INTERNATIONAL SYSTEM CHANGE COMPASS

THE GLOBAL IMPLICATIONS OF ACHIEVING THE EUROPEAN GREEN DEAL

EXECUTIVE SUMMARY

Co-authored by

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EXECUTIVE SUMMARY

The challenge of system change:
The interconnected crises of climate change, biodiversity loss, and pollution cannot wait for humans to spend more years discussing solutions, policies, and institutions.

The science is clear: International system change is urgently needed to meet the climate crisis. Atmospheric concentrations of harmful carbon emissions have never been higher in human history and emissions have increased since 2010 across all major sectors globally. The *Intergovernmental Panel for Climate Change (IPCC): Climate Change 2022, Impacts, Adaptation and Vulnerability (IPCC)* report[1] states that current emissions trajectories put the planet on a path to warm by about 3.2 degrees—double the limit agreed in Paris 2015. It concludes that limiting warming to around 1.5°C requires global greenhouse gas emissions to peak before 2025 at the latest to leave the "fast track to disaster." UN Secretary General António Guterres forecasts "unprecedented heatwaves, terrifying storms, widespread water shortages, and the extinction of a million species of plants and animals."[2]

With climate change, we face not one crisis but many: More and more people around the world are calling for accelerated action on the planetary emergency and the linked threats to food and water security, biodiversity, and health. Substantial disruptions to trade because of COVID-19 and the Russian invasion of Ukraine are inevitably creating supply and price shocks throughout global commodity chains. Food and energy prices are rising, and economies are stretched due to lack of fuels, food, fertilisers, and other resources such as metals and intermediate products needed for the energy transition. Europe's dependence on imports of energy and resources is one of many reasons to accelerate decarbonisation and reduce resource consumption to boost the continent's resilience.

At EU level, the European Green Deal (EGD) sets out an integrated approach to a green and just transition by 2050 and a vision for a climate-neutral future. Yet current EGD commitments and related EU policies focus predominantly on the supply side, hardly addressing demand-side measures or the global context and international effects of Europe's transition towards ecological and social sustainability. Moreover, the EGD and its initiatives are not tackling the major driver of emissions and environmental degradation—which is overconsumption in high-income countries, including in Europe. The recent *Lancet Planetary Health Report*[3] is clear: High-income nations are responsible for 74% of global excess material use, driven primarily by the USA (27%) and

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1 *Intergovernmental Panel for Climate Change (IPCC): Climate Change 2022, Impacts, Adaptation and Vulnerability* (2022).

2 *UN News*, "UN Climate eRport: It's 'Now or Never' to Limit Global Warming to 1.5 degrees," April 4, 2022.

3 Jason Hickel, Daniel W. O'Neill, Andrew L. Fanning and Huzaifa Zoomkawala, "National Responsibility for Ecological Breakdown: A Fair-Shares Assessment of Resource Use, 1970–2017," *Lancet Planet Health*, Volume 6, Issue 4, E342-E349, 2022.

the EU-28 countries (25%). China is responsible for 15% of global excess material use, and low-income and middle-income countries in Africa, Asia, Latin America and the Caribbean, and the Middle East are responsible for only 8%. Because high-income countries are the primary drivers of global ecological breakdown, they need urgently to reduce their resource use to fair and sustainable levels.

Two important conclusions follow: First, all the current crises are interlinked, and so are their solutions. Food and energy security, or any other human need related to security, must be prioritised in order to re-establish values, rethink economic systems, and reduce overconsumption. The 2022 IPCC report on impacts, adaptation, and vulnerability highlights the immense potential to reduce demand across sectors, acknowledging that individual behavioural change is insufficient for climate change mitigation unless it is embedded in structural and cultural change. Demand-side mitigation efforts could reduce global greenhouse gas emissions in some sectors by up to 70% by 2050.[4] Research by the International Resource Panel shows that natural resource extraction and processing account for more than 90% of global biodiversity loss and water stress, approximately half of global greenhouse gas emissions and one third of air pollution health impacts.[5] Resilience calls for a system change approach to minimise trade-offs and future lock-ins while maximising co-benefits and synergies across efforts.

Second, incremental efficiency gains within the current system will not prevent climate catastrophe. They will not solve the resource crisis, or the biodiversity crisis, or address fundamental injustices. Incremental gains will also fail to address long-term threats to competitiveness. The divide between high-income, overconsuming countries and low-income economies that rely on extracting natural resources is widening. Only a holistic approach that includes reducing overconsumption can achieve a fair and effective transition towards a true net-zero world: A world with net-zero carbon emissions but also zero biodiversity loss, zero inequality, and zero poverty.

