

Hrvatski poslovni savjet za održivi razvoj
Croatian Business Council for Sustainable Development

*Importance of Natural Resource
Management in our Transition to a
Sustainable Economy and Society
Where does CSRD Framework fit?*

JANEZ POTOČNIK
Co-chair UNEP International Resource Panel (IRP)

Zagreb, 05th October 2022

International Resource Panel
Natural Resource Management Optic

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 Management



Main Challenges

The diagnosis of the problem

Acute

*Energy and Food Challenges
due to terrible war in Ukraine
Summer, where climate
ordinary days are becoming
rare*

*Health – Covid related
developments*

Chronical

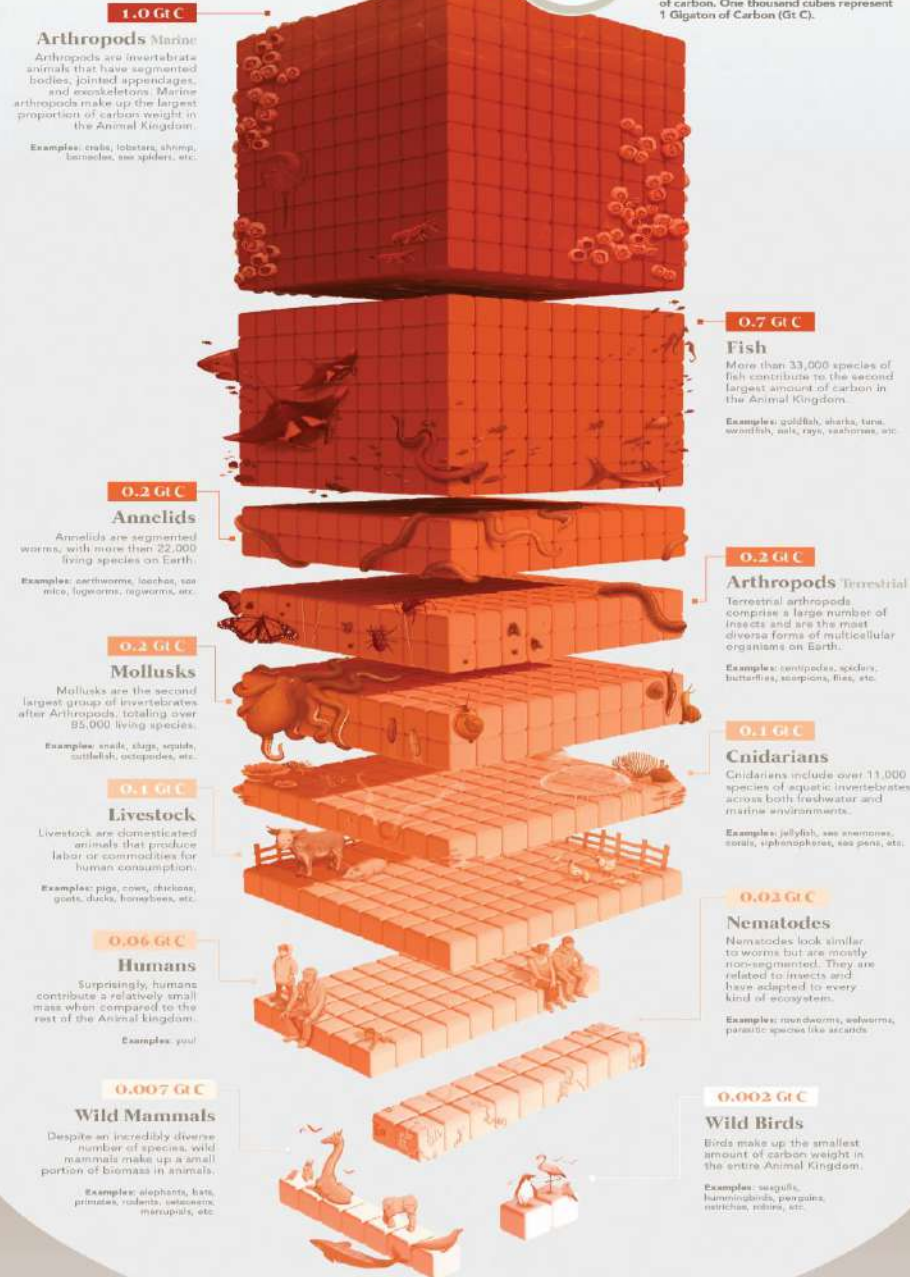
*Environmental Challenges –
Climate Change, Biodiversity
Loss, Pollution/Health
Social inequalities - Created
Wealth Distribution, Poverty*

*Taking pain-killers to remove the acute pain will not heal chronical
diseases, rather hide them and make them worse*

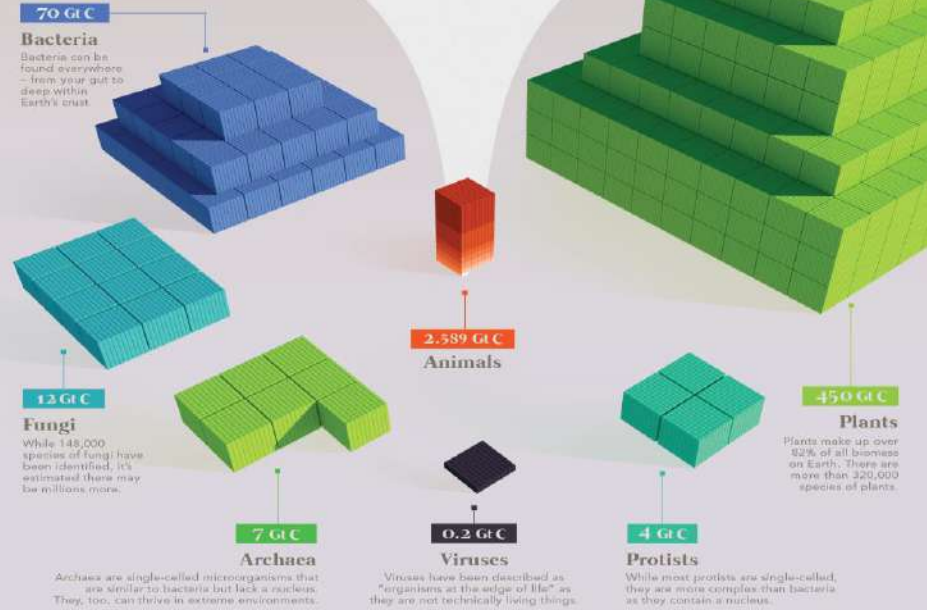
The Biomass of Animals

Biomass is measured by the amount of carbon an organism contains. Carbon is a primary component of all known life on Earth, used in complex biological molecules and compounds.

One cube represents 1 million metric tons of carbon. One thousand cubes represent 1 Gigaton of Carbon (Gt C).



Comparing All Biomass of Life on Earth



Humans make up approximately **0.01%** of all biomass on Earth.

SOURCE: Liu, C., et al., 2018. The biomass distribution on Earth. Proceedings of the National Academy of Sciences 115, 4006–4011. doi:10.1073/pnas.1711942115



COLLABORATORS RESEARCH + WRITING Anupam Ghosh | DESIGN Mark Belan | ART DIRECTION Mark Belan

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Biomass of Life Humans in Perspective

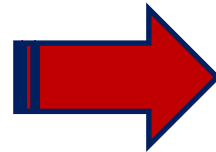
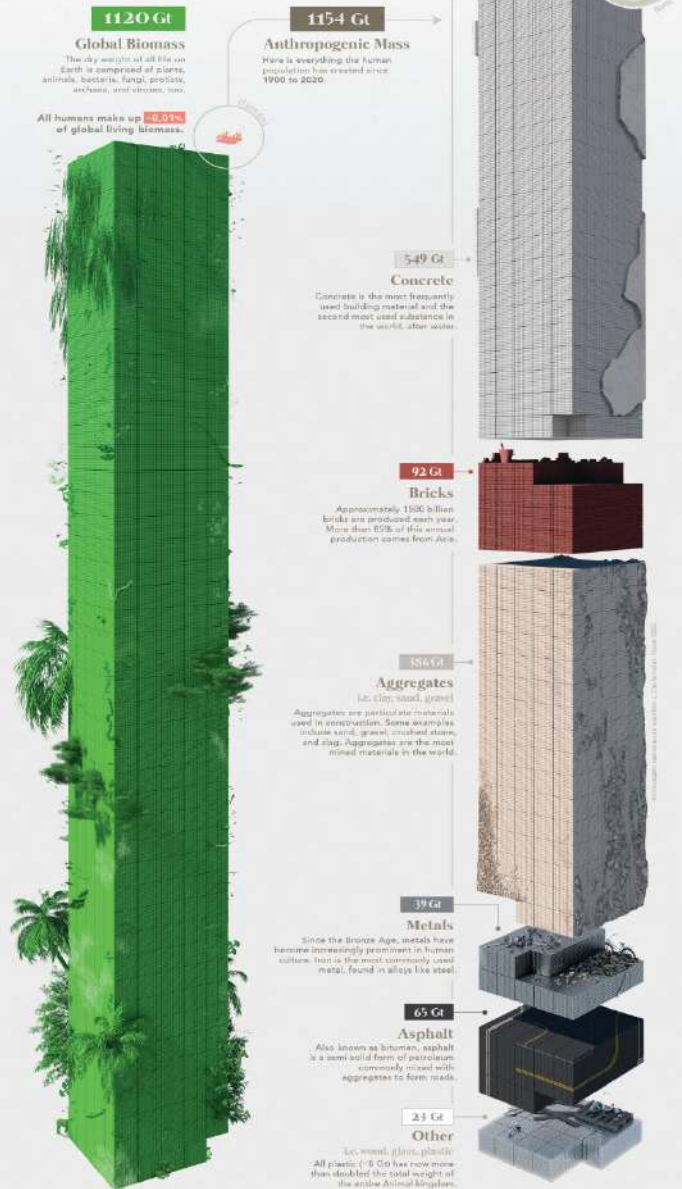
Source: Visualcapitalist.com

Visualizing the Scale of Anthropogenic Mass

Anthropogenic mass, or human-made mass, refers to the materials embedded within inanimate solid objects that are made by humans.

In 2020, the amount of anthropogenic mass exceeded the weight of **all global living biomass**.

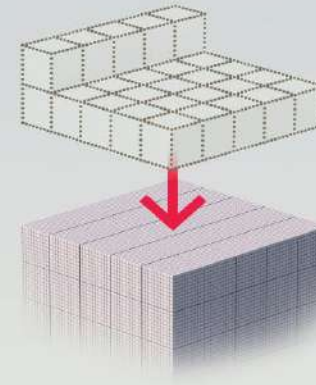
As humans continue to dominate Earth, questions surrounding our material output are increasing. We break down the composition of all human-made materials and the rate of their production.



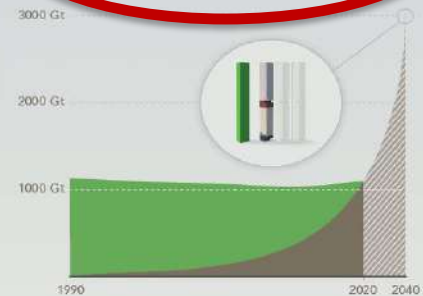
The Accumulation of Anthropogenic Mass

The current rate of accumulation for human-made mass is approximately **30 Gt of mass per year**.

This is equal to each person on Earth producing their own weight in human-made mass every week.



As accumulation rates increase, the amount of human-made mass is predicted to almost **triple the total amount of global living biomass** by 2040.



These trends highlight the alarming speed and volume in which human contributions are impacting the world.

SOURCE: Ebrahimi, E., Ben-Ur, L., Grossnik, J., Ben-Chi, Y.M., Mao, P., 2020. Global human-made mass exceeded all living biomass. *Nature* 586, 442-444. doi:10.1038/s41586-020-01010-5



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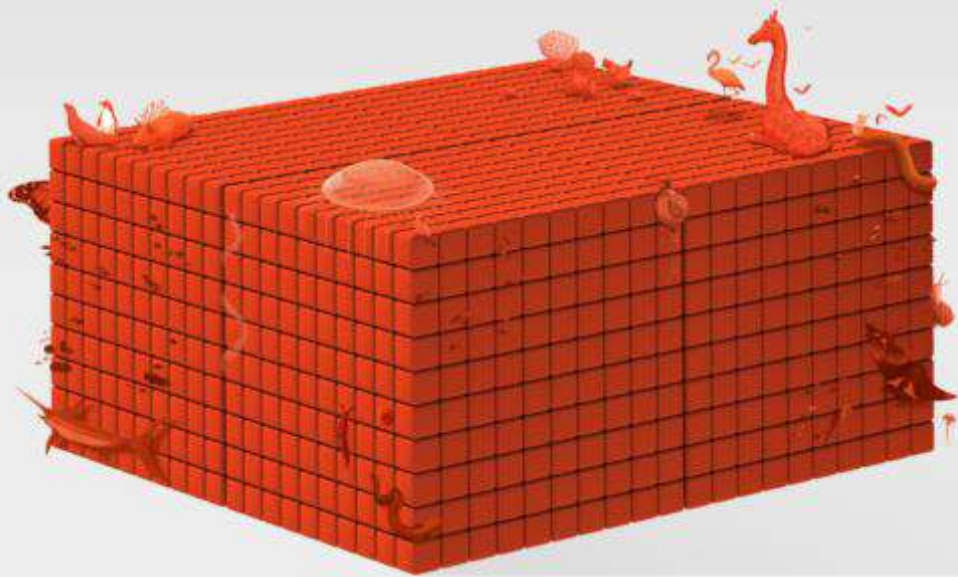
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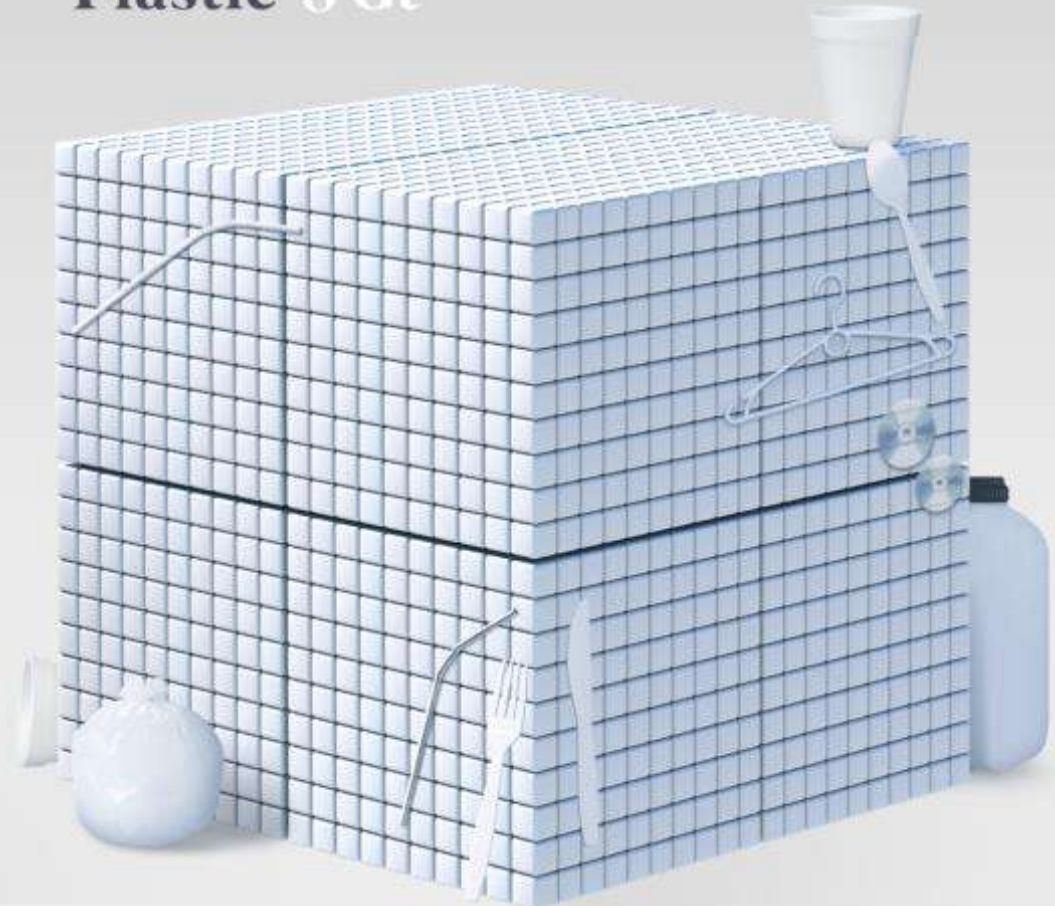
visualcapitalist.com

