

The role of International Resource Panel in Resource Management and Biodiversity

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Co-chair UNEP International Resource Panel (IRP)
Partner SYSTEMIQ

Brussels, 24th June 2021

Who are we?

International Resource Panel - IRP
was launched in 2007 with the idea of creating a science-policy interface on the sustainable use of natural resources and in particular their environmental impacts over the full life cycle

Climate Change



Biodiversity Loss



Resource Efficiency



Panel Co-Chairs:
Janez Potočnik and Izabella Teixeira

SCIENTIFIC PANEL

Internationally
recognized experts on
sustainable resource
management;
Scientific assessments
and advice, networks

Science-Policy interface

Head of Secretariat: Merlyn van Voore

UNE SECRETARIAT

Direction, procedures, support in
development and
implementation of assessments,
outreach

Steering Committee Co-Chairs:
Astrid Schomaker and Mark Radka

STEERING COMMITTEE

Governments from
developing and
industrialized countries;
Strategic guidance,
political support, regional
synergies

Strategic Partners



World Business Council for
Sustainable Development



International
Science Council



WORLD
RESOURCES
INSTITUTE



ECLAC



International
Science Council



PACE
PLATFORM FOR ACCELERATING
THE CIRCULAR ECONOMY



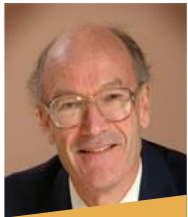
PBL Netherlands Environmental
Assessment Agency

Panel members

Panel Members serve a four-year term, renewable for up to two additional consecutive terms of four years each if circumstances so justify.



Riyanti Djalante
Indonesia
(since 2021)



Paul Ekins
United Kingdom
(since 2013)



Marina Fischer-Kowalski
Austria
(2007)



Stephen Fletcher
United Kingdom
(since 2016)



Maarten Hajer
Netherlands
(since 2010)



Seiji Hashimoto
Japan
(since 2015)



Steve Hatfields-Dodds
Australia
(since 2017)



Stefanie Hellweg
Germany/Switzerland
(since 2016)



Jeff Herrick
USA
(since 2012)



Edgar Hertwich
Austria/Norway
(since 2007)



**Co-Chair
Izabella Teixeira**
Brazil
(since 2017)



Ashok Khosla
India
(since 2007)



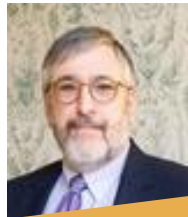
Dom Kniveton
United Kingdom
(since 2021)



Joanna Kulczycka
Poland
(since 2020)



S. Vijay Kumar
India
(since 2015)



Reid Lifset
USA
(since 2018)



Yonglong Lu
China
(since 2013)



Keisuke Nansai
Japan
(since 2018)



Nabil Z. Nasr
USA
(since 2014)



Bruno Oberle
Switzerland
(since 2015)



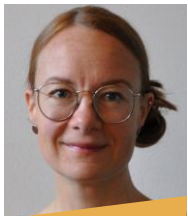
Michael Obersteiner
Austria
(since 2014)



**Co-Chair
Janez Potocnik**
Slovenia
(since 2014)



Antonio Pedro
Mozambique
(since 2015)



Eeva Primmer
Finland
(since 2018)



Anuradha Ramaswami
India/USA
(since 2014)



Heinz Schandl
Austria/Australia
(since 2013)



Mark Swilling
South Africa
(since 2007)



Ester van der Voet
Netherlands
(since 2011)



Helga Weisz
Germany
(since 2018)



Anders Wijkman
Sweden
(since 2014)

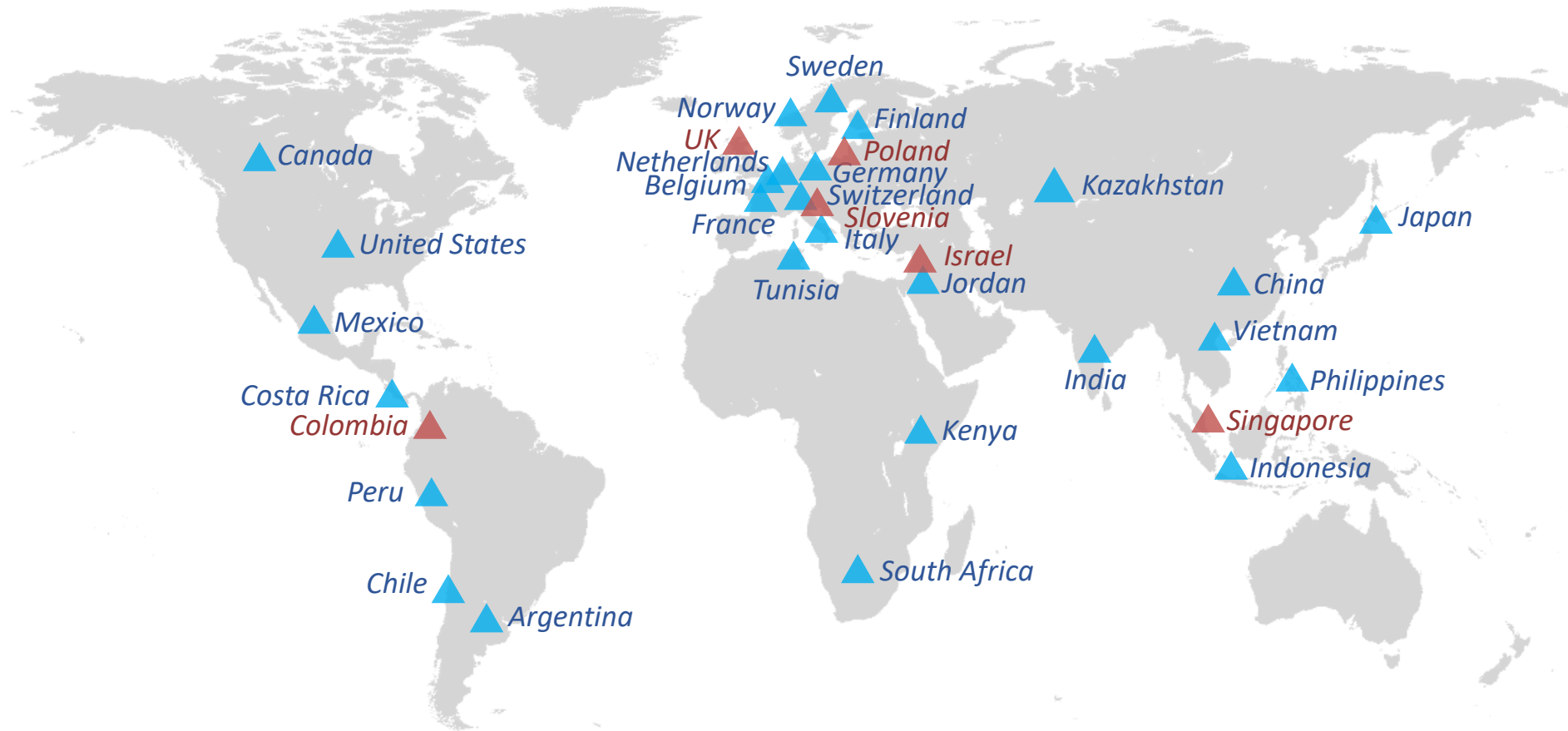


Erinç Yeldan
Turkey
(since 2015)



Bing Zhu
China
(since 2017)

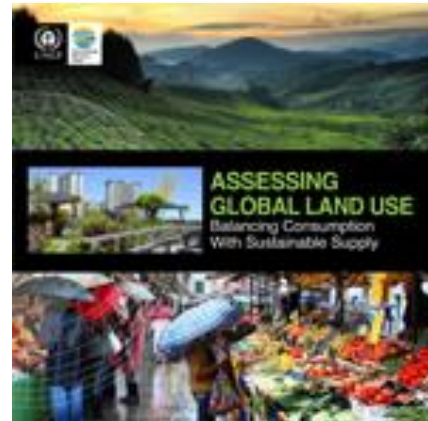
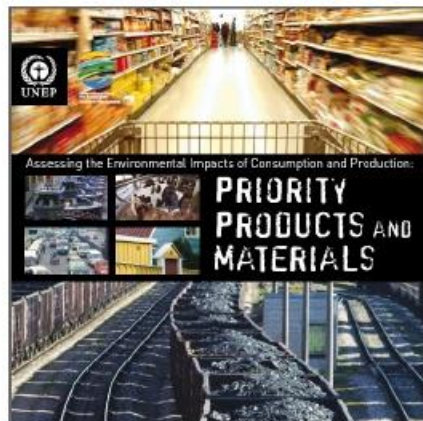
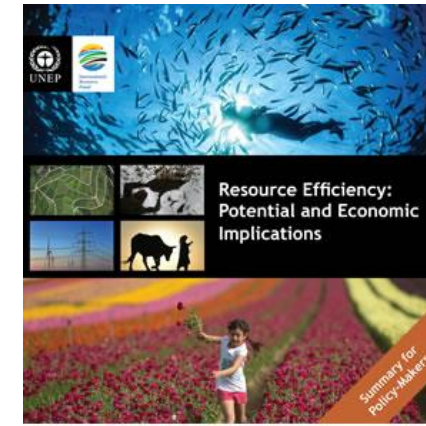
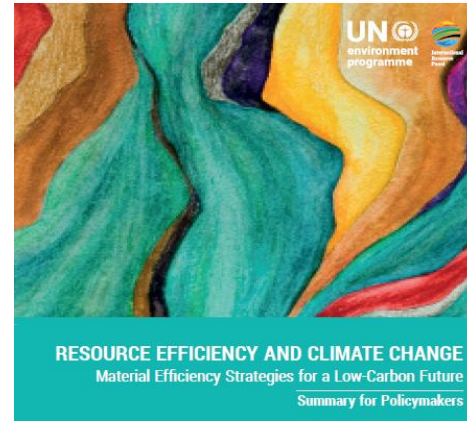
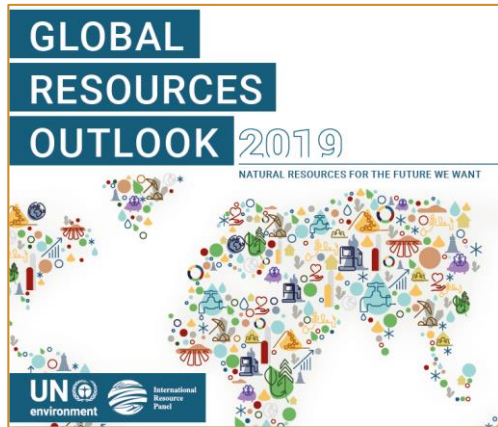
Steering Committee Members + *Observers*



(27 + 6) Governments + European Commission + UN Environment Programme

More than 30 published reports between 2011-2020

IRP
flagship
report

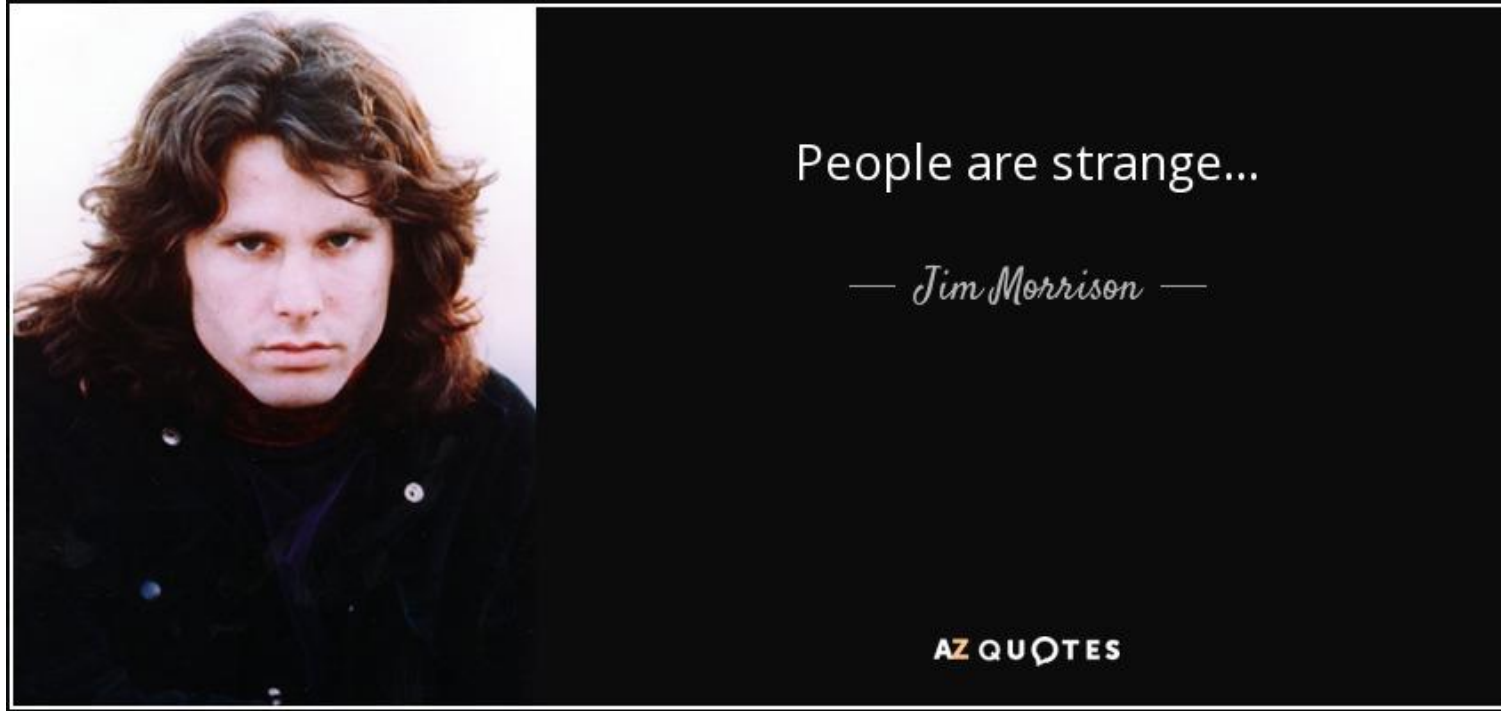


And many more at:

<http://www.resourcepanel.org/reports>

World

Quo Vadis Humanity



We want changes ...
but we do not want to change

Let's start the story in my home country Slovenia

Slavoj Žižek



“It is clear that we are approaching the ecological and digital apocalypse ... but we should not loose nerves.”

*“Everything under heaven is in **utter chaos**; the situation is excellent.”*

The taste of 21st Century

- **Population** growth (2050 – 9.7 billion)
- The world's **richest** 1% have more than twice as much wealth as 6.9 billion people and the 22 richest men have more wealth than all the 326 million women in Africa
- We **throw away** one third of the **food** we produce
- **More than 50% of urban fabric** expected to exist by 2050 still needs to be constructed. 2011-13 **China** has used more **cement** than **USA** in 20th century
- **Climate change** experts warned us that emissions need to be about halved by 2030 to limit warming to 1.5°C
- **Biodiversity**: Living Planet Index – 60% fall in just 40 years. Biomass of the mammals living in the nature has been reduced in recent decades for 82%
- A million of **plastic** bottles are bought every minute (9% of plastic recycled, 12% incinerated, 79% landfills).
- **Health**: COVID-19 forced world population and economy in a lock-down



How the 21st century has begun

Financial meltdown



New York, US

Climate breakdown



Sofala, Mozambique

COVID lockdown



Kuala Lumpur, Malaysia



Athens, Greece



Sydney, Australia



Bogotá, Colombia

The 20th century concept of progress



*Financial
dependency*

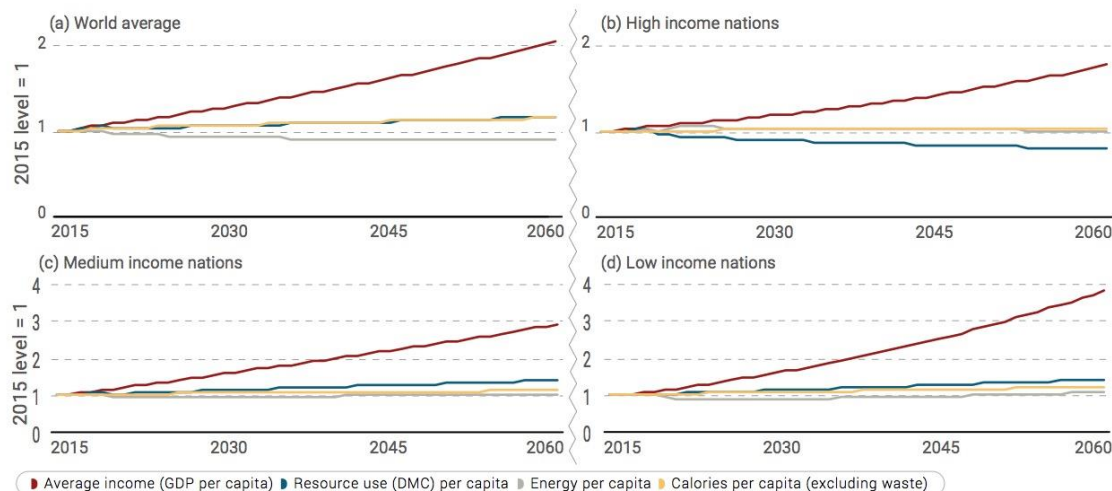


*Political
dependency*

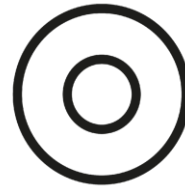


*Social
dependency*

FIGURE 4.20 Resource-based wellbeing indicators for country groups, 2015-2060

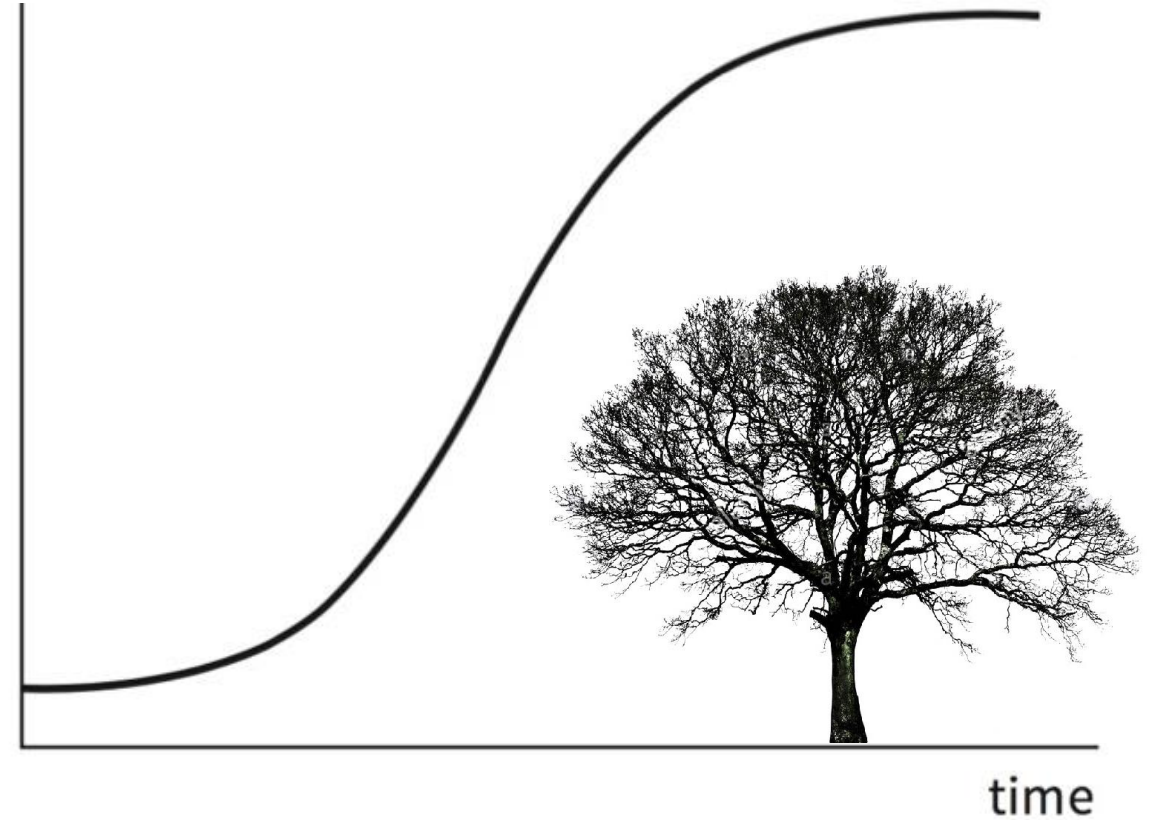
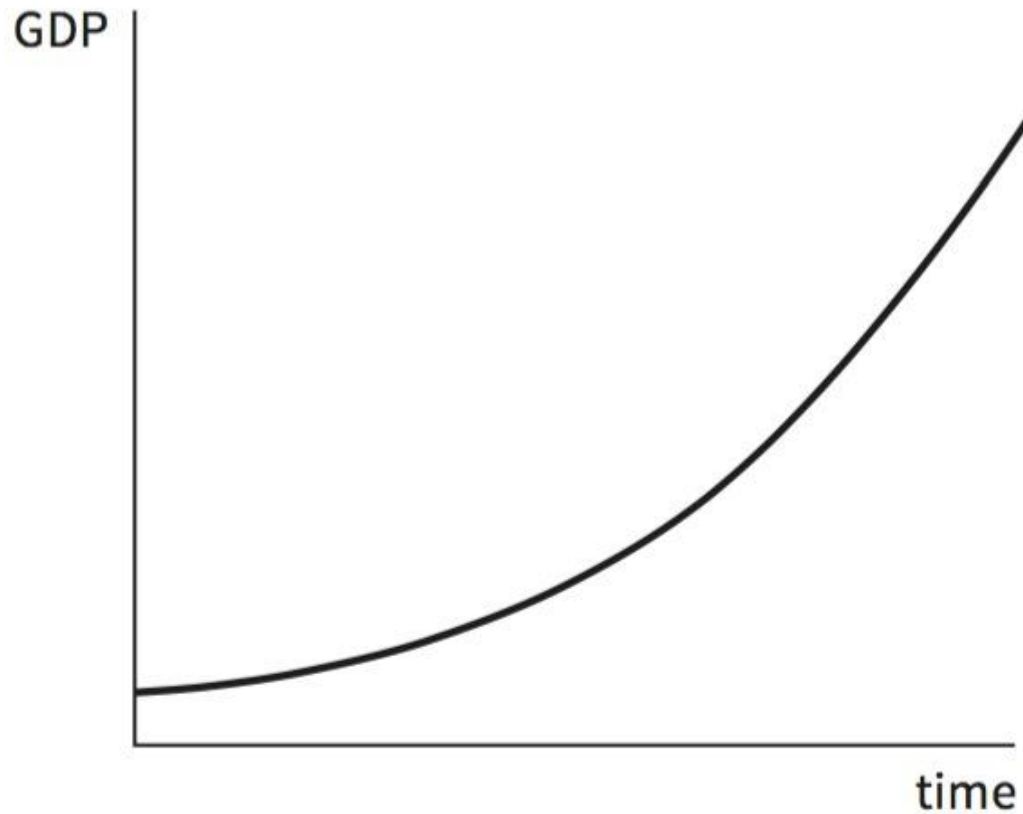