A telling example of the failure to consider international effects is Europe's efforts to replace Russian oil and gas. By buying up available resources on international markets, European governments are driving up energy prices for people and countries that can less afford them. On the positive side, the EU is finally accelerating the installation of renewable energy infrastructure, but it also needs a strategy for major reductions in energy consumption to prevent a new scramble for raw materials—with all its detrimental effects for extracting countries. For the sake of the global transition, as well as the European Green Deal, the EU needs to reduce its materials imports, facilitated by a transition to a circular economy. A European economy that consumes less from long global supply chains will be more resilient, as well as more sustainable.

This report aims to provoke a debate about what a green and socially just transition could mean for the future pathways of many economies, as well as the position of the EU within the resource-intensive global system that it helped to create. It unpacks the key international issues, tensions, and trade-offs that will arise on the path to sustainability. The authors put forward potential solutions to some of the most severe problems and strive to start a discussion about the implications of implementing the EGD globally and the kind of systemic policy approaches are needed for its success.

4 Intergovernmental Panel for Climate Change (IPCC): Climate Change 2022, Impacts, Adaptation and Vulnerability, Summary for Policymakers (2022): 44 et seq.

5 International Resource Panel (IRP), *Resource Efficiency and Climate Change - Material Efficiency Strategies for a Low-Carbon Future* (2020).

"The success of the European transition is linked to the global transition"

At the heart of the report is the realisation that **the success of the European transition is linked to the global transition: Individual efforts and EU policies that are at odds with a shift towards green, just, and resilient economies and societies elsewhere can never bring a green, just, and resilient future for Europe.** In a globalised world, transforming Europe's economy and way of life also means transforming the EU's relationships with partners globally. The EU not only has a duty to mitigate negative external impacts and trade-offs, but also a **unique opportunity to reshape the resource-driven global governance system founded in the era of colonialism.**

Through the actions and policies set out in this report, the EU can build relationships with low-income countries in ways that overcome historical dependencies and put collaboration front and centre. This report provides recommendations to policymakers on how to implement a climate-neutral vision for Europe that helps restore the balance between people, planet, and prosperity not just within Europe but globally. As the report demonstrates, this shift in international relationships requires radical system change that involves all segments of society. Current levels of resource consumption in Europe are not only unsustainable, but they also fail to maintain key social functions; for example, mobility systems dominated by private vehicles are plagued by traffic jams, fossil energy use and decreasing productivity. Europe must open new possibilities for international partnerships that go beyond cheap resource extraction. It must recognise that joint innovation and investments in circular and clean business models are necessary for sustainable prosperity.

Collaboration within the European institutions also needs to improve. Successful implementation of the EGD requires a whole-of-government approach, including foreign, security, development, and trade policies. This requires much closer collaboration between the European Commission's Directorates-General (DGs), agencies, and national governments to achieve unity of effort. System change requires a change in the EU's mode of operation. Policy areas need to be more closely aligned to address the profound interdependencies involved in the climate transition.

The compass to guide system change

Radical system change in line with the EGD's ambitions requires EU policymakers urgently to create a plan to address three main goals:

1. To create the green, just, and resilient future that the EGD seeks to achieve, the EU must work towards **system change in international relationships** and use this as an opportunity to display truly transformative leadership, not just at home but globally. To achieve a green and fair future for all, collaboration needs to be at the centre of governance and leadership, replacing the goal of economic growth at the expense of others. System change goes beyond the mere mitigation of negative impacts of the current global economic model. It entails reshaping a resource-driven global governance system that was built to perpetuate existing power dynamics and unequal consumption patterns. It requires the creation of new indicators for economic development. This means reshaping resource-driven imperialist relationships and overcoming historical dependencies—instead building trust-based relationships with partners. It also means addressing the relational imbalances between high-income and low-income countries and regions—in bilateral relations as well as in international fora of collaboration.

"Successful implementation of the EGD requires a whole-of-government approach, including foreign, security, development, and trade policies"

"The EU can make its supply chains and energy sources less vulnerable, not just by diversifying sources but by building a sustainable economy"

2. Following Russia's invasion of Ukraine and the consequent energy, food and materials crisis in Europe, the EU must **invest in avoiding future security crises and potential conflicts through decarbonisation and reduced resource consumption to enhance independence.** The war has jolted the EU into rapid action on energy, food, and industrial policies, but with some setbacks for the climate transition, such as the burning of more coal. While some short-term constraints are inevitable, the long-term plan formulated in the EGD remains essential to prevent further crises over energy, food, water, and other resources.

