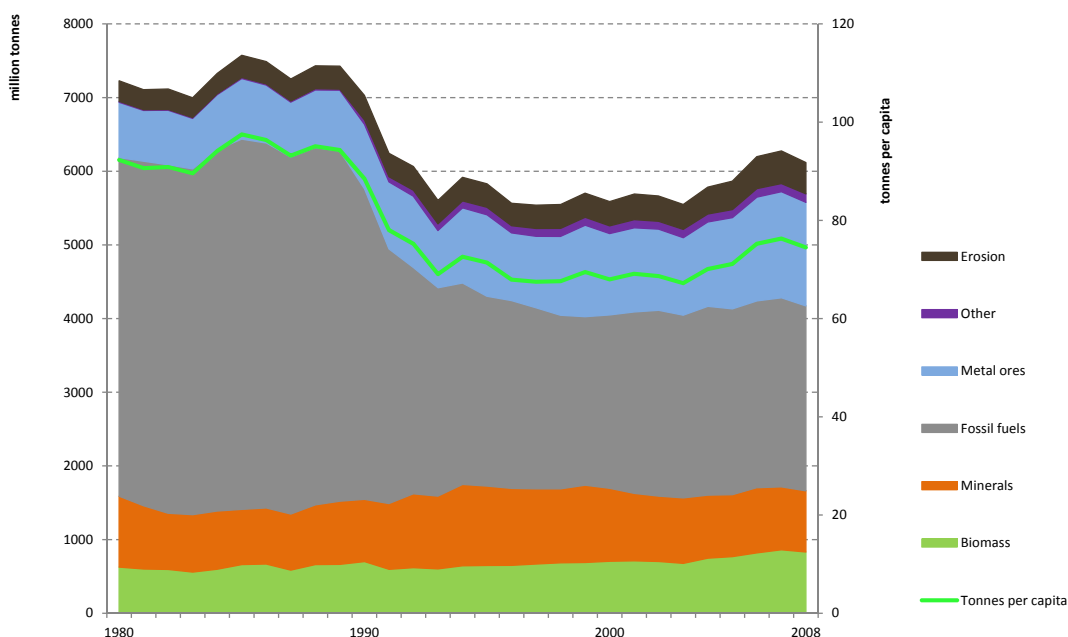


Global raw material consumption per capita



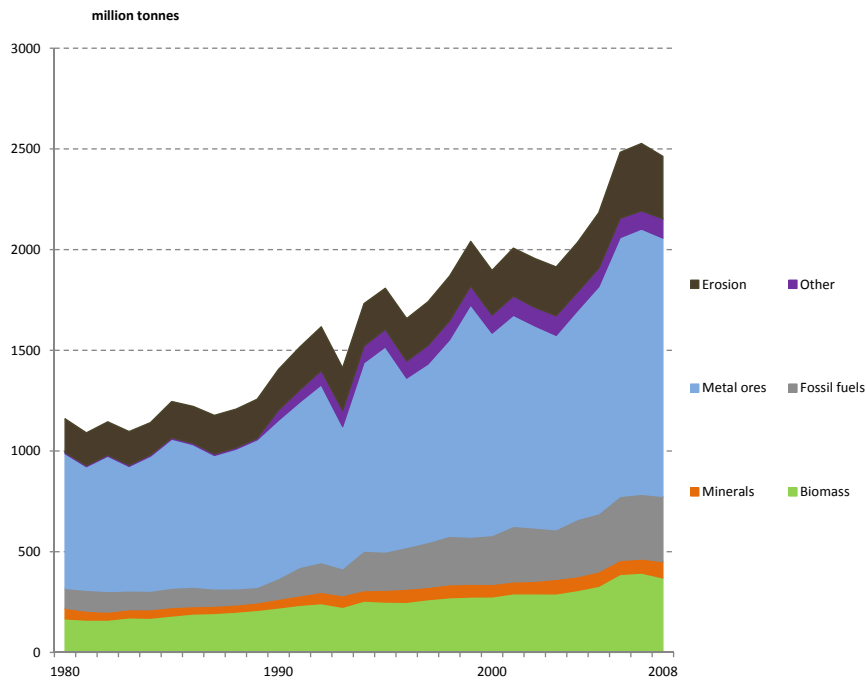
Source: SERI 2009

Germany: Total material requirement (TMR) absolute and per capita, 1980-2008



Source: Sustainable Europe Research Institute (SERI) 2012

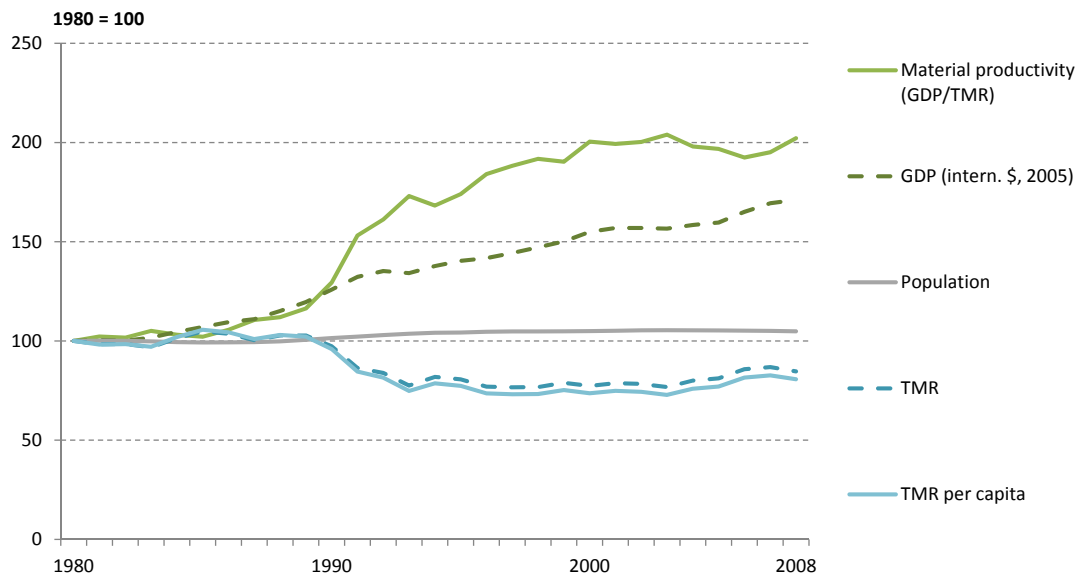
Germany: Indirect imports, 1980-2008



Source: Sustainable Europe Research Institute (SERI) 2012



Germany: Change of TMR, GDP, population and material productivity (GDP per TMR), 1980-2008



Source: Sustainable Europe Research Institute (SERI) 2012



EU Roadmap „Resource efficient Europe“

The vision behind the roadmap

By 2050 the EU has grown in a way that respects resource constraints and within planetary boundaries, thus contributing to global economic transformation. Our economy is competitive, inclusive and provides a high standard of living with much lower environmental impacts. All resources are sustainably managed, from raw materials to energy, water, air, land and soil. Climate change milestones have been reached, while biodiversity and the ecosystem services it underpins have been protected, valued and substantially restored.

For the EU, resource efficiency is the route to this vision. It allows the economy to create more with less, delivering greater value with less input, using resources in a sustainable way and minimising their impacts on the environment.



EU Roadmap „Resource efficient Europe“

Key areas

Transforming the economy

- Sustainable Consumption and Production
- Turning waste into a resource
- Supporting research and innovation
- Environmentally harmful subsidies and getting the prices right

Natural capital and ecosystem services

- Ecosystem Services
- Biodiversity
- Mineral and Metals
- Water
- Safeguarding clear air
- Land and Soils
- Marine Resources