*The Economist's
Growth Curve*

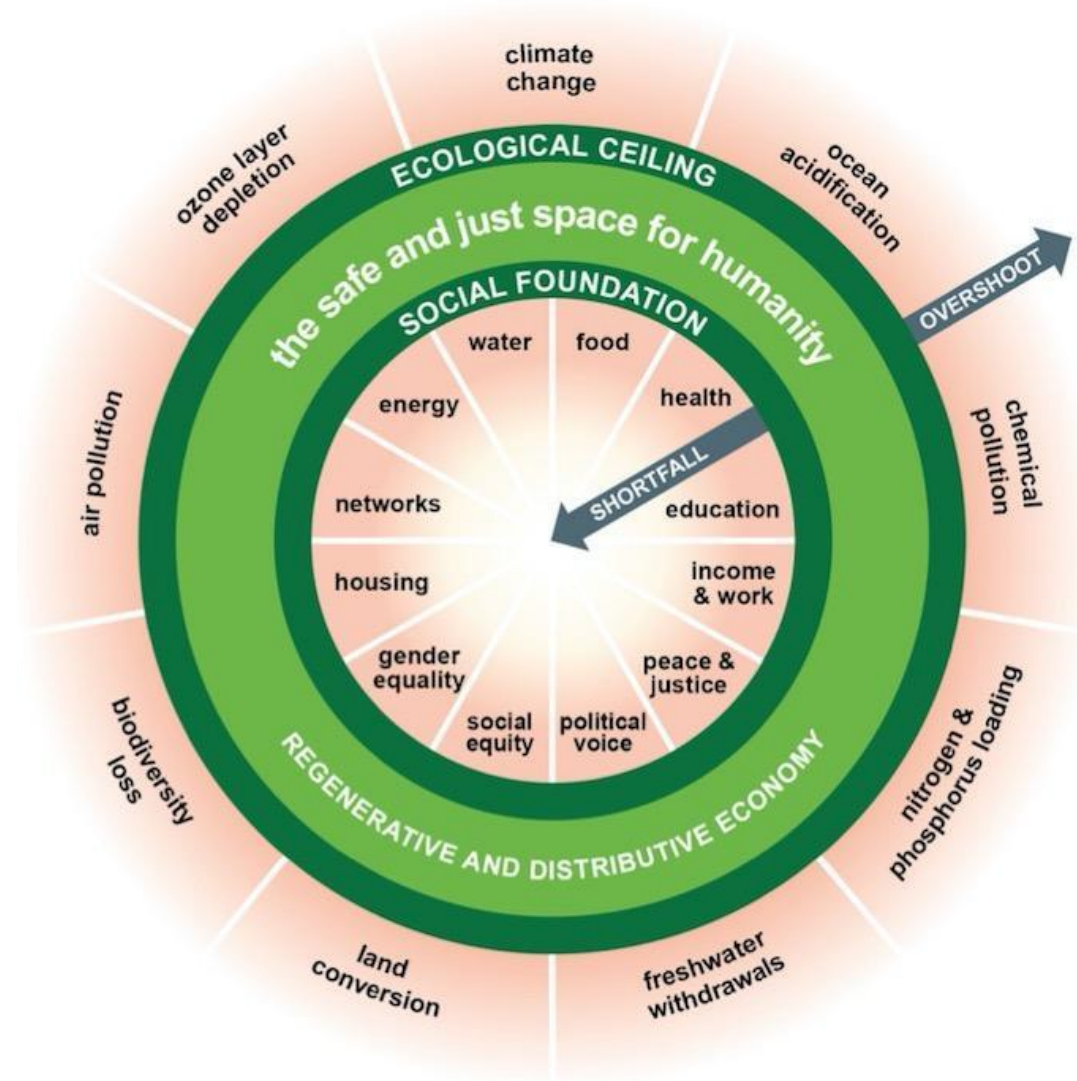


**DOUGHNUT
ECONOMICS
ACTION
LAB**

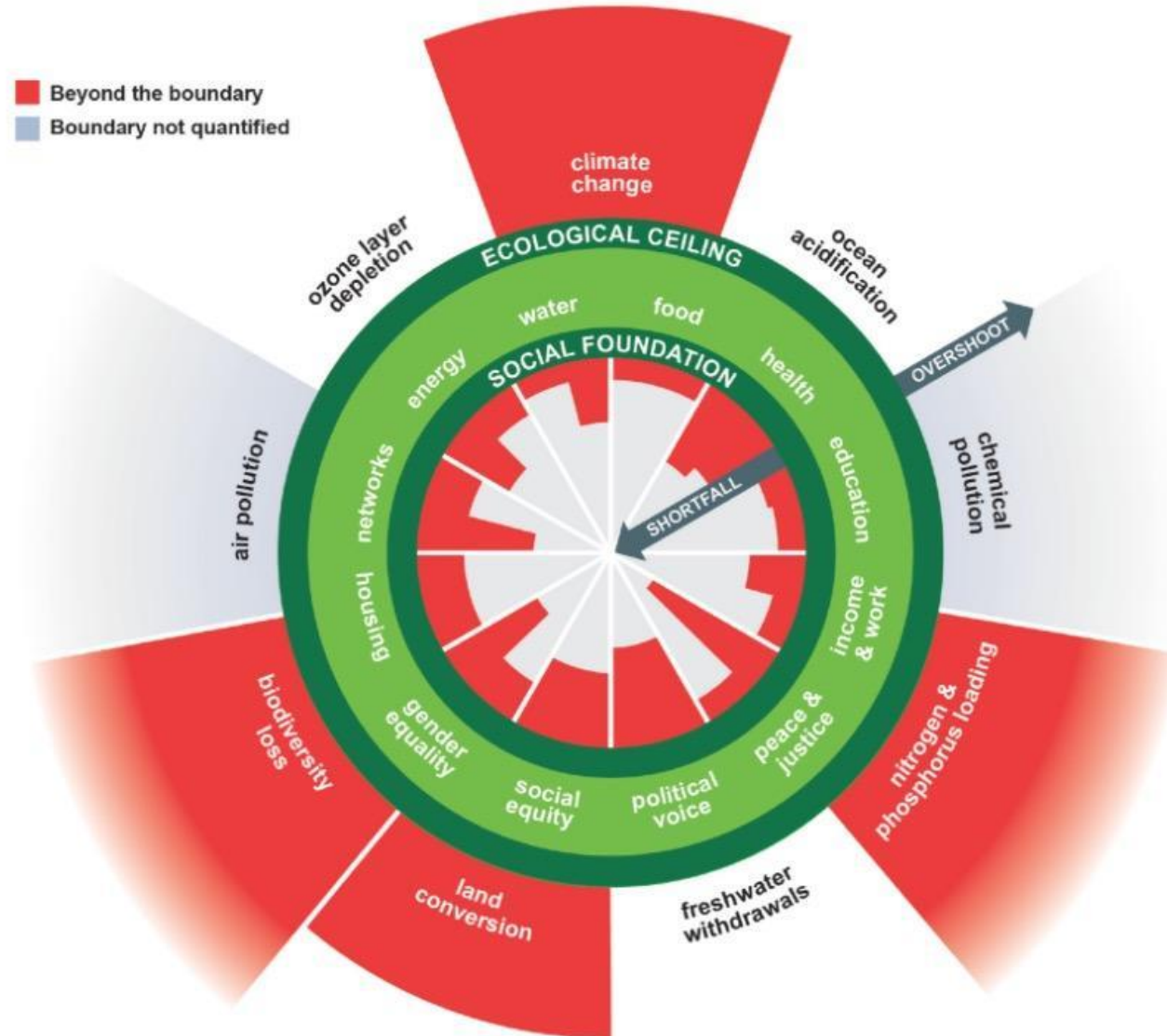
*Nature's
Growth Curve*



A compass for human prosperity

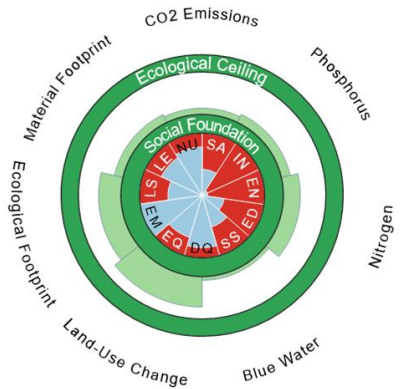


Humanity is living far out of balance

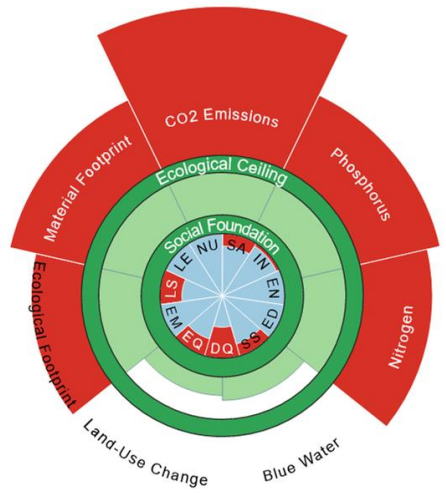


Divergent national contexts

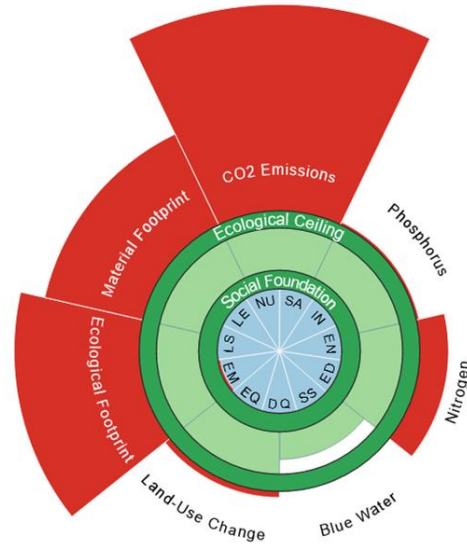
goodlife.leeds.ac.uk



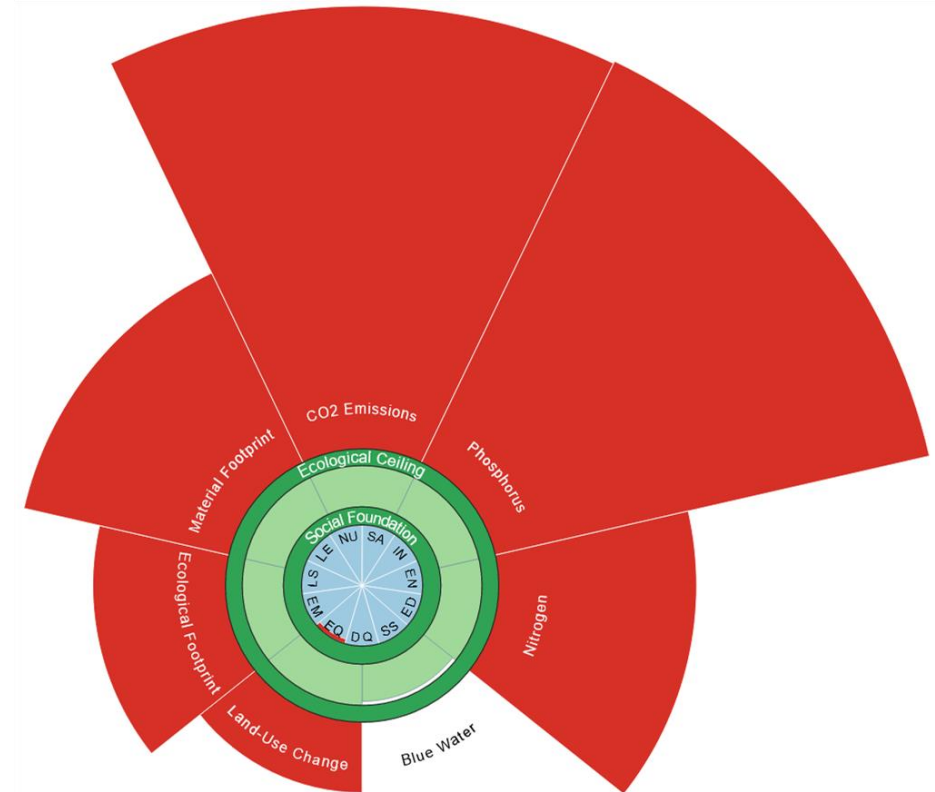
Malawi
\$1,000 pc



China
\$17,200 pc



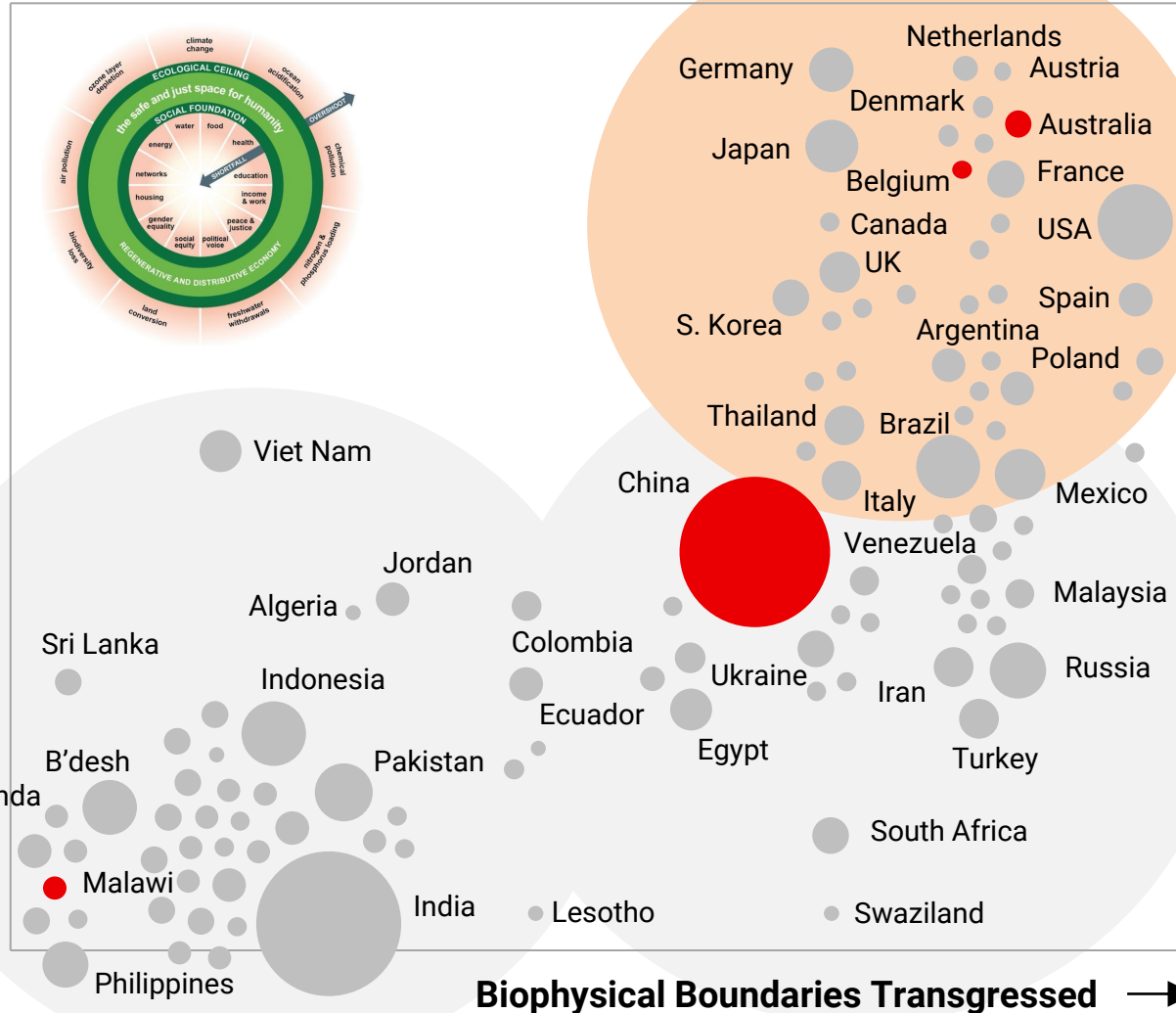
Belgium
\$54,000 pc



Australia
\$54,900 pc

Humanity's sweetspot

Social Thresholds Achieved →



colonialism

military power

trade & finance rules

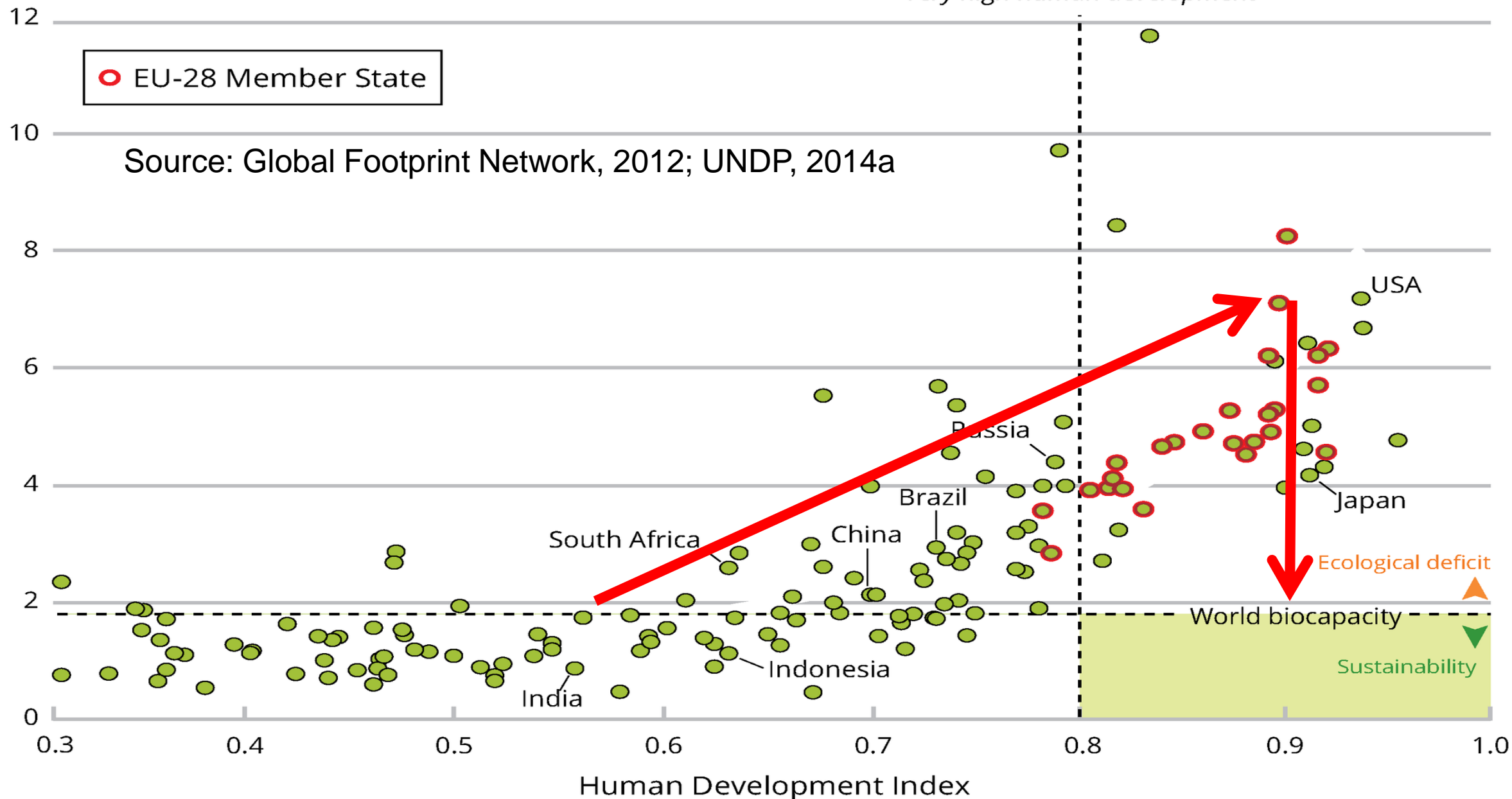
resource extraction

climate-change impacts

DEVELOPMENT TRAJECTORY ...