   A decarbonised and dematerialised economy is far more resilient as it addresses all the current crises at once: The **multiple environmental crises of climate change, biodiversity loss, and pollution are all connected to inefficient use of natural resources.** These crises have created insecurity in the form of fragile supply chains and disruption of food and energy supplies. They heighten the risk of future conflicts over resources. The EU should redouble its efforts to make its supply chains and energy sources less vulnerable, not just by diversifying sources but by building a sustainable economy in order to build geopolitical independence. For example, the most appropriate solution to the current shortage of semiconductor chips in automotive production chains is to move to car sharing—instead of individual car ownership—within an integrated mobility system, combined with labour patterns that reduce the need for travel. The savings in resource costs related to mobility could amount to EUR 247 billion annually, offsetting other macroeconomic costs of the crisis.[6]

   This decarbonisation and dematerialisation pathway requires **fundamental shifts in the current understanding of prosperity, and in the incentives that are built into our economic system.** Given that the drivers and pressures of environmental and social degradation lie in over-use of virgin resources, European leaders must actively plan for a reduction in overall use, including imports of raw materials. The EU needs to prepare industries for changes in taxes, prices, and regulation to achieve this reduction.

3. The EU needs to find a new balance between **retaining productive industry at home while also enabling a just transition globally.** In this transition, the EU can be a partner for regions that currently depend on exporting to European markets, collaborating with those regions to advance them along their chosen pathways towards sustainable wellbeing and resilience. This requires a new understanding of metrics and competitiveness. The historical approach was to outsource much of European production (and emissions) to countries with cheap resources and labour. This model is incompatible with the ambition of ensuring climate neutrality, resilience, and sustainable development and keeping human activity as a whole within planetary boundaries. To develop new partnerships for transition, the EU must help ensure that local resources are available for domestic development, and it must deploy European technological and financial capacities for mutual benefit.

6 Material Economics, *The Circular Economy a Powerful Force for Climate Mitigation*, 2018, 6&48, https://materialeconomics.com/publications/the-circular-economy-a-powerful-force-for-climate-mitigation-1.

This report's recommendations create a systemic approach. They need to be prioritised equally. Choosing a few and otherwise continuing with business as usual will not suffice. **Only a holistic approach will lead to the necessary transition.**

Importantly, this is not a story about what the EU needs to "give up" for successful implementation of its green and social agenda. This is a story about how a just global transition will benefit people across all continents, from improved health and wellbeing to intact ecosystems and resilient relationships, including those of the European Union.

This report sets out:

- The 10 Compass principles (key means to address the drivers and pressures of our economic system) to demonstrate the systemic change needed for successful EGD implementation, both in Europe and other regions. These principles were first laid out by the *System Change Compass* in 2020 and form its normative and analytical framework. This report will also derive key policy recommendations from each of the 10 Compass principles to implement the EGD in a way that is beneficial for the EU as well as its trade partners (Chapter 2).

"This is not about what Europeans must 'give up' to implement a green and social agenda. it is about how a just global transition benefits all people and increases their wellbeing"

"A decarbonised and dematerialised economy is far more resilient as it addresses all the current crises at once: The multiple environmental crises of climate change, biodiversity loss, and pollution are all connected to inefficient use of natural resources"

- An analysis of the specific tensions and opportunities of a green and socially just transition for the EU's trade relations in eight economic ecosystems: The built environment, healthy food, intermodal mobility, consumer goods, nature-based, energy, circular materials, and information and processing (Chapter 3).
- How the EU can leverage its role in international fora to drive the systems change needed to implement the EGD while being fair to other countries (Chapter 4).
- A vision of the future when Europe has successfully led a systemic international transition to sustainability and improved quality of life around the world.

The report develops three sets of recommendations for policymakers, which are summarised on the following pages of this Executive Summary:

1. Principles and system-level orientations on how EU policymakers can achieve the vision of the EGD and SDGs and ensure a green and socially just transition (see Figure 1 on p. 9 and Table 1 on pp. 10–13).
2. Recommendations related to the global implications the transition will have across eight economic ecosystems (p. 23–24); and
3. Global governance innovations that will be needed across three horizons (see pp. 26–28).