Source: Visualcapitalist.com

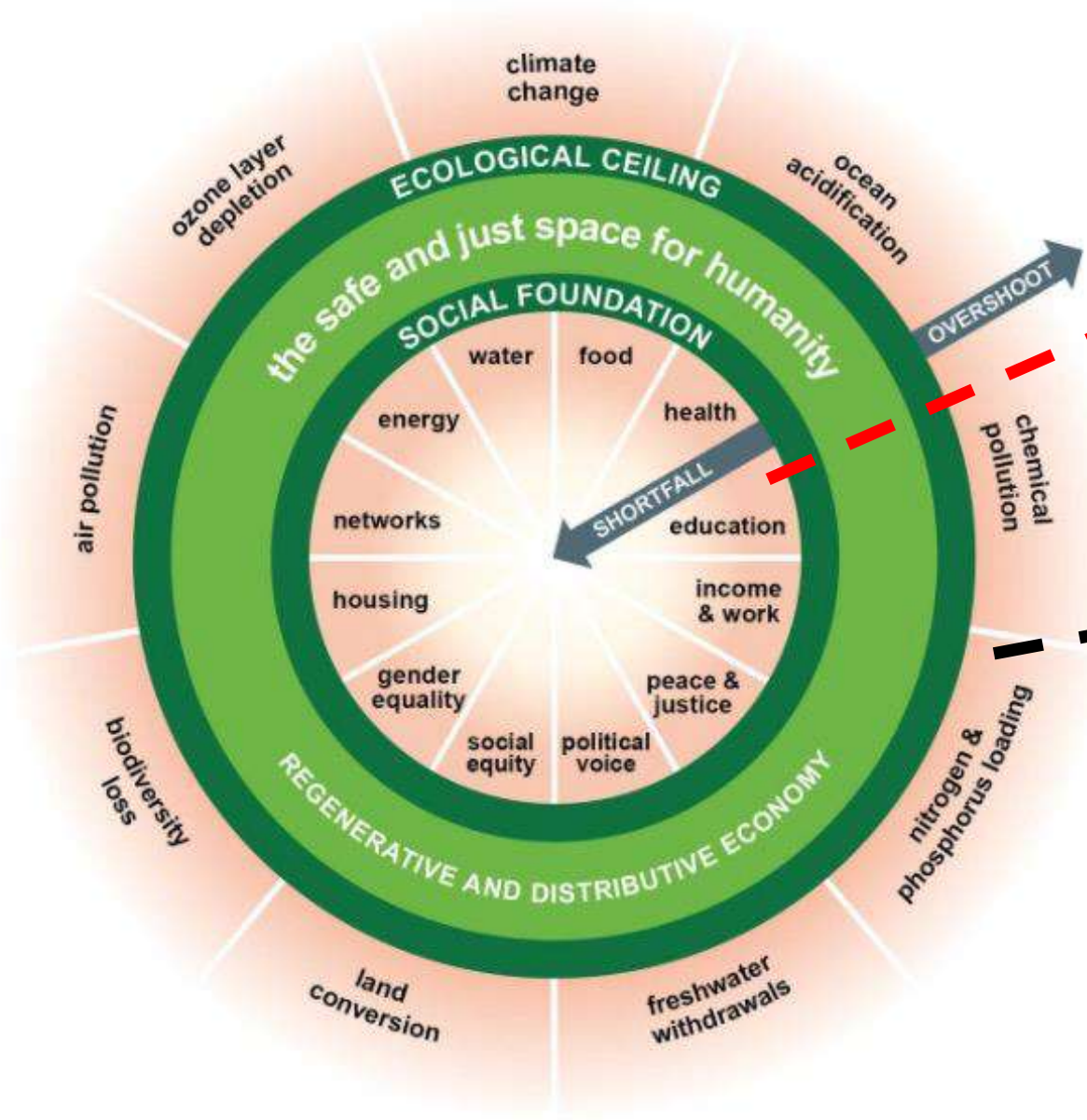
Animal Kingdom 4 Gt



Plastic 8 Gt



A compass for human prosperity

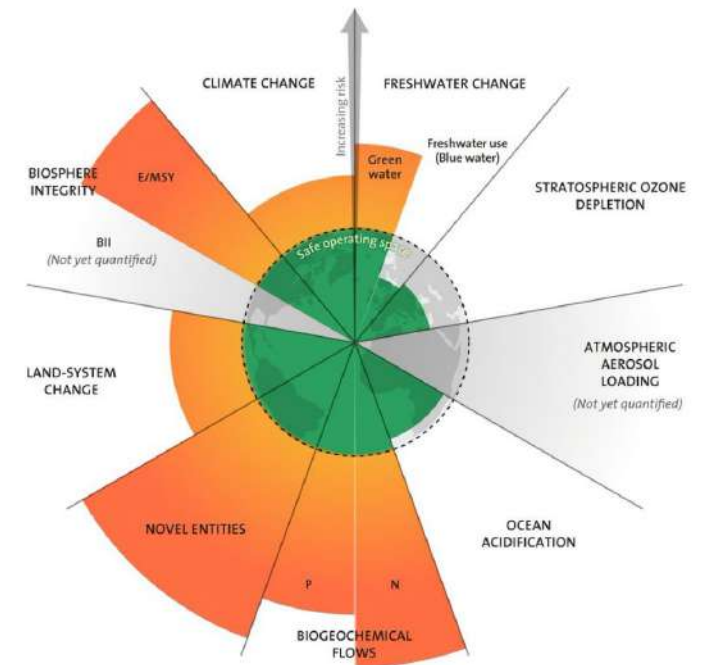
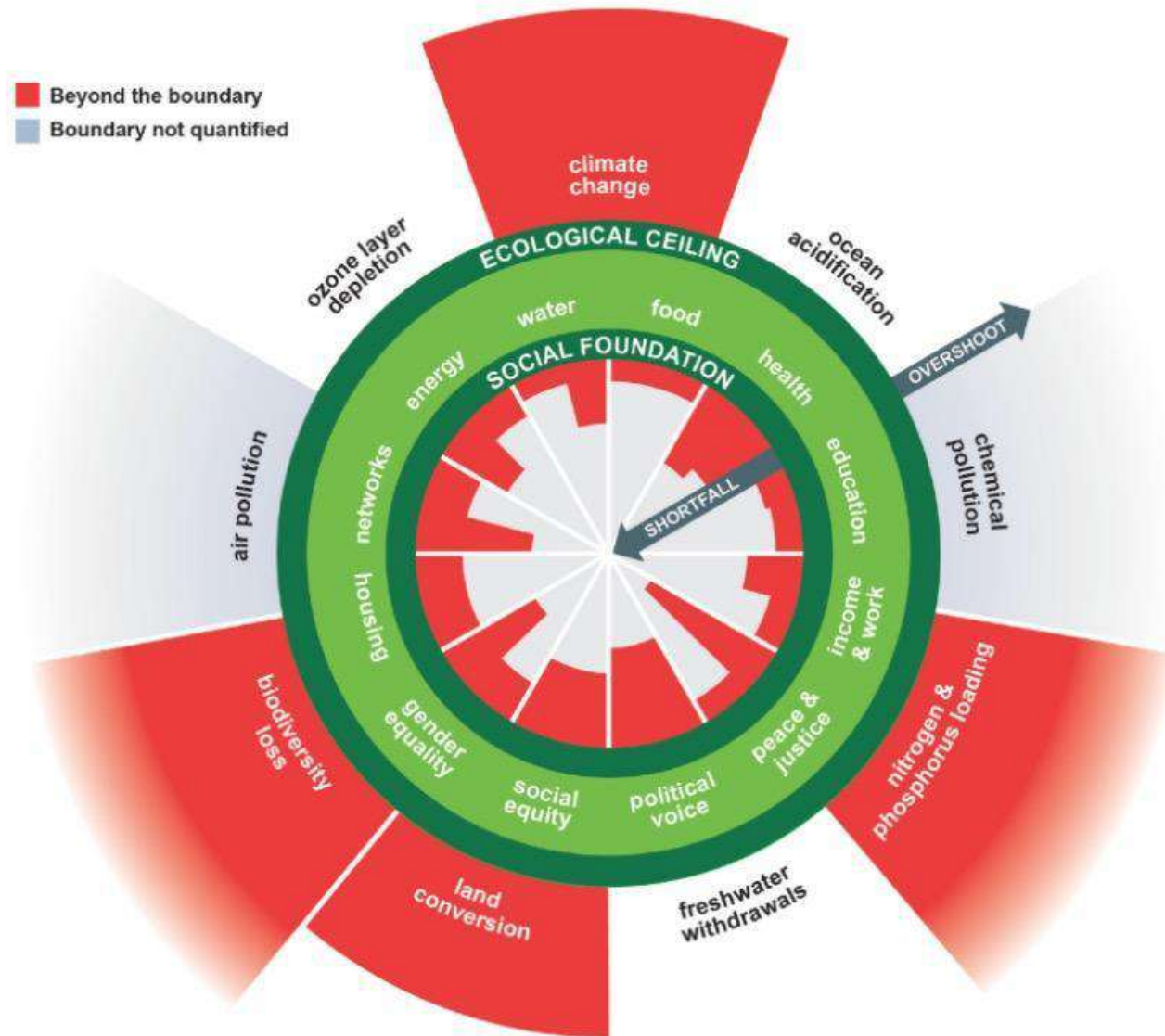


*Basis human needs
incl. minimum requirements
of resource supply*

*Outer limit by Planetary
Boundaries*

Adapted from Raworth 2017

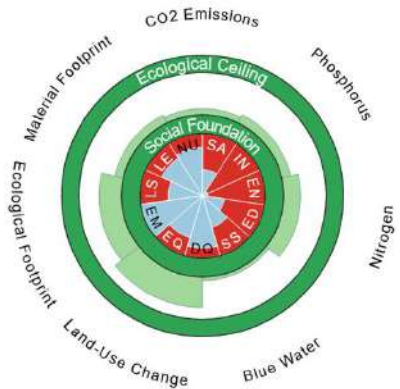
Humanity is living far out of balance



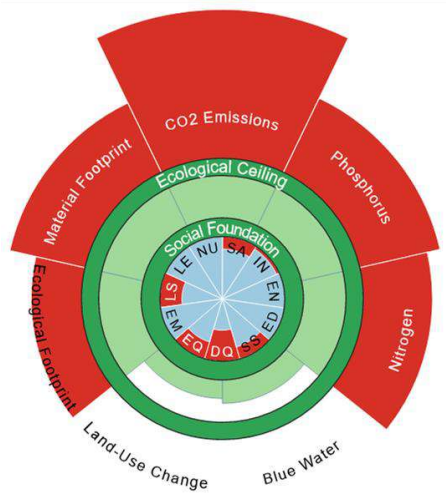
Source: Potsdam Institute for Climate Impact Research, 2022 reassessment