Ecological footprint
(hectares per person per year)

'Very high human development'



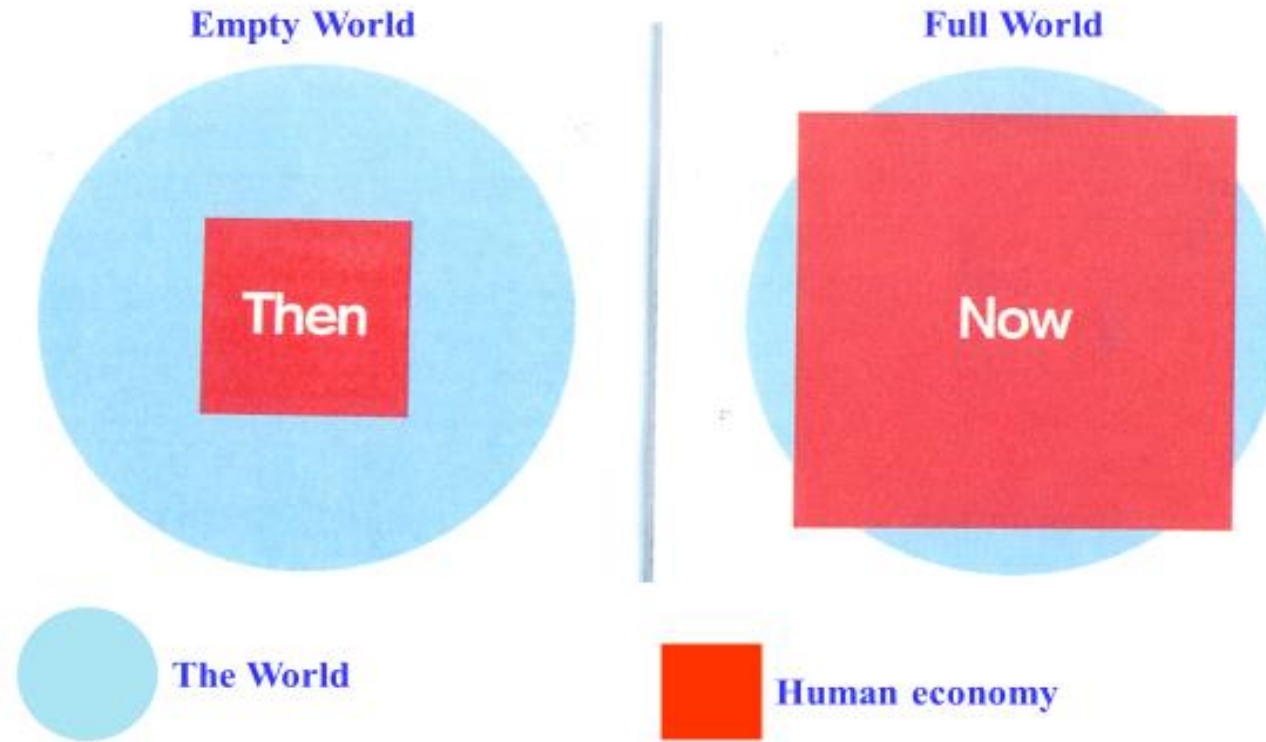


*For the first time in a human history we face the emergence of a single, tightly coupled human **social-ecological system of planetary scope.***

*We are more **interconnected** and **interdependent** than ever.*

*Our individual and collective **responsibility** has enormously increased.*

From “Empty” World to “Full” World



Source: Club of Rome: Simplified after Herman Daly

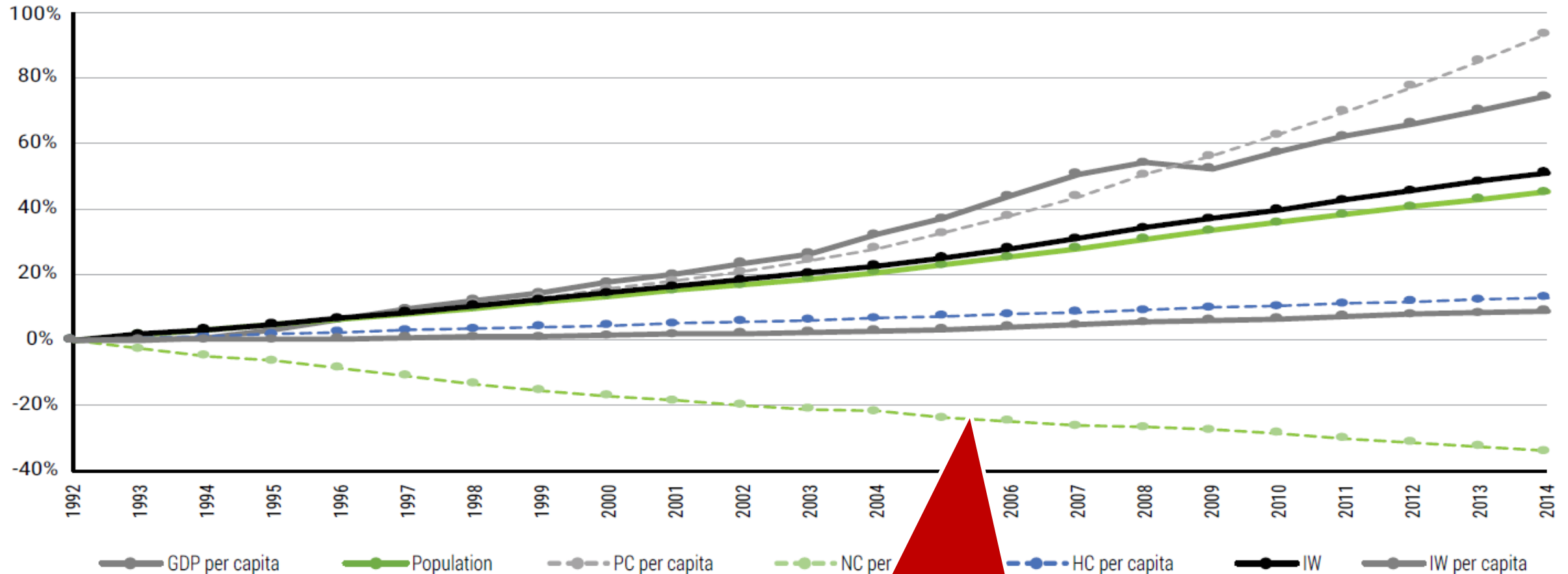
*Labour and Infrastructure limiting
factors of human wellbeing*



*Natural resources and Environmental
sinks limiting factors of human
wellbeing*

Inclusive Wealth (IW) Index (and its components) evolution - 1992 to 2014

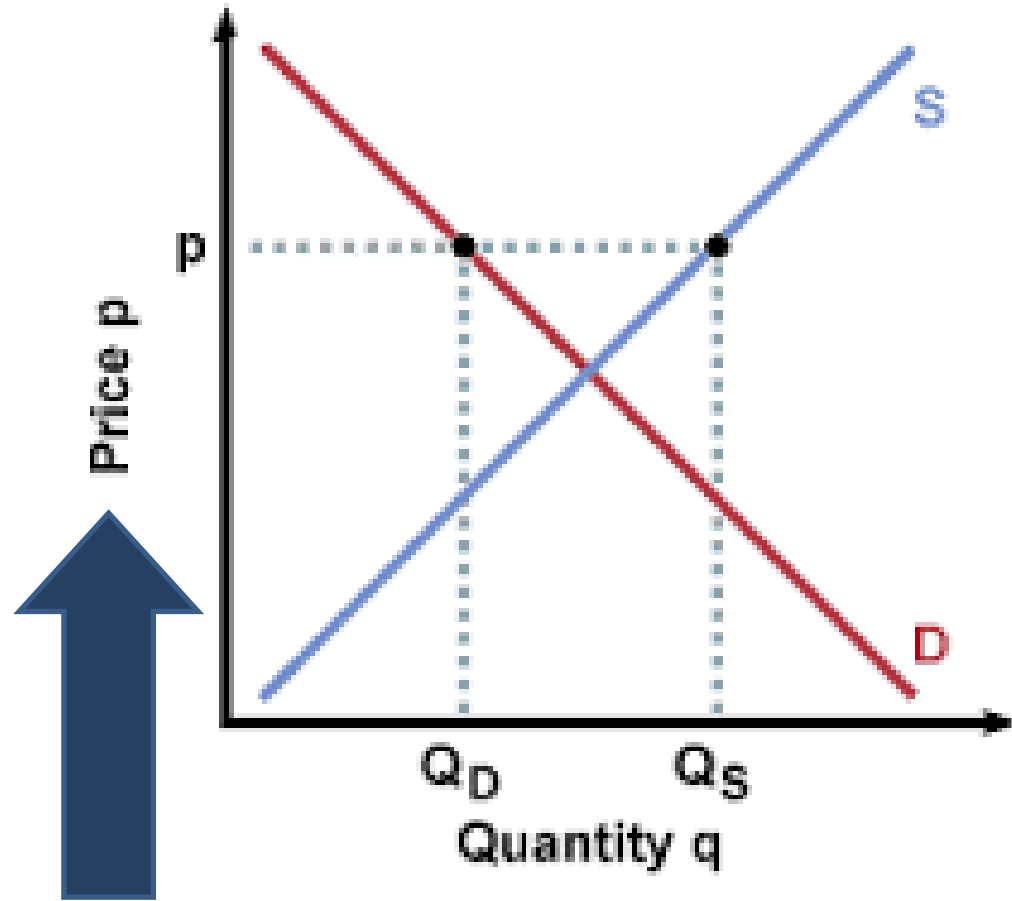
Source: UN, 2018 Inclusive Wealth Report 2018



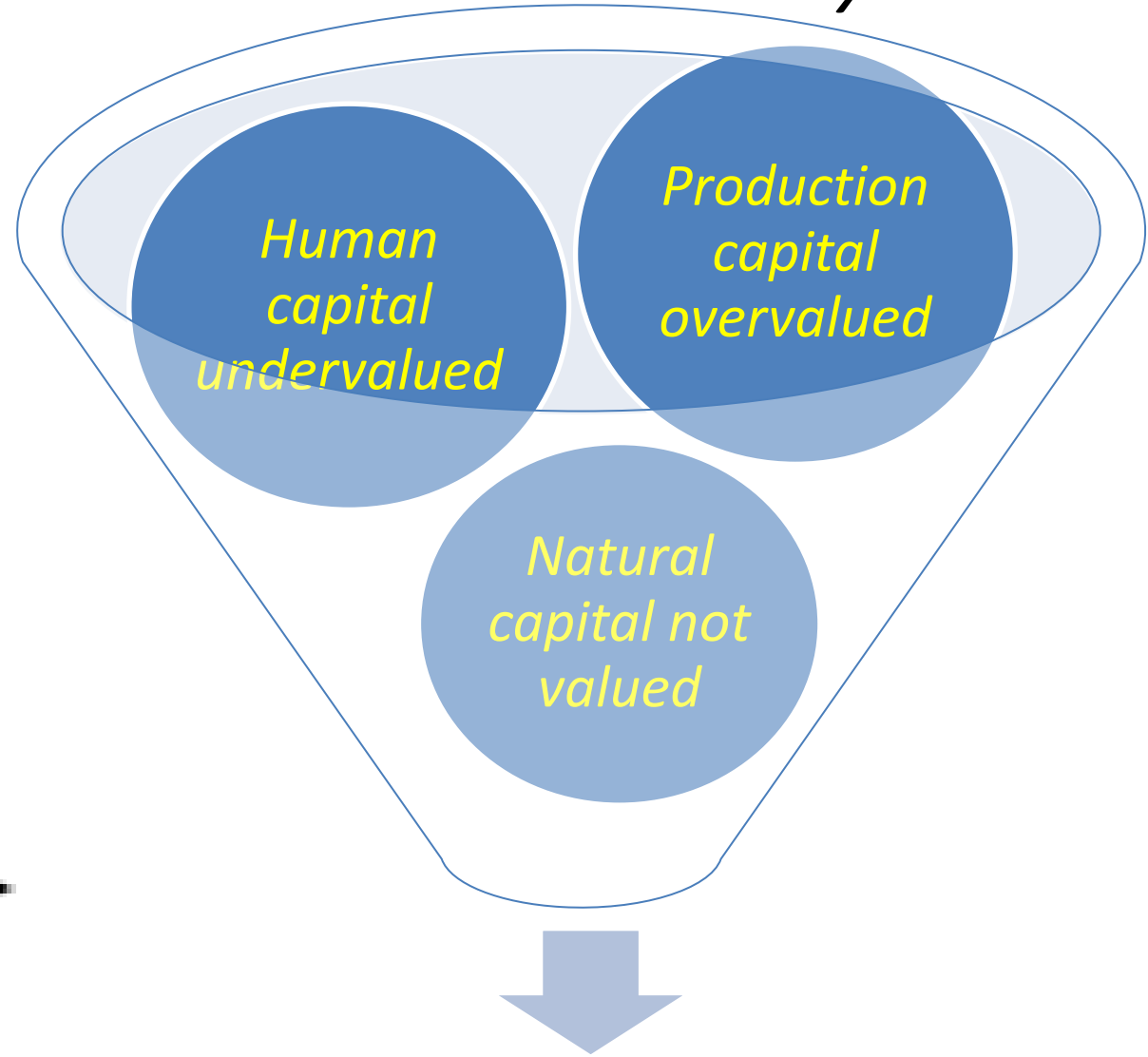
IW – Inclusive Wealth
PC – Production capital
HC – Human capital
NC – Natural capital

Growth of GDP in the past decades has been achieved at the cost of depleting natural capital and indebting future generations

*Producers/Consumers
Rational Behaviour*



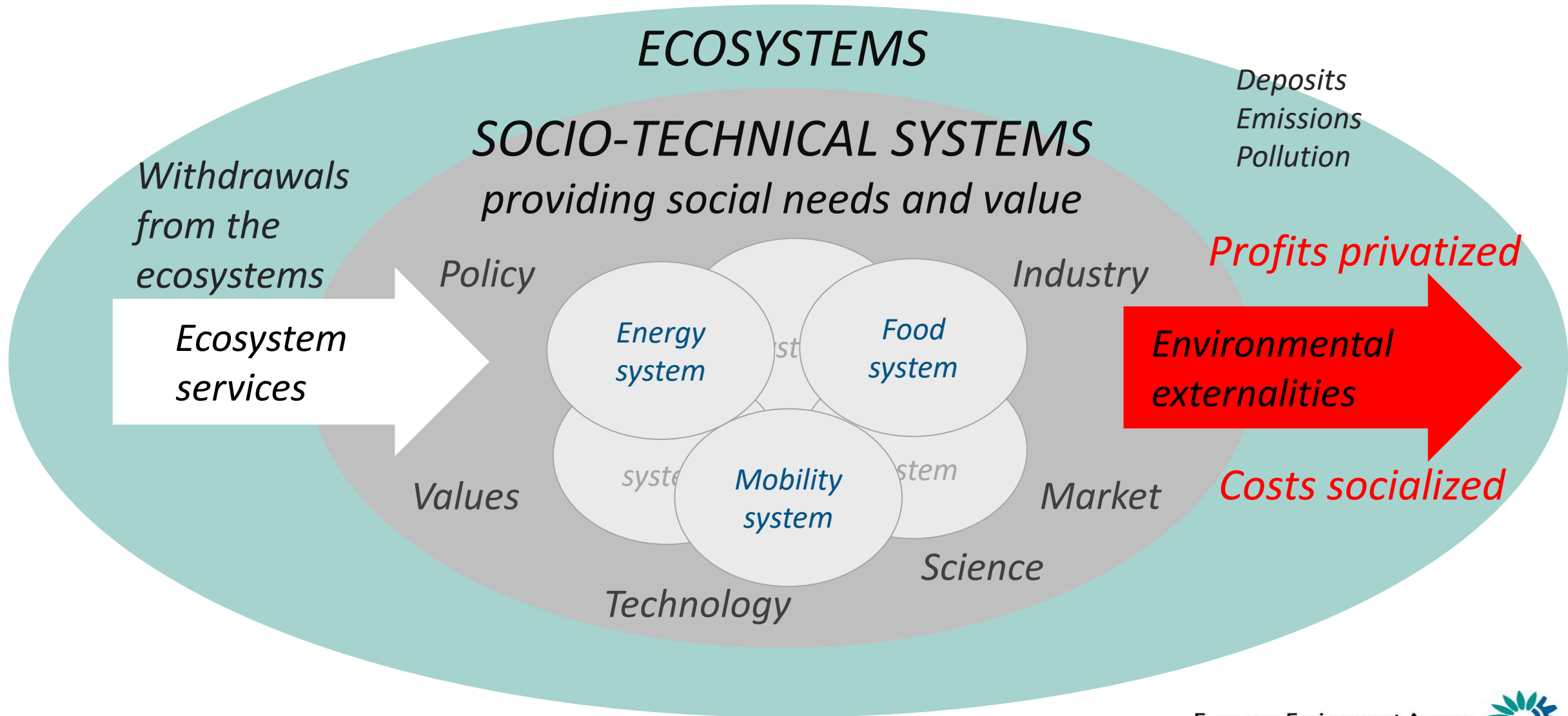
Market Economy



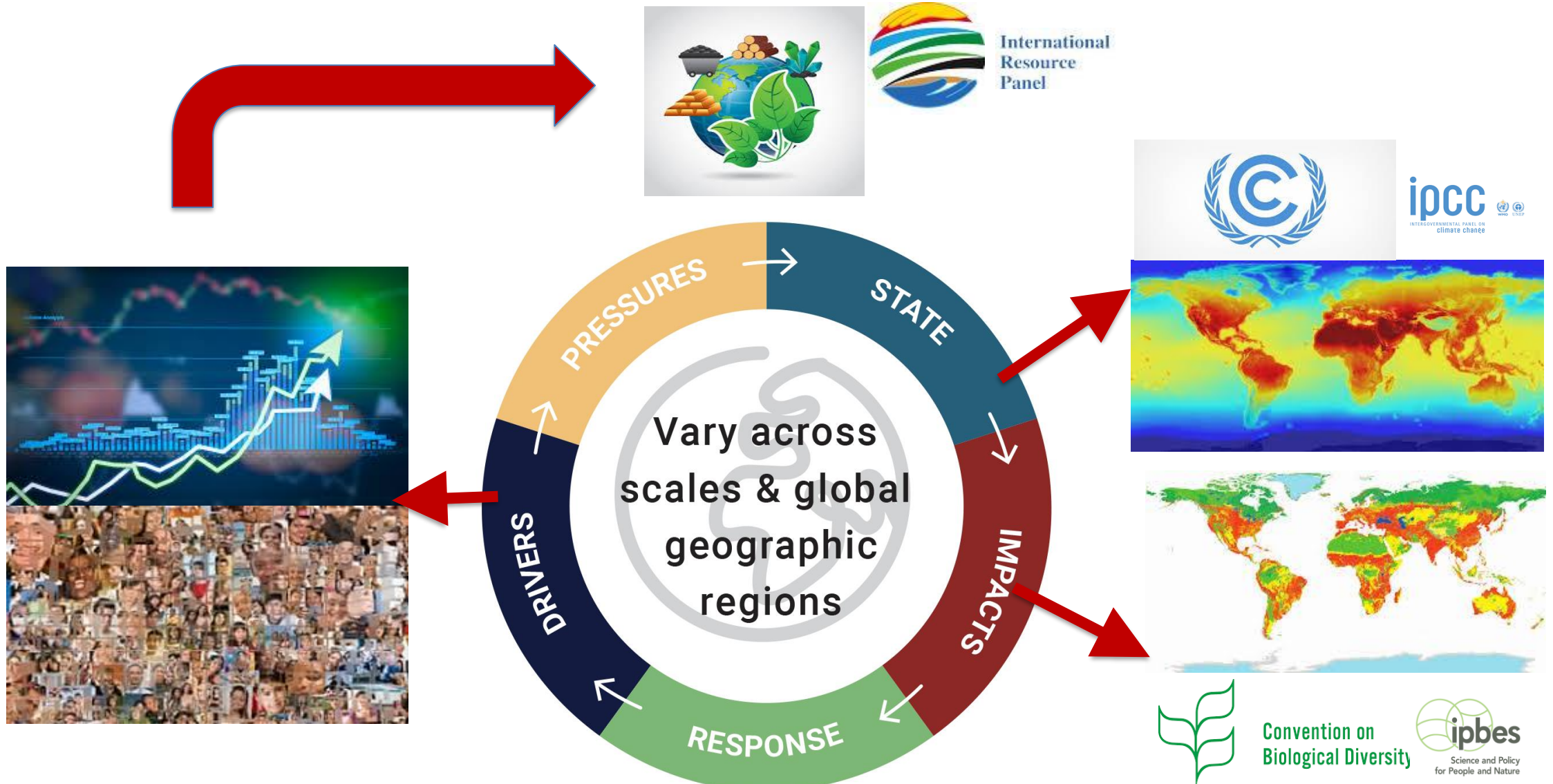
*Economic, social and environmental
(in)balance*