SUMMARY OF CHAPTERS

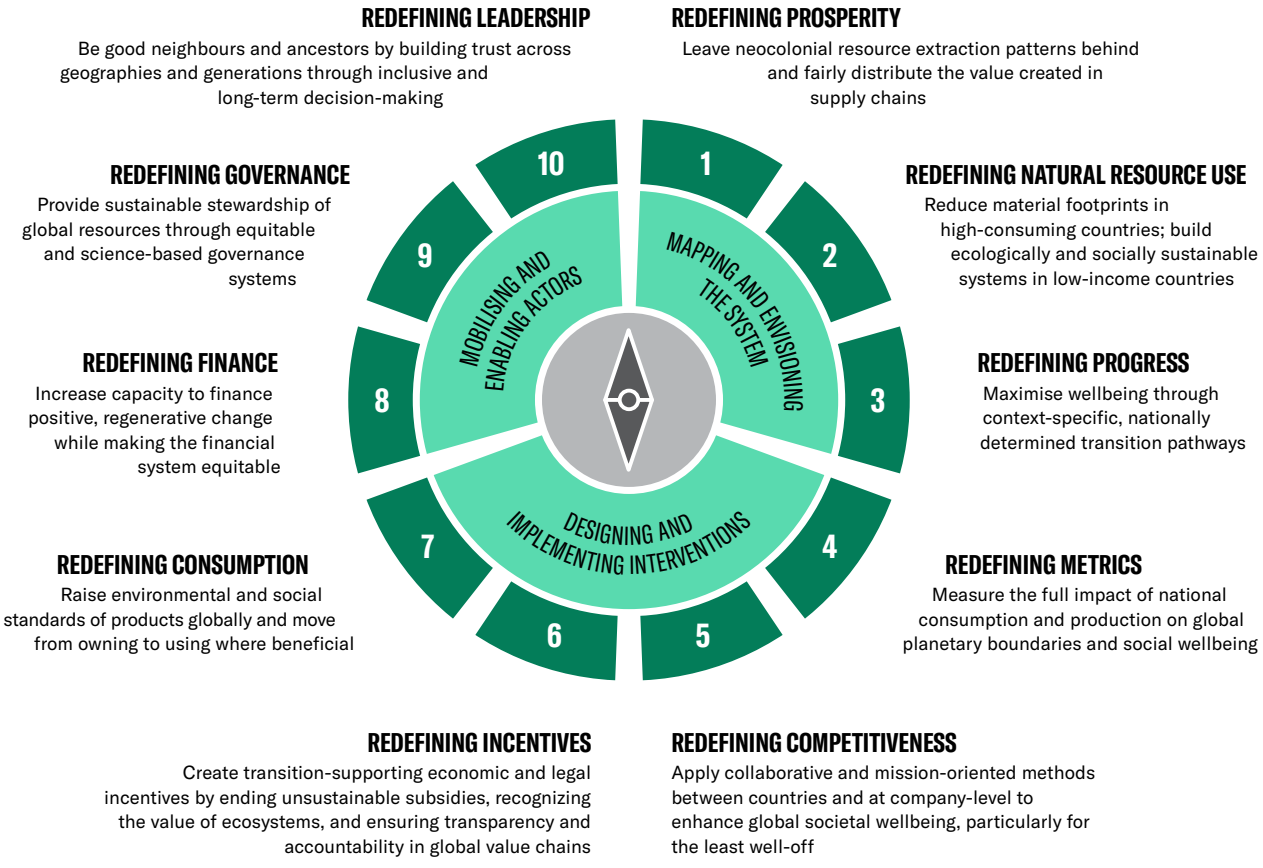
10 Compass Principles and Policy Orientations

To achieve crucial and fundamental system change, the key drivers and pressures of our economic system need to be addressed. The System Change Compass translates system change into concrete policy shifts and actionable recommendations to policymakers. The Compass wheel highlights in its 10 principles the foundational premises and paradigms that our current system is based on while identifying the concrete policy shifts necessary for a true reset and achievement of the just and green future envisioned in the EGD. This International Compass **adds an EU-external perspective** to the System Change Compass analysis in the 2020 report: Focussing on the adjustments needed to the EU's international partnerships, engagement of low-income countries, and the role the EU could play in international fora to promote the EGD implementation.

The report examines the current logic and dynamics behind each principle and puts forward an alternative interpretation of or redefined approach to each principle focusing on the international dimension and an external lens. These principles cover what is necessary to shift our economies, to redefine what we measure and value, and to determine what good leadership and governance look like in a society that effectively balances people, planet, and prosperity.

FIGURE 1

System Change Compass–international lens



To help activate these 10 principles, the report sets out **30 policy recommendations** ("system-level orientations") that address the core external challenges and impacts of EGD implementation.

TABLE 1

System-level orientations for the EU's international role (shortened version–full table in report)

COMPASS PRINCIPLE	SYSTEM-LEVEL ORIENTATIONS FOR THE EU'S INTERNATIONAL ROLE
PRINCIPLE 1 Redefining Prosperity – leave neocolonial resource extraction patterns behind and fairly distribute the value created in supply chains	1. Include **obligatory modelling of long-term impacts on regional and international resource use and intergenerational equity** into EU policy decisions, from industrial to agricultural policy. Advocate for respective international standards as well as invest in societal and economic stability and resilience, with a specific focus on equity in quality of life and social cohesion. 2. Lead an international, inclusive **process for science-based knowledge creation and stakeholder consultation** with the mission to **better leverage fiscal policies for sustainable resource management** and realise a more **just distribution of benefits** between resource rich lower-income countries and multi-national enterprises. This initiative should also examine how global cooperation could prevent or reverse a race to the bottom in LIC taxation policy. 3. Promote wellbeing economy policies inside and outside the EU.[7] Establish **specific indicators for social and environmental standards** that guarantee a shift towards more equity, wellbeing and higher minimum standards for people working for subsidiaries/suppliers of EU-based multinational enterprises. Introduce an (enforced) legal liability within the EU for the parent company/principal to safeguard these indicators in the respective foreign jurisdiction.
PRINCIPLE 2 Redefining Natural Resource Use – reduce material footprints in high-consuming countries; build ecologically and socially sustainable systems in low-income countries	1. While decreasing Europe's material footprint (and monitoring that effort), **commit to minimising directly resource-related impacts along Europe's value chains** and maintaining a fair share of resource to use for low-income countries, by setting concrete targets. 2. Show leadership in multilateral and bilateral trade agreements by **enabling lower-income countries to export services** and find other **ways of securing essential income in international currency** that are not based on resource-intensive exports. Ensure debt relief (e.g., debt cancellation for nature preservation) in order to help LIC achieve financial stability. 3. To improve climate and biodiversity governance, oblige EU member states to **report *impact footprints* related to consumption** (in addition to impacts directly created within borders through production), and make pledges (e.g., NDCs) to mitigate these within and beyond EU borders.

