Squaring the Circle
Policies from Europe's Circular Economy Transition

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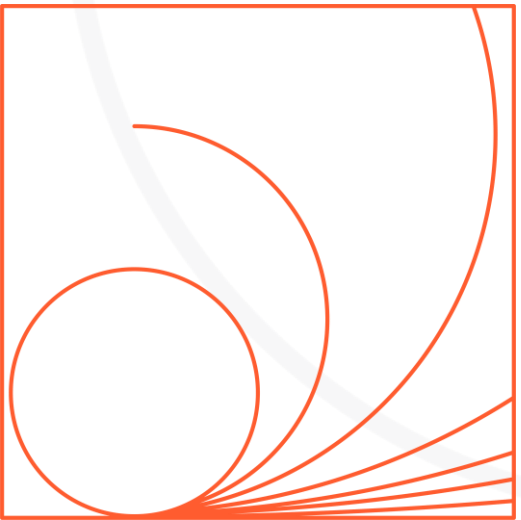
OVERVIEW

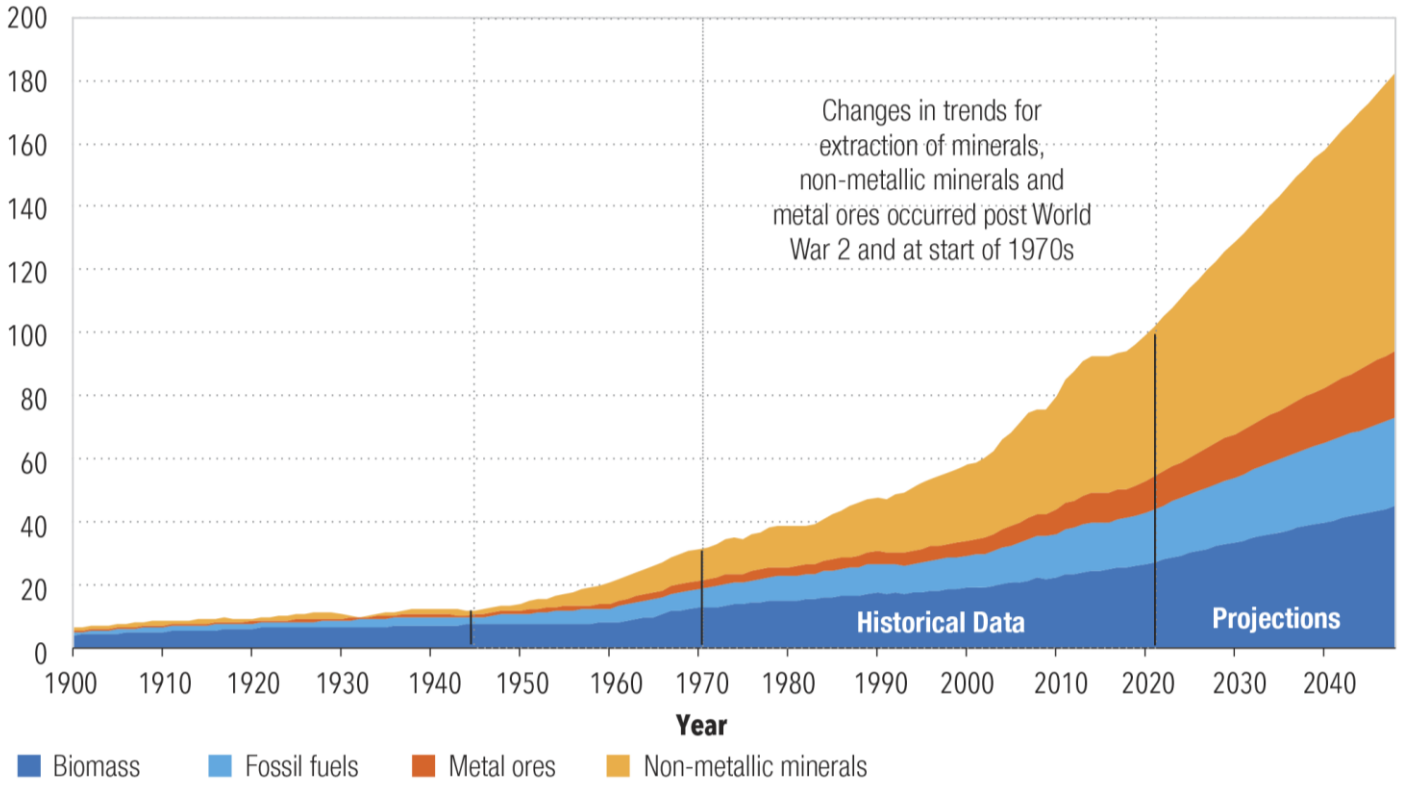
- **Linearity as a development problem**
- **Insights from Europe**
- **A policy package for the circularity transition**



Linearity as a development problem

THE SURGE IN MATERIALS EXTRACTION DEFINES OUR GROWTH MODEL

- > 100 billion tons of materials feed the global economy yearly
- BAU implies doubling of global material extraction over the next 30 years
- Key drivers: population, income and consumption patterns
- At current rates of dematerialization (1.3% yearly), high extraction rates will continue

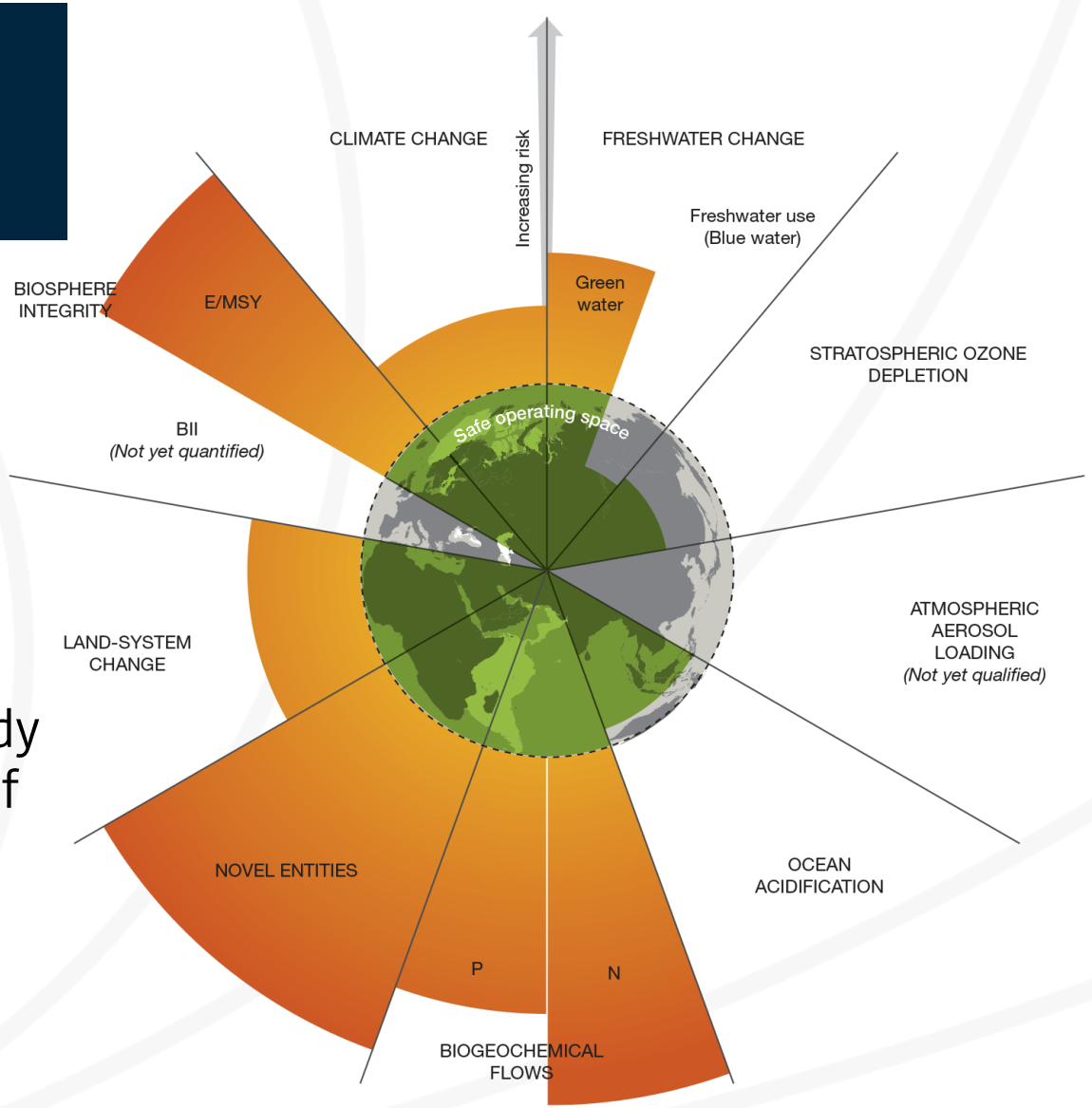


Source: European Commission (EC) Joint Research Center.