Key sectors

- Addressing food
- Improving buildings
- Ensuring efficient mobility



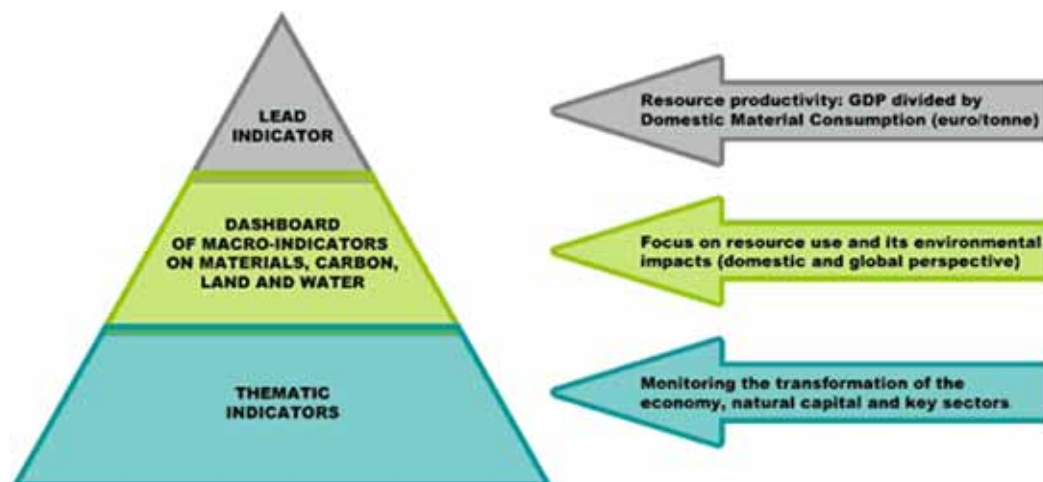
EU Roadmap „Resource efficient Europe“

incentives for production and consumption decisions

1. Addressing markets and prices, taxes and subsidies that do not reflect the real costs of resource use and lock the economy into an unsustainable path;
 2. Encouraging more long-term innovative thinking in business, finance and politics that leads to the uptake of new sustainable practices and stimulates breakthroughs in innovation, and develops forward thinking, cost effective regulation;
 3. Carrying out the research to fill the gaps in our knowledge and skills and provide the right information and training;
 4. Dealing with international competitiveness concerns, and seeking to get a consensus with international partners to move in a similar direction.
- Online Resource Efficiency Platform (OREP)
 - High Level European Resource Efficiency Platform
 - Consultation process on targets and indicators

EU Roadmap „consultation process on indicators“

Indicator scheme as proposed by the EC consultation paper



EEA Report: Resource efficiency in Europe

Policies and approaches in 31 EEA member and cooperating countries

- reviews national approaches to resource efficiency and explores similarities and differences in policies, strategies, indicators and targets, policy drivers and institutional setup and information gaps
- considerations for future policies on resource efficiency which could be considered in developing future resource efficiency policies at the EU and country levels
- illustrated with short examples of policy initiatives in the countries, described in more detail in country profile documents available at <http://www.eea.europa.eu/themes/economy/resource-efficiency/resource-efficiency>