7 Sandrine Dixson-Declève and Aileen McLeod, "21st Century Wellbeing Economics: The Road to Recovery, Renewal & Resilience," Volume 1 *Europe: The Club of Rome Economic Recovery, Renewal & Resi*lience Series (Switzerland: The Club of Rome, February 2021), 9, https://www.clubofrome.org/publication/21st-century-wellbeing-economics-the-road-to-recovery-renewal-resilience/.

COMPASS PRINCIPLE	SYSTEM-LEVEL ORIENTATIONS FOR THE EU'S INTERNATIONAL ROLE
PRINCIPLE 3 Redefining Progress – maximise wellbeing through context-specific, nationally determined transition pathways	1. **Redefine progress using holistic measures that include social, ecological, and economic indicators**. Collaborate with new economists[8] and institutes[9] to lead on **envisioning a desirable economy and society based on new progress indicators.** 2. **Measure performance of the European economy, as well as exports, in terms of resource productivity.** 3. Take leadership in integrating a **similar logic in international economic institutions, defining, and reporting economic progress** as societal function provided per resource input and environmental impact.
PRINCIPLE 4 Redefining Metrics – measure the full impact of national consumption and production on global planetary boundaries and social wellbeing	1. **Work towards an internationally aligned deployment of wellbeing indicators.** 2. Agree on a science-based **international classification system**, establishing a list of environmentally and socially sustainable economic activities (Taxonomy). 3. Agree on **international standards for risk assessment** that are founded on science-based criteria for nature and factor in the costs of natural climate disasters and instability impacts such as climate induced mass migration. Agree on **international standards for placing a value on nature** (natural capital accounting) and **transparency of value chains** to protect natural capital and social capital.
PRINCIPLE 5 Redefining Competitiveness – apply collaborative and mission-oriented methods between countries and at company-level to enhance global societal wellbeing, particularly for the least well-off	1. **Set up and contribute to an international "just transition fund"** that supports lower-income exporting countries **to transition from linear extractive industries to new economic activities** that generate value in a sustainable way. 2. Lead the required **technological transfer** to ensure that lower-income countries can successfully leapfrog harmful and polluting technologies and industry practices. **Enable** them and Europe's trading partners **to quickly partake in circular and regenerative value chains** (for example regenerative bio-economy models) or service providers with a **fair share of the value created across the value chain, create amnesties for intellectual property on key technologies to broaden their application internationally.** 3. **Direct innovation funding** (domestic and international) **towards reshaping industry** to achieve societal goals beyond jobs and economic growth.[10] **Shift international competition towards mission-oriented collaboration** for the development of systems solutions in service of wellbeing and ecological protection.[11]

8 Kate Raworth, *Doughnut Economics: Seven Ways to Think Like a 21st-Century Economist* (Random House Business, 2017), https://www.kateraworth.com/; Tim Jackson, *Prosperity Without Growth: Economics for a Finite Planet* (Earthscan, 2009), https://books.google.com/books/about/Prosperity_Without_Growth.html?id=jarKLCDcePYC; Robert Costanza et al., "The Value of the World's Ecosystem Services and Natural Capital," *Nature* 387 (1996): 253–60, https://doi.org/10.1038/387253a0.

9 Such as The Club of Rome, The Wellbeing Economy Alliance, and the Beyond Bretton Woods initiative.

10 In line with Directorate-General Research and Innovation's concept of Industry 5.0, see: Breque, De Nul, and Petridis, "Industry 5.0."

11 Directorate-General for Research and Innovation (European Commission) et al., *Transformation Post-COVID: Mobilising Innovation for People, Planet and Prosperity* (LU: Publications Office of the European Union, 2021), 3-6, https://data.europa.eu/doi/10.2777/034554.