BUSINESS AS USUAL IS UNSUSTAINABLE…

- Materials consumption accounts for
  - 90% of total biodiversity loss
  - Up to 2/3 of global GHG emissions
  - 33% of health impacts due to air pollution
  - Deforestation, soil depletion and water stress

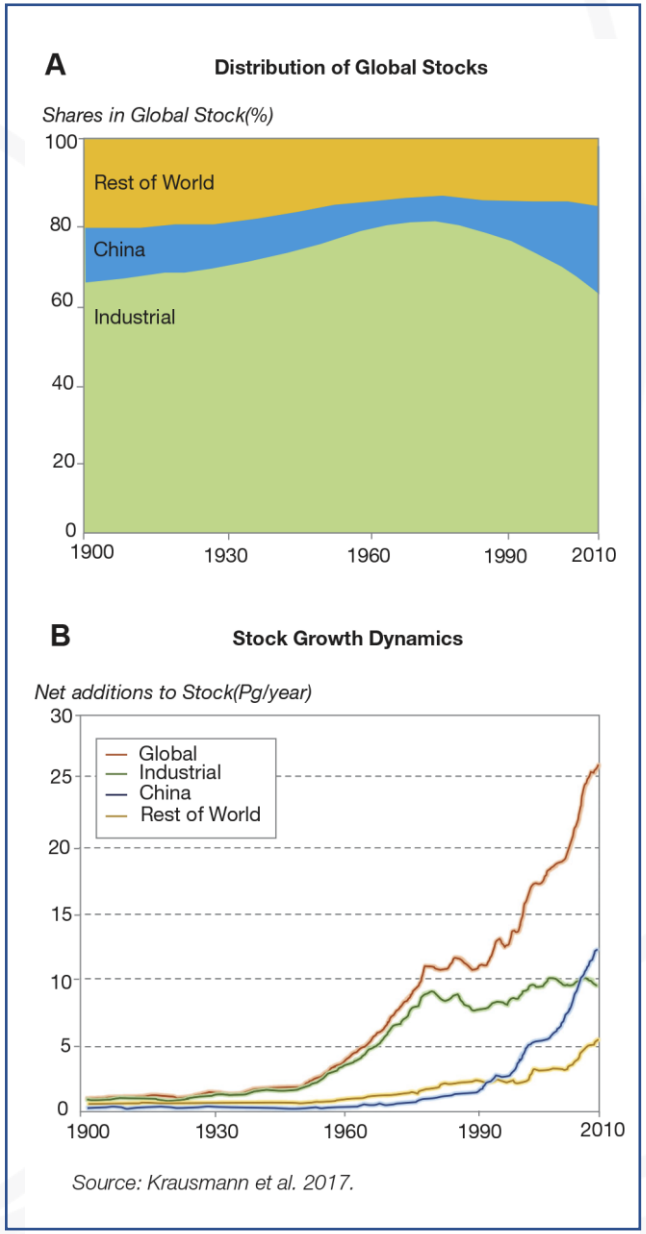
- Current demand for global natural resources already exceeds Earth's regenerative capacity by a factor of 1.75 (2 planets in 2050)



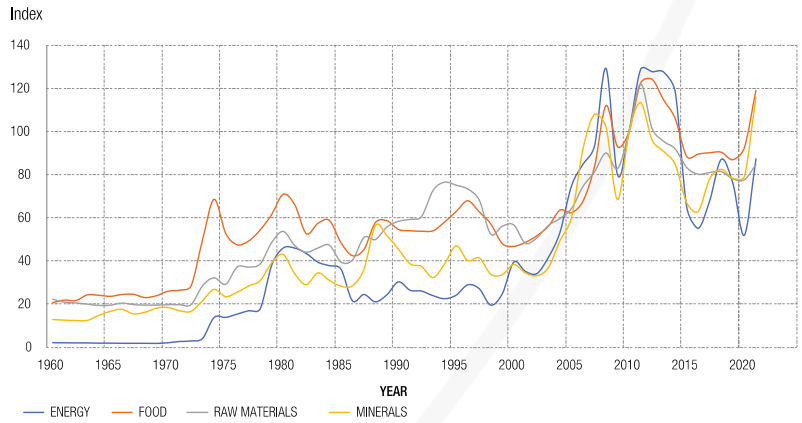
Source: Stockholm Resilience Center, based on Steffen et al. (2015); and Persson et al (2022).

…ACROSS A NUMBER OF DEVELOPMENT DIMENSIONS

- **Direct environmental impacts** are increasingly offshored to LDCs/MICs
- **Security of supply**
  - Physical vs economic scarcity
  - Commodity price shocks
- **Global equity**
  - Average per capita consumption = about 13 tons of materials
  - Extremely uneven distribution globally
  - When measured in terms of global stocks, rather than yearly flows, the material divide is even starker.

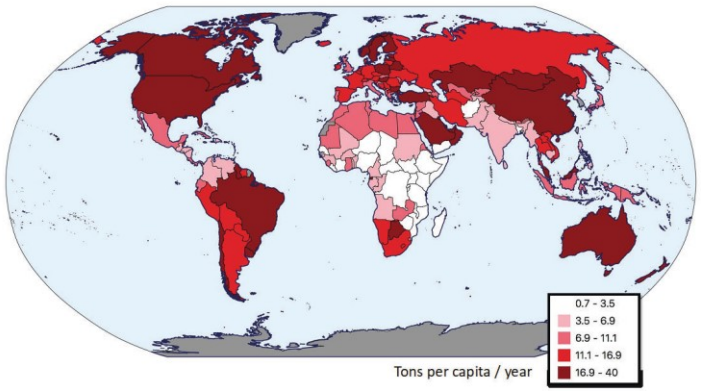


Trends in key commodities prices, 1961-2021



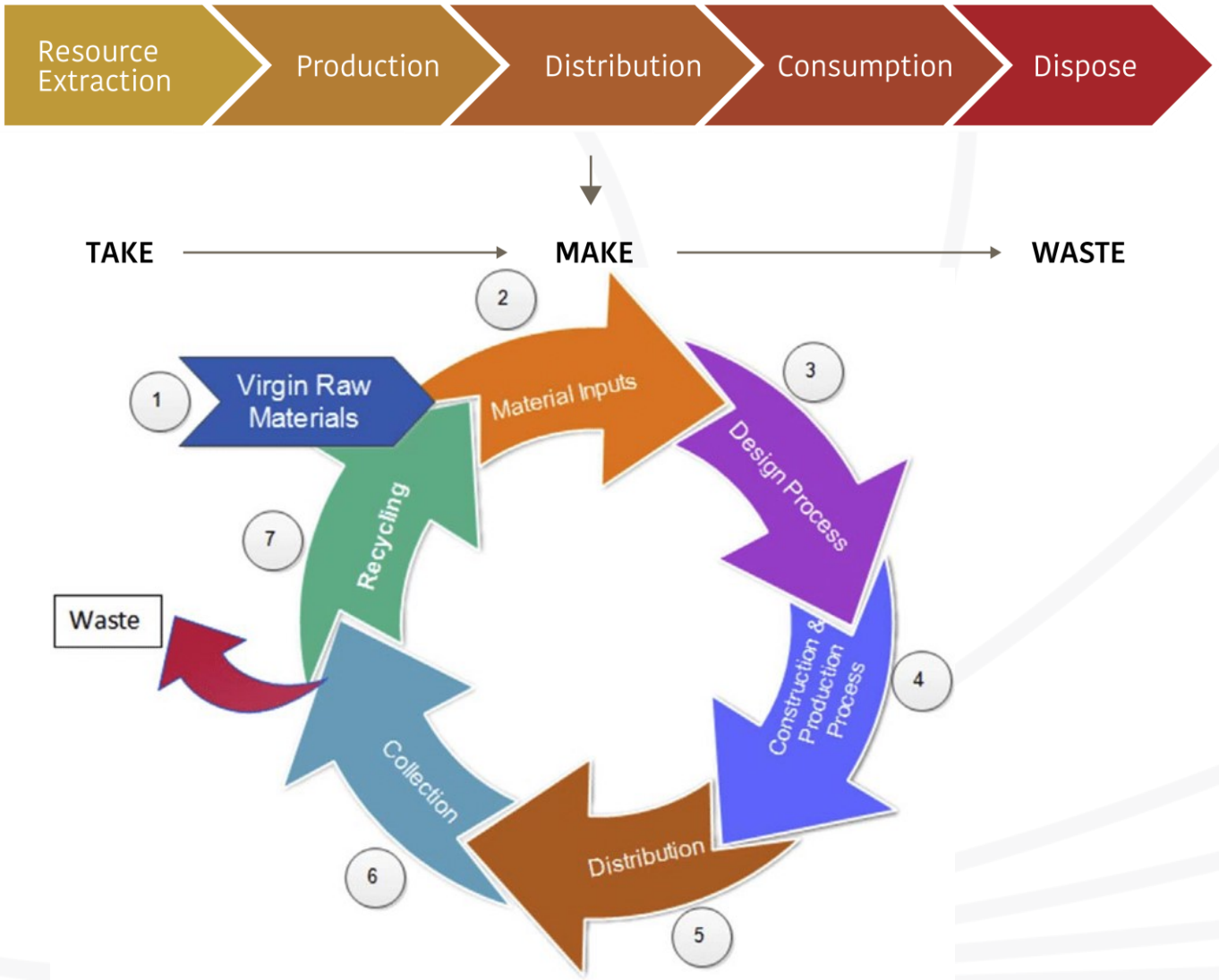
Source: World Bank data.