LIVING WELL WITHIN ECOLOGICAL LIMITS

ECONOMIC SYSTEM FUNCTION OF ECOSYSTEM



*Natural resources are the **bridge** between economy and competitiveness on one hand and climate change, biodiversity loss, pollution and health implications on the other*





International
Resource
Panel

Global Resource Outlook

Natural Resources:

Provide the foundation for the goods, services and infrastructure that make up our current socio-economic systems



Biomass

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



Fossil fuels

Fossil fuels (coal, gas and oil)



Metals

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



Non-metallic minerals

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

Materials



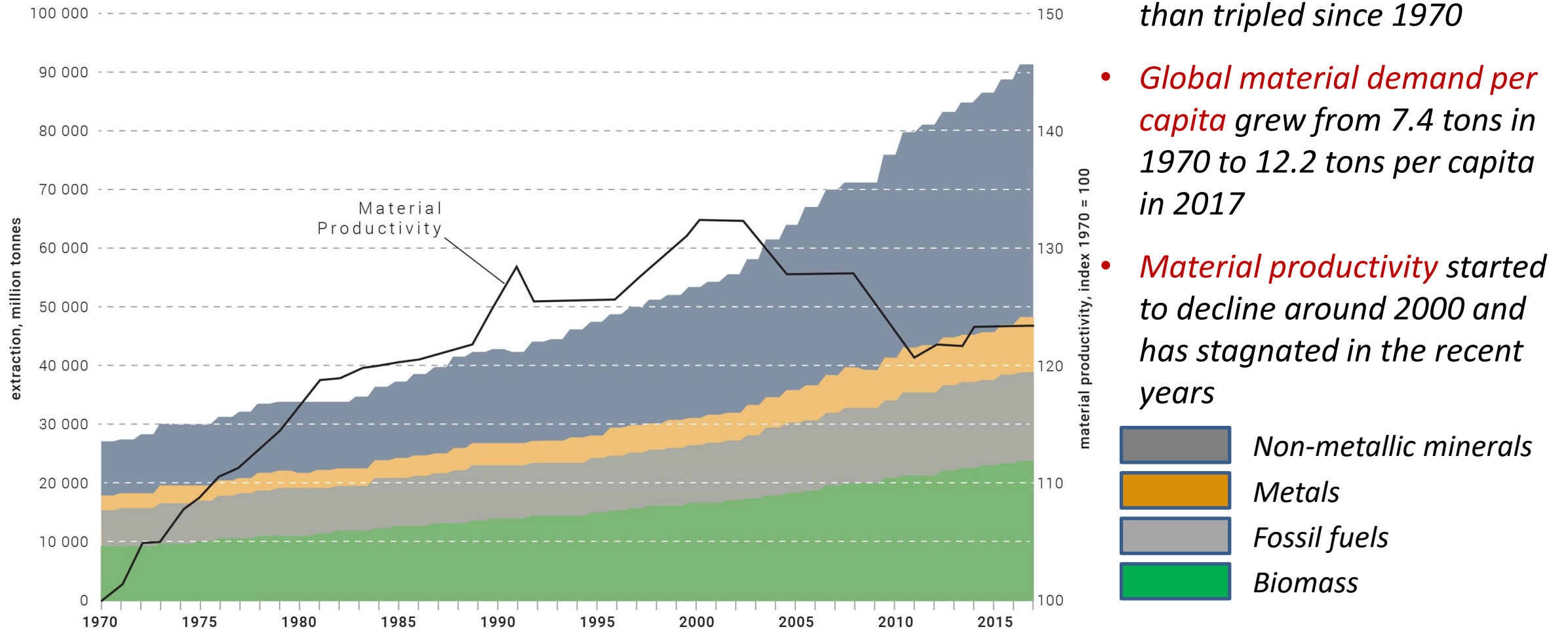
Water and Land



Global material use

Material demand per capita and Material productivity

Global material extraction and material productivity, 1970 - 2017

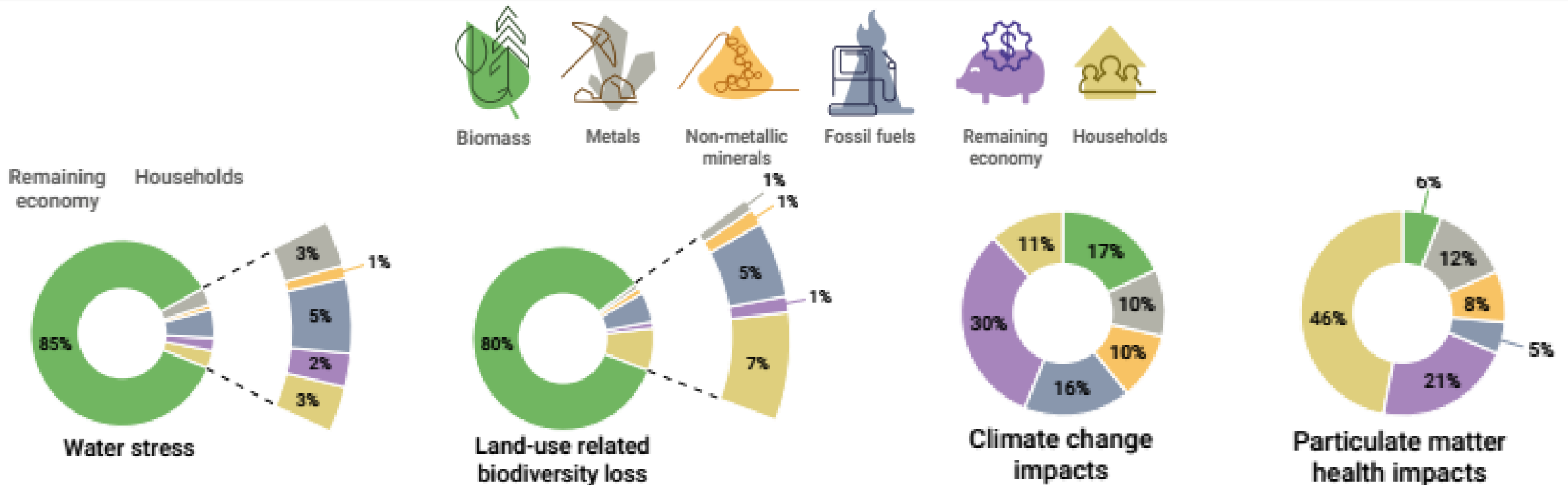


*Environmental impacts in the
value chain*
***extraction and processing
phase***

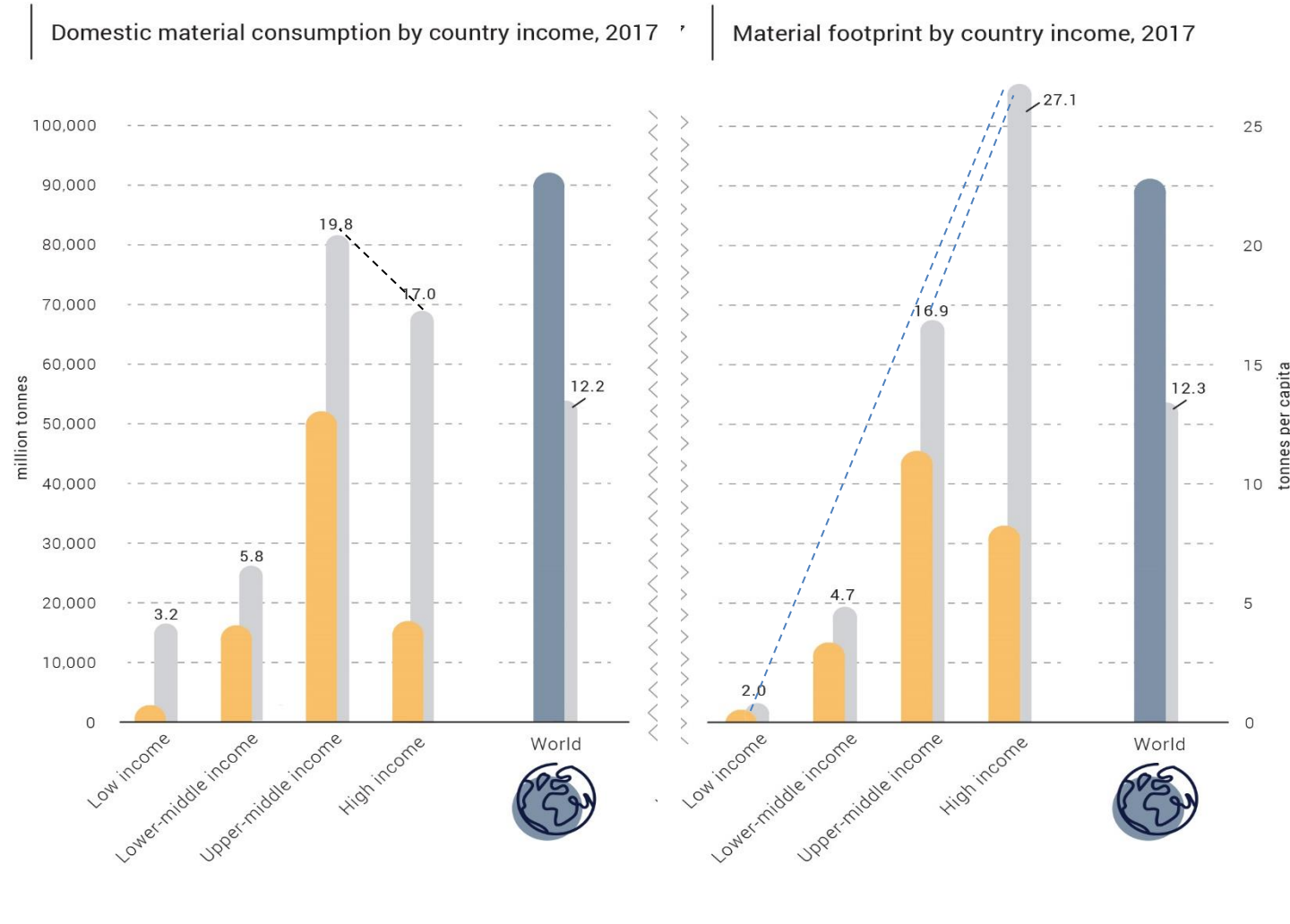
90% of global ***biodiversity loss*** and
water stress

50% of global ***climate change***
impacts

1/3 of ***air pollution*** ***health impacts***



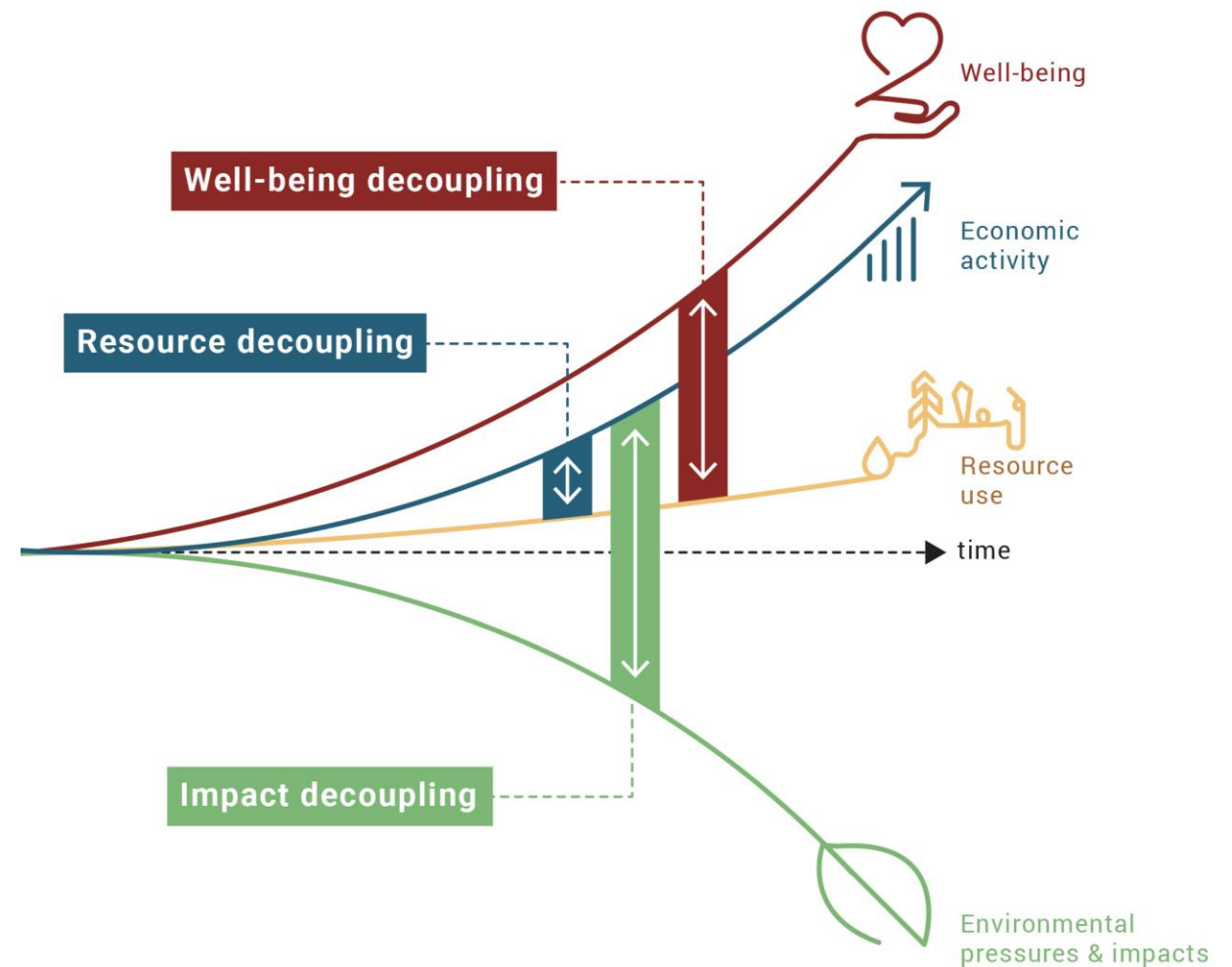
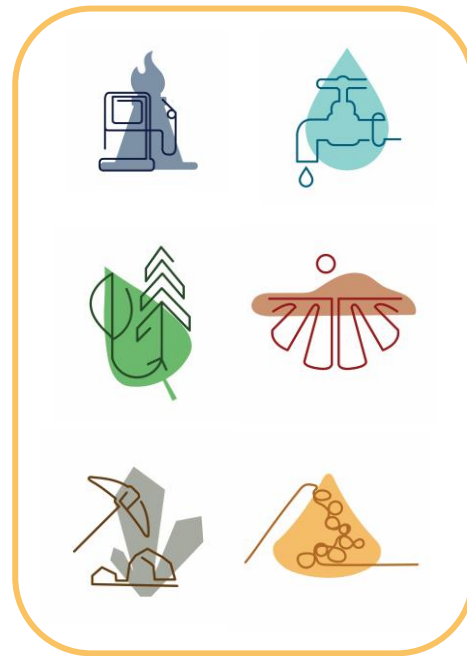
Unequal consumption: Disparities across country income groups



- Measured in **Domestic Material Consumption (DMC)**, upper-middle income countries are the largest per-capita material consumers. **Key driver:** new infrastructure and cities buildup in developing countries
- Measured in **Material Footprints (MF)**, high-income countries are by far the largest consumers per capita and are increasing their resource import dependence by 1.6 % per year. **Key driver:** outsourcing of material & resource intensive production from high-income countries

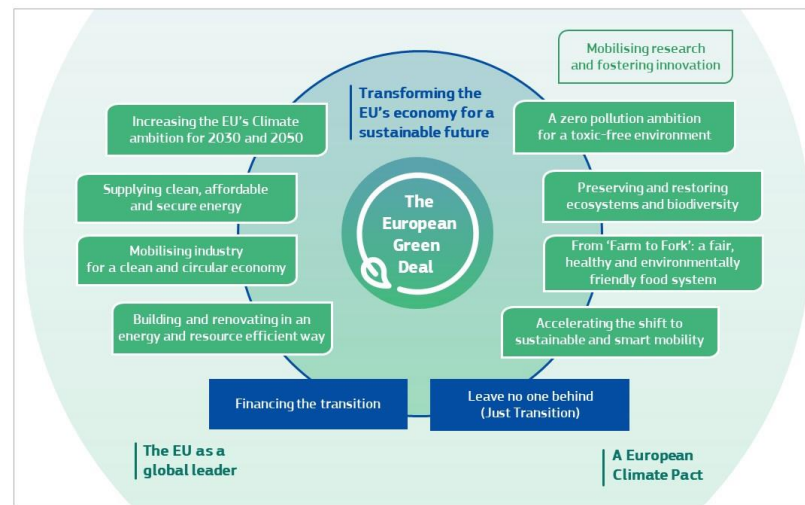
If current trends would continue, global material consumption is predicted to double by 2060

Decoupling



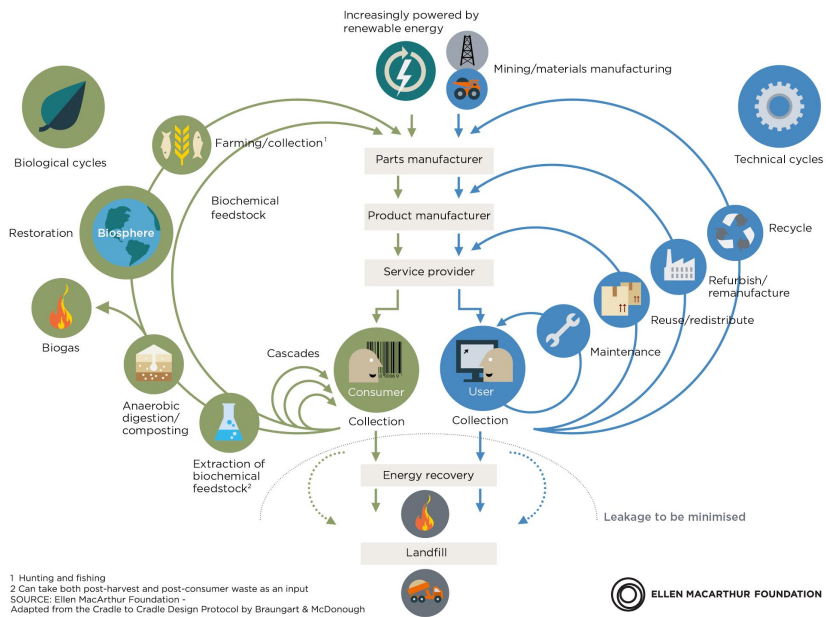
European Green Deal

Why it is so important?