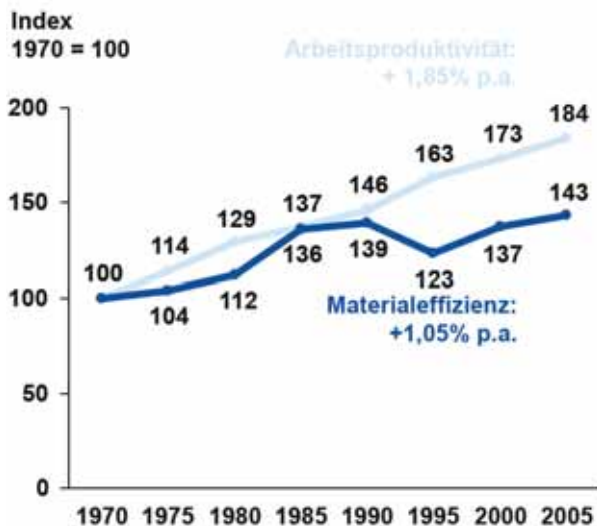


<http://www.eea.europa.eu/publications/resource-efficiency-in-europe>



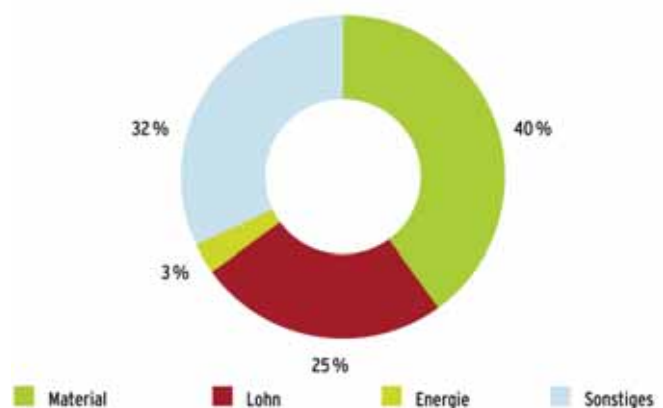
Increasing resource productivity

Historical development of material and labor productivity in Germany



(destatis, Wuppertal Institute, Roland Berger)

Factor cost in manufacturing industries



Quelle: BMU u.a. (2006)

(BMU et al. 2006)



German Resource Efficiency Programme (ProgRes)

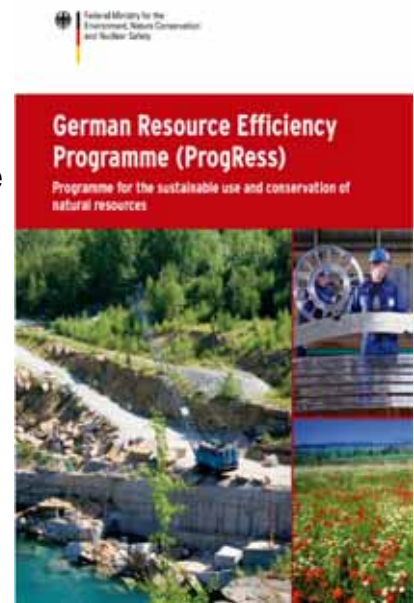
29.02.2012

➤ Goals:

- **Decouple** economic growth from resource use
- **Reduce** environmental impacts of resource use
- **Improve** the sustainability and competitiveness of the German industry

➤ Impacts along the whole value chain

- raw materials supply
- production and product design
- consumption
- closed cycle management



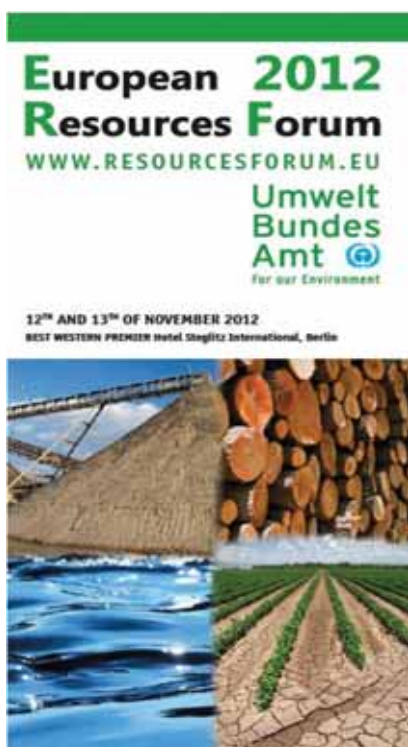
ProgRes - Structure

Guiding Principles	1 For Environment & Economy	2 Global Responsibility	3 Innovation: Low Resource Economy	4 Transition: Qualitative Growth
Fields of Action / Approaches				
Sustainable Raw Materials Supply	Resource Efficient Production	Resource Efficient Consumption	Closed Cycle Management	Overarching Instruments
Raw Materials Strategy	Efficiency Advice	Awareness Raising	Product Responsibility	Instruments for Market Penetration
Use of Renewable Materials as Feedstock	Production & Manufacturing Processes	Trade & Consumer Decisions	Optimizing Recycling	Optimizing Instruments
	EMAS	Certification Schemes	Prevention of Illegal Exports	Research
	Product Design	Public Procurement		Legal Framework
	Standardisation			Technology & Knowledge Transfer
				EU / International
Examples/Material Flows		<ul style="list-style-type: none"> • Mass Metals • Rare Strategic Metals • Construction & Living • Photovoltaics, Electric mobility • Green IT 		<ul style="list-style-type: none"> • Phosphorus • Indium • Gold • Plastics waste
Annex: Stakeholders		Departments, Länder, Associations, Institutions		