Divergent national contexts

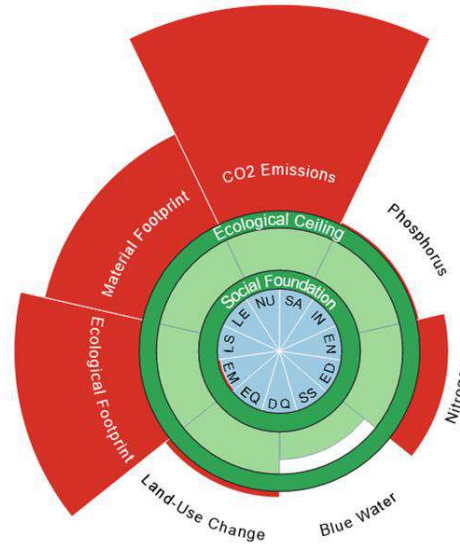
goodlife.leeds.ac.uk



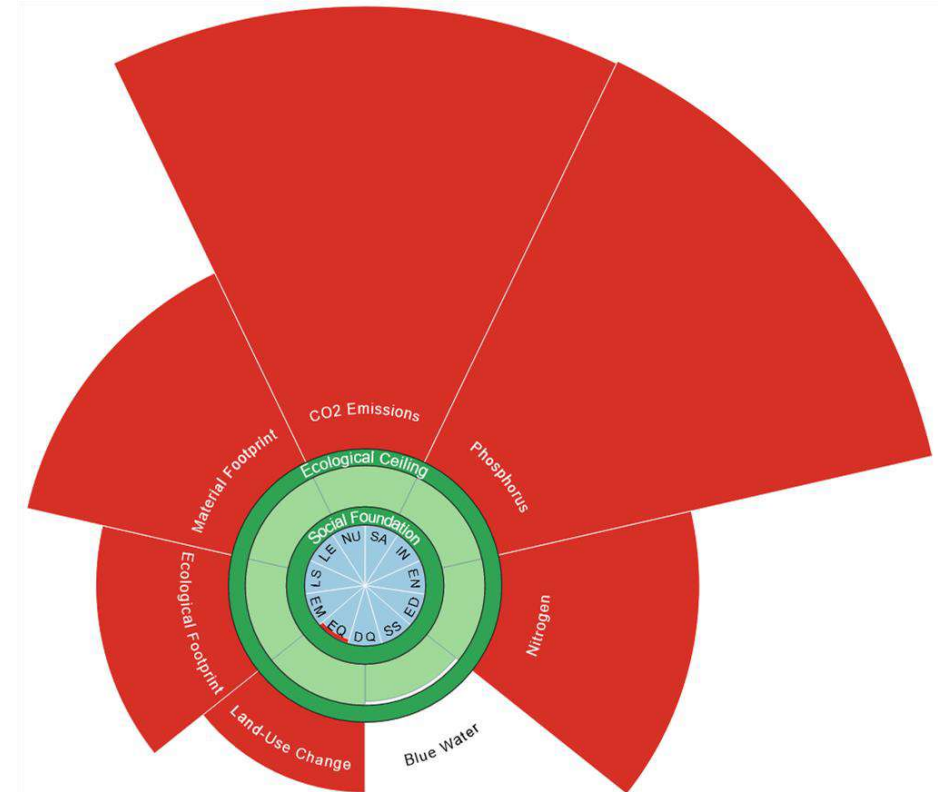
Malawi
\$1,000 pc



China
\$17,200 pc



Belgium
\$54,000 pc



Australia
\$54,900 pc

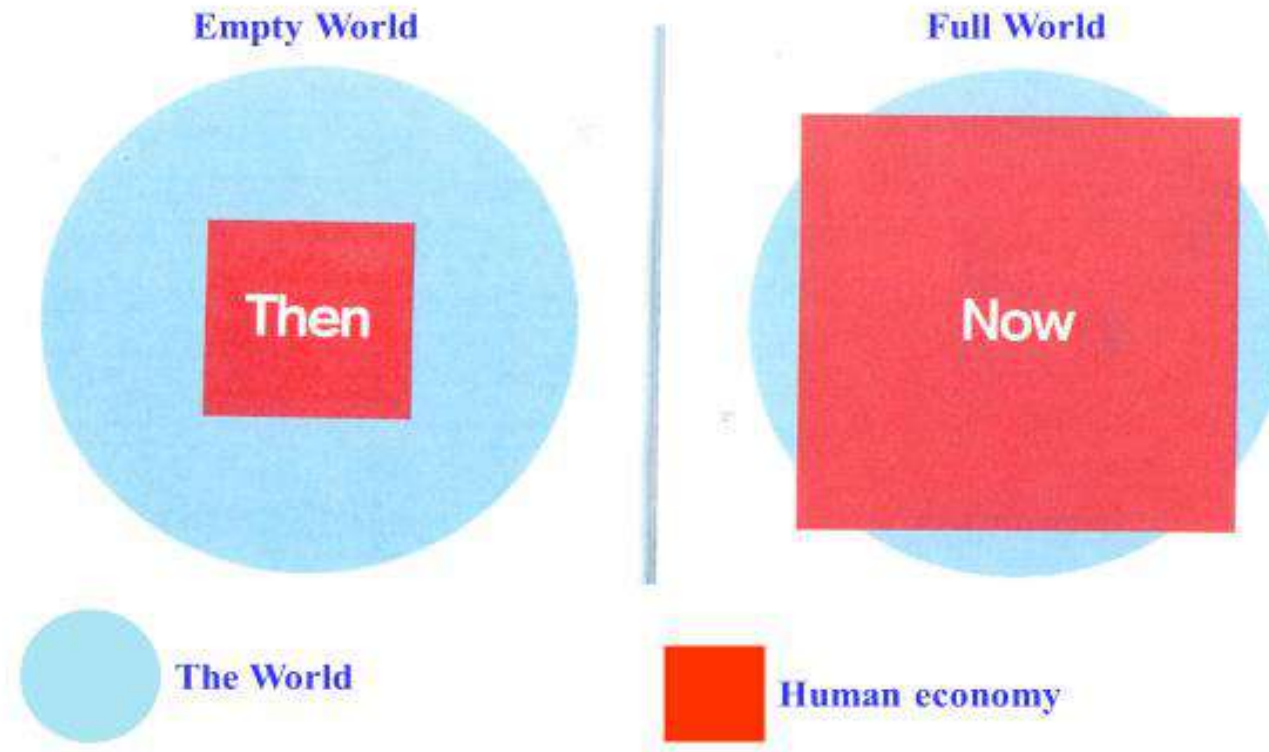


*For the first time in a human history we face the emergence of a single, tightly coupled human **social-ecological system of planetary scope.***

*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*



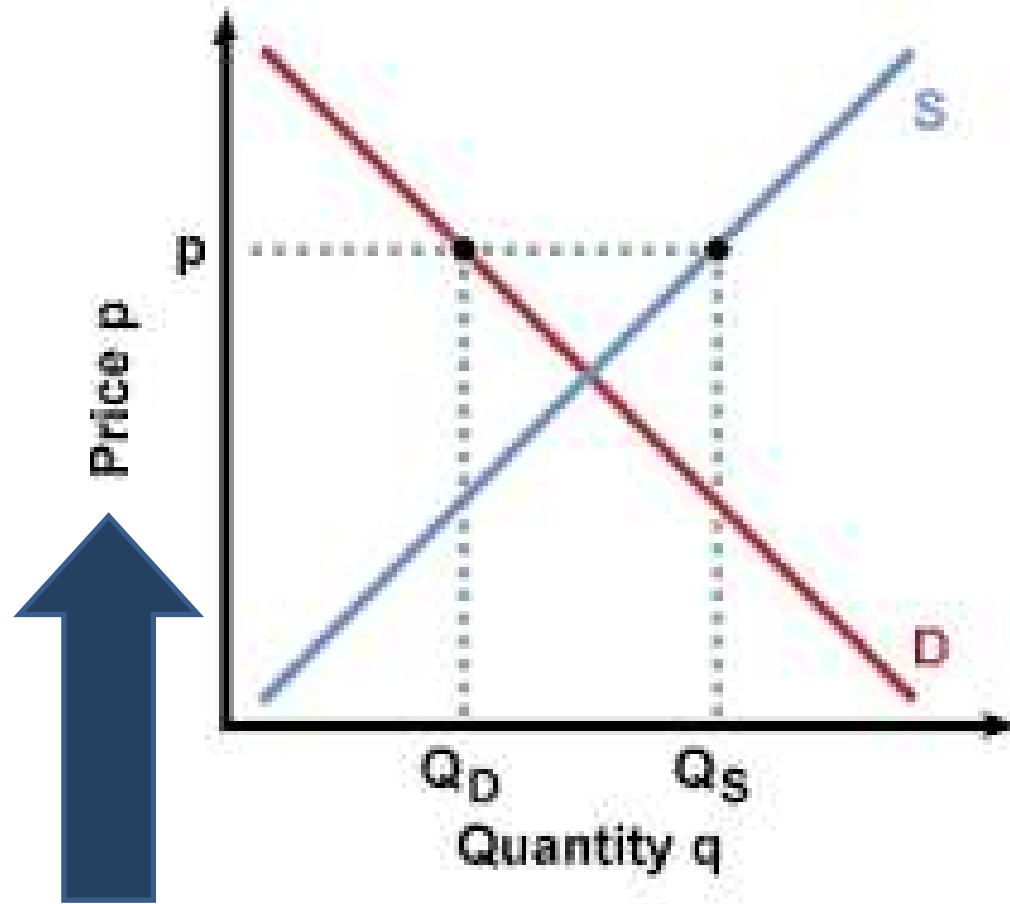
*Natural resources and Environmental
sinks limiting factors of human
wellbeing*



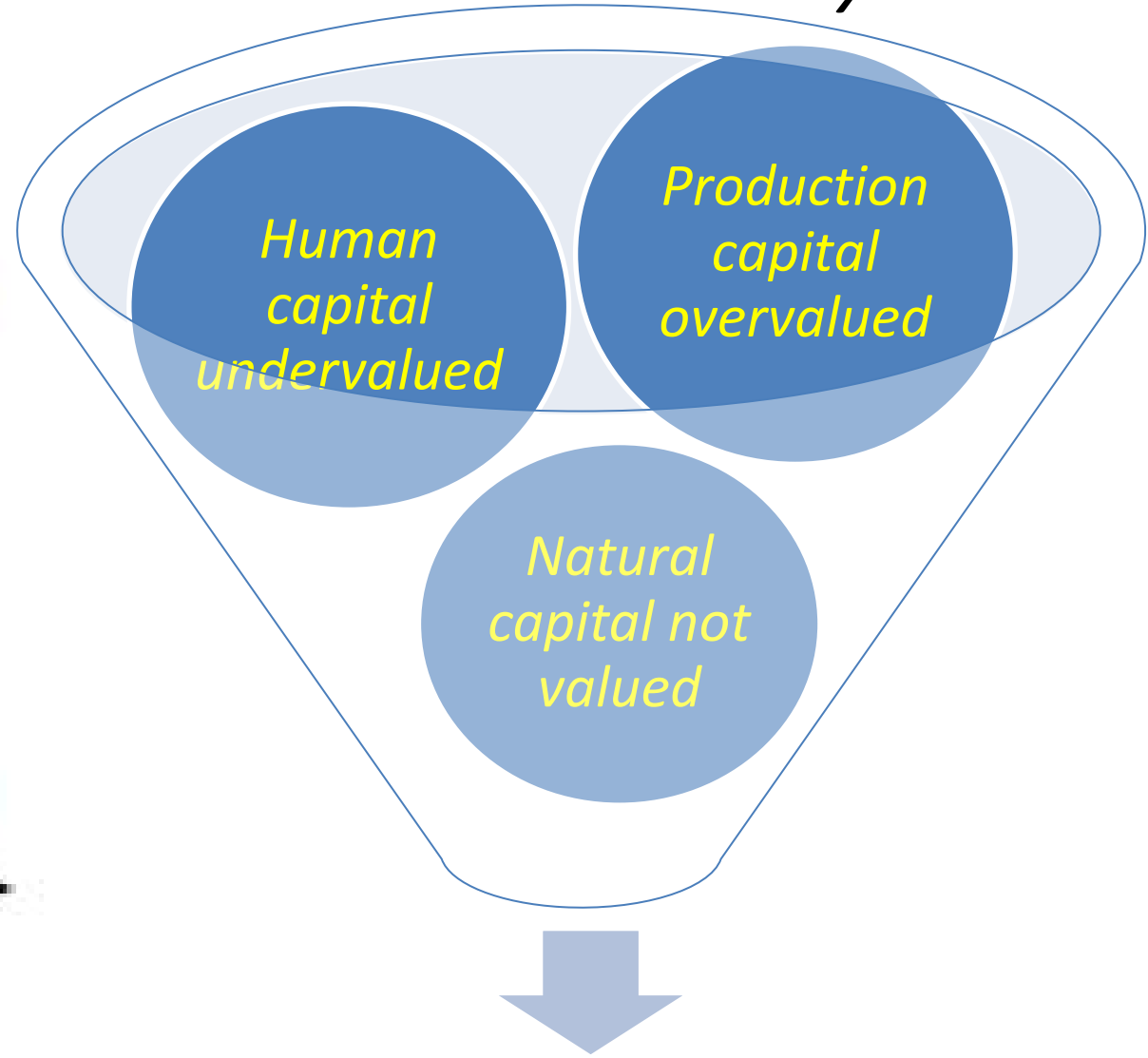
The Dasgupta Review

Main reasons for the current situation - it highlights institutional failure and the failure of contemporary economics to acknowledge that we are embedded in, and not external to nature, and to act accordingly.

*Producers/Consumers
Rational Behaviour*



Market Economy

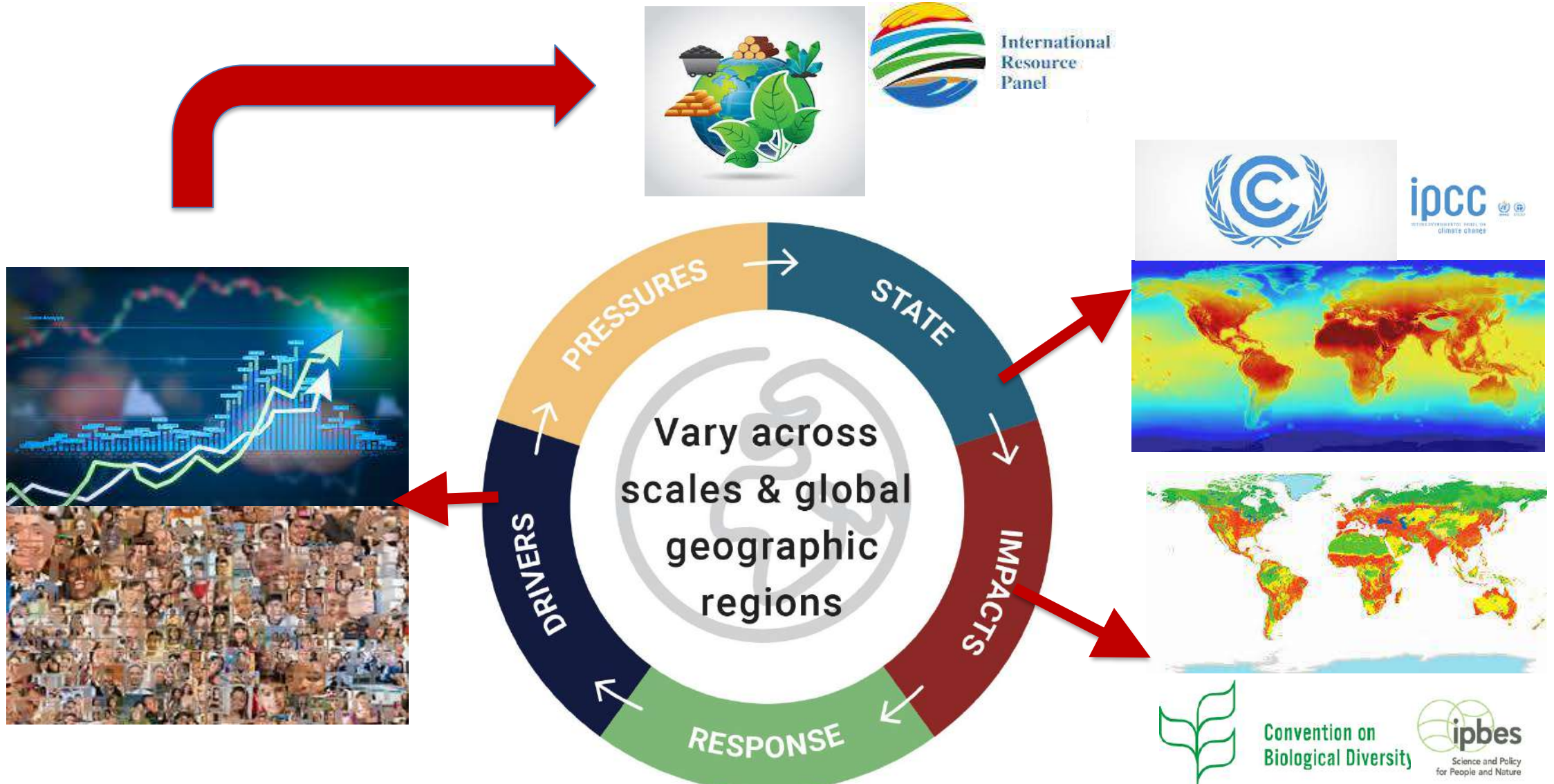


*Economic, social and environmental
(in)balance*

Resource Perspective

*The Common Roots of the Triple
Planetary Crises*

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



Natural Resources:

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



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



Fossil fuels (coal, gas and oil)



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

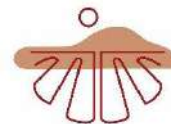


Non-metallic minerals (including sand, gravel and limestone)