Domestic material consumption, 2017



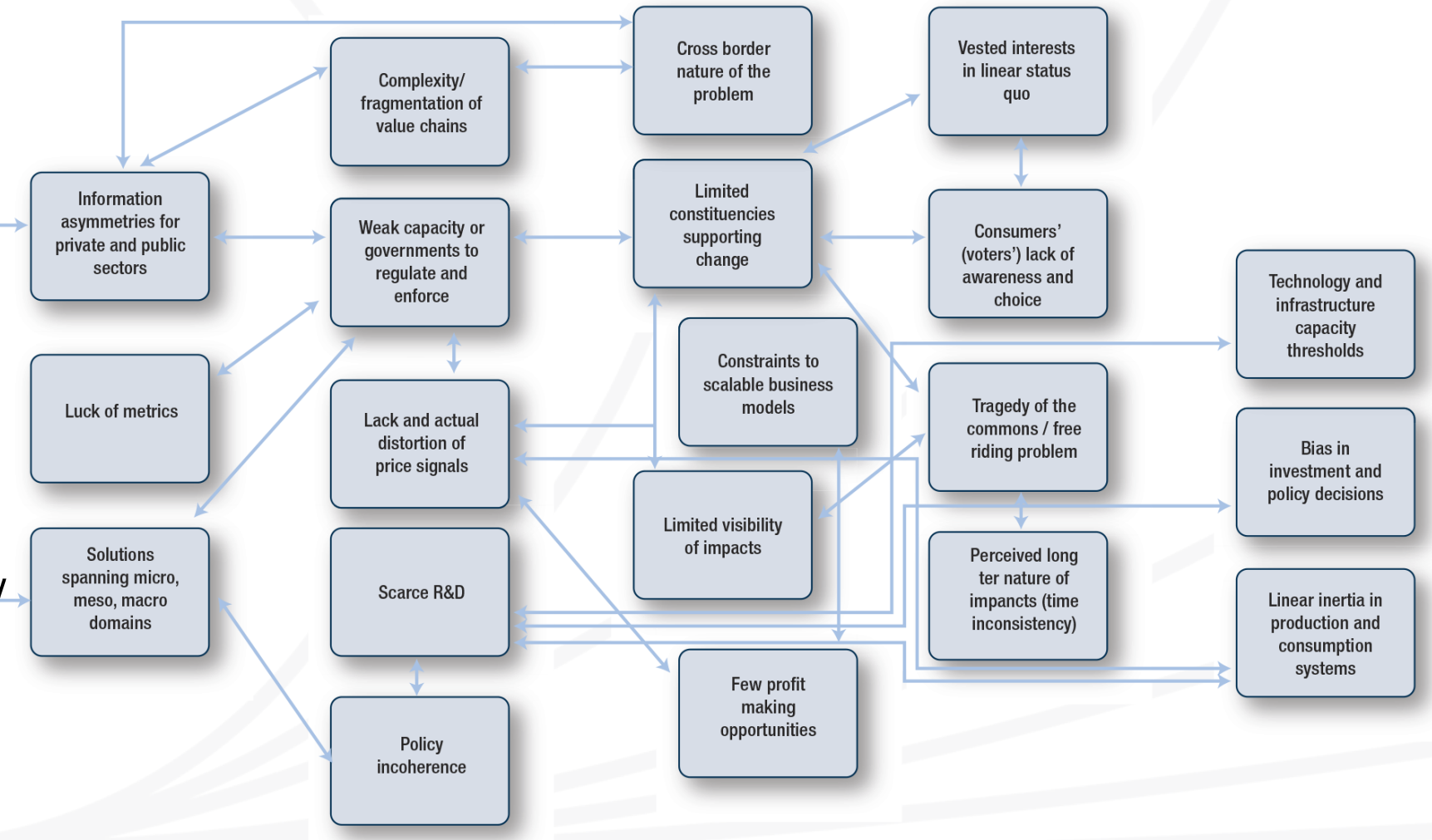
Source: Based on data from United Nations (UN) Statistics Division.

THE PROMISE OF CIRCULARITY …



… AND ITS CONSTRAINTS

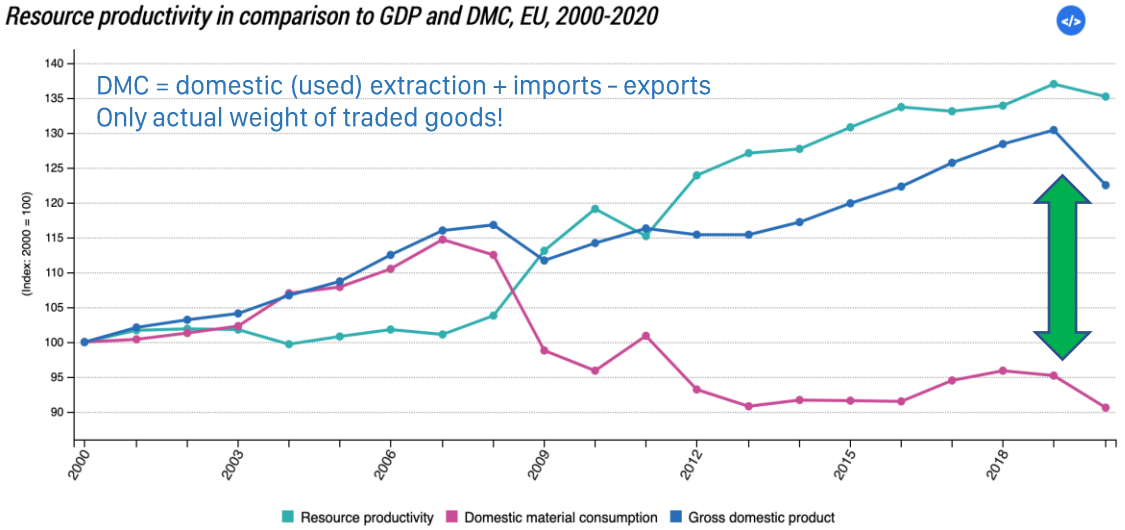
- ‘Super wicked’ problem
- Costs, not only benefits
- Winners and losers
- Multiple sectors; Fragmented stakeholders
- Imperfect information (asymmetries, coordination)
- Free rider problems
- No autonomous national (or supranational) responsibility
- Emerging policy agenda, still at the fringes of national policy makers attention