- It is “a **new growth strategy** that aims to transform the EU into a fair and prosperous society, with a modern, resource-efficient and competitive economy where there are no net emissions of greenhouse gases in 2050 and where economic growth is decoupled from resource use.”
- It also “aims to **protect, conserve and enhance the EU's natural capital, and protect the health and well-being of citizens from environment-related risks and impacts. At the same time, this transition must be just and inclusive.**”
- Is an “integral part of this **EC's strategy to implement the UN's 2030 Agenda and the SDGs**”

CIRCULAR ECONOMY - an industrial system that is restorative by design

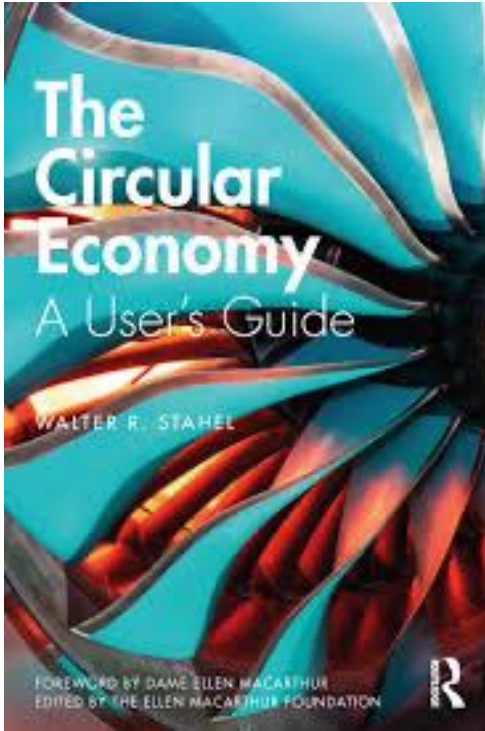


*Circular Economy is essential part of EGD.
It should be seen as an **instrument for deliver decoupling** of economic growth from resource use and environmental impacts and as a **part of the bigger picture of economic, societal and cultural transformation** needed to deliver the SDGs.*

Circular Economy

What and Why

Circular economy idea is not new ... it goes few decades back



Linear Economy is like a River
Circular Economy is like a Lake



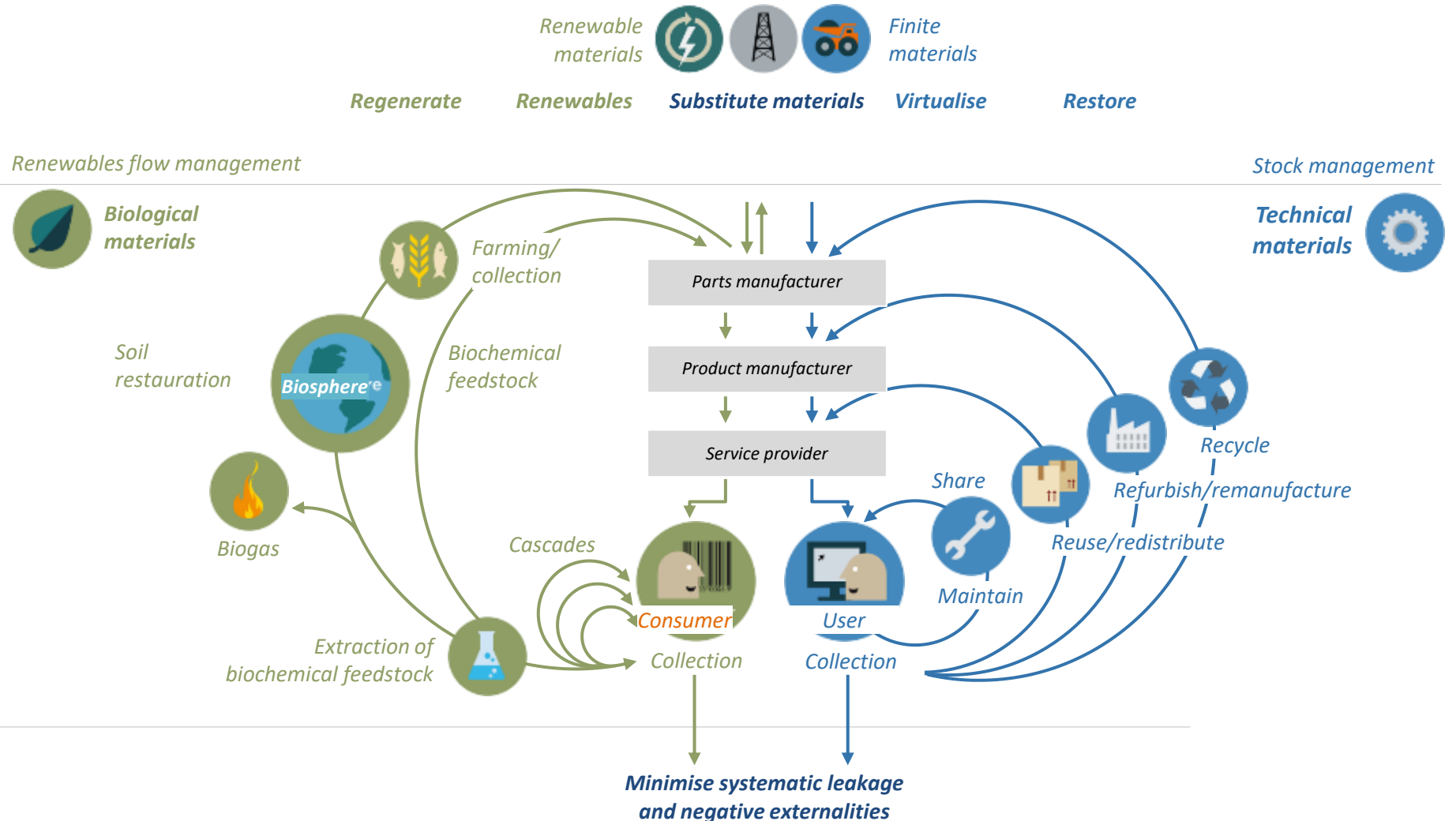
OUTLINE OF A CIRCULAR ECONOMY SYSTEM

Principles

1 Preserve and enhance natural capital by controlling finite stocks and balancing renewable resource flows

2 Optimise resource yields by circulating products, components and materials in use at the highest utility at all times in both technical and biological cycles

3 Foster system effectiveness by revealing and designing out negative externalities



Source: Ellen MacArthur Foundation; McKinsey Center for Business and Environment; Stiftungsfonds für Umweltökonomie und Nachhaltigkeit;

From Product Maximisation to Providing Human Needs

It is not not about owing it is about using

We do not need cars

...

We need mobility

We do not need light bulbs

...

We need light

We do not need chairs

...

We need to sit

We do not need refrigerators

...

We need chilled and healthy food

We do not need CDs

...

We want to listen to the music

We do not need pesticides

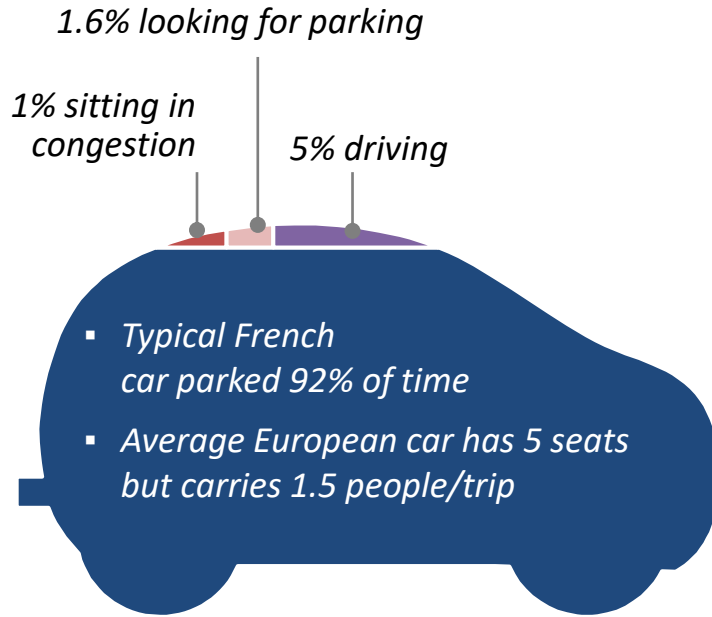
...

We want healthy plants

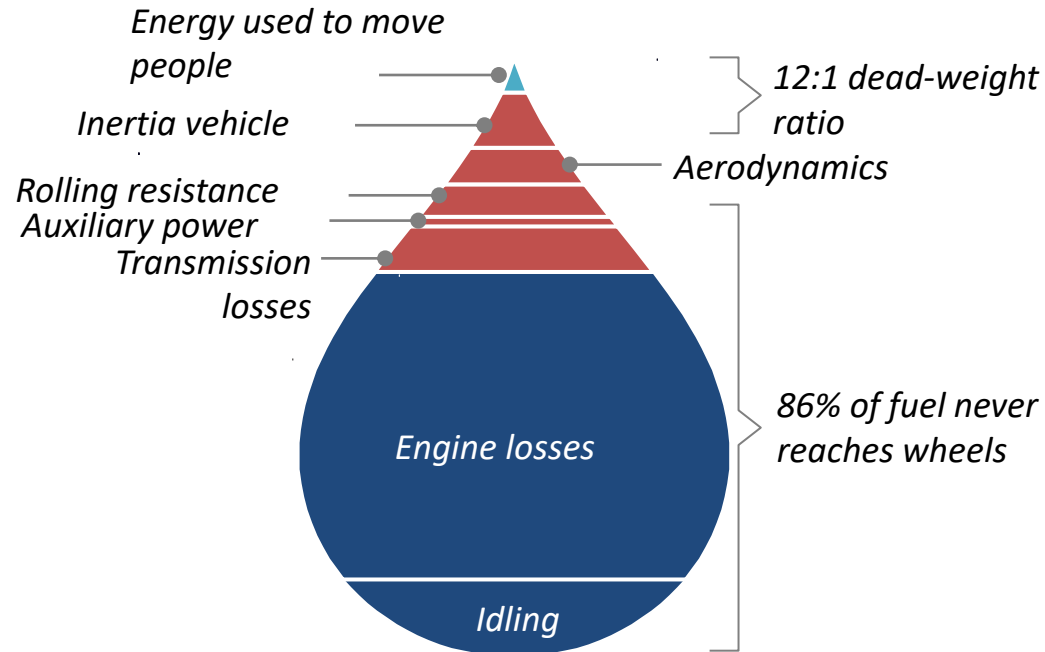


Our mobility system is plagued by structural inefficiencies

Car utilisation

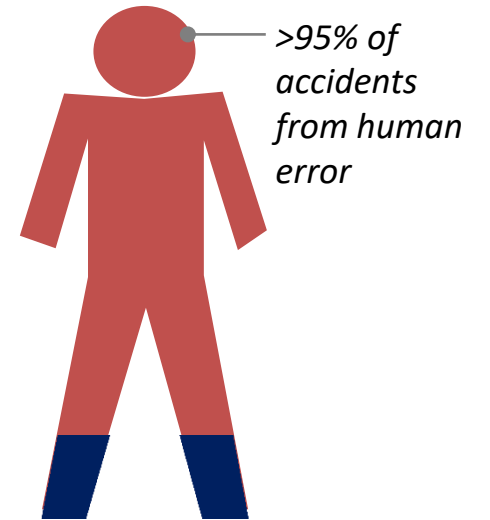


Tank-to-wheel energy flow - gasoline



Deaths & injuries/year on road

30,000 deaths in accidents and 4x as many disabling injuries



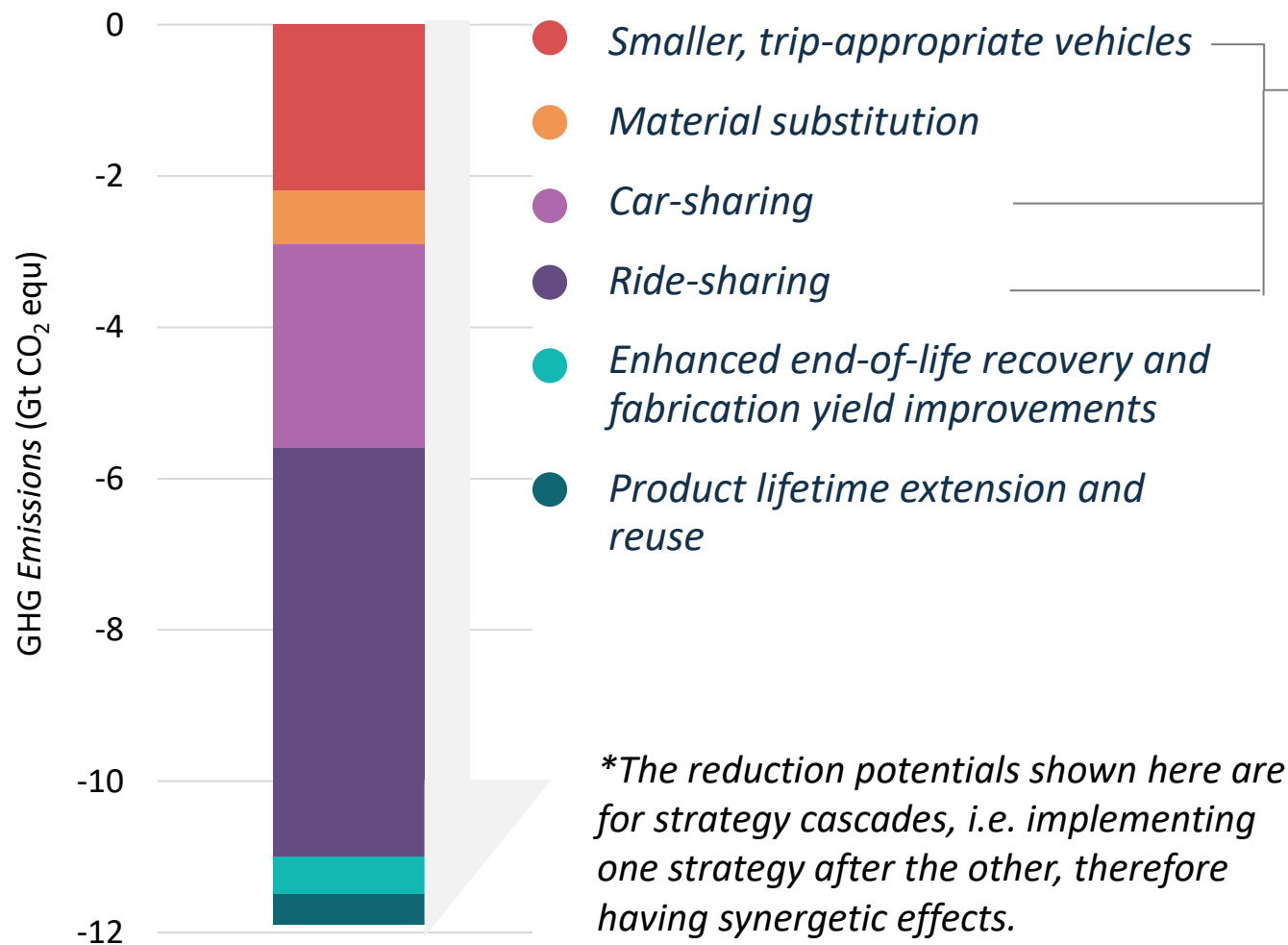
LAND UTILISATION:

- Road reaches peak throughput only 5% of time and only 10% covered with cars then
- 50% of most city land dedicated to streets and roads, parking, service stations, driveways, signals, and traffic signs



More intensive use, leaner vehicles and recycling are crucial

Potential GHG savings from material efficiency strategies for cars in G7 (2016-2060)



Most promising strategies reduce materials AND operational emissions through

Intensive Use



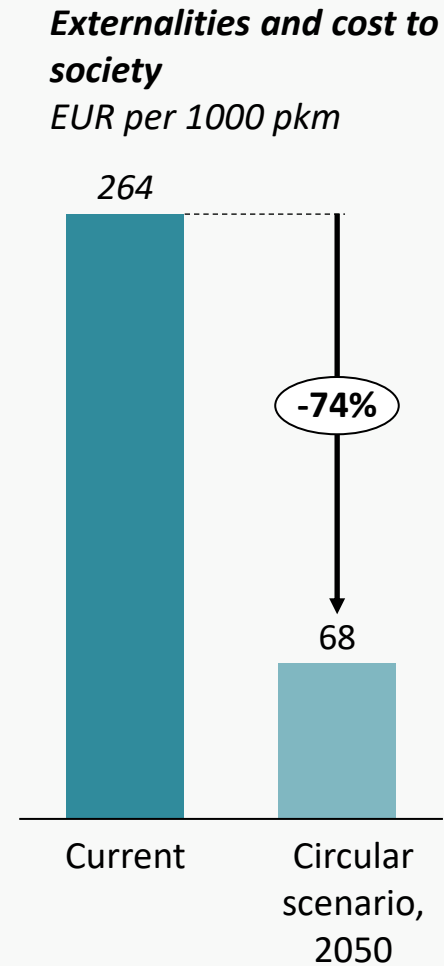
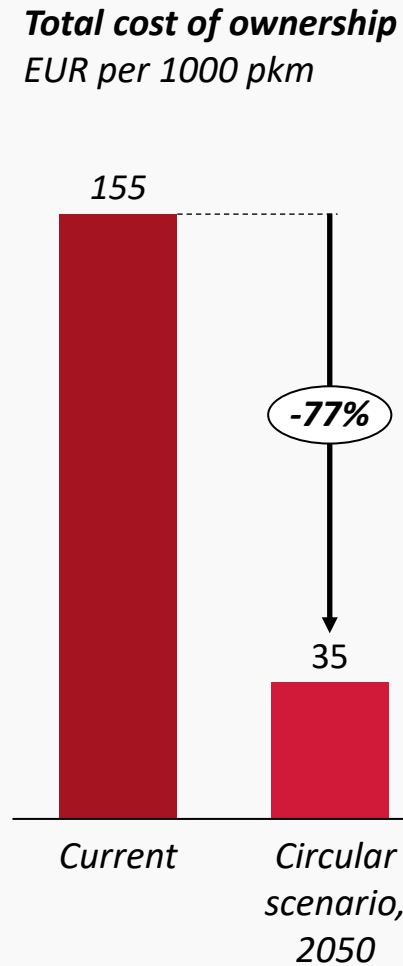
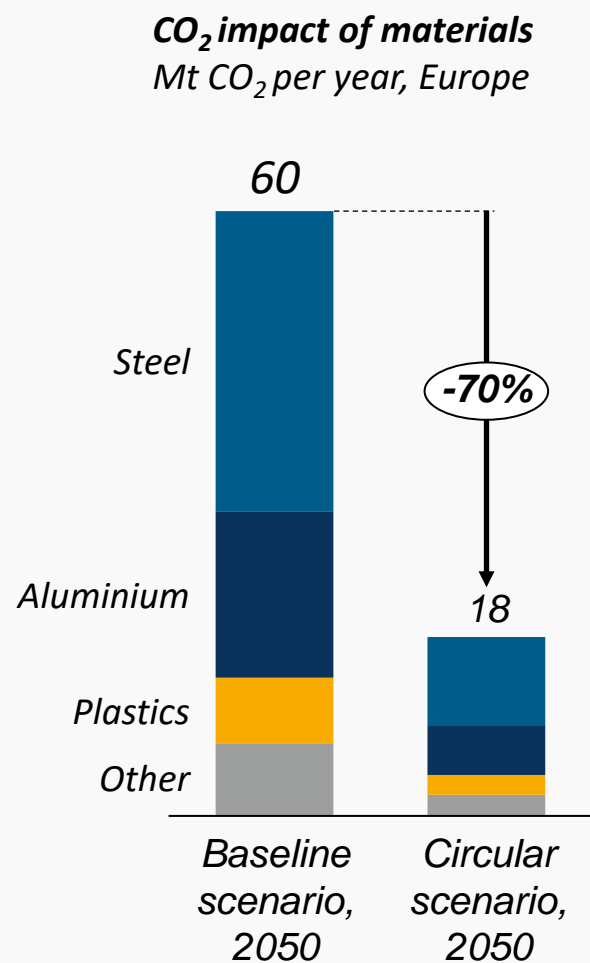
Making vehicles lighter