Materials
Extracted from
earth



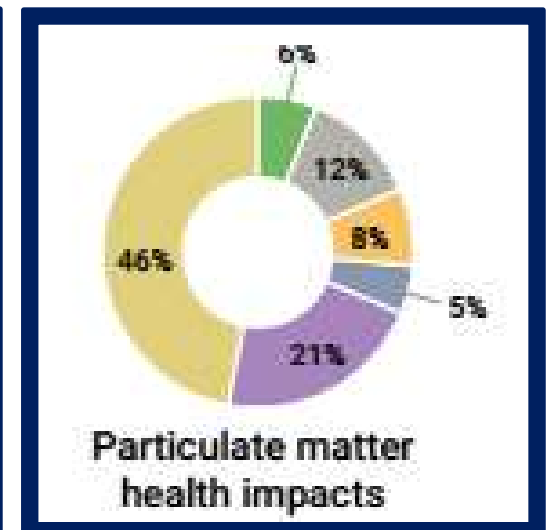
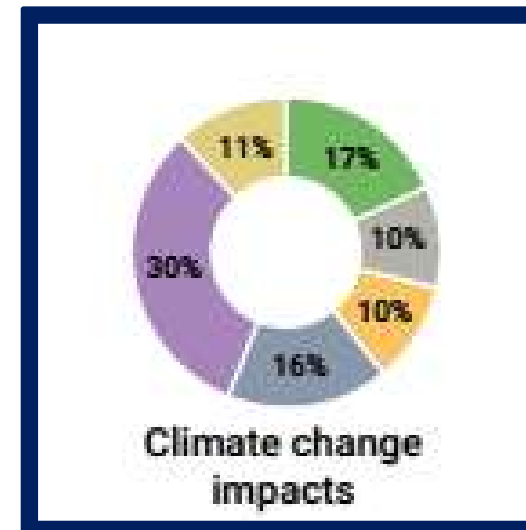
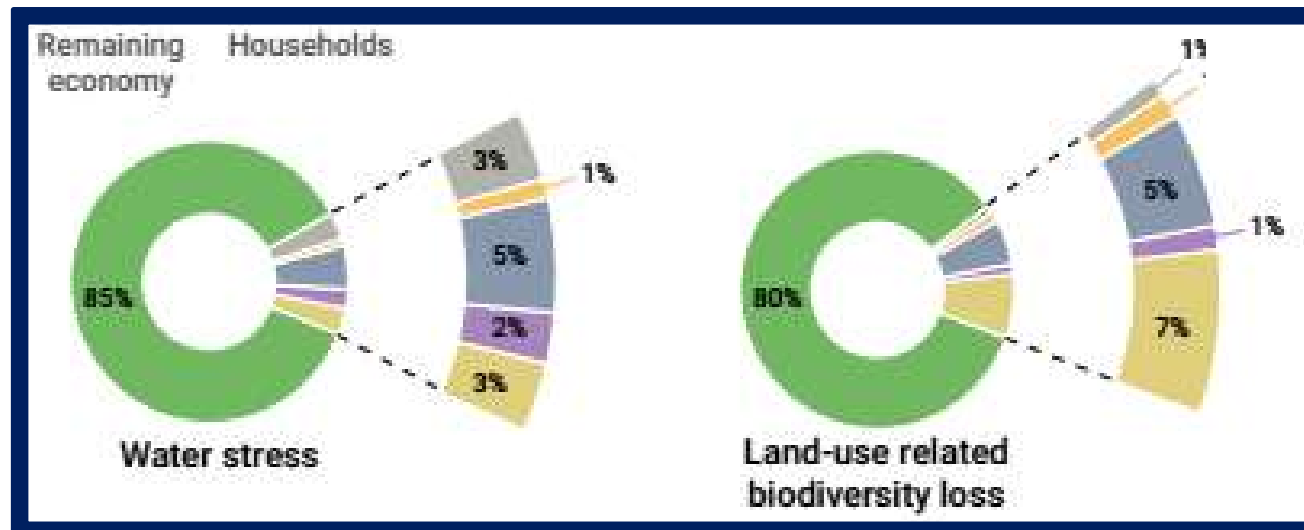
Water and Land



Extraction and Processing of Natural Resources Drives all Aspects of the Triple Planetary Crisis

Environmental impacts of materials in the value chain in extraction and processing phase

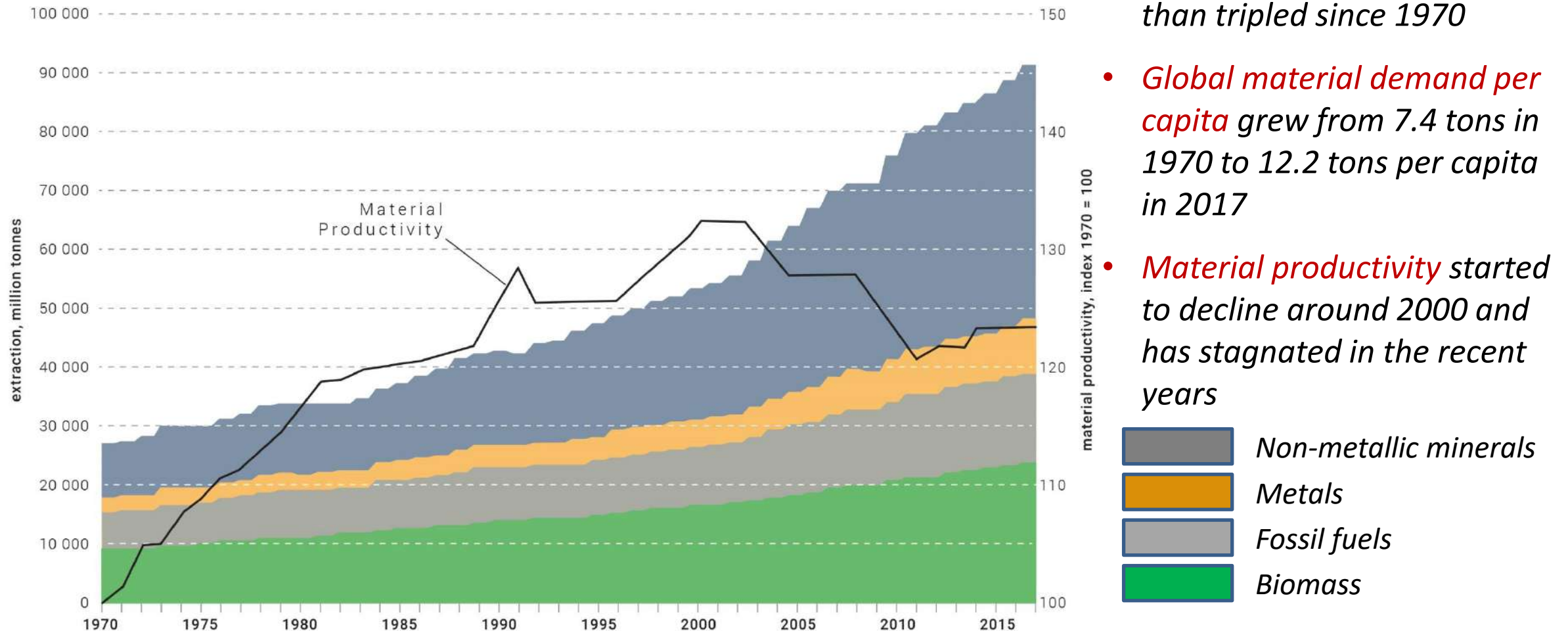
*90% of global land related biodiversity loss and water stress
50% of global climate change impacts
1/3 of air pollution health impacts*



Global material use

Material demand per capita and Material productivity

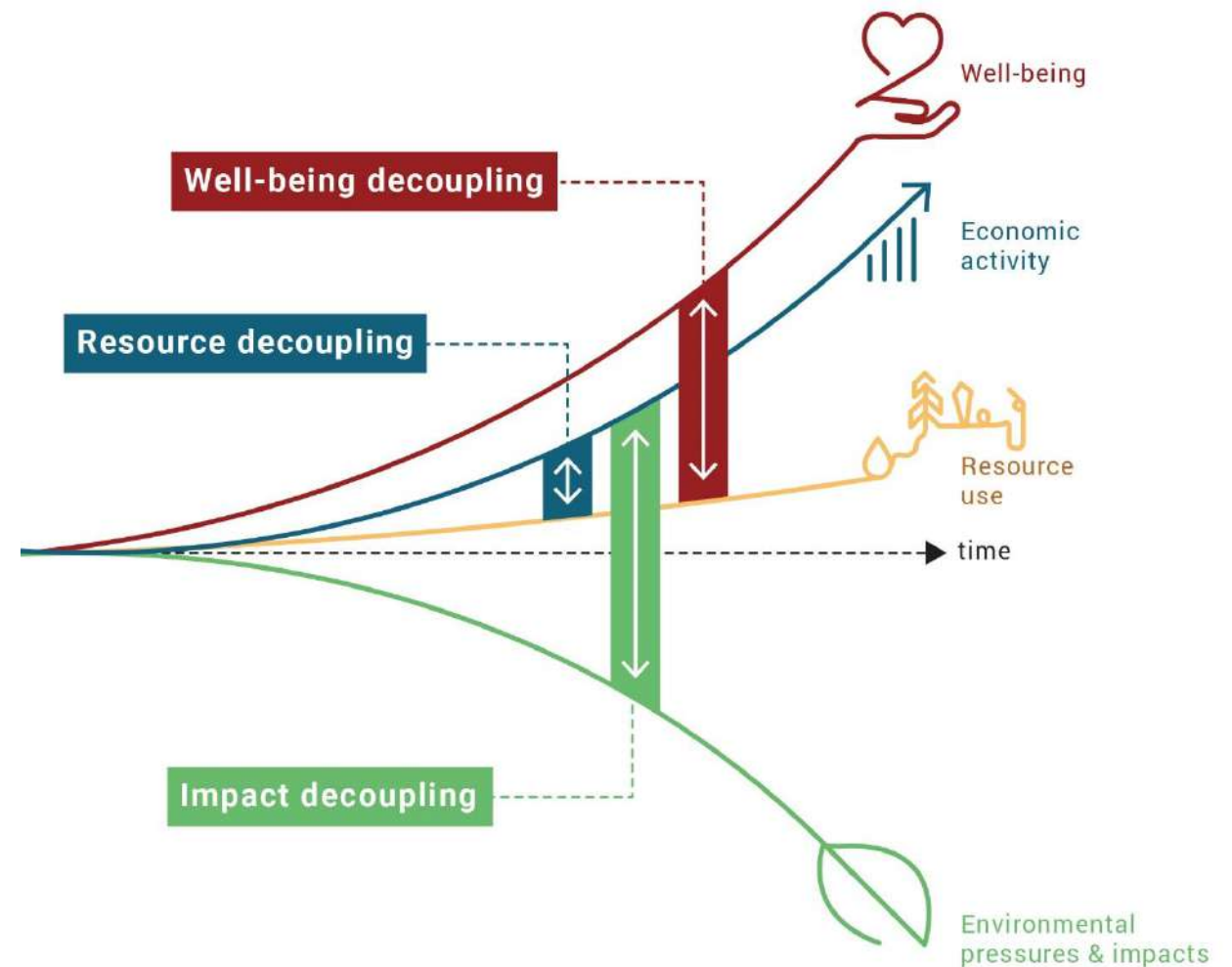
Global material extraction and material productivity, 1970 - 2017



- *Global material use* has more than tripled since 1970
- *Global material demand per capita* grew from 7.4 tons in 1970 to 12.2 tons per capita in 2017
- *Material productivity* started to decline around 2000 and has stagnated in the recent years

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

Decoupling

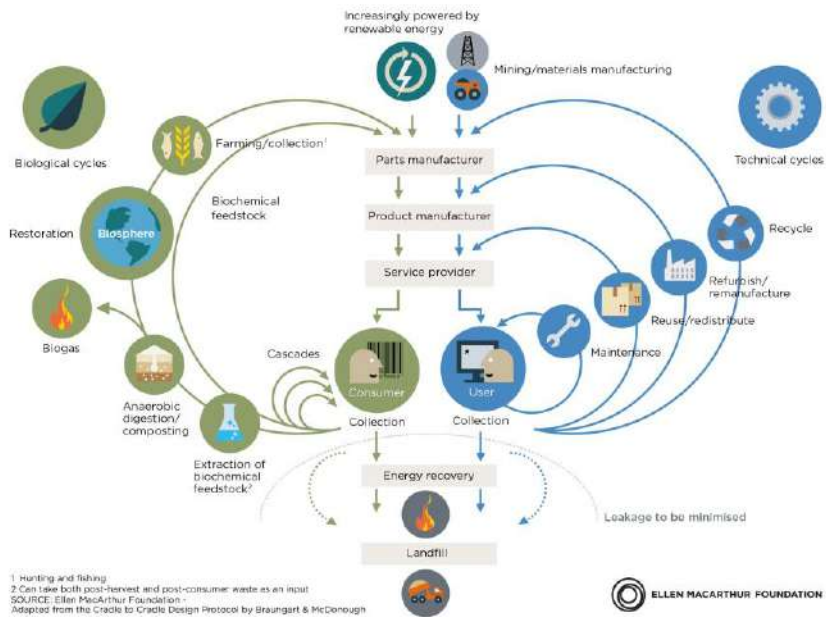




It is “a new growth strategy that aims to transform the EU into a fair and prosperous society, with a modern, resource-efficient and competitive economy where there are:

- no net emissions of greenhouse gases in 2050 and*
- where economic growth is decoupled from resource use.”*

CIRCULAR ECONOMY - an industrial system that is restorative by design



Circular economy 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.

The first dimension is often overlooked...



Source: Emerging thinking by IRP Co-Chairs, based on GRO19 and emerging GRO23 work