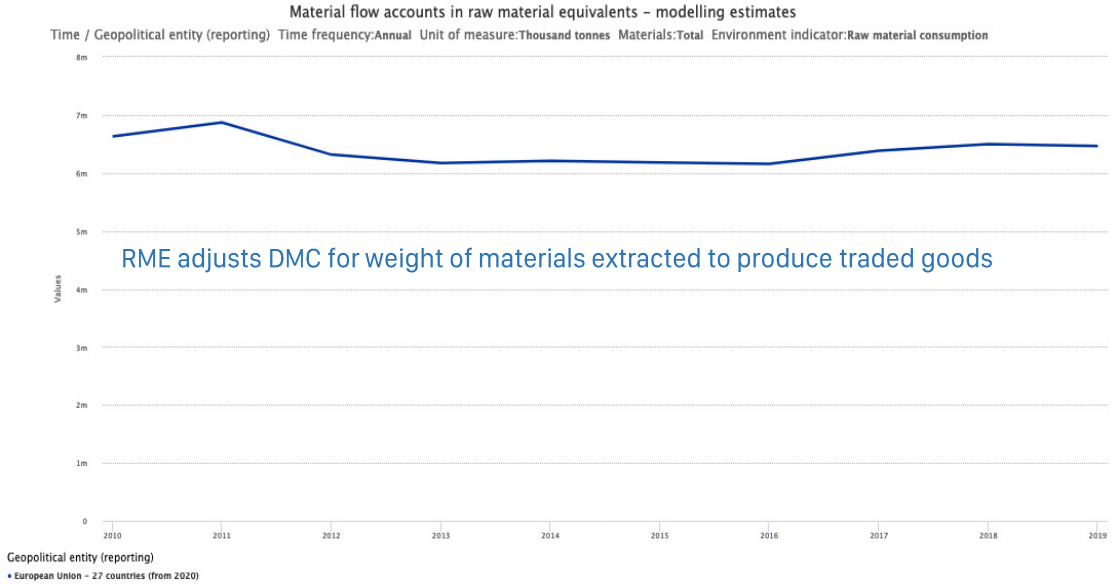


Insights from Europe

#1: REDUCING RESOURCE USE IS TOUGH

- Circularity of material use in Europe today stands at **12.8%** ….which means that more than 87% of materials fed into the EU economy every year go to waste.
- **Domestic material consumption is declining in EU.** Resource productivity driven by:
  - Technological change
  - Structural change
  - Outsourcing of material intensive production outside of EU
- But when taking into account the weight of all materials extracted to produce traded goods, **EU material footprint looks stubbornly stable.**



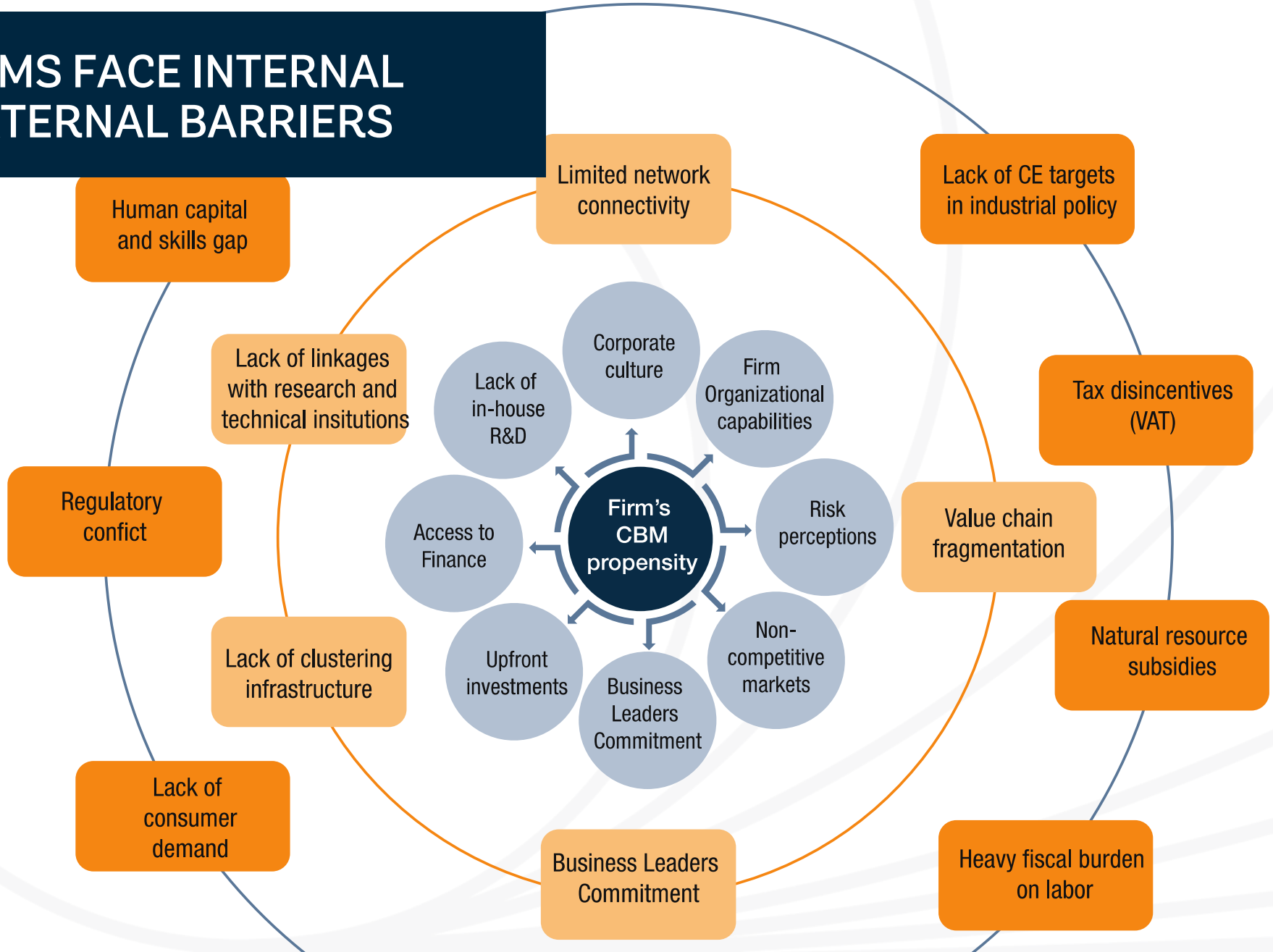


2: FIRMS ARE THE ENGINES OF THE CIRCULAR ECONOMY, BUT…

- Circular business models remain **limited in scale, depth and speed** of adoption
- Average market penetration of CBMs is 5-10% in economic terms
- Recycled materials represent only 8.6 percent of raw material input
- Share of remanufacturing products to new manufacturing is only 1.9 percent.
- The production of secondary raw materials from waste only accounts for 30 to 40 percent of the physical output of sectors in which it is most established such as steel, as well as pulp and paper

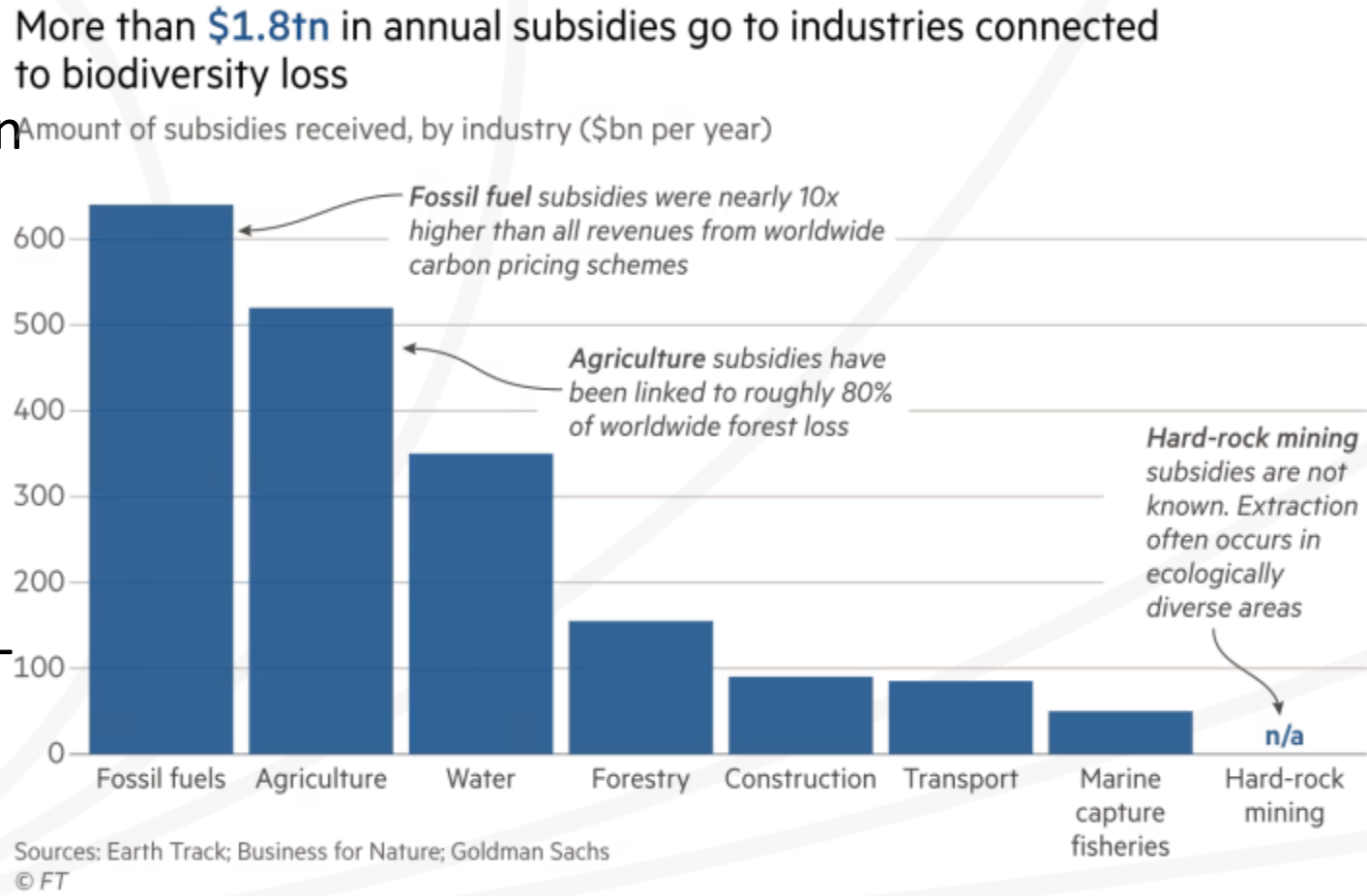
- **Without rapid scale-up, CE risks remaining niche rather than fundamental disruptor**