Ca. 25% cumulative savings



A **SHARED MOBILITY** SCENARIO IS A HIGHLY ATTRACTIVE VISION FOR **PASSENGER CARS – ULTIMATE POTENTIAL**

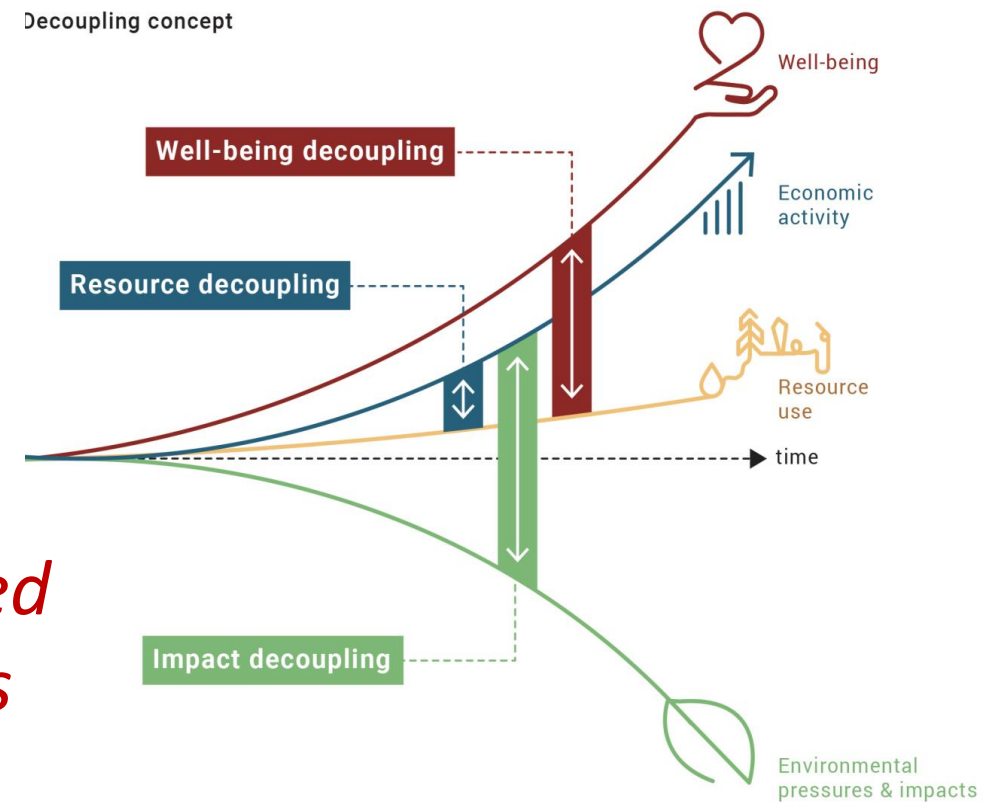


pkm = passenger kilometre

Ownership and product (under)utilisation - Consumer

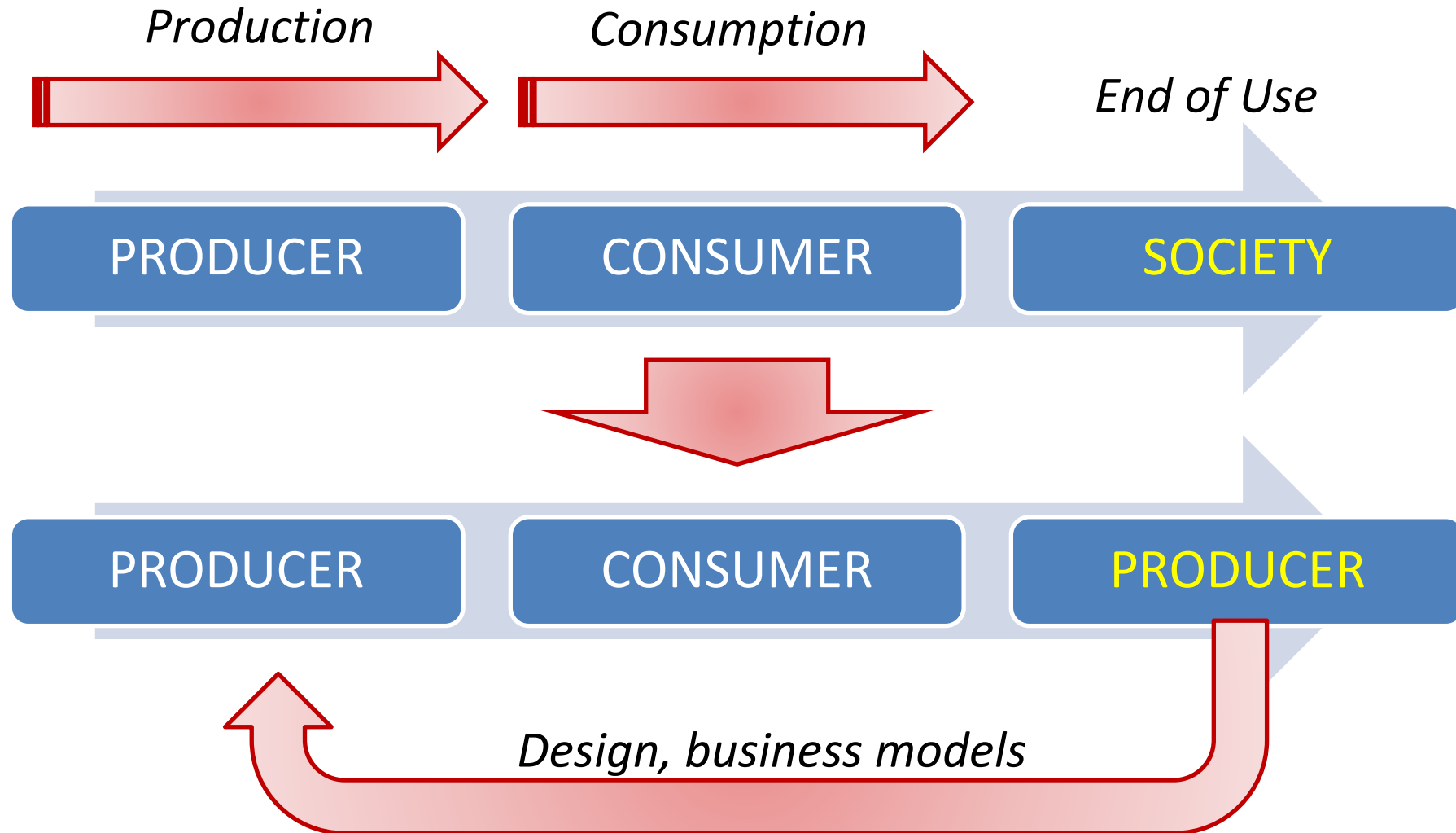
It is not not about owing it is about using

- *Problem: Preferences from consumers to own products like houses, cars, refrigerators, cloth ... are driving consumption in a massive lock-in in underutilization*
- *Solution: Explore the opportunity that the young generation has less ownership biased constraints and provide alternative options*

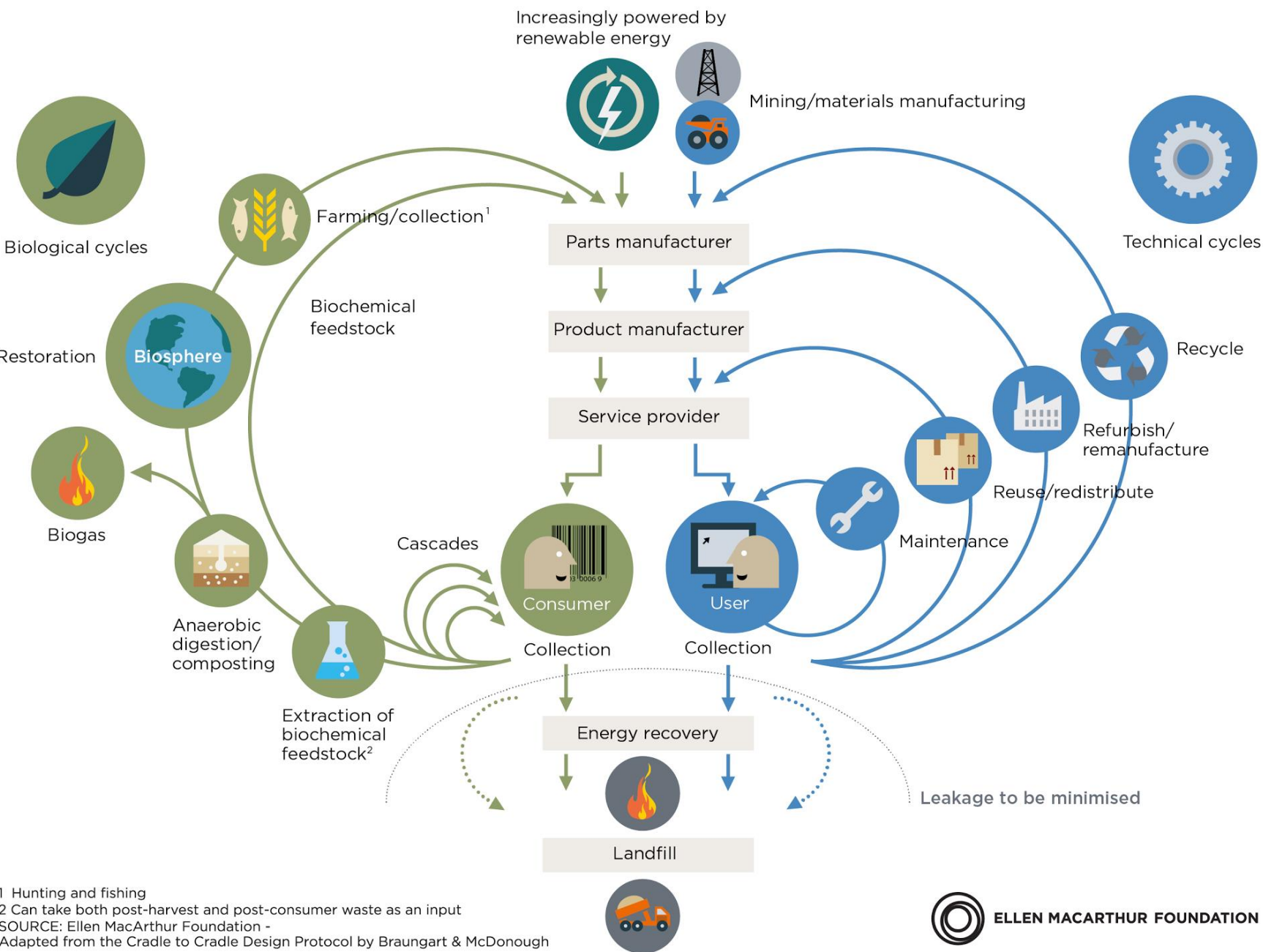


*Ownership and resource (under)utilisation - **Producer***

Better Connecting Producer with his Product



Retaining the Value, Rethinking Ownership, aligning Incentives with Regulation



RETAINING
VALUE IN
CIRCULAR
ECONOMY



1 Hunting and fishing
2 Can take both post-harvest and post-consumer waste as an input
SOURCE: Ellen MacArthur Foundation -
Adapted from the Cradle to Cradle Design Protocol by Braungart & McDonough

RETAINING VALUE IN THE SWEDISH MATERIALS SYSTEMS

The Case of Plastics

- *Official statistics on plastic waste recycling* **53%**
- *Value end of use plastic each year* **10 bil SEK**
 - *80% incinerated – energy value* **0.4 bil SEK**
 - *16% new plastics* **0.9 bil SEK**
 - *4% landfill* **0.0 bil SEK**
- *All value retained* **1.3 bil SEK**
- *Value retained/Value end of use* **13%**

Aligning Incentives with Regulation

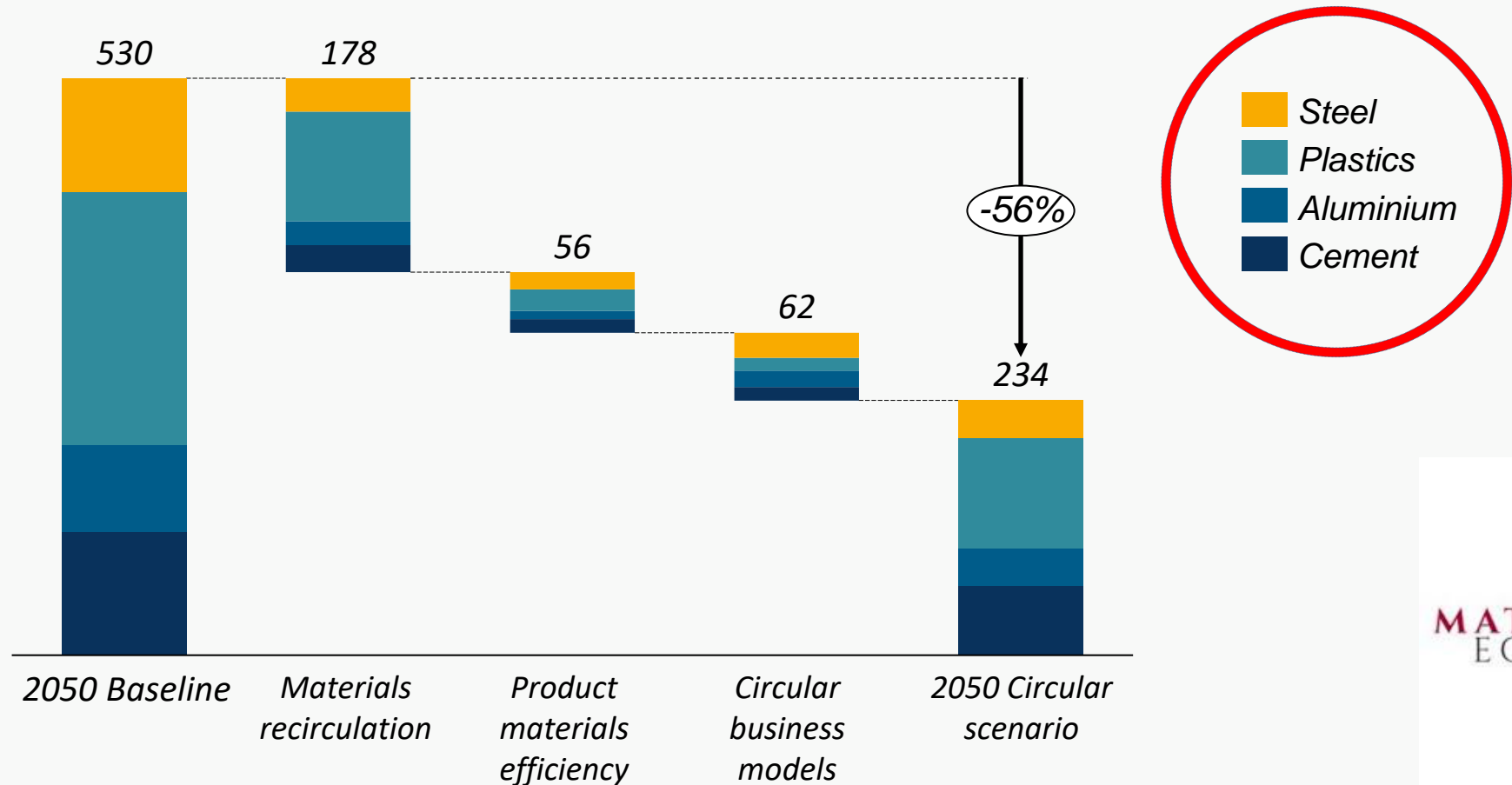
Example of Agriculture

- Digitalisation is allowing **targeted approach to individual plant protection** - precision farming is an already known instrument, but producers are still quantity based driven.
- Instead of selling pesticides, chemical companies could sell **services** to protect (hectares of) plants from pests. This would incentivise them to increase profits through minimising the costs of resources used, including pesticides.



A MORE CIRCULAR ECONOMY CAN REDUCE EU EMISSIONS FROM **MATERIALS** BY 56%

EU emissions reductions potential from a more circular economy, 2050
Mt CO₂ per year



SUPPLY SIDE SOLUTIONS

CARBON MANAGEMENT

LAND

WATER

ENERGY

MATERIALS

DECOUPLING - CIRCULAR ECONOMY

DEMAND SIDE SOLUTIONS

ECO-SYSTEM SERVICES, ENVIRONMENTAL SINKS

NATURE BASED SOLUTIONS

Circular Economy Action Plan 2020

Structural overview



Sustainable Product Policy

- *Designing sustainable products*
- *Empowering consumers and public buyers*
- *Circularity in production processes*



Key Product Value Chains

- *Electronics and ICT; Batteries and vehicles;*
- *Packaging; Plastics; Textiles;*
- *Construction and buildings; Food, water and nutrients*



Less Waste, More Value

- *Enhanced waste policy (waste prevention, circularity)*
- *Enhancing circularity in a toxic-free environment*
- *Creating EU market for secondary raw materials*
- *Addressing waste exports from the EU*



Crosscutting Actions

- *Circularity as a prerequisite for climate neutrality*
- *Getting the economics right*
- *Driving the transition through research, innovation and digitalisation*

European Green Deal

Make it Implementable

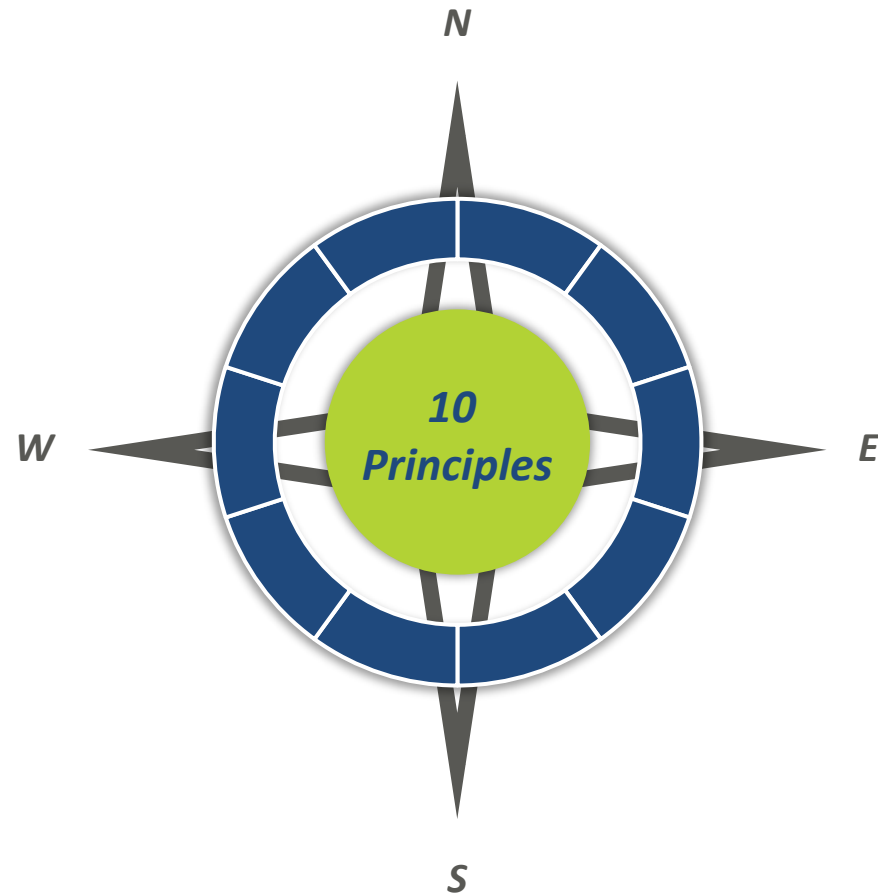
The System Change Compass contributes to the implementation of the ambitions of the European green Deal



- **Sets zero net emissions** of GHG by **2050** and **decoupling of growth and resource use**
- Acknowledges need for fair and **just transition**
- Aims at **strongly interlinked and mutually reinforcing** policy recommendations
- **Does not sufficiently address drivers and pressures** that cause environmental damage
- **Does not offer systemic perspective** to guide decision-making
- Implementation is put at extra risk due to **COVID-19 recovery**
- **Maps and envisions** the system in service of people and planet
- **Derives system level orientations** towards desired state
- Charts pathway towards prosperity and wellbeing **within planetary boundaries**

From the IRP science to the System Change Compass

System Change Compass (10 Principles)

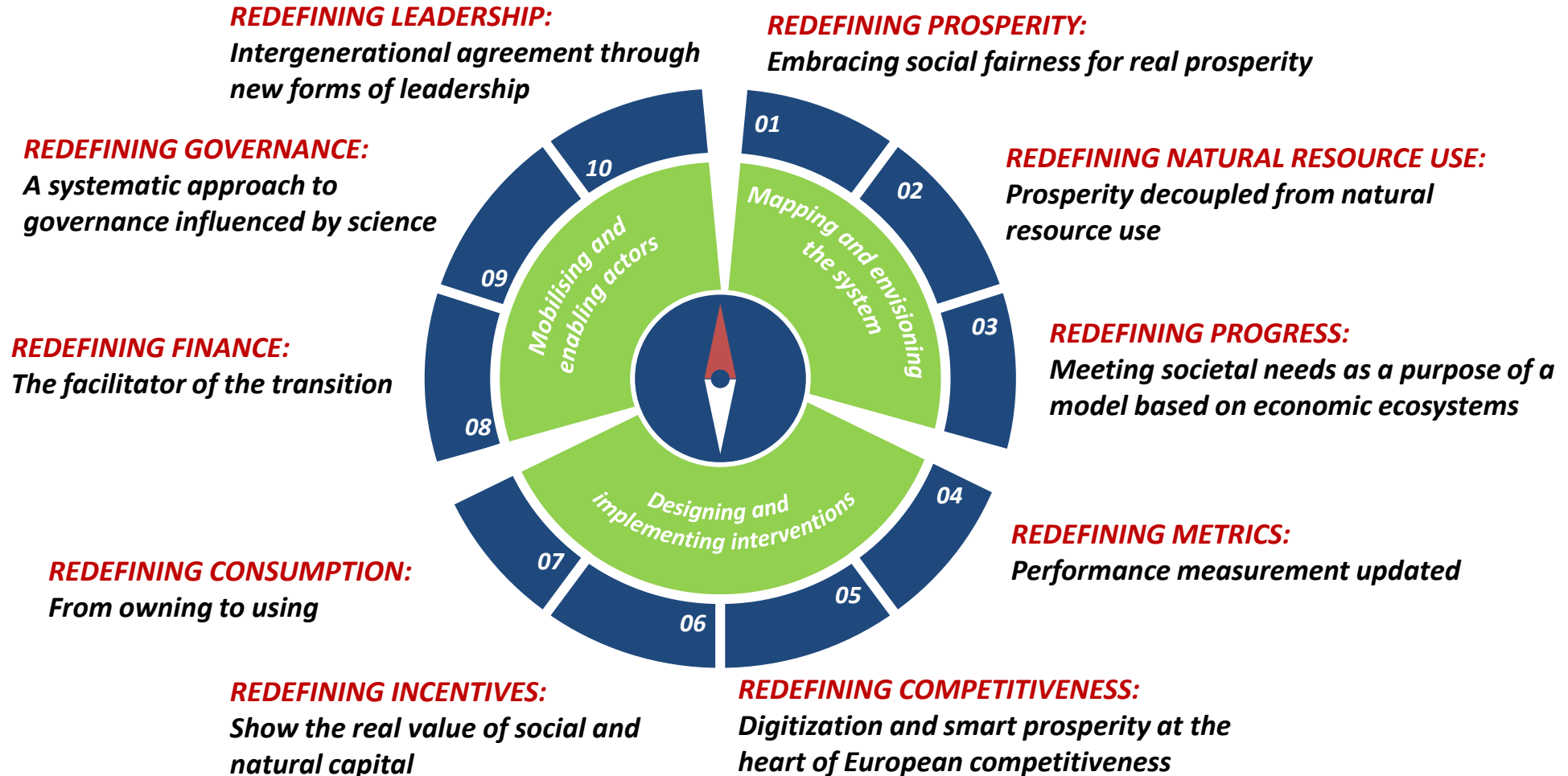


Application to the system to derive systemic orientations



The System Change Compass

Report is based on natural resource optics.