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



From selling light bulbs to selling light

Dematerialisation and Decoupling



videohive.net

Light bulbs sold to the consumer are the basis for producers' profit



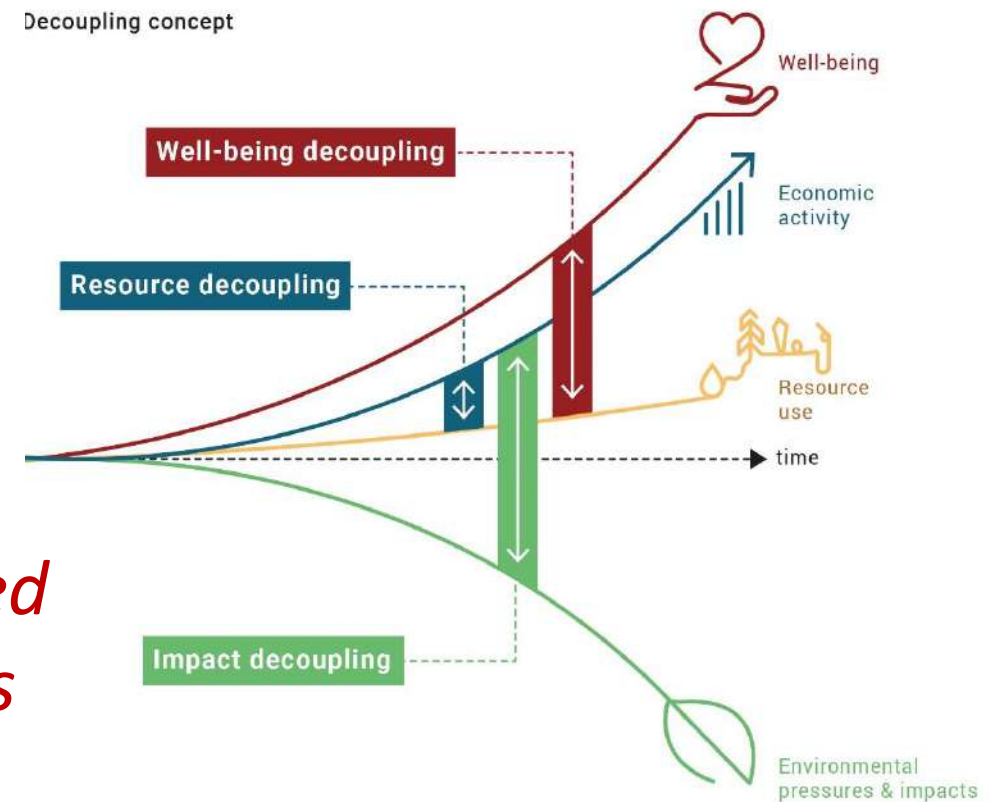
letstalkscience.ca

Light bulbs used to provide the light to the consumer are producers' cost

Ownership and product (under)utilisation - Consumer

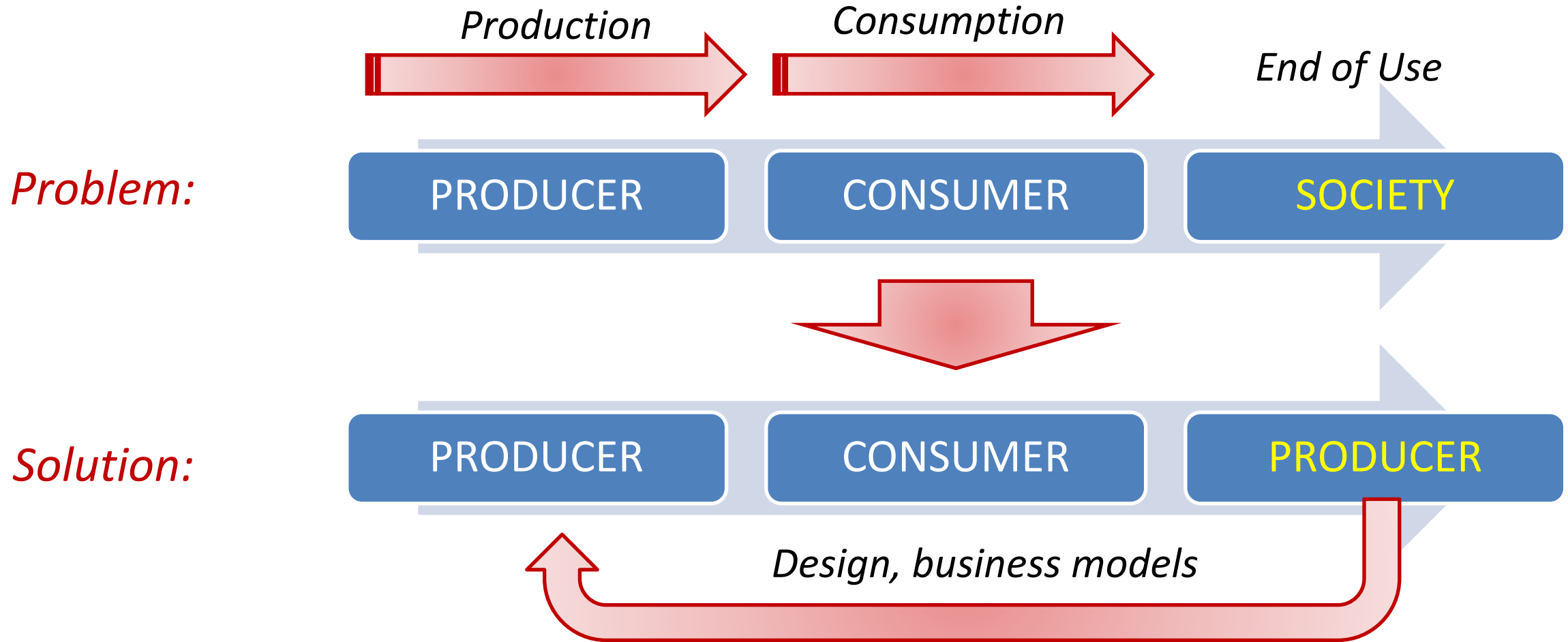
It is not not about owing it is about using

- *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*



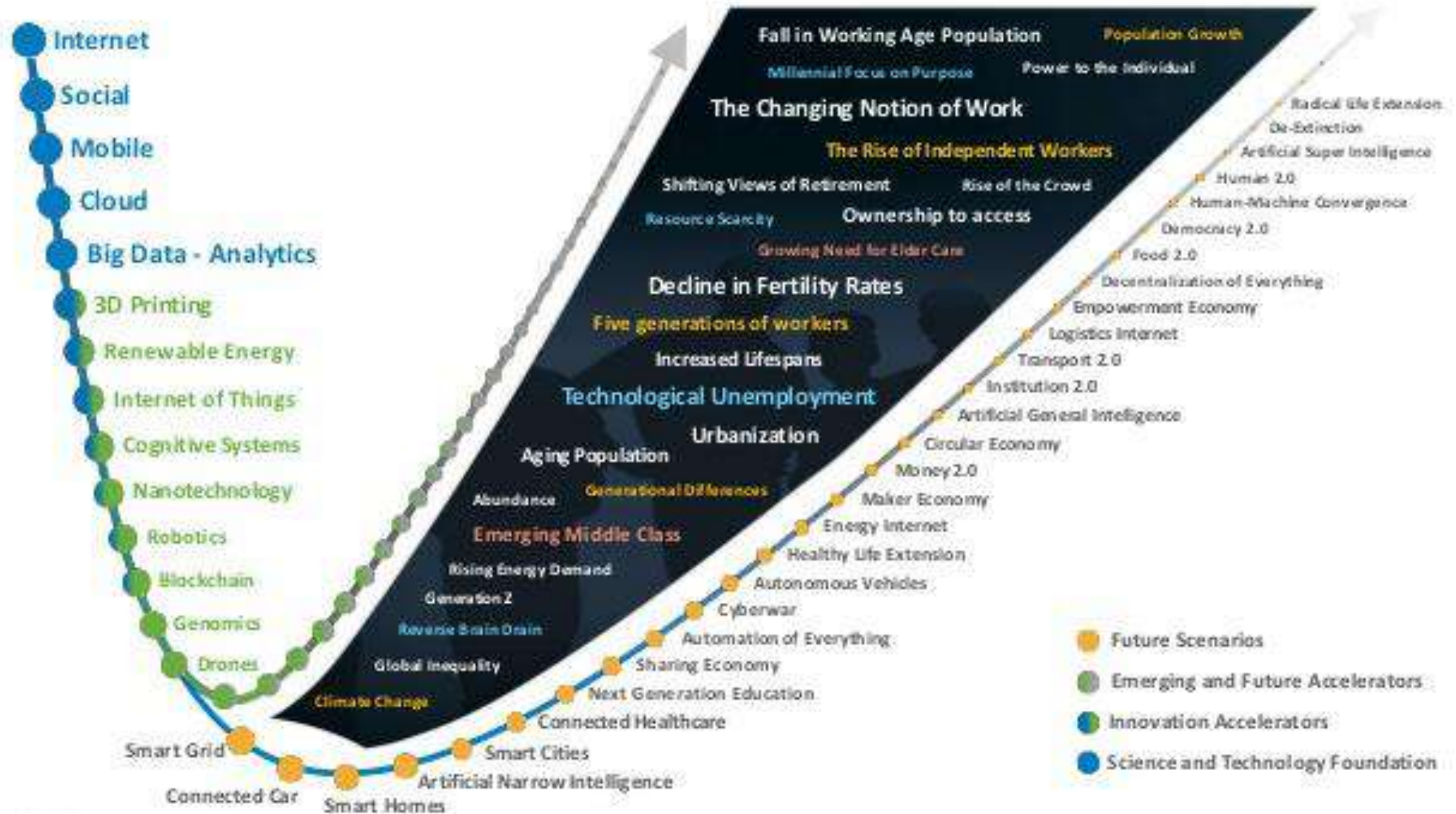
Ownership and resource (under)utilisation - Producer

It is about how to incentivise producer to use less resources



*Better Connecting Producer with his Product through for example:
EPR, Product Value Retention, Retaining Ownership of the Product*

Circular and Digital are on the same Development Curve



Towards Sustainable and Equitable World

From EGD to System Change Compass

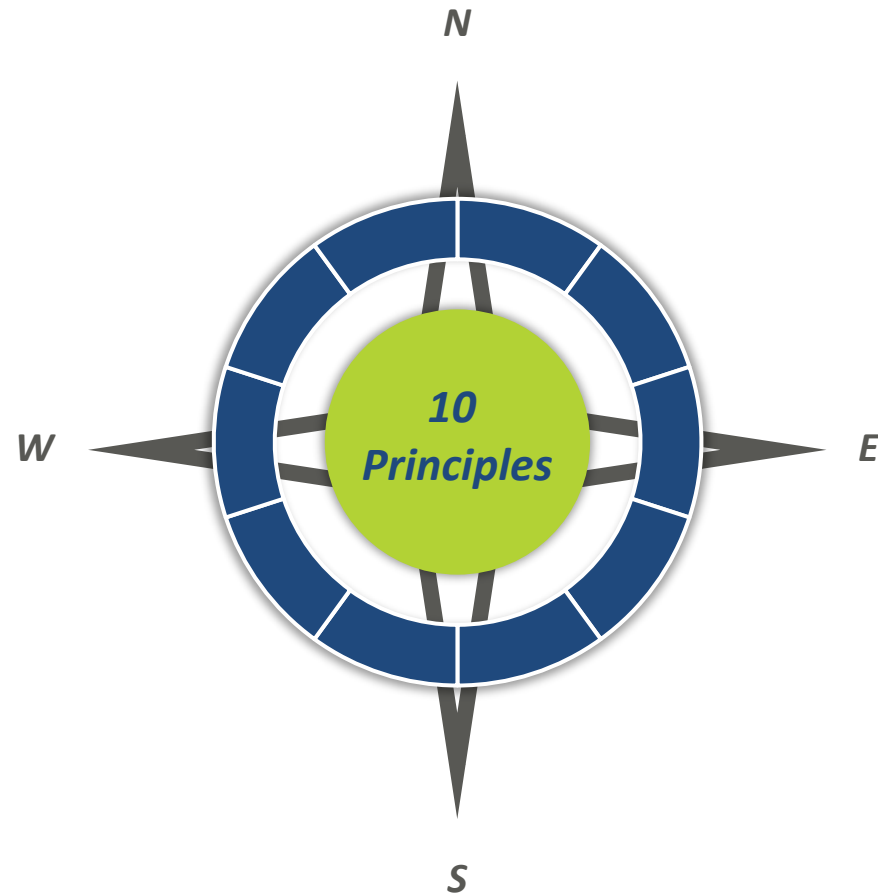
*The System Change Compass contributes to the implementation of the ambitions of the **European green Deal***



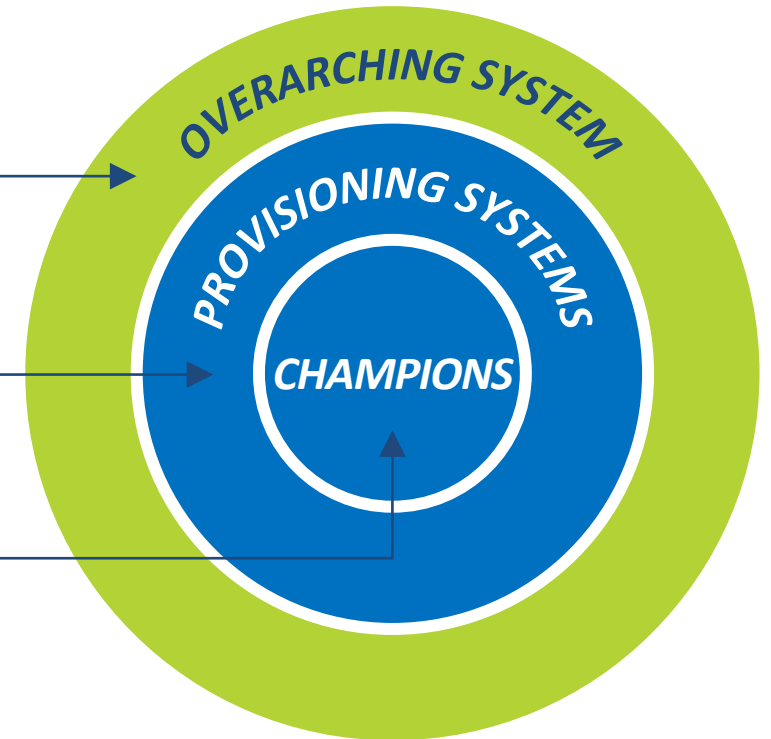
- **Sets zero net emissions** of GHG by **2050** and **decoupling of growth and resource use**
- Acknowledges need for fair and **just transition**
- Aims at **strongly interlinked and mutually reinforcing** policy recommendations
- **Does not sufficiently address drivers and pressures** that cause environmental damage
- **Does not offer systemic perspective** to guide decision-making
- Implementation is put at extra risk due to **COVID-19 recovery and war in Ukraine**
- **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

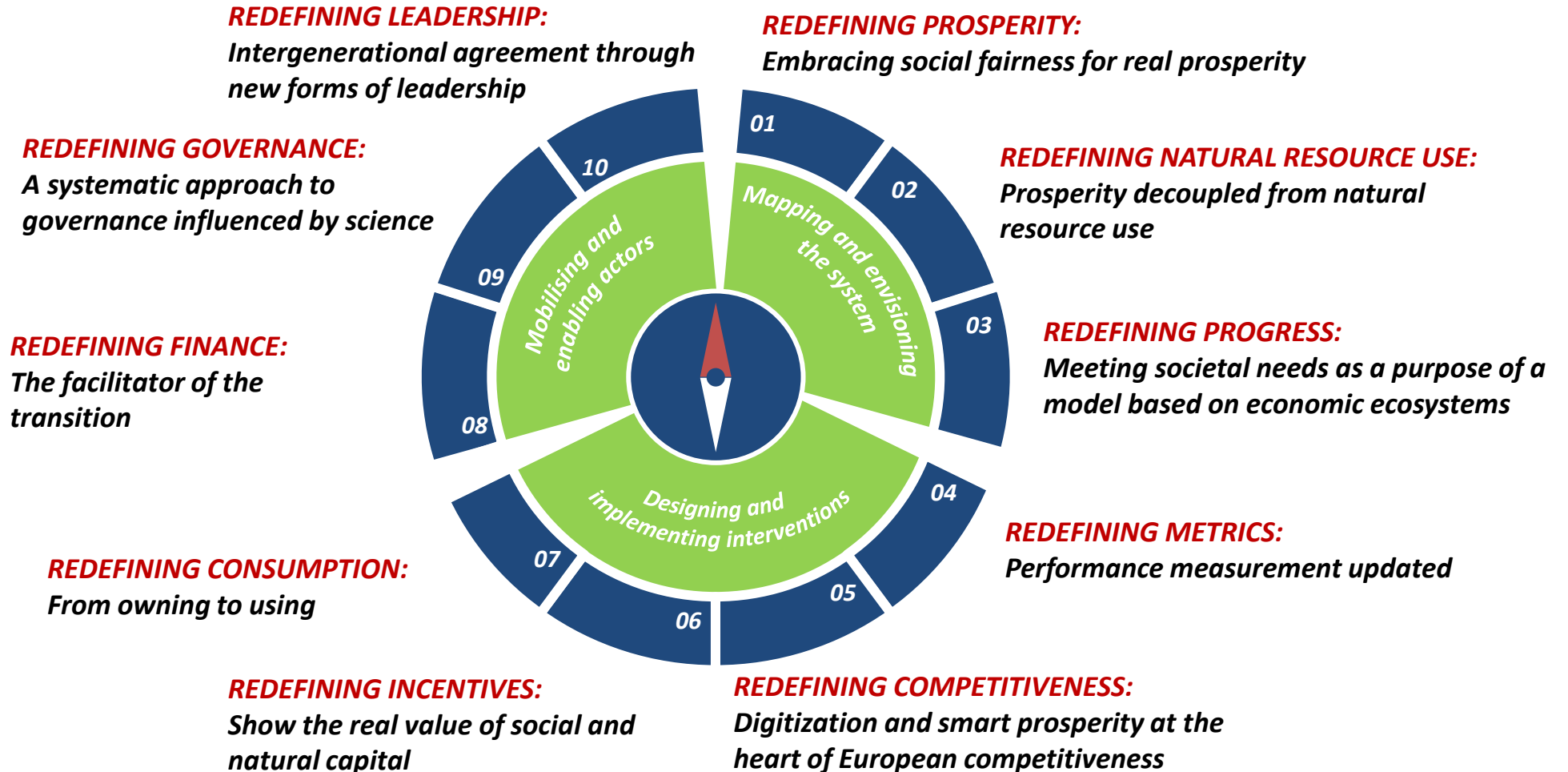
System Change Compass (10 Principles)