3: FIRMS FACE INTERNAL AND EXTERNAL BARRIERS



#4: LINEARITY IS PRICE COMPETITIVE

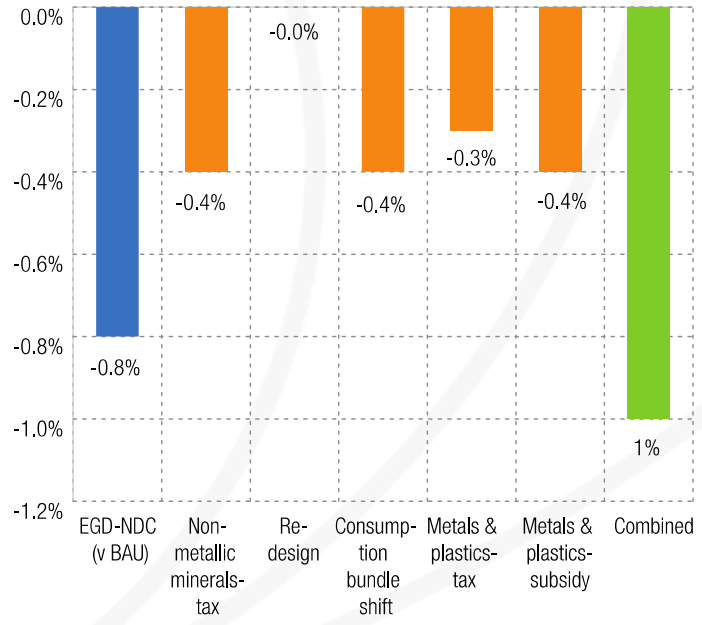
- **Secondary materials are more expensive than virgin resources:** Recycled plastics are US$72 more expensive per metric ton than with newly made plastic (2020).
- **VAT systems are designed to** tax circularity multiple times
- **Landfilling taxes** still lag
- **Subsidies:** Resource extraction is heavily subsidized in all major natural resource-based sectors, starting with fossil fuels, — agriculture, fisheries, forestry, water, and mining.



#5: FISCAL REFORM CAN REVERSE THE NEGATIVE GROWTH IMPACTS OF CE POLICIES

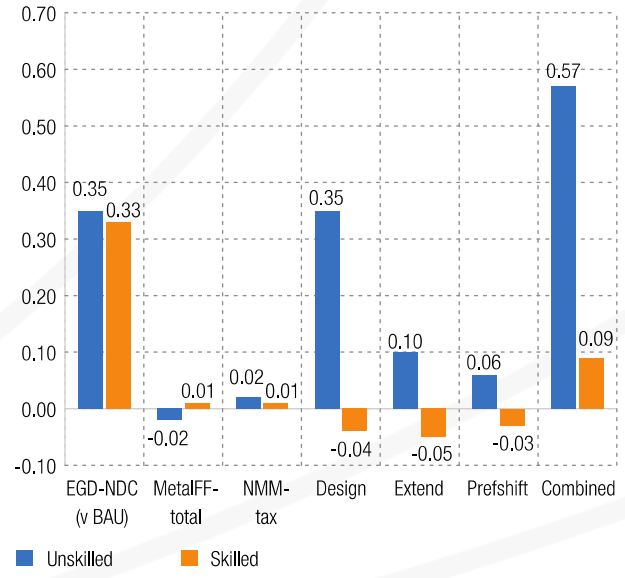
- CE objectives can be achieved at a **relatively small direct cost** to the economy
  - GDP 1 percent below baseline
  - Unemployment 0.6 percent above baseline, mostly impacting unskilled workers
- **BUT:** Using **CE tax revenues** to **reduce labor taxes** eliminates GDP losses and reverses negative labor effects
- CE policies integrating Green Fiscal Reform can **support growth and welfare**

Change in real GDP-Europe (2030) relative to EGD-NDC scenario



Source: World Bank.

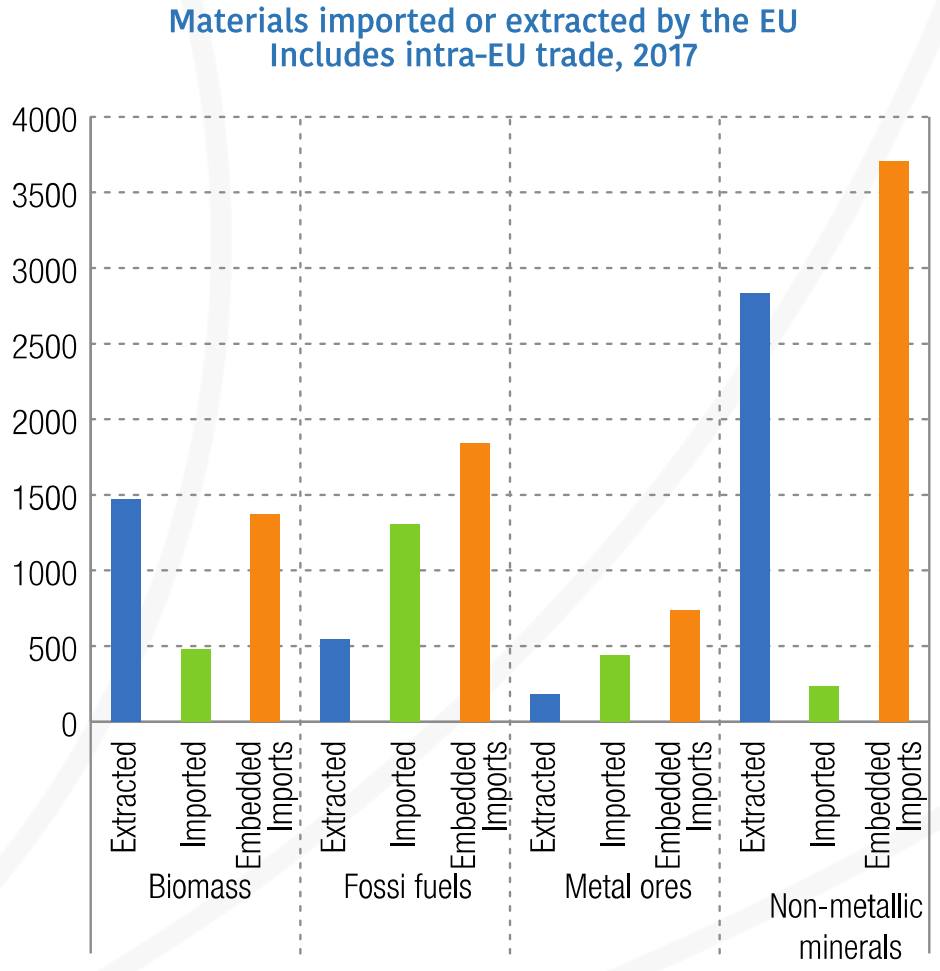
Europe percentage point change in unemployment rate (2030) relative to EGD-NDC scenario



Source: World Bank.