European Resources Forum 12.-13.11.2012

www.resourcesforum.eu



UBA Short film "Beyond Climate Change – Flow"



www.resourcesforum.eu/video



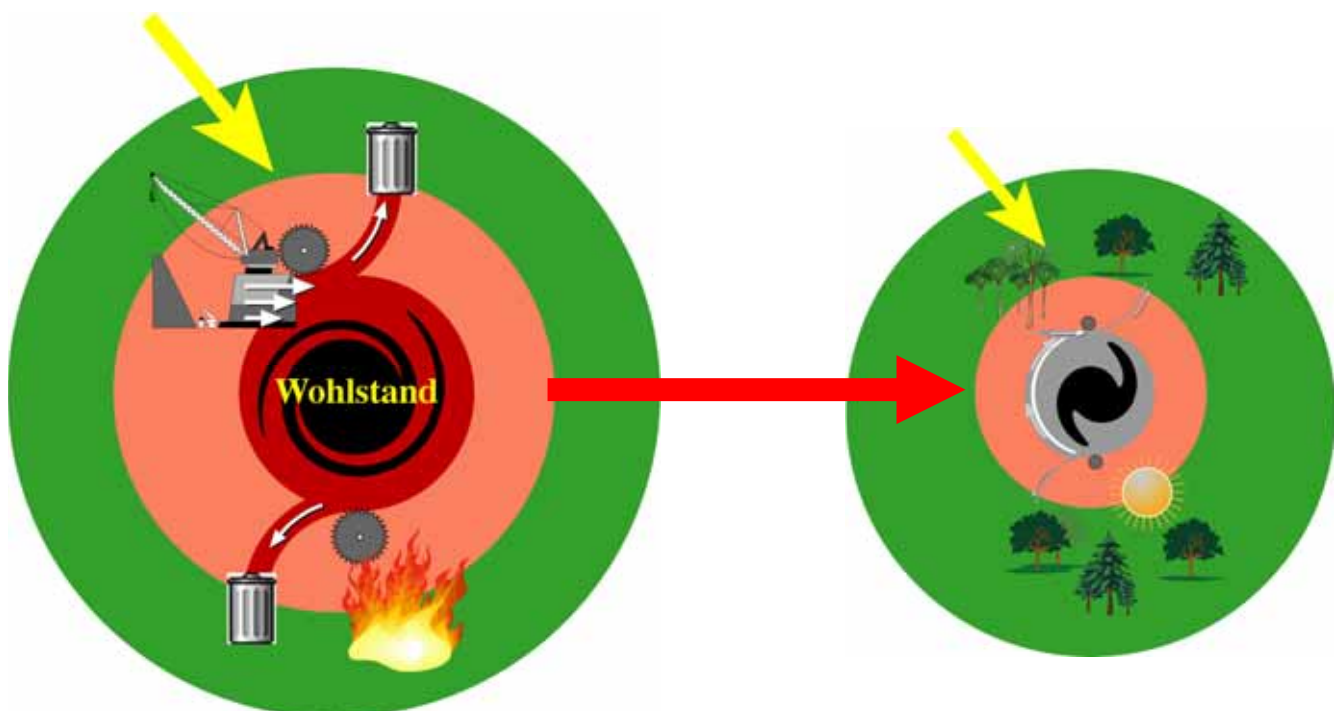
Summary: elements of a global resource strategy

- **Absolute decoupling** of resource use from economic development (“Factor X”)
- Introduction of **effective policy measures** to greatly enhance resource productivity as well as curbing demand over time
- Seeking societal **consensus on ecological and economic indicators**
- Seeking **dialog with business** community to help redesign business models where revenues would be increasingly derived from quality of services rather than by selling material products
- Initiating process to **rethink lifestyles** and help develop consumption patterns based on sufficiency and careful use of natural resources