COMPASS PRINCIPLE	SYSTEM-LEVEL ORIENTATIONS FOR THE EU'S INTERNATIONAL ROLE
PRINCIPLE 6 Redefining Incentives – create transition-supporting economic and legal incentives by ending unsustainable subsidies, recognizing the value of ecosystems, and ensuring transparency and accountability in global value chains	1. Work towards **global standards that fully incorporate the environmental and social costs of GHG emissions and resource extraction in the pricing of materials** and goods. Enable countries that export to EU to capture the compensation for outsourced impacts in their domestic budgets (e.g., through taxes), thereby ensuring that all value from and costs associated with pollution and resource extraction is captured or compensated locally. 2. **Phase out all harmful and unsustainable subsidies** supporting extraction, (over) consumption, and disposal of natural resources. 3. **Measure ecosystem services at a global level and recognise their value financially** for countries whose natural ecosystems provide them—particularly in the tropical belt. Create a global conservation fund as finance instrument (building on the EU's EUR 1 billion pledge at COP26 to conserve forests and create sustainable commodity production).
PRINCIPLE 7 Redefining Consumption – raise environmental and social standards of products globally and move from owning to using where beneficial	1. Work towards setting and enforcing **minimum environmental and social standards for imports in the EU,** based on ambitious and science-based criteria and work towards making these standards a norm in international trade rules. Enforce supply chain transparency along the entire value chain (such as through product/service passports which could be governed by a recognised international standards organisation (such as ISO). 2. **Enable business models that promote stewardship of products** and ensure maximum resource efficiency per consumer function (for example through global innovation funds or tax breaks). Take international leadership in analysing the legal and trade implications of "as a service" business models. 3. Broaden the political debate from efficiency to sufficiency: **Work with international partners to apply a maximum consumer footprint per capita** to stimulate reductions in consumption and demand.
PRINCIPLE 8 Redefining Finance – increase capacity to finance positive, regenerative change while making the financial system equitable	1. **Ensure multilateral financial accounting takes into consideration the risks of climate, nature, and biodiversity impacts** and adopts associated indicators in order to ensure planetary boundary-based decision-making. 2. **Enhance development aid criteria so that aid enables shifts in trade deficits and debt dependencies and allows for the leapfrogging of harmful economic practices. Ensure that development aid builds and reinforces local sustainable development pathways** rather than enforcing European pathways on other countries. 3. **Lead in dialogues on shifting the global financial architecture** (including Beyond Bretton Woods[12]), i.e., restructuring finance institutions to ensure the EU does not just finance change but also contributes to "changing finance."[13]

12 William Kring and Kevin Gallagher, eds., "Special Issue: Beyond Bretton Woods: Complementarity and Competition in the International Economic Order," *Development and Change*, 50, no. 1 (January 2019): 1–274.

13 Club of Rome paper forthcoming.

COMPASS PRINCIPLE	SYSTEM-LEVEL ORIENTATIONS FOR THE EU'S INTERNATIONAL ROLE
PRINCIPLE 9 Redefining Governance – provide sustainable stewardship of global resources through equitable and science-based governance systems	1. Elevate global cooperation to **advance economic and societal models that are based on long-term planning,** beyond democratic election terms. Employ governance structures that foster the voice of citizens, science, and youth through assemblies to ensure a lasting balance between people, planet, and prosperity. 2. Initiate a conversation, through for example a UNEA resolution, with global partners on the creation of a **formal international forum on stewarding global (virgin) resource use** and a supporting scientific panel. 3. **Work towards rebalancing institutional voting rights,** such as those pertaining to organisations like the World Bank and IMF, so that they better recognise improvements in equity, fairness, and responsibility.
PRINCIPLE 10 Redefining Leadership – be good neighbours and ancestors by building trust across geographies and generations through inclusive and long-term decision-making	1. **Strengthen and rebuild trust and cooperation between Europe and lower-income regions** by keeping EU promises regarding climate finance, ensuring a just distribution of COVID-19 vaccination (and future medicinal products) and moving to open the G20 to African members. 2. **Make discussions and trade-offs (for domestic and international topics) more transparent with EU citizens, clearly explaining the need for a shift in economic practices.** Involve leaders from environmentally damaged regions (also from outside Europe) in decision-making processes. Train European policymakers in understanding and communicating an equitable and socially just future. 3. **Take particular note of young and future generations, in and outside Europe, and ensure** that their voices are better heard. Promote leadership and exchange fora for these younger generations, particularly in countries with large populations of young people. Consider quotas for youth representation (ensuring regional diversity) in decision-making fora.

International implications of the transition in economic ecosystems

A systemic transition in Europe will have profound implications for international trade flows and relationships. Challenges and opportunities will arise from dematerialising and decarbonising the major economic activities that serve societal needs (economic ecosystems) in the EU.