6: DOMESTIC CE POLICIES HAVE A CROSS BORDER DIMENSION

- Europe relies heavily and increasingly on **imported materials**
- EU imports 11.3% of material consumption (DMC), but 35.7% when **embedded materials** are considered (material footprint)
- **CE Policies can have impacts across borders: Spillovers and r**epercussions of CE policies on trading partners

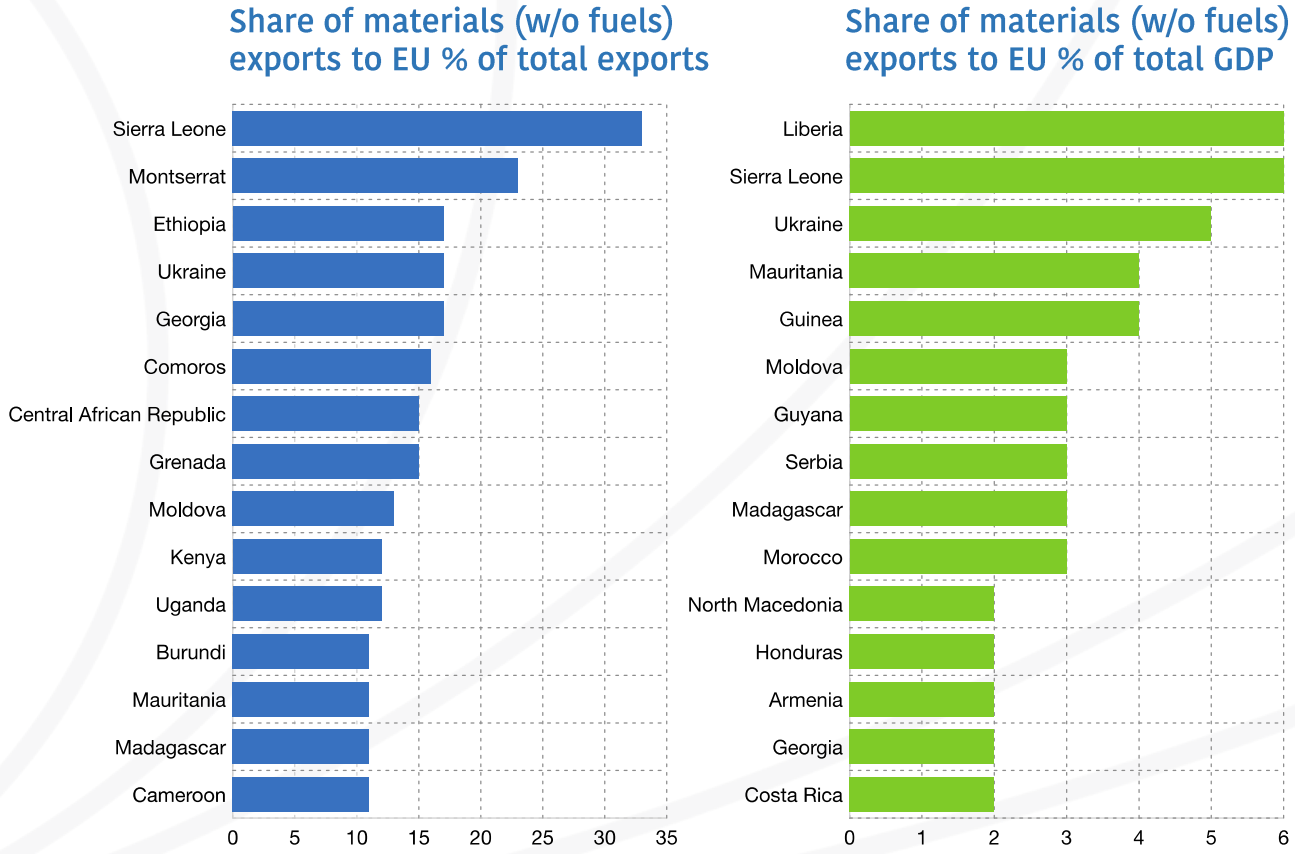


Source: UNEP and Eurostat data.
Note: EU excludes intra-EU trade.

7: DEVELOPING COUNTRIES ARE PARTICULARLY EXPOSED TO EU CE POLICIES

- Many **LDCs** have
  - A large share of their exports accounted for by **materials exports to EU**
  - LDCs Exporters tend to be **undiversified**
  - Lack capabilities to adapt to export shocks

→ Significantly exposure to policies that impact materials imports



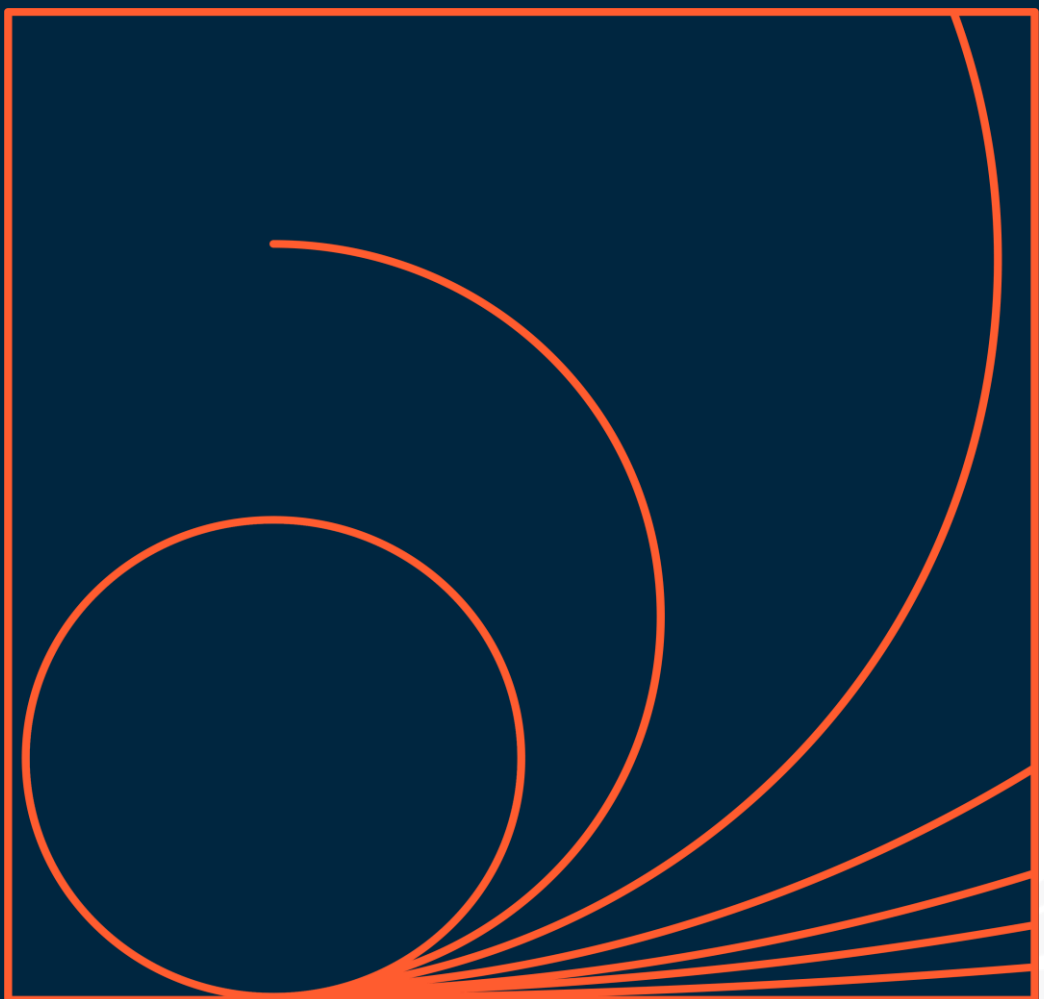
Source: BACI-ComTrade data.