Source: Declaration World Resources Forum 2009

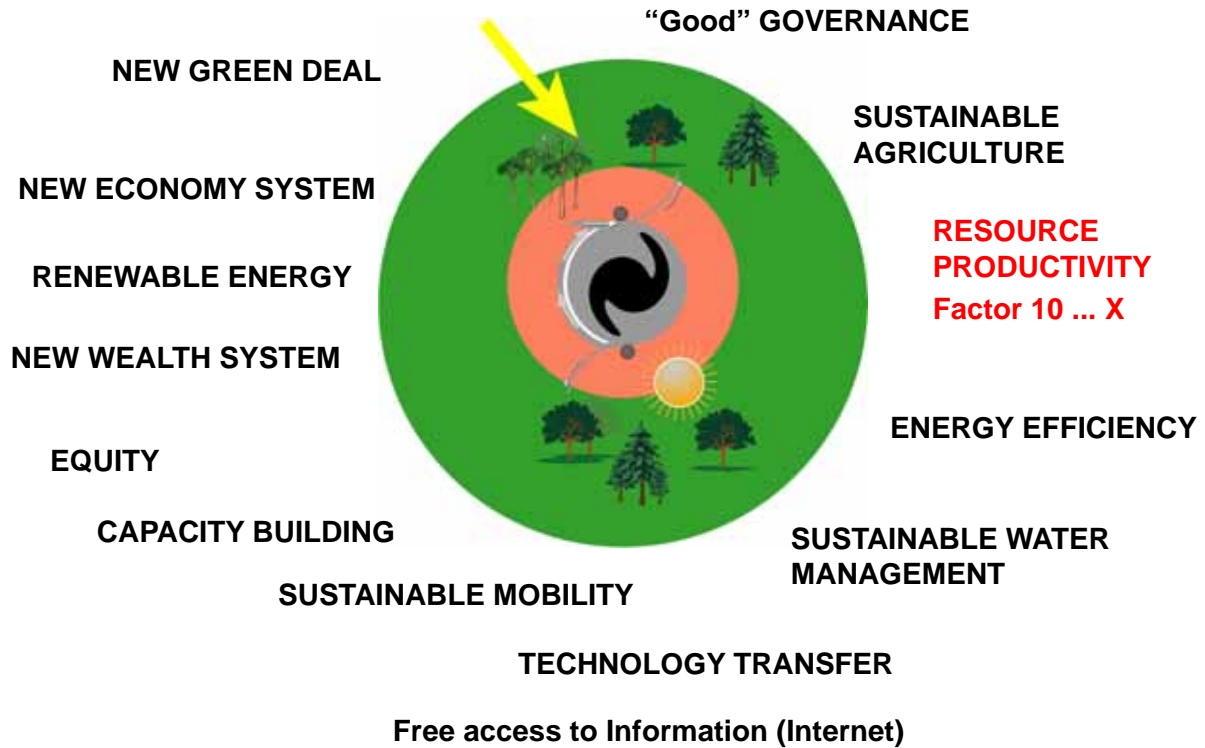


„Great Transformation“

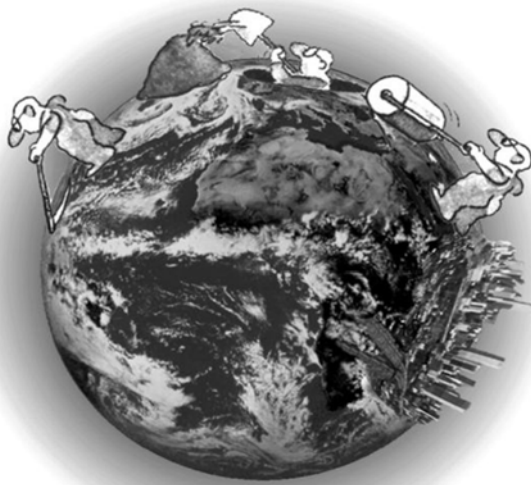


Source: Harry Lehmann, 2004

Elements of sustainable Development



Thank you for your attention!



harry.lehmann@uba.de

www.umweltbundesamt.de/ressourcen