Application to the system to derive systemic orientations

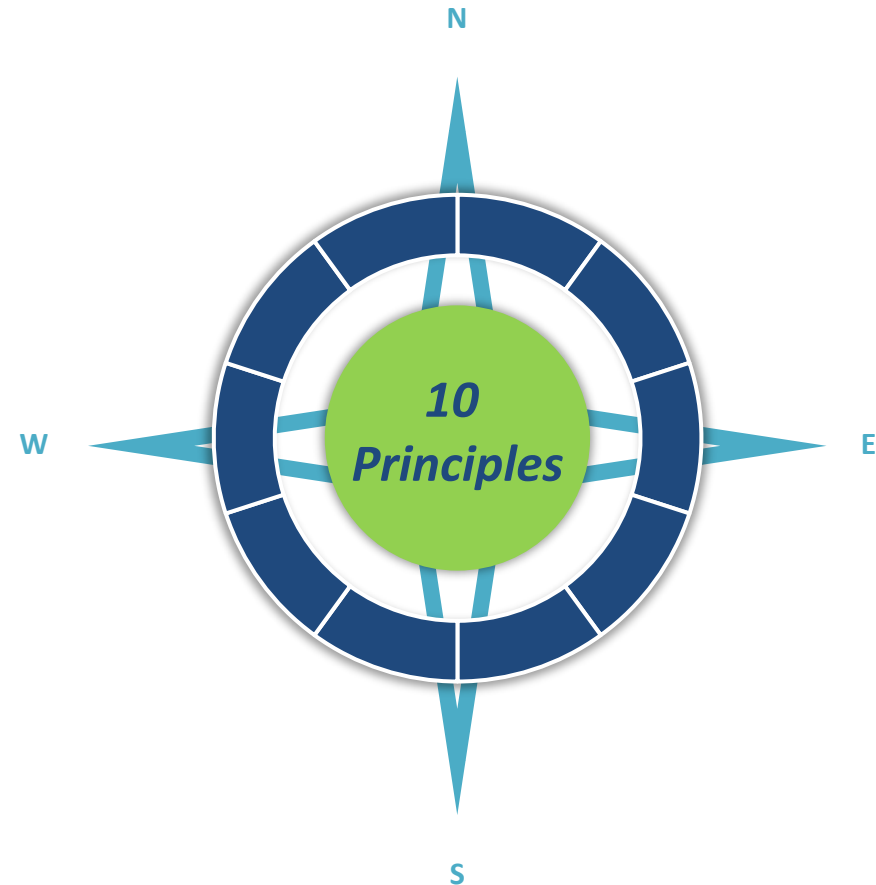


Redefining the Socio-Economic System

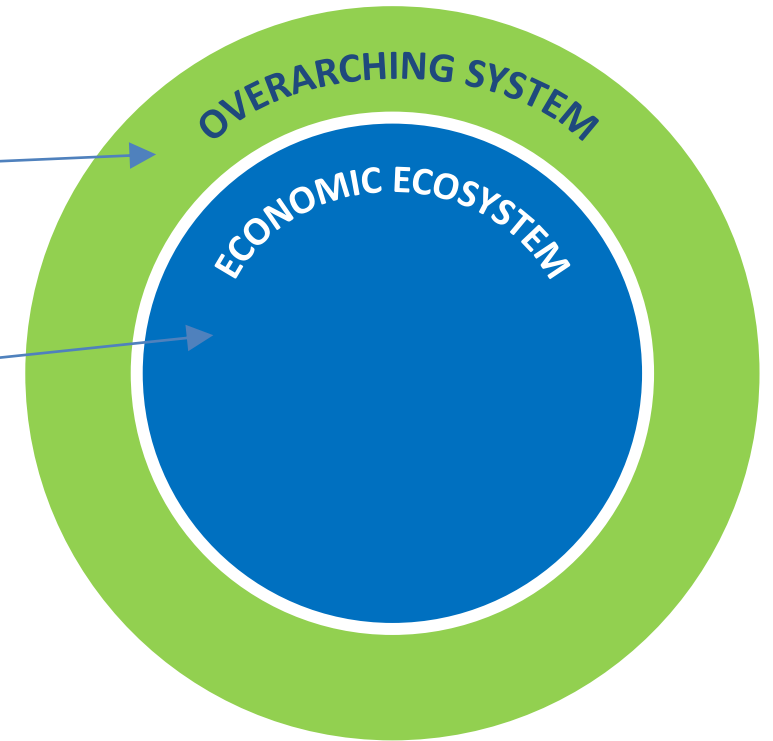


Translating the system change compass to systemic orientations

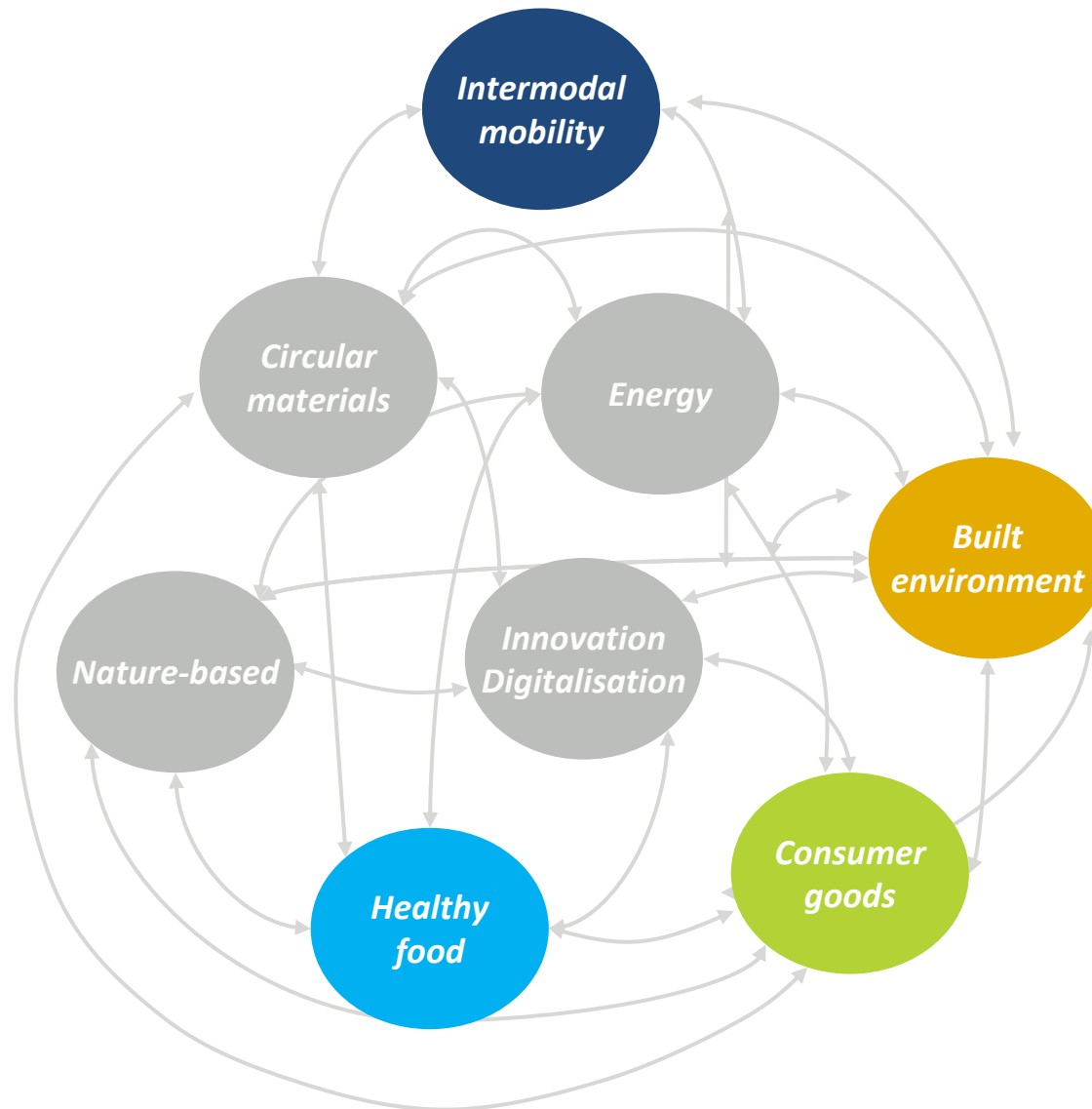
System Change Compass (10 Principles)



Application to the system to derive systemic orientations



Provisioning Systems



Related to resource intensive human needs

- Nutrition
- Mobility
- Housing
- Daily functional needs
- Resource relevant systems enabling and supporting the provisioning systems delivering societal needs

50+ nascent industrial investment opportunities that should be supported to build 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



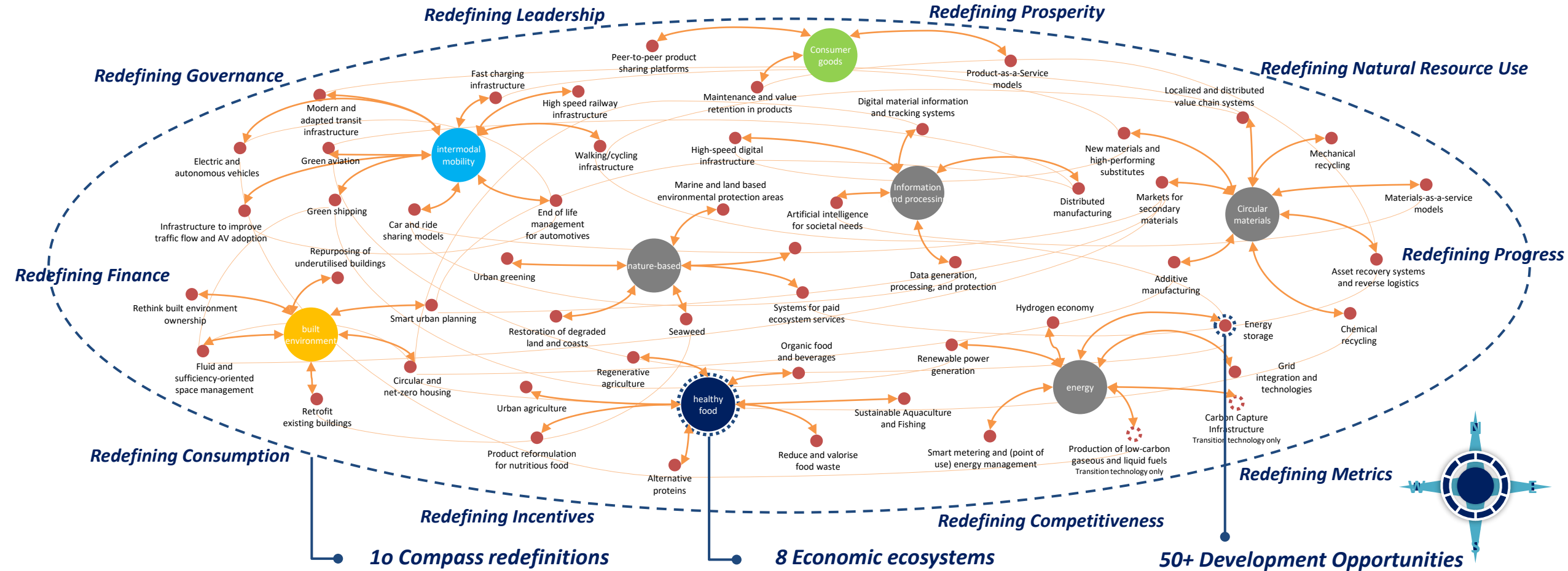
- Localised and distributed value chain systems
- Asset recovery systems and reverse logistics
- Markets for secondary materials
- High-value material recycling
- Materials-as-a-Service models
- New materials and high-performing substitutes
- Additive manufacturing

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

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).

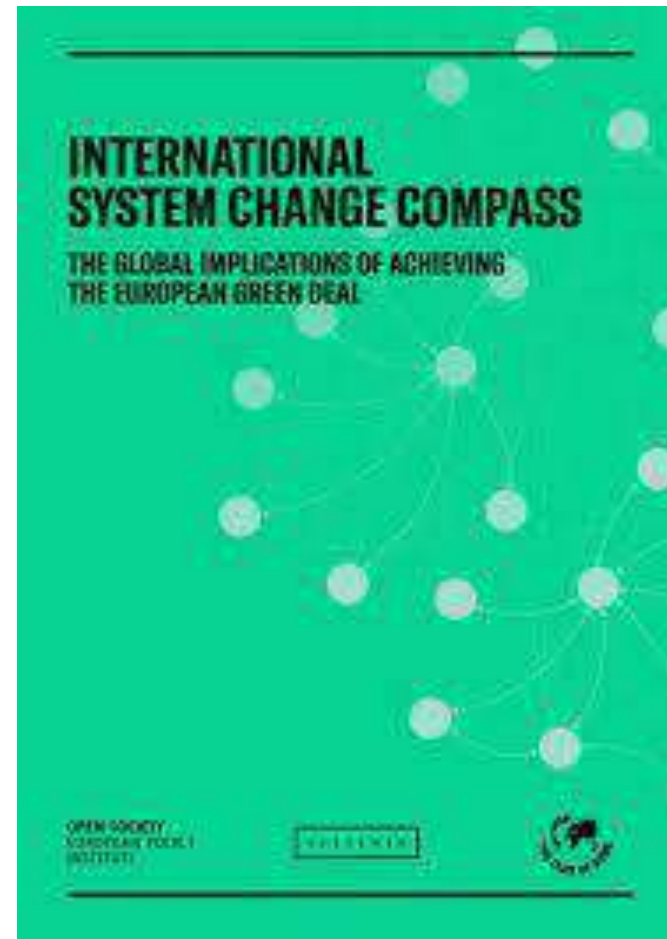
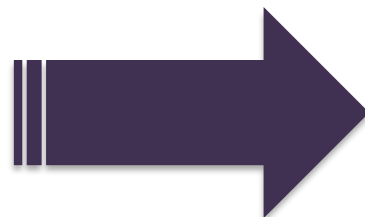
"Champions" are economic subsystems which could become the new spearheads of the green, resilient and fair post-COVID economy Europe wants to build

Application of the compass on each level

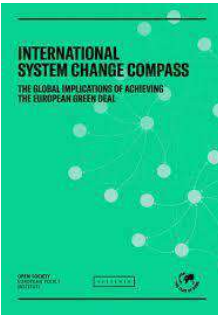
10*3 = 30 system-level policy orientations

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

From Internal to External Focus



We need a systemic approach aligned with SDGs and countries most responsible for the current situation should take the lead



- *The **map of resource use** still shows the shadows of an imperialist world, where wealthy nations pursue their ambitions at the expense of others. Making our economies and societies more resilient and fair is **our best defence against any future crises**.*
- *In the longer term any security and stability related issues are not about opening a new economic front. They are, first of all, about **reassessing our values, rethinking our economies and reducing overconsumption and resource use**.*
- ***Standards and behaviour patterns linked to the current economic model were set by high-income countries**. They are ethically bound to show the world, that they are willing and able to change a reality we created, and to lead the essential transition – at home and globally. While the responsibility for the past is clear, responsibility for future is joined and common.*

*For **The Future We Want** we must enter the untapped territories of the needed deep system transformation*

If we want to avoid extinction of elephants in nature, we must extinct elephants in the rooms



[Source: Hop distance - The elephant in the room ...blogs.bmj.com](http://blogs.bmj.com)