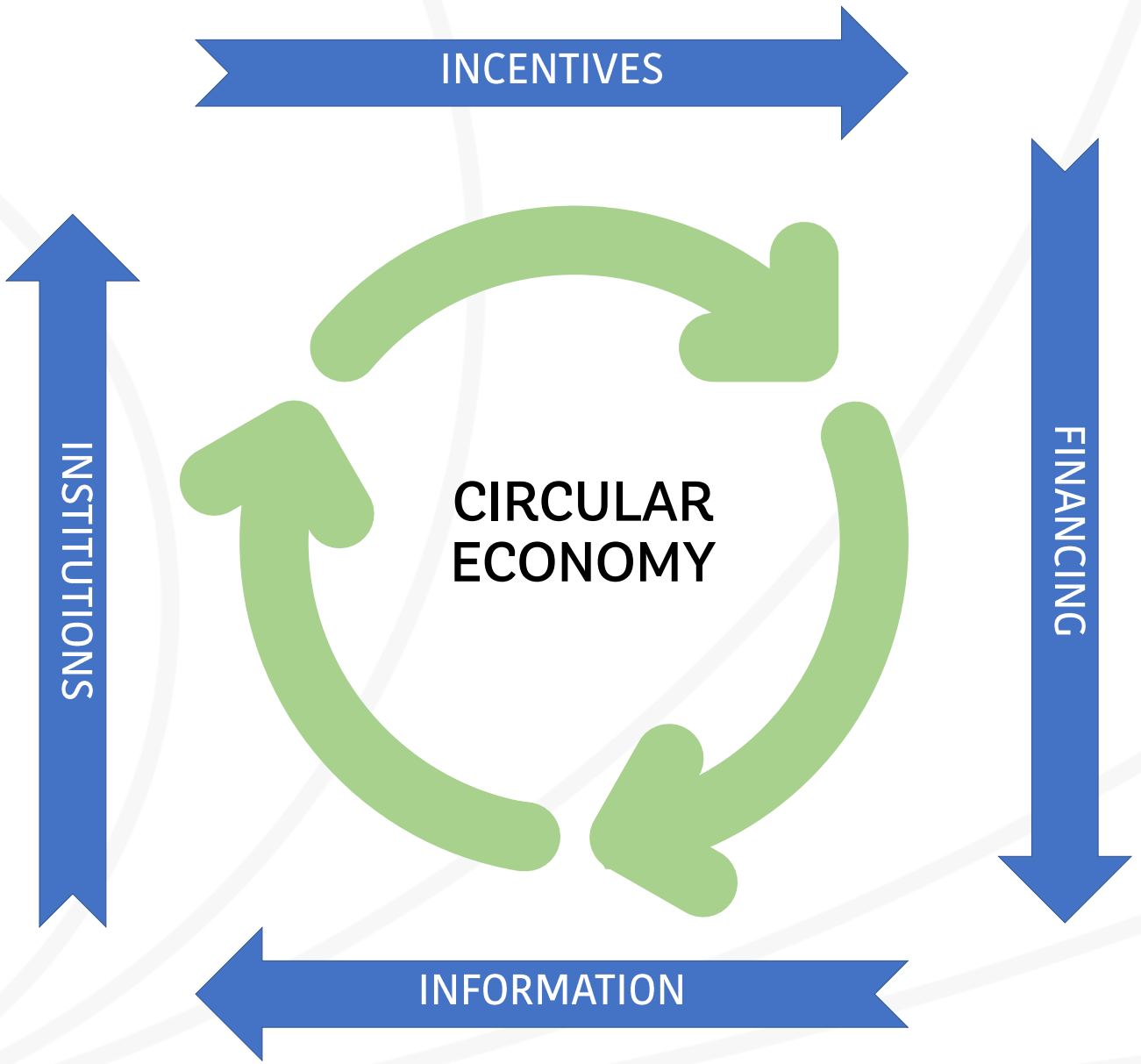
#8 : TRADE POLICY WILL NEED TO INCORPORATE CE OBJECTIVES

- As the **regulatory gap** between EU and developing countries grows, negative **spillovers are likely to rise**
- Important to **seek cooperative solutions** with third countries, help them make CE transition and manage adverse impacts
- **Potential focus** areas of trade policy:
  - Encouraging trade partners to move to circular solutions
  - Dissemination of technologies
  - Adoption of standards
  - Strengthening capacity for monitoring, reporting, and verification
  - Closing knowledge and capacity gaps across value chains
  - Responsible sourcing
  - Supporting stronger regulatory environment

Squaring the circle: a policy package for the circular transition

ROLLING BACK THE LINEAR ECONOMY REQUIRES COMPREHENSIVE POLICY PACKAGES



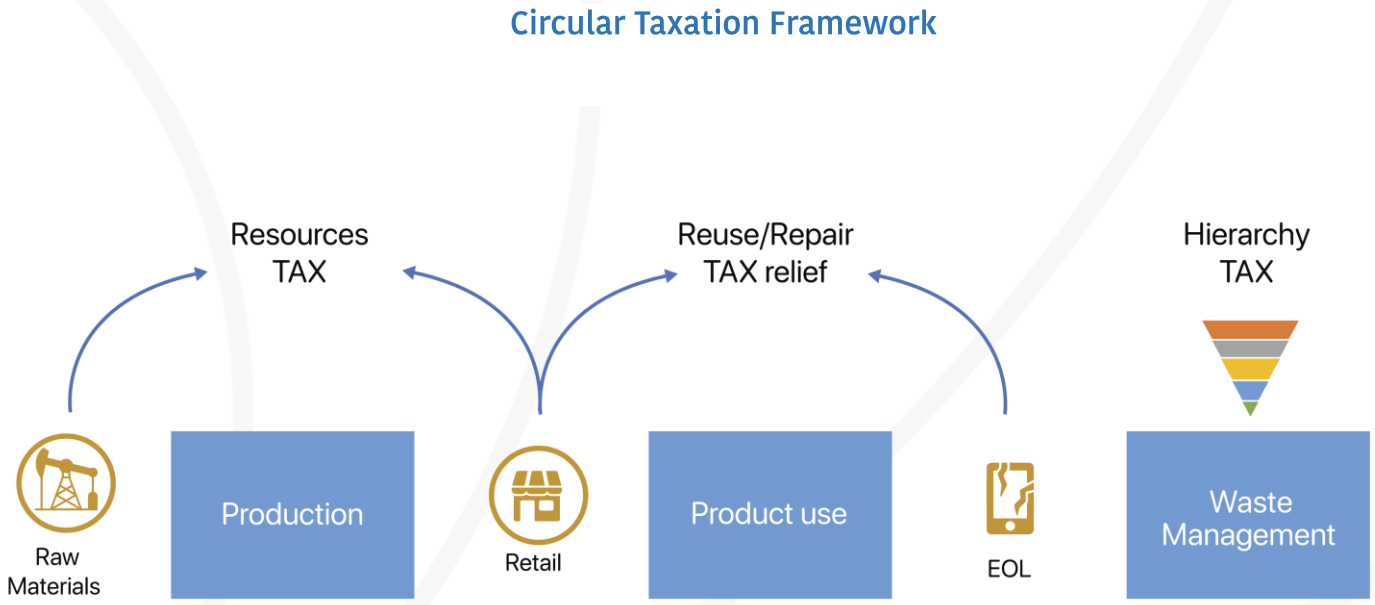


INCENTIVES

Ensure adequate pricing signals through economic and fiscal instruments reflecting linearity's externalities**.**

Introduce material taxes whilst reducing labor taxation: environmental tax shift can reduce linear biases whilst alleviating labor costs through revenues recycling.

Tax shifts should be geared towards **reskilling for circular economy jobs**



Source: Adapted from Milios (2021).