Eight economic ecosystems that directly or indirectly support our societal needs make up the lion's share of resource consumption (abiotic[14] and biotic[15] materials and energy). Decoupling solutions to these economic ecosystems also offer the most potential for significant impact reductions while keeping wellbeing functions high. These economic ecosystems, comprised of the built environment, healthy food, intermodal mobility, consumer goods, nature-based, energy, circular materials, and information and processing, are all woven into international trade flows and global value chains.

14 Non-living physical and chemical elements.

15 Any material that originates from living organisms.

FIGURE 2

Eight Economic Ecosystems

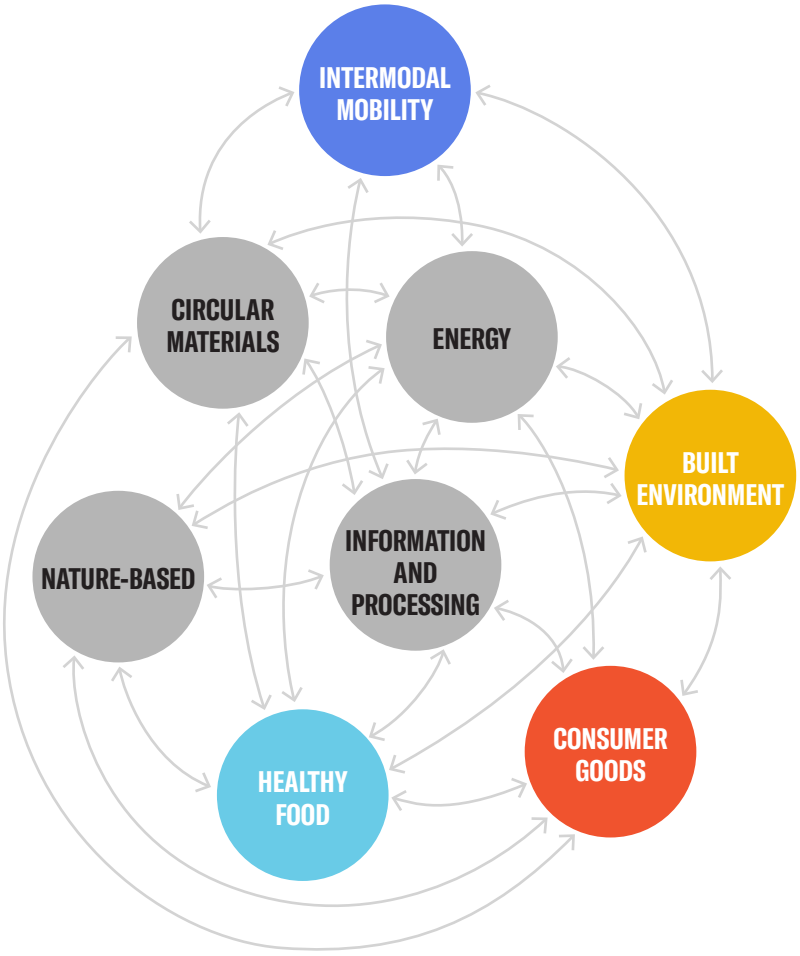
The System Change Compass identifies eight major economic activities as "economic ecosystems" that constitute an alternative to the economic areas and sectors conventionally used to organise the economy.

Four of these eight economic ecosystems (healthy food, built environment, intermodal mobility, and consumer goods) meet a specific societal need (nutrition, housing, mobility, and other daily functional needs). The other four ecosystems (nature-based, energy, circular materials, and information and processing) support the first four economic ecosystems in their delivery of societal needs (e.g., the energy ecosystem supports the intermodal mobility ecosystem as well as the built environment ecosystem).

The reason for the focus on these societal needs is that they have the biggest impact on our resource consumption in Europe and are closest to the areas addressed through the EGD. The authors recognise that there are many other societal needs, including education, health, and political voice.

Related to resource intensive human needs:

- Healthy food
- Intermodal mobility
- Built environment
- Consumer goods



Source: SYSTEMIQ and The Club of Rome, System Change Compass (2020)

The dematerialisation, decarbonisation, and social transition required to achieve the ambitions of the EGD imply a set of different international effects that European policymakers and business leaders must prepare for.

The status quo of the international dynamics within the eight economic ecosystems is characterised by strong interlinkages with international resource and trade flows. This report accordingly analyses **the effects of a transition of EU economic ecosystems on these international dynamics**. It outlines the impacts of a systemic sustainability transition on these (trade) dynamics. Several types of implications can be distinguished.

"The dematerialisation, decarbonisation, and social transition required to achieve the ambitions of the EGD imply a set of different international effects that European policymakers and business leaders must prepare for"

- For some products/commodities, import flows to the EU might decrease or stop entirely, due to an advanced circular economy and sufficient[16] system design.
- Stricter standards for certain products imported into Europe might become de facto trade barriers, for example standards on the carbon content of materials.
- Increases in imports of materials that enable more circular and climate-friendly solutions might be triggered, for example ingredients for batteries or digital equipment.
- If aligned with domestic EGD standards, European exports will have less negative environmental impacts on downstream value chains, for example sales of circular tools instead of basic materials like cement, or machinery specialised for remanufacturing.