Main Blind-Spots

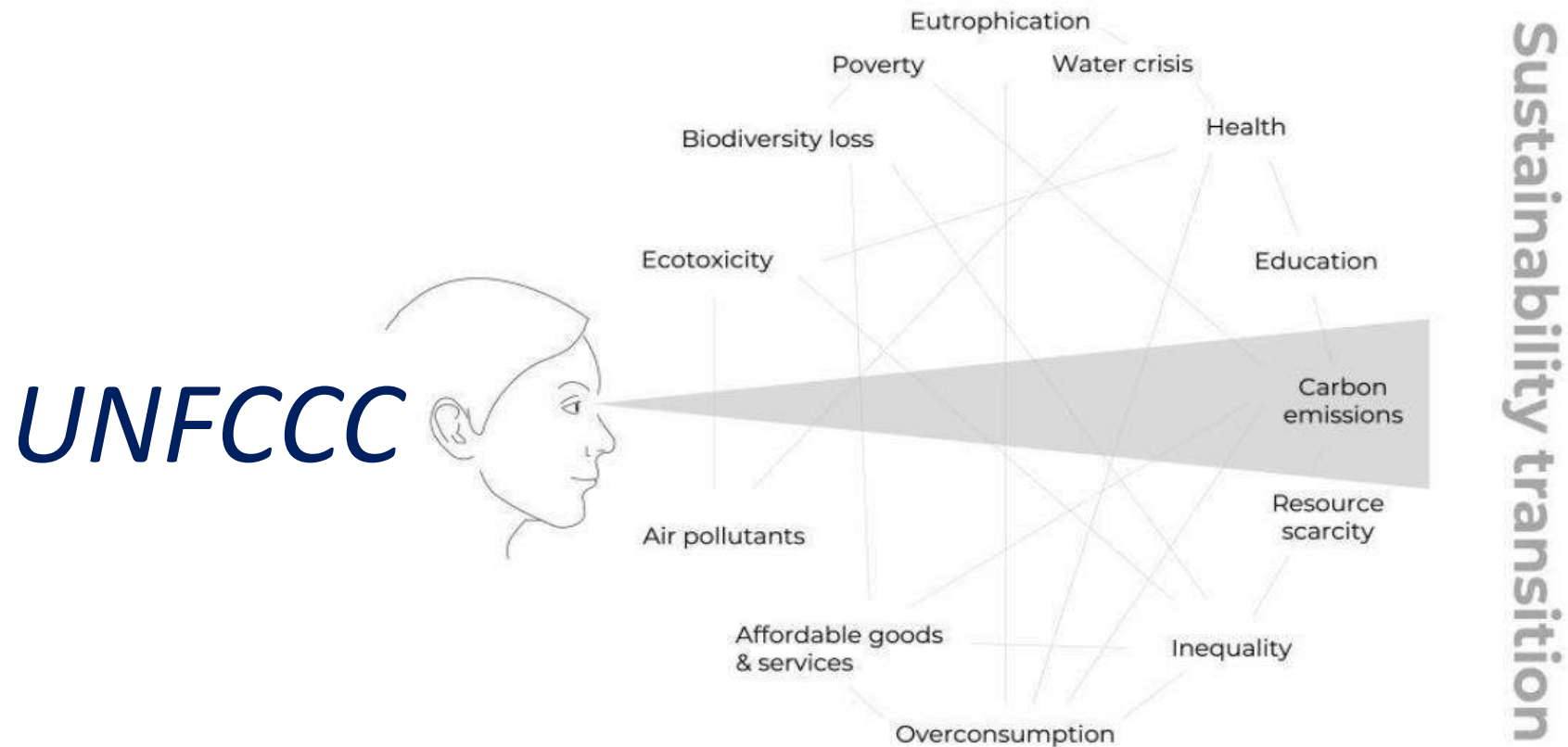
Climate Change Example

1

Lack of Holistic System approach

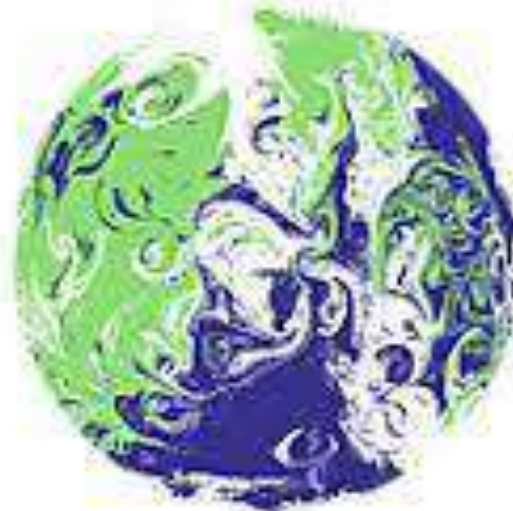
Public leaders lack capacity or knowledge of how to translate system change visions into their concrete policies/investment structures which ends in conflicting policy logics that hinder real transformation

*We need to extend the optic and potential policy options
beyond the currently prevailing energy supply*



This leads to trade-offs and future lock-ins rather than synergies and potential multiple-benefits ➤ and resilient economy and society

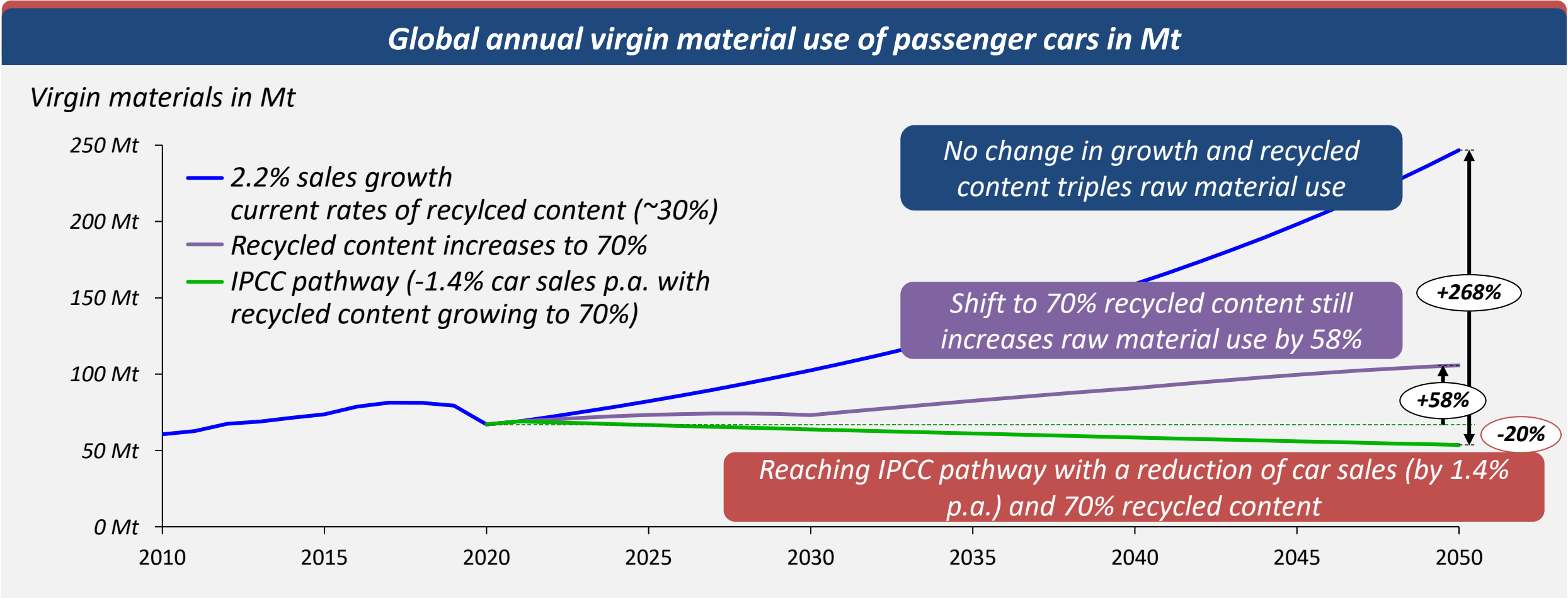
A ‘*Glasgow Breakthrough*’ was announced on *road transport* aiming for zero emission vehicles to be the new normal, accessible, affordable, and sustainable in all regions by 2030.



**UN CLIMATE
CHANGE
CONFERENCE
UK 2021**

IN PARTNERSHIP WITH ITALY

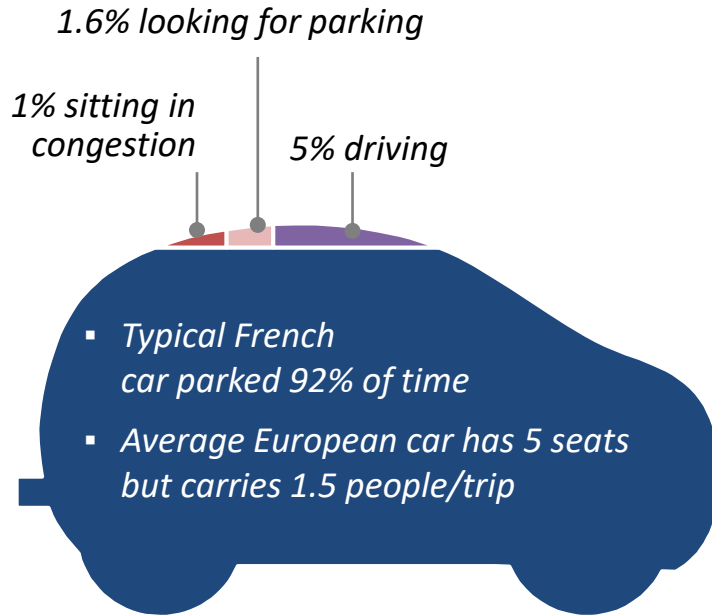
Raising recycled content to 70% still increases virgin material consumption by 58%
Reducing car sales is the only chance for absolute decoupling



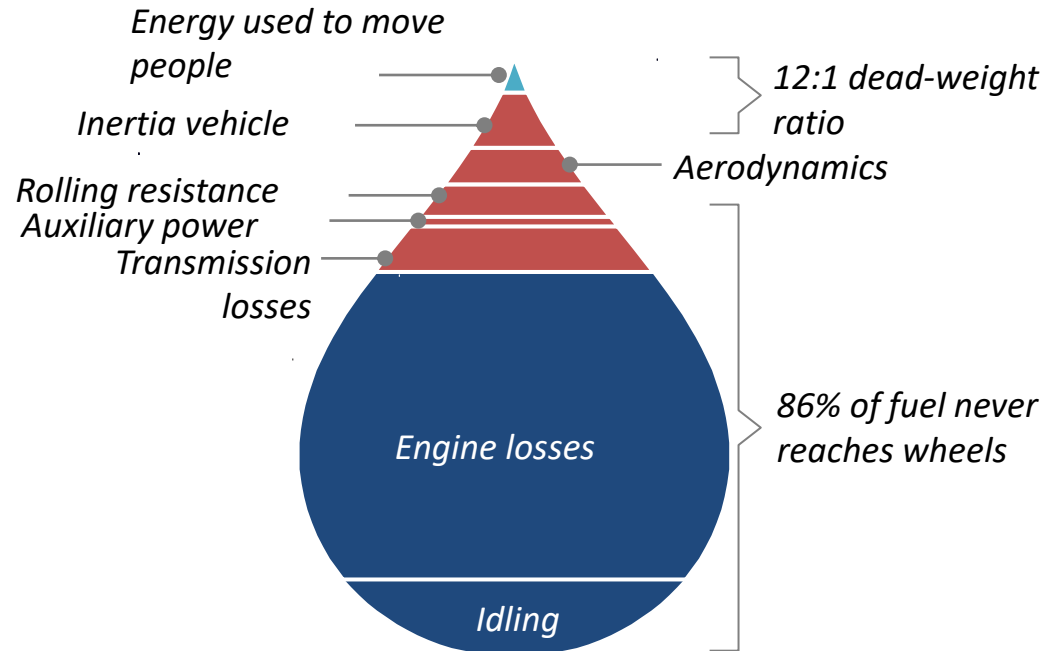
Assumptions: vehicle sales and stock as per the IEA (2022) Global EV Data Explorer. Average European vehicle mass as reference weight factor from ICCT (2021): European Vehicle Market Statistics Pocketbook 2021/22; To reach the IPCC LED scenario, absolute virgin material consumption needs to decrease by close to 20% (850 mio. vehicles in stock by 2050) and hence is assumed as target line. Recycled material increase modelled with increase from 20% by 2010 to 30% by 2021 to 50% by 2030 and steady increase to 70% until 2050

Our mobility system and structural inefficiencies

Car utilisation

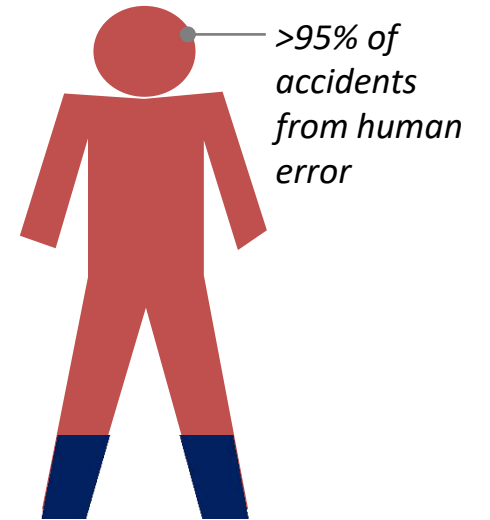


Tank-to-wheel energy flow - gasoline



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

System change in road transport means less and more efficient traffic, for more value



Five Levers for Sustainable Car-Based Transport

*Reduce demand
for car-based
transport*



- *Reduce overall **mobility need** (e.g., through remote work)*
- ***Modal shift** from cars to foot, bike, & public transport*
- ***Higher utilization of vehicles** through sharing*