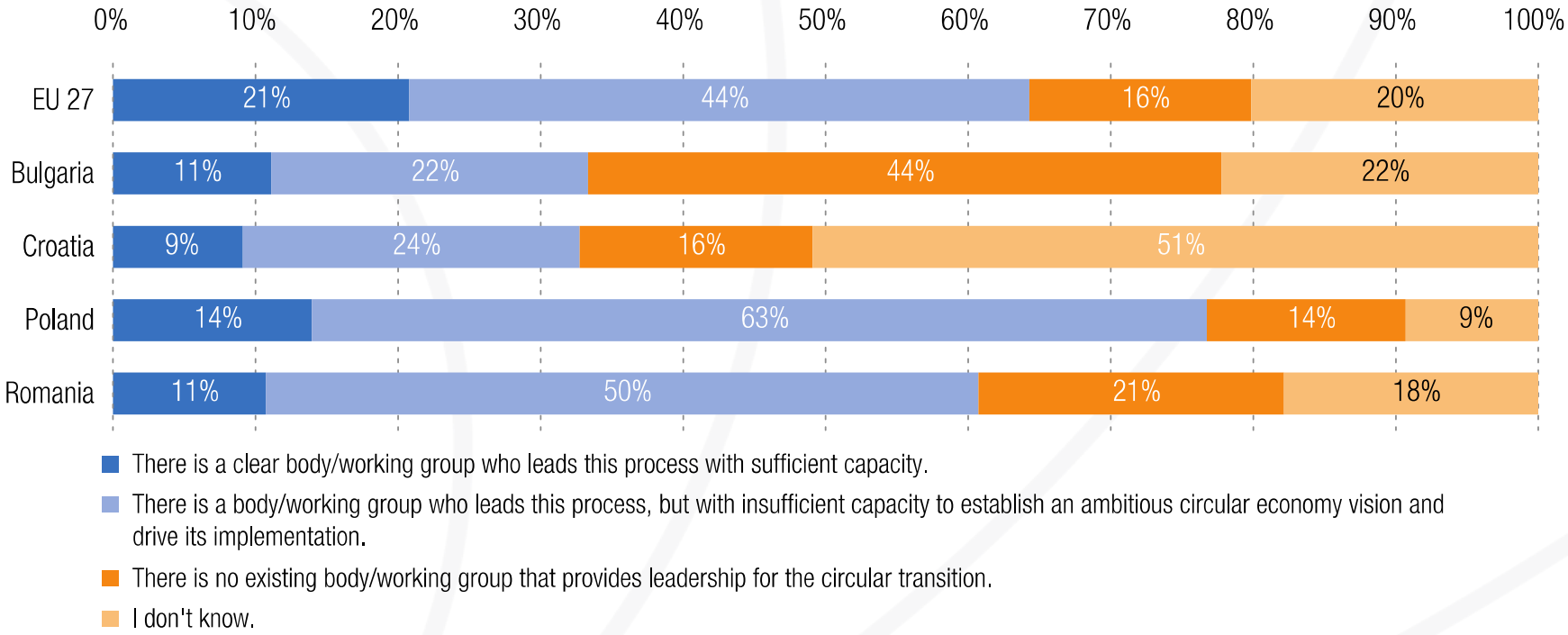
INSTITUTIONS

Policy coherence

"Whole-of-government" approach, with frontline role for economic decision-making agencies

Horizontal and Vertical coordination

Is there a leading institutional body in charge of the CE transition?



Source: World Bank.

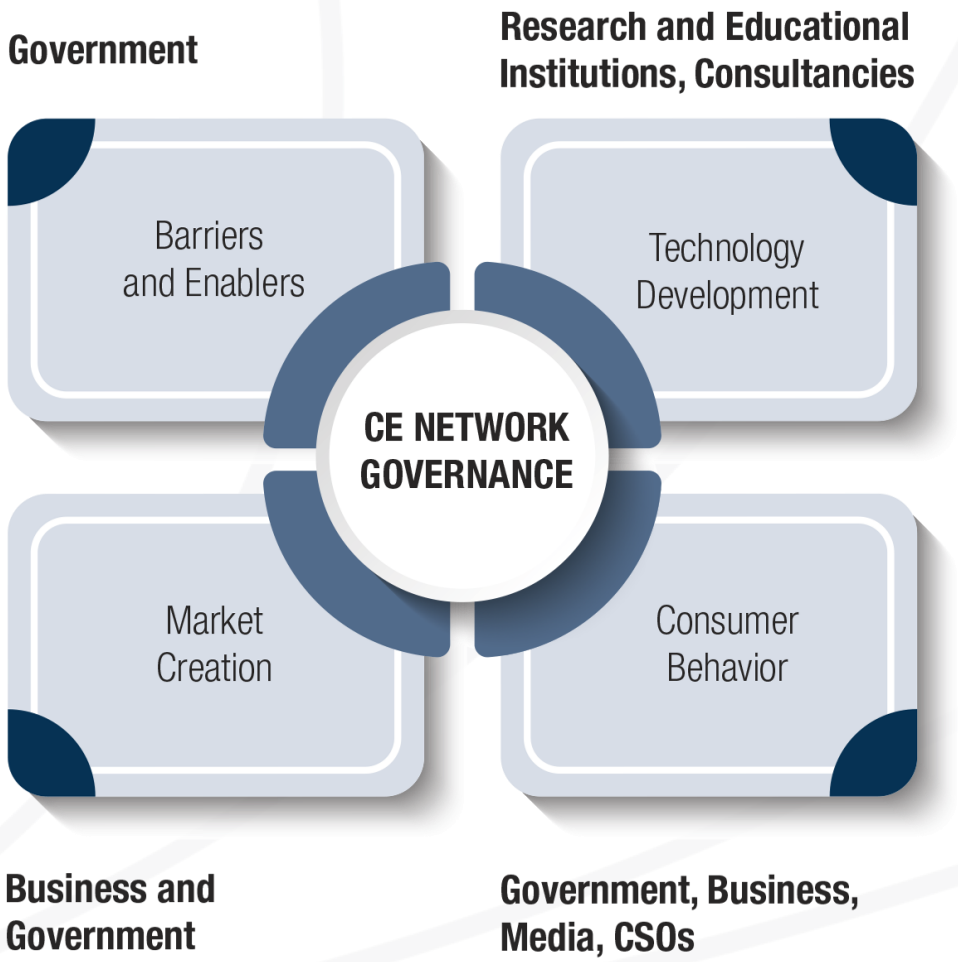
INFORMATION

CONSUMERS: Enhance understanding of CE benefits

BUSINESS: Remove coordination costs and skilling gaps

POLICY MAKERS: Indicators of CE outcomes and process

TRADE Partners: transparency of embodied materials in traded goods



FINANCING

No lack of finance (RRF + Cohesion Policy) – indeed, effective **absorption might be a problem**

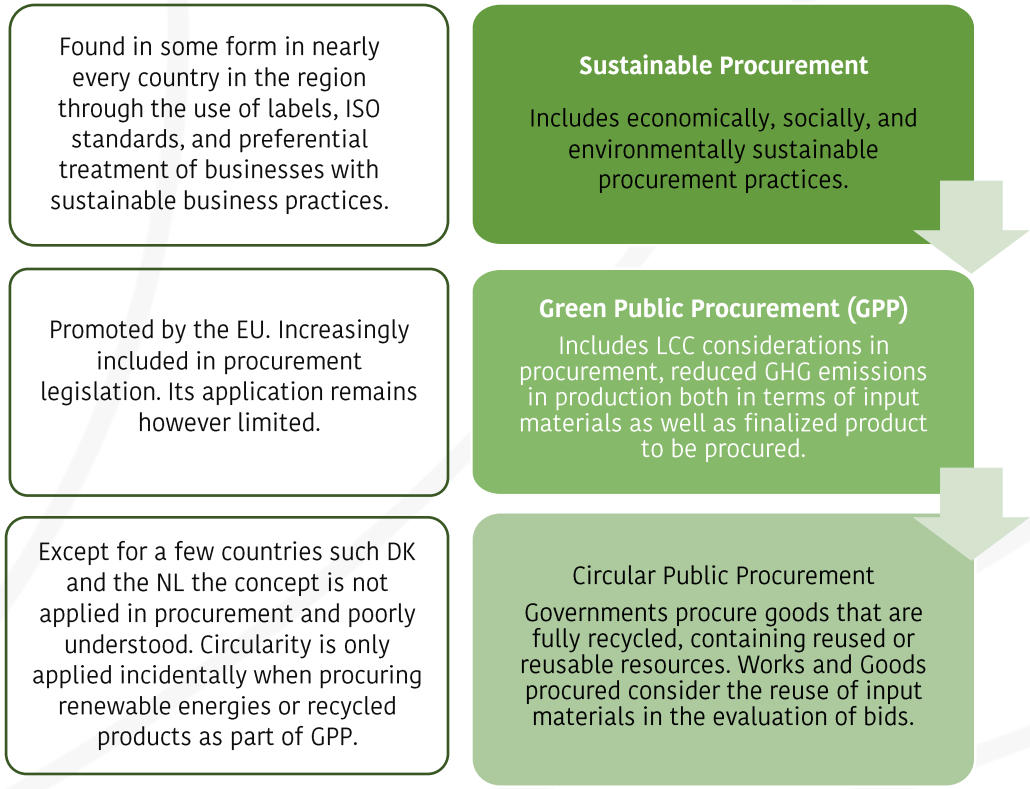
BUT, without removal of linear biases, financing will remain ineffective → pricing (fiscal) reforms are key to meeting the financing gap

Public procurement is central to creating circular economy markets

Banking system is not geared to support CBMs

Developing countries will need help to support the global transition - role of aid and concessional finance to facilitate the transition

From Sustainable to Circular Procurement – A Framework



Notes: LCC = Life cycle costing, GHG = Greenhouse Gas Emissions, DK = Denmark, NL = The Netherlands
Sources: World Bank team

www.worldbank.org/eu-circulareconomy