3 system-level policy orientations for each compass Principle

Compass Principles

System-Level Intervention

REDEFINING PROSPERITY:

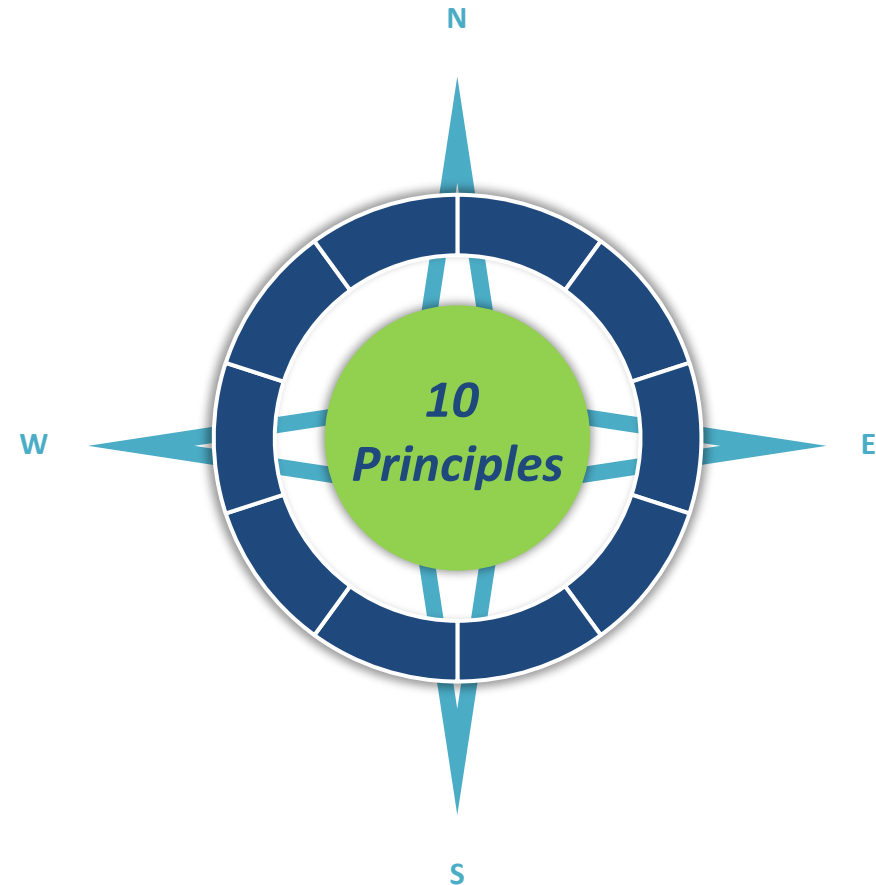
Embracing social fairness for real prosperity

01

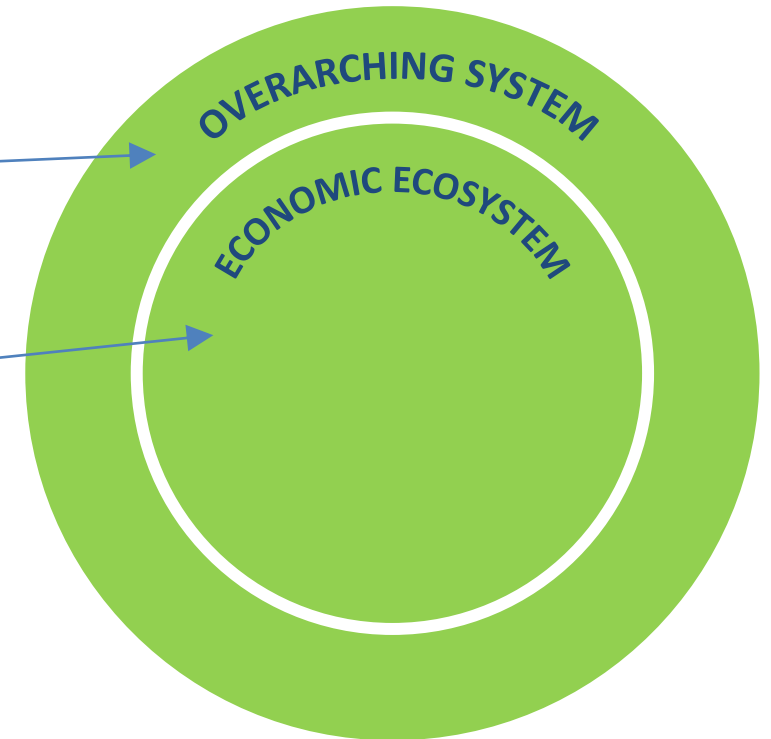
1. Balance policy attention from income and *wealth creation* to income and *wealth distribution*, and ensure that *economic transition contributes to equality and social fairness* by guaranteeing universal basic services and minimum levels of income
2. Create *conditions for social acceptance of the necessary transition* through enhancing reskilling and educational programmes; introducing funding mechanism to support transition and supporting lower- and middle-income groups to help them *absorb full-costs introduced through all economic ecosystems*
3. Replace part of the *income-based taxes* with *resource-based taxes* to address *resource as well as social policy targets*

Translating the system change compass to systemic orientations

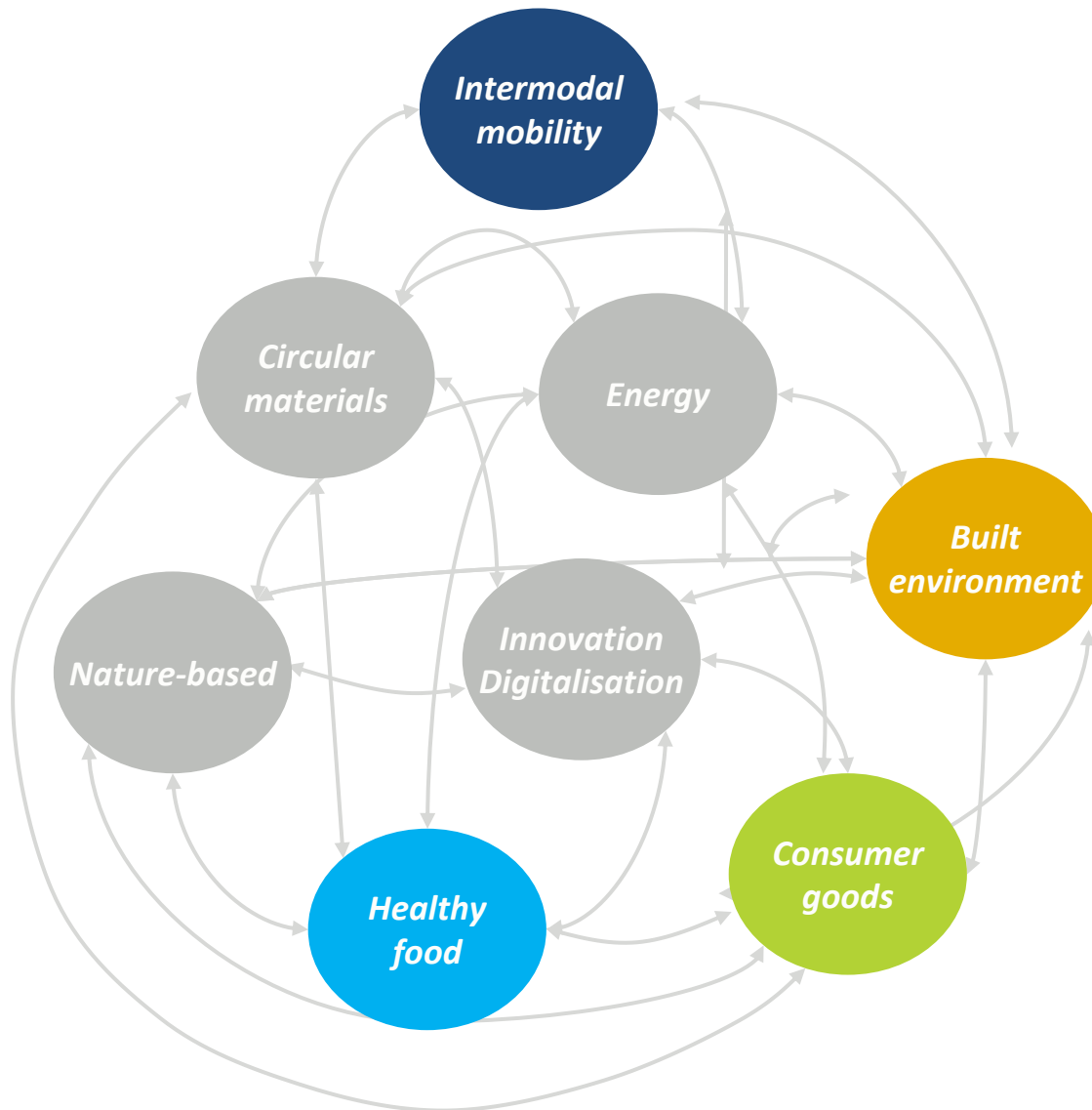
System Change Compass (10 Principles)



Application to the system to derive systemic orientations



Economic ecosystems



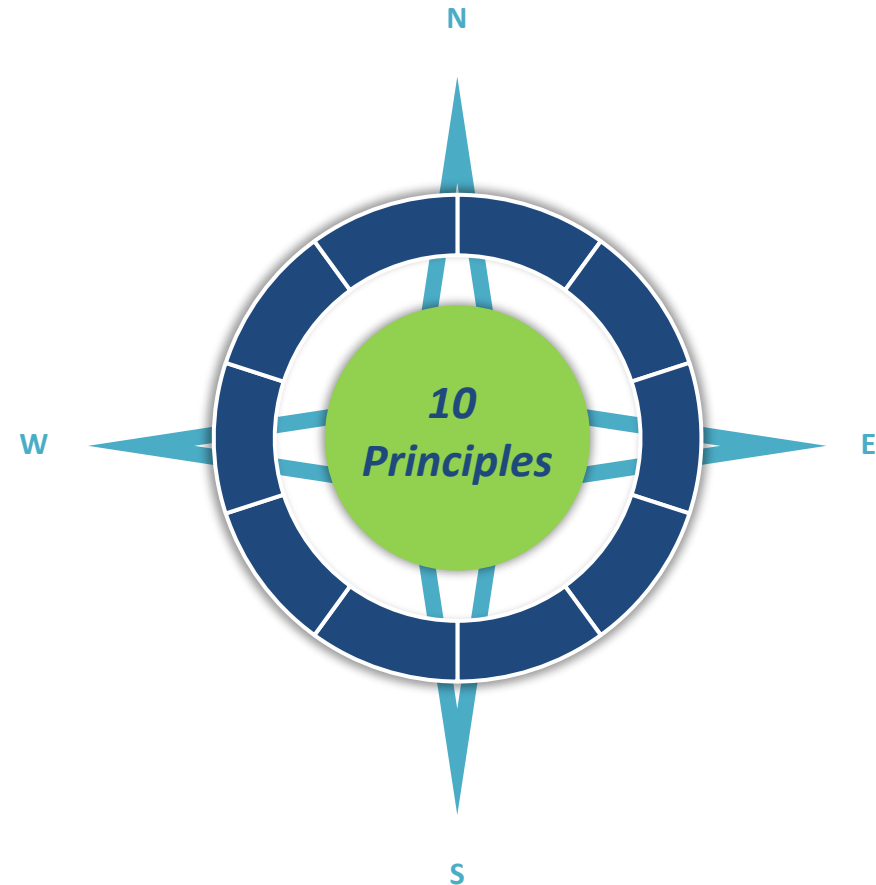
Related to resource intensive human needs

- Nutrition
- Mobility
- Housing
- Daily functional needs
- Supporting the other economic ecosystems in their delivery of societal needs

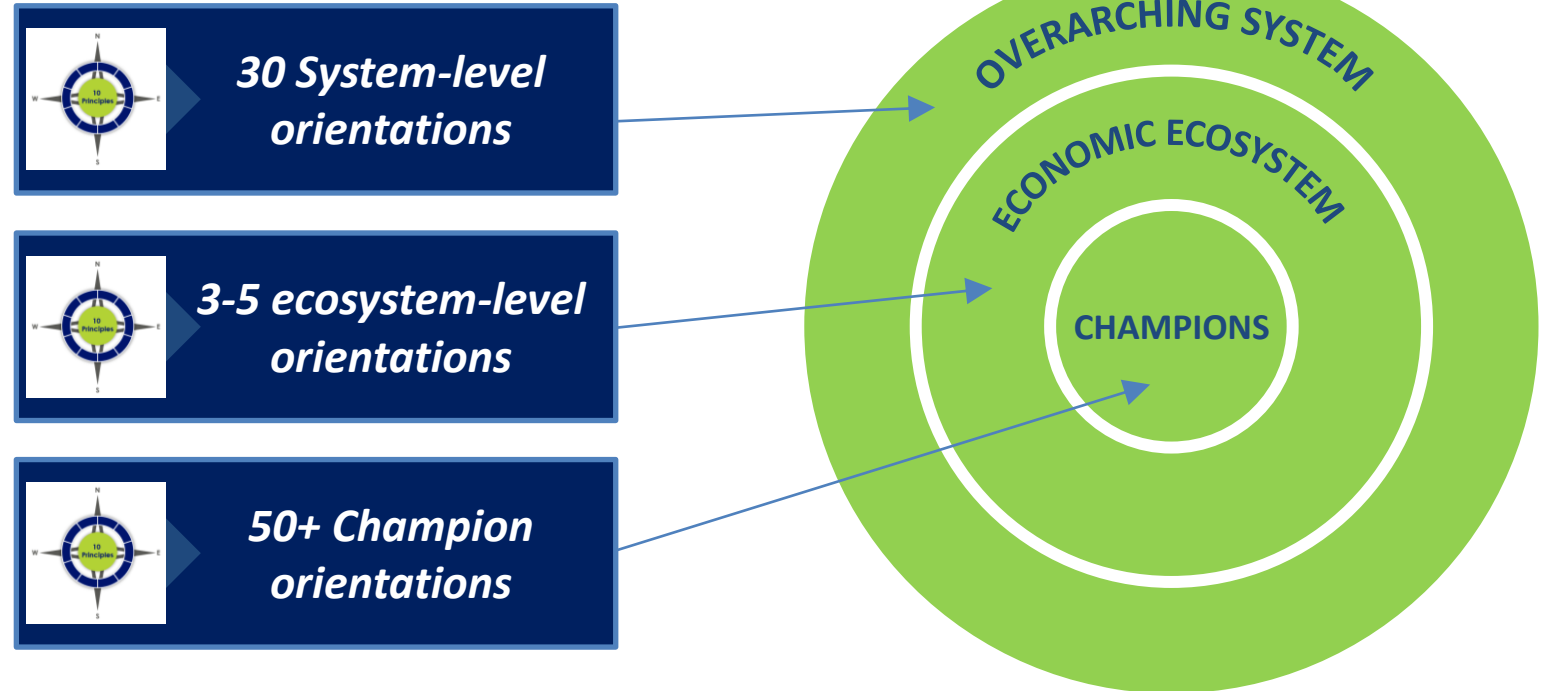


Translating the system change compass to systemic orientations

System Change Compass (10 Principles)



Application to the system to derive systemic orientations



50+ nascent industrial investment opportunities that should be supported to built ecosystems based on compass orientations

Healthy food



- Organic food and beverages
- Regenerative agriculture
- Sustainable aquaculture and fishing
- Reduce and valorise food waste
- Urban agriculture
- Product reformulation for nutritious food
- Alternative proteins

Built Environment



- Smart urban planning
- Rethink built environment ownership
- Repurpose underutilized buildings
- Retrofit existing buildings
- Fluid and sufficiency-oriented space management
- Circular and net-zero housing

Intermodal Mobility



- Fast charging infrastructure
- High-speed railway infrastructure
- Modern and adapted transit infrastructure
- Car- and ride-sharing models
- End-of-life management for cars
- Electric and autonomous vehicles
- Infrastructure to improve traffic flow and AV adoption
- Green aviation
- Green shipping
- Walking/cycling infrastructure

Consumer goods



- Product-as-a-Service models
- Maintenance and value retention in products
- Peer-to-peer product sharing platforms

Nature-based



- Restoration of degraded land and coasts
- Smart forest management
- Urban greening
- Systems for paid ecosystem services
- Seaweed
- Marine and land-based environmental protection areas
- Ecotourism

Energy



- Renewable power generation
- Energy storage
- Hydrogen economy
- Smart metering and (point-of-use) energy management
- Grid integration and technologies
- Production of low-carbon gaseous and liquid fuels (transition technology only)
- Carbon capture infrastructure (transition technology only)

Circular Materials



- Localised and distributed value chain systems
- Asset recovery systems and reverse logistics
- Markets for secondary materials
- High-value material recycling
- Materials-as-a-Service models
- New materials and high-performing substitutes
- Additive manufacturing

Information and processing





- Distributed manufacturing
- High-speed digital infrastructure
- Digital material information and tracking systems
- Data generation, processing, and protection
- Artificial Intelligence for societal challenges

Intermodal Mobility | Ecosystem-level policy orientations

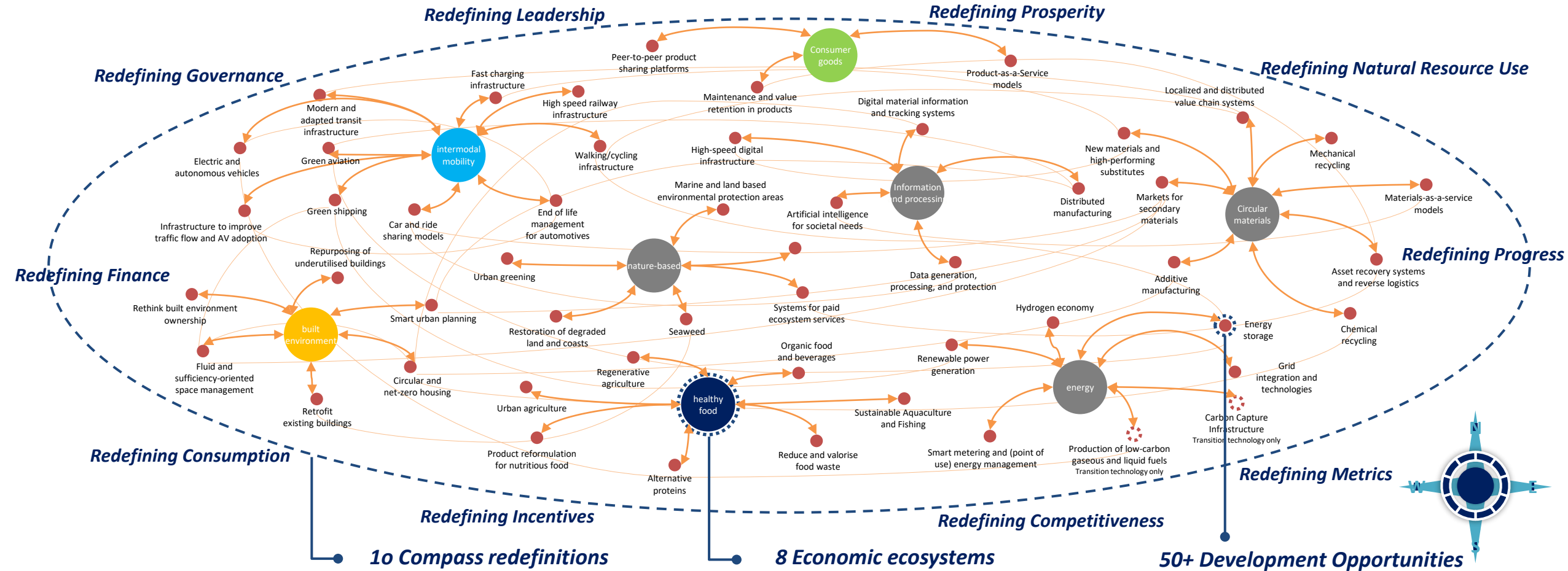


Intermodal Mobility Economic Ecosystem				
Ecosystem-level policy orientations	Impact			
	Economic	Social	Environment	Resilience
Reduce the need for motorised trips through <ul style="list-style-type: none"> designing cities for shorter commutes, facilitating residential relocation to shorten commutes, improving digital infrastructure and offerings to promote non-travel meetings promoting working-from-home (teleworking) policies enabling low-material, zero-fuel “active” transport e.g. extension of cycling lanes, conversion of highly frequented city zones into pedestrian areas shortening supply chains to increase freight efficiency 	✓		✓	✓
Reduce energy intensity and consumption of fuel made of mineral oil by <ul style="list-style-type: none"> promoting electric vehicles in all possible cases reducing energy intensity (energy consumption per tonne transported) by technical and operational interventions in aviation and shipping shifting to sustainable fuels for indispensable aviation and shipping trips 		✓	✓	
Maximise the utilisation per vehicle and trip for freight and passengers through <ul style="list-style-type: none"> intercity: (high-speed) rail urban: public transport , intermodal integrated mobility offerings. enablers: Infrastructure, exclusive lanes for shared transport and micro mobility, digital platforms ocean/air: avoiding empty/unladen/not fully booked journeys, modularity of planes for different uses that is adaptable to current need of either passenger or freight capacity 	✓		✓ ✓	
Prioritise medium of transport that is easiest to electrify and maximise utilisation through <ul style="list-style-type: none"> e.g., train transport over planes, particularly for regional or domestic flights 				

Intermodal Mobility | Investable Opportunities

Intermodal Mobility – Champions 	Descriptions 
Fast charging infrastructure	<i>Expand fast electric charging infrastructure for light and heavy-duty vehicles including harmonisation of access (e.g. regarding plugs, payment systems, electricity “roaming fees” when users are abroad)</i>
High-speed railway infrastructure	<i>Improve and scale high-speed railway infrastructure for (cross-border) transportation of goods and passengers</i>
Modern and adapted transit infrastructure	<i>Develop green public transport, particularly electric-powered buses, tramway and light rail systems as well as electrification of train network</i>
Car-and ride-sharing models	<i>Establish comprehensive, integrated and intermodal car-and ride-sharing platforms (including open access points and simplified payment systems across providers for commuters who use multiple mobility services)</i>
End-of-life management for automotives	<i>Develop an industrial system to retain value of end-of-life cars, including reverse logistics, design for refurbishment, remanufacturing and recycling</i>
Electric and autonomous vehicles	<i>Scale up electric and autonomous vehicles manufacturing and the necessary infrastructure changes in cities</i>
Infrastructure to improve traffic flow and AV adoption	<i>Increase penetration of hardware and software to improve traffic flows and prepare road infrastructure for autonomous vehicles (including lidar, radars, intelligent traffic management systems, traffic data analytics)</i>
Green aviation	<i>Improve aircraft fuel efficiency, increase the supply and demand of Sustainable Aviation Fuels (made either from advanced biofuels or produced using renewable energy sources), develop new technologies and systems engineering processes and methods to optimise air routes</i>
Green shipping	<i>Reduction of the use of resources and energy by gaining efficiency, using eco-friendly vessels and establishing green ports</i>
Walking/cycling infrastructure	<i>Promote an active transport infrastructure and micro-mobility solutions, e.g., more and improved pedestrian/bike lanes, bicycle “highways”, better pedestrian and bicycle crossings (for roads and rivers)</i>

System Change Compass



New organization of economic activities

One overarching system that consolidates the European economy in its entirety.