*Ensuring remaining
vehicles are as
sustainable as
possible*

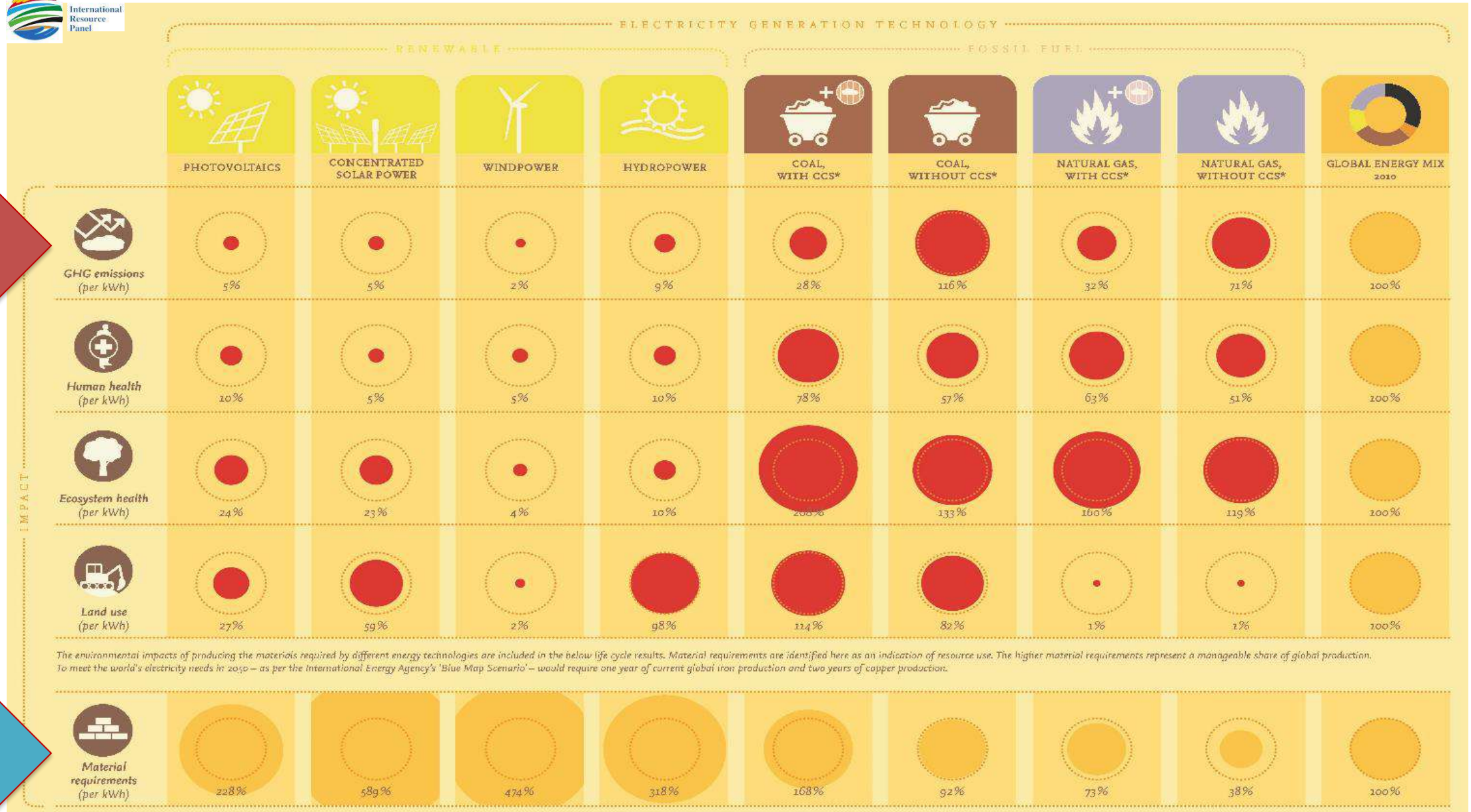


- ***Electrification** based on renewable energy*
- ***Circularity**, maximizing value of used materials*

Lack of Resource Perspective

Resource management is not given enough importance within policy making which is linked to the lack in actionable system thinking insights for concrete decisions

Impact of Electricity Generation Technologies

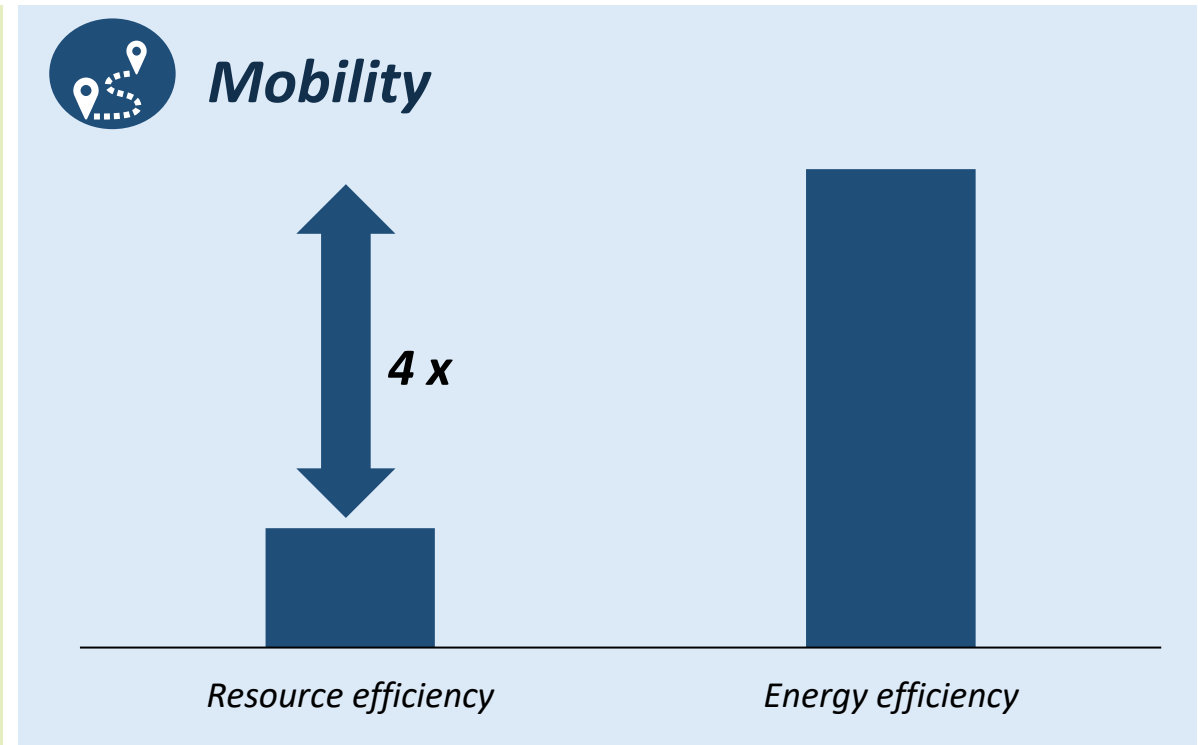
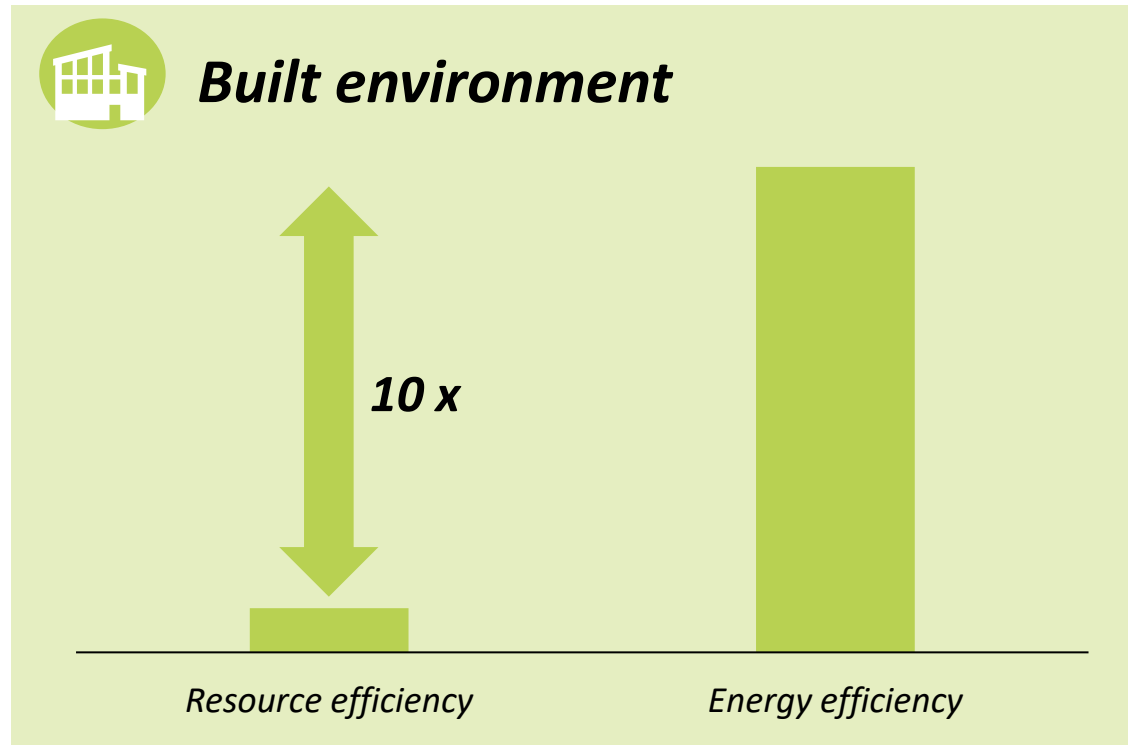


Most climate policies still neglect systemic resource efficiency solutions, and thus miss major opportunities for climate and society

Examples - non exhaustive

G20 Nationally Determined Contributions and **Long-term Climate Plans** focus on energy efficiency and miss out on more systemic resource efficiency opportunities.

Number of policies with quantified targets, illustrative



SUPPLY SIDE SOLUTIONS

CARBON MANAGEMENT

LAND

WATER

ENERGY

MATERIALS

DECOUPLING - CIRCULAR ECONOMY

DEMAND SIDE SOLUTIONS

ECO-SYSTEM SERVICES, ENVIRONMENTAL SINKS

NATURE BASED SOLUTIONS

Lack of Demand Side Focus

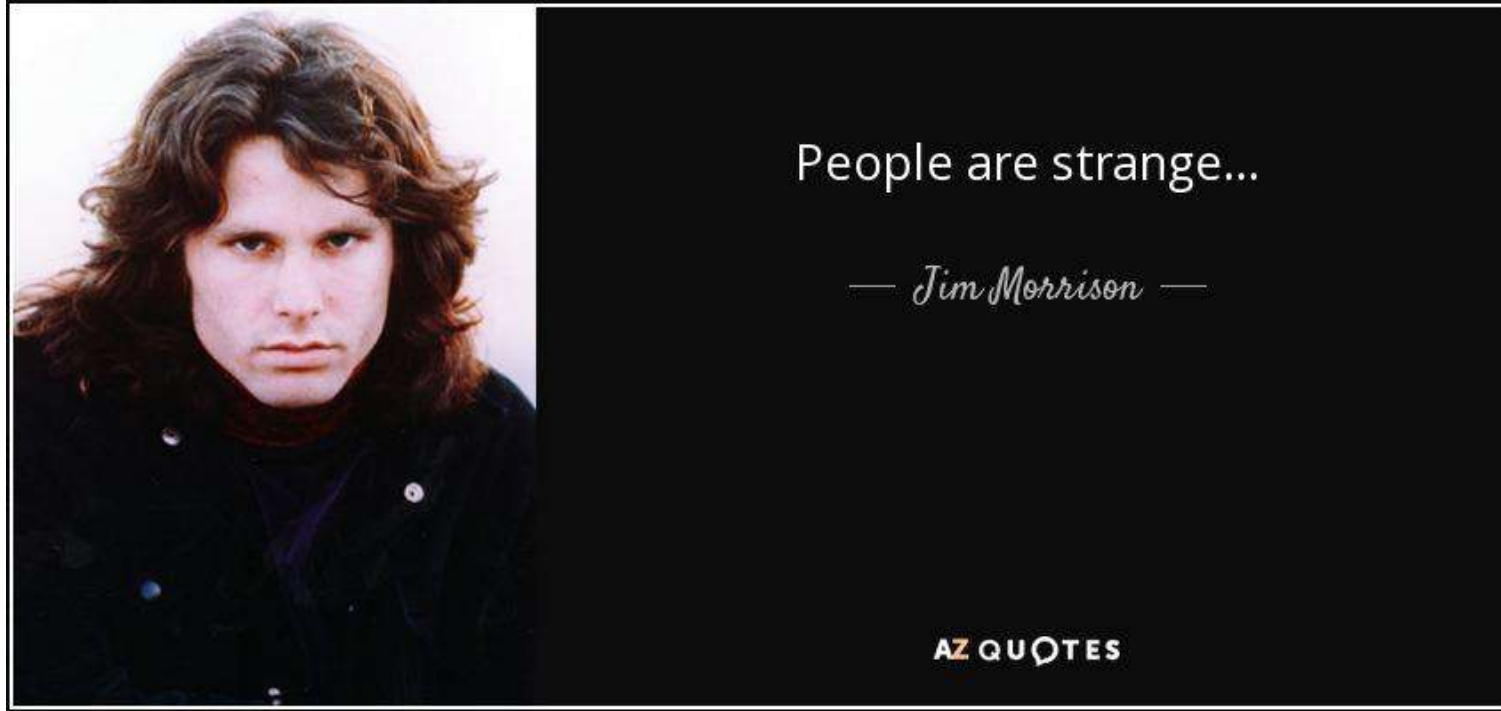
Policy attention is mainly given to the supply side of the economy, to the cleaning of the existing economic system - lacking the attention to the demand side which is leaving out an important solutions potential and questions of responsibility and equity.

Focusing only on cleaning a supply side will not be enough, nor will lead to a fairer and more equal world

- Our *international efforts*, also to fight the climate crisis, remain *focused on, and driven by, the supply side*. This *will not be enough to deliver the targets set*. IRP is frequently repeating that message, but also recent IPCC report is clear about that.
- *We must stop ignoring the inherent wastefulness of our production and consumption*. For example, it would be in vain to decarbonize the production of steel, if it is used to produce under-used cars and houses, which contribute to traffic and property market bubbles, but not to real social prosperity.
- More *fundamentally, demand-side measures/consumption side* get us closer to the *essential questions of responsibility and equity*.
- NDCs and other national climate commitments should consider including also *footprint based indicators and targets*

To Conclude

*Science is Clear and Change is Unavoidable
... and so are some quotes 😊*



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

The problem primarily lies in our economic model



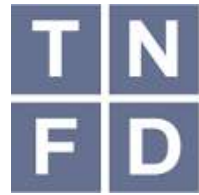
- *Economic theory* is based on the *rational behaviour of consumers and producers*: the more we produce at the lowest possible price, the higher the capital returns and GDP growth.
- *Current market signals on our markets, are leading to systemic social and environmental imbalances - Food shopping centre example*. Our short-term rational behaviour is leading to a long-term irrational “Charming mass suicide” (Arto Paasilinna novel title).
- *Ambitious policies face an uphill battle* to implement incentives and regulations to change our production and consumption patterns. *Sending policy signals one way, and market signals the other*, is creating confusion (not to mention intense lobbying by companies that fear the loss of profitable markets). It’s time to stop signalling to producers that destroying natural capital is free of charge. Time to stop contradictory messages to consumers, who still routinely pay more for food with a low environmental impact, instead of the reverse.

In short: What would be needed in policy terms?

- *Redefining consumption from owning to using;*
- *Redefining production from mass sales to providing efficient functionalities;*
- *Redefining core economic incentives such as taxation, subsidies, public procurement ... and stop tolerating tax heavens,;*
- *Integrating wellbeing as an objective across all policies;*
- *Providing consistency among internal and external (supply and demand side) policies;*
- *Applying measures leading to fairer and more equal society and world;*
- *Measuring sustainability with a lifecycle perspective, harmonised across policy areas;*
- *Activating all existing financial potential to enable transition;*
- *Looking at innovation in categories of meeting human needs and providing functionalities, rather than in categories of production sectors;*
- *etc.*

The role of Industry and CSRD Framework

- *Recent IRP Co-chairs biodiversity piece* - highlighting principles which can halt and reverse biodiversity loss: *knowing your impact*, planning together, growing with nature, and valuing nature.
- *Forward looking business is recognising the need to know its true impact*



Taskforce on Nature-related
Financial Disclosures

- *Problems in the quality of sustainability reporting have knock-on effects. It means that investors lack a reliable overview of sustainability-related risks to which companies are exposed. They need to know about the impact of companies on people and the environment.*
- *High quality and reliable public reporting by companies will help create a culture of greater public accountability.*

There has never been a better moment ...

... to move from the history of “resource-driven imperialism” to an era of responsible use of natural resources, mitigating resource fragility and strengthening preparedness and resilience. The lesson learned from terrible war in Ukraine and extreme summer and weather events should be convincing enough.

Circularity is not a new concept ...



It is the oldest concept on the planet Earth.

Nature is a “bio-economy” based on the principles of the circularity. Nothing is lost and everything has its purpose.

So, for the beginning we would need to answer only one question:

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.



THANK YOU

for helping us delivering the future we want!