Economic ecosystems can meet a specific societal need (e.g. intermodal mobility system) or support the fulfilment of multiple societal needs (e.g. new energy system).

"Champions" are economic subsystems which could become the new spearheads of the green, resilient and fair post-COVID economy Europe wants to build

Application of the compass on each level

10*3 = 30 system-level policy orientations

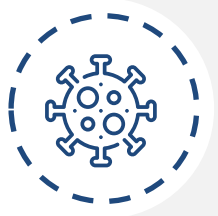
3-5 specific economic ecosystem policy orientations 50+ economic subecosystems orientations

EGD and Post-Covid Recovery

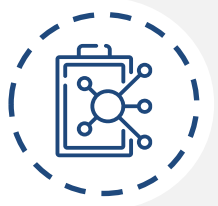
Two sides of the Same coin

EGD and COVID-19

Basic Lessons



World after Covid-19: will be the same. We will hopefully just better understand it. Very likely the **frequency and severity** of health-related outbreaks, climate related extreme weather events ... will in the future increase. We need to **rethink the way we are managing the risks**, as individuals and collectively, as private companies and public policy makers, locally and globally. We need to **collaborate** more to built **resilient societies** and be **better prepared**.



Role of science: one thing is clear - **policy making** and adopted decisions should be in the future more **science-based**



Precautionary principle: is written in EU Treaties. Maybe trying to **better implement it in practice** is not a bad idea. It can save our jobs ... and lives.

EGD and the post-COVID Recovery

Two Sides of the same Coin



01

The economic policy designed by the EGD and related documents is the most convincing **competitiveness policy** for the European Union - According to the Raw Materials Scoreboard of the EC, the EU was in 2018 between 75% and 100% reliant on imports for most metals and more than half of EU's energy needs are met by net imports. Prices for raw materials are extremely volatile and resources constitute the largest share of industry input costs.

02

EGD already provides convincing answers to some COVID-19 related concerns in relation to **reconsidering globalisation** effects - Building a clean and circular economy promises to reduce our dependence on imported materials, lower our environmental, climate and health impacts, and create more local jobs. It can also help improve self-sufficiency and resilience exposed by Covid-19 in relation to the global supply chains.

EGD and the post-COVID Recovery

Two Sides of the same Coin



03

Both EGD and post-Covid-19 call for an **inter-generational solidarity and agreement** - In the past decades, GDP has grown at the expense of depleting natural capital, passing on the costs of replenishing this capital to future generations. The billions in financial debt being mobilised by countries and institutions to combat Covid-19 are adding to the environmental debt. At minimum we should provide them a safer, more sustainable and resilient world than is the current one.



04

COVID-19 is providing the necessary **missing urgency** to the EGD and climate related financial efforts - We have seen that determined global actions in facing a crisis are possible if the crisis is perceived as imminent. Until now, the fight against environmental challenges has never been seen as sufficiently urgent to attract enough funding. Funds committed to Covid-19 recovery (in EU almost doubled budget capacity) create an opportunity to reshape an economy on a transformative scale.



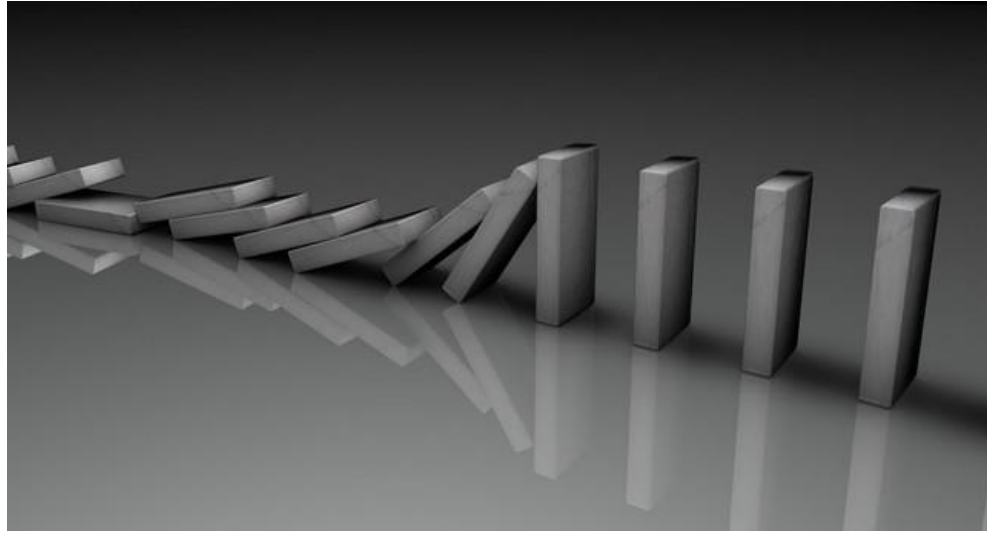
05

Both COVID-19 and EGD related challenges require a **new approach to governance**, in particular on the global level

To Conclude

*Science is Convincing and the Change
is Unavoidable*

Transition to a more sustainable economy and society

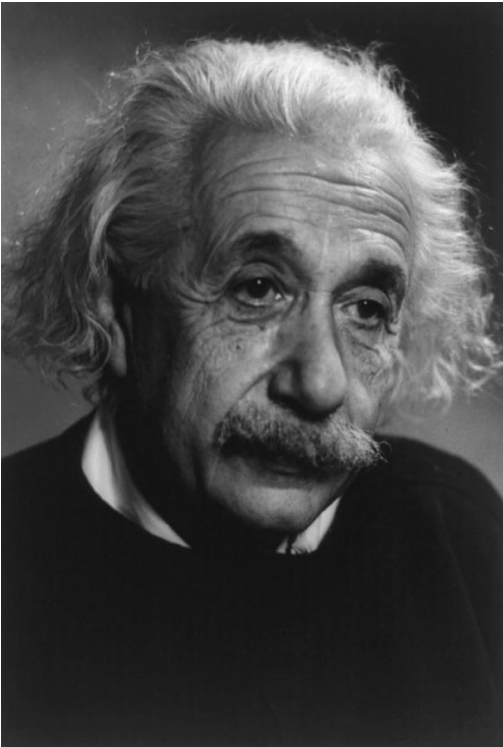


IS UNAVOIDABLE!

*Humans are supposed to be **intelligent**. It is high time to prove it.
We have to fix a broken **compass**!*

WILL IT BE EASY?

ALBERT EINSTEIN



When asked why it is that mankind has stretched so far as to discover the structure of the atom, but we have not been able to devise the political means to keep the atom from destroying us he replied:

“That is simple, my friend. It is because politics is more difficult than physics”

Why the changes are so difficult in practice?

- While the challenges we face require a deep systemic change and long-term rethinking of the way how we govern our societies, political cycles, public and financial institutions, to a large extent also private companies, have inbuilt **short-term focus and logic**. This inconsistency limits our ability for efficient and strategic action.
- Production and consumption systems are based on the **logic of consumerism fuelled by quantity-driven profits and growth measured by GDP**. GDP could be best explained by saying, that one will not reach the goal by walking faster, if walking in the wrong direction! We have to fix a broken compass!
- Markets are core mechanism for the interaction among economic actors, producers and consumers. Production capital is over-valued and over-rewarded, labour capital is undervalued, and under-rewarded and natural capital is in many cases not valued at all. This cannot lead to economic, social and environmental balance. **Signals to economic actors** should change.
- **The existing lock in, and vested interests** – companies are thinking strategically, they know where they would like to be in the future, but they also know where they are now. They struggle how to make a transition and stay profitable in the short term.
- A transition to a more sustainable economy and society will only be possible if it is **just, fair and inclusive**. We have to make our societies more equitable and do more in the fight against poverty. Social unrest is growing even in high-income countries, and it is high time to hear the echo of the streets and the voice of a frustrated young generation.

Lack of scientific evidence is not the reason for the missing speed and scope of actions!



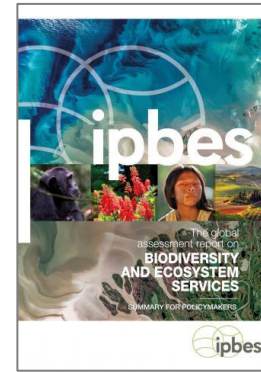
UNEP 2021
Making Peace with Nature



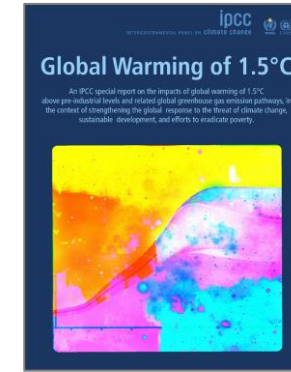
UNEP 2020
Emissions Gap Report



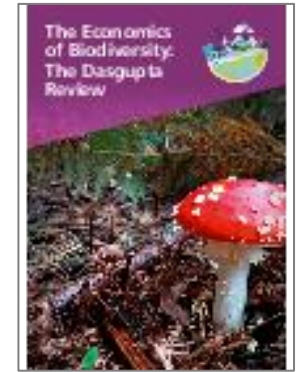
UNEP 2019
Global Environment Outlook



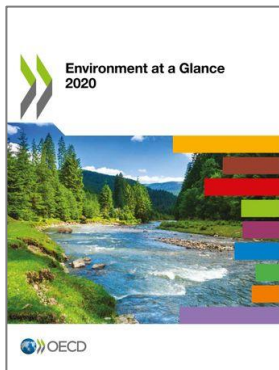
IPBES 2019
Global Assessment



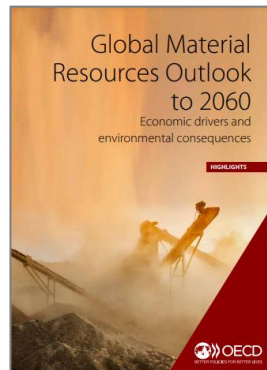
IPCC 2018
Special report – global warming of 1.5°C



Dasgupta Review 2021



OECD 2020
Environment at a Glance



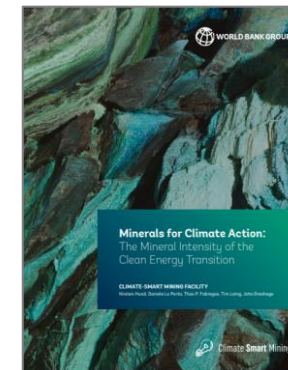
OCED 2019
Global Material Resources Outlook to 2060



WRI 2019
World Resources Report – Creating a Sustainable Food Future



Oxford-UNEP 2021
Are We Building Back Better?



World Bank Group 2020
Minerals for Climate Action



IMF 2021
Building Back Better: How Big Are Green Spending Multipliers



The world is not on track to achieve the environmental dimension of the Sustainable Development Goals by 2030 or other internationally agreed environmental goals by 2030.



Climate change

At the current rate, warming will reach **1.5°C** by around **2040** (IPCC 2018) and exceed **3°C** this century (UNEP 2020).



CO₂ emissions need to **reduce 45% by 2030** compared to 2010 & reach net-zero emissions by 2050 to limit warming to 1.5 °C (UNEP 2021)

Combined emissions of the **richest 1%** of the global population account for more than **twice** the **poorest 50%** (UNEP 2020).



Damages from climate-rel. natural disasters cost **US\$155 billion** in 2018. Competition for natural resources heightened (UNEP 2021).

Production of minerals for green energy (ex. graphite, lithium and cobalt) could **increase by nearly 500% by 2050** (World Bank 2020)



An estimated **5% of species** is at risk of extinction from a **2°C increase**, **16%** if it is a **4.3°C increase** (IPBES 2019).



Biodiversity loss & ecosystem degradation

Produced capital per person doubled but the stock of **natural capital per person declined by nearly 40%** in 1992-2014 (Dasgupta 2021).

One million of the world's estimated 8 million species are threatened with extinction. (IPBES 2019)



Over **1/3** of the world's land surface and nearly **75%** of freshwater resources are devoted to crop or livestock production (IPBES 2019).



Food demand is on course to **increase by more than 50%**, and demand for animal-based foods by nearly **70%** by 2050 (WRI 2019).

Land degradation has reduced the productivity of **23%** of the global land surface (IPBES 2019).



70% of people living in poverty depend on natural resources for their livelihoods (Dasgupta 2021).



Pollution / health

The stratospheric ozone layer, which reduces the risk of excessive solar ultraviolet radiation exposure, is slowly recovering (UNEP 2021).

Indoor and outdoor air pollution cause up to **7 million premature deaths** per year (UNEP 2021).

Plastic pollution **increased tenfold** since 1980 and less than **1/5** is recycled (OECD 2018). **>80%** of wastewater is untreated (IPBES 2019).

Solid waste per capita has doubled in the last decade to **1.3 billion tons** a year, most of which is generated and disposed of in cities (UNEP 2021).



Wealthy countries export impacts to poorer nations through **trade and waste disposal** (UNEP 2021).



Around 25% of the global burden of disease stems from environment-related risks including animal-borne diseases (such as COVID-19), climate change, and exposure to pollution and toxic chemicals (UNEP 2021).



Interconnected

The way forward proposed by science (some examples)

Sustainable economic and finance systems (Yardstick inclusive wealth)



Accounting for nature

- ✓ Incorporate full natural capital accounting in governments and businesses
- ✓ Standardize data and modelling

Pricing externalities

- ✓ Put a price on carbon
- ✓ Phase out fossil fuel subsidies
- ✓ Shifting taxation from production and labour to resource use and waste (promote a circular economy)

Annual subsidies to fossil fuels amount to over US\$5 trillion (UNEP 2021)

Restricting quantity

- ✓ Expand Protected Areas
- ✓ Dematerialization

Investing in nature

- Multipliers associated with green spending are about 2 to 7 times larger than those associated with non-eco-friendly expenditure (IMF 2021)
- Contribute to poverty alleviation (Dasgupta 2021).
- However, in 2020, only 18% of recovery spending had positive green characteristics (Oxford 2021)

Sustainable Health-food-water-energy systems



- ✓ Technology innovation
- ✓ Sustainable agriculture intensification

Raising productivity (resource efficiency)

- ✓ Reduce food and water waste
- ✓ Shifting toward plant-based foods
- ✓ Replace domestic short flights with rail
- ✓ Promote cycling and car-sharing
- ✓ Improve energy efficiency of housing
- ✓ Enforce circular economy standards

Managing demand/ SCP

- 2/3 of global emissions are linked to private households when using consumption-based accounting. The mobility, residential and food sectors each contribute about 20% (UNEP 2020).

- ✓ Large-scale landscape restoration and reforestation.
- ✓ Retrofitting green and blue infrastructure in cities
- Nature-based solutions with safeguards could provide 37% of climate change mitigation until 2030 needed to meet the 2°C goal, with co-benefits for biodiversity and job creation (IPBES 2019).

Nature-based solutions

Sustainable outcomes can be best achieved by combining objectives for resource-use efficiency, with ecosystem-based management and improved human health, drawing on scientific, indigenous, and local knowledge (UNEP 2020).

Courts are shifting to be at the forefront of the transformation

There is a clear trend that courts all around the world start to recognize the responsibility and accountability of different actors to not harm and/or protect the nature and our environment

States and Governments

- The **German** Federal Constitutional Court ruled that **effective carbon reduction is not a burden, but a protection of future liberties** and the government must protect its citizens' freedoms not just today but also in the future
- An **Australian** court also decided the **government has duty to protect young people from climate crises**

Companies

- A **Dutch** court orders **Royal Dutch Shell** to **cut carbon emissions by 45%** by 2030 – the **first time a court has ordered** a large polluting company to **comply with the Paris agreement**
- Many other **cases are pending**, e.g. Peruvian farmer against RWE in Germany. The court already decided that large emitters can be held accountable for climate change impacts

Individuals

- An **Italian** court **sentenced** the former owners of the Ilva steelworks – once the largest steel producer in Europe – to **22 and 20 years in jail** respectively for allowing it to spew out deadly pollution.

Additional pressure by
shareholders, e.g. Exxon

*Johann Wolfgang
Goethe*



imdb.com

*Knowing is not enough; **we must apply.**
Willing is not enough; **we must do.***

Importance of European Leadership

*Europe is not only
blue with yellow stars*



It is a rainbow

- *blue for freedom and democracy*
- *red for social values*
- *green for the protection of environment*
- *yellow for the culture*

*We can hardly picture Europe as the center of the World,
but we should do everything that Europe remains the
center of the dreams of all the people of the World.*

We need more “Circularity ” even in the
GOVERNANCE



Sharing sovereignty instead of owing sovereignty

There has never been a better moment for

Europe to move from the history of “resource-driven imperialism” into an era of responsible use of natural resources, mitigating its resource fragility and strengthening preparedness and resilience

This would also clearly position EGD and give it a real historic and strategic weight in our efforts for the global circular economy

Circular Economy is not a new concept



It is the oldest concept on the earth.

Nature is a “bio-economy” organized on the principles of the circular economy.

Nothing is lost and everything has its purpose.

It makes sense to embrace it and finally start to behave accordingly.

In essence there is only question to answer:

Do we agree that we humans are part of the nature too?

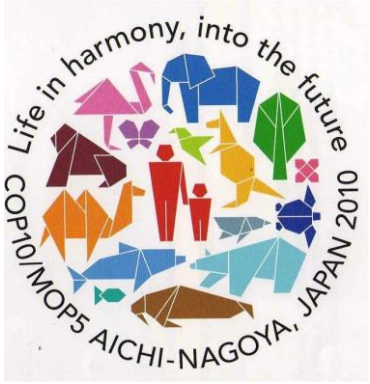
To answer this question we probably do not need the help of the most famous Belgium detective, but his advice is always useful

HERCULE POIROT



When asked why he is speaking about himself always in a third person he replied something like that:

If one is such a genius like me, it is very important to establish a healthy distance to himself.



CBD COP X - Nagoya 2010

After 2009 Copenhagen UNFCCC failure brought optimism and new hope into multilateralism

Strategic Plan for Biodiversity 2011-2020, including 20 Aichi Biodiversity Targets

Strategic Goal A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society

Strategic Goal B: Reduce the direct pressures on biodiversity and promote sustainable use

Strategic Goal C: To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity

Strategic Goal D: Enhance the benefits to all from biodiversity and ecosystem services

Strategic Goal E: Enhance implementation through participatory planning, knowledge management and capacity building

Nagoya Protocol on Access and Benefit Sharing

(The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity)

CBD COP XI - Hyderabad 2012

Implementation of the Strategy for Resource Mobilization.



XI Conference of Parties
CONVENTION ON BIOLOGICAL DIVERSITY
HYDERABAD INDIA 2012



UN
environment
programme



50
1972-2022



International
Resource
Panel

BUILDING BIODIVERSITY

The Natural Resource
Management Approach



THANK YOU