These implications play out differently across the following eight economic ecosystems because different commodities and trade partners are affected depending on the international trade patterns involved.

16 Sufficiency is an approach to sustainable consumption based on the idea that reducing ecological footprints requires high-consuming classes to change their consumption patterns and reduce their consumption levels. It comprises notions of a good life with a sufficient level of welfare and of good work. It combines them with concepts such as the Earth's carrying capacity measured as planetary boundaries), the safe operating space, the energy-emissions trap, environmental space with upper and lower boundaries, overshoot/overconsumption, a social protection floor, and degrowth.

TABLE 2

Economic ecosystems: Status quo of international dynamics and potential effects of a System Change Compass transition on international trade relations (highlights, non-exhaustive)

ECONOMIC ECOSYSTEM	STATUS QUO OF INTERNATIONAL DYNAMICS	POTENTIAL EFFECTS OF A **SYSTEM CHANGE COMPASS** TRANSITION ON INTERNATIONAL TRADE RELATIONS
 **Built Environment**	1. **Rapid urbanisation and low resource efficiency pose major challenges to the global built environment.** Massive floor area growth often results in unplanned urbanization, which exacerbates problems, such as environmental pollution, inequality and social instability, and higher vulnerability of crucial infrastructure to natural disasters. Energy for the heating/cooling of buildings accounts for almost 40% of total final energy demand in the EU. The EU was heavily dependent on Russian gas as the top supplier until the 2022 invasion of Ukraine and subsequent sanctions. 2. **EU's resource imports for the built environment are highly emission-intensive and contribute to geopolitical dependencies.** While the EU is a significant producer of steel itself, 24% of the steel used in the EU is imported (as of 2019), mainly from Russia, South Korea, Turkey, and Ukraine. 3. **EU's exports or production abroad are highly resource- and emission-intensive and contribute to inefficient and linear use in the built environment.** EU cement producing companies own almost 60% of the cement and lime production capacities in the US. The use of this cement, especially in the US, is currently highly linear in construction and inefficient in utilization.	1. **Stricter carbon emissions standards and a transition towards a circular built environment in the EU lowers the demand for imports of (virgin) steel and fossil energy such as natural gas.** For steel, this would for instance imply a decrease in demand for iron ore as the main input for virgin steel production, and key trade partners such as Brazil would see a significant decrease in sales on the European market. A decrease in demand for natural gas will lower the EU's energy dependency, especially with regard to primary trade partners like Russia. 2. **More imports of circular materials, renewable energy, hydrogen, and battery-related materials might be needed to bridge the domestic supply-demand gap.** There could be a rise in demand for bio-based, circular, or other low-carbon construction materials (such as timber and bamboo construction material), or environmentally friendly materials that are required for improved insulation (e.g., hemp, cellulose, or wood). 3. **A higher capacity for supplying circular and low-carbon materials and services could make EU exports fit for future markets in a net zero world and might benefit downstream value chains.** This could imply potentially more exports of circular renovation services and machinery for circular practices.

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 **Healthy Food**	1. **Against the background of global population growth, food security remains a priority for many countries, while land use changes caused by agricultural expansion threaten to thwart climate goals.** The expansion of agricultural production in tropical regions is a key driver of deforestation, and current agricultural practices contribute to biodiversity loss, water stress, and high GHG emissions. Geopolitical conflicts such as the Russian invasion in Ukraine put further pressure on food availability, food prices, and planting. 2. **The EU collects a disproportionate part of the added value within the international food value chain, and its high agricultural subsidies partly undermine the competitiveness of local food sectors in LIC.** The EU currently supports its agricultural sector with EUR 102 billion per year, a high level which results in a price distortion on global markets for the subsidised products. 3. **EU fertilizer and commodity imports are highly emission-intensive and contribute to deforestation and water insecurity in producer countries.** The EU imports over 6 million tons annually (worth EUR 3.9 billion as of 2020), mainly from Algeria, Egypt, and Russia. The Russian war in Ukraine has significant and destabilising effects on the fertilizer market: Prices for fertilizers soared in 2022. 4. **The African food sector, and several Latin American countries, are highly dependent on trade with the EU.** The EU is Africa's main destination of food commodity exports, with African exports to the EU having reached USD 153 billion in 2018.	1. **The deforestation regulation, CBAM, and other standards affecting food imports could significantly reduce the EU's international environmental footprint, but also act as additional trade barriers and particularly affect smaller trade partners.** Applying the CBAM to fertilizer imports would have an impact on trade partners in Russia and North Africa, and particularly Senegal, where export of fertilizers to the EU accounts for up to 5% of the country's entire GDP. 2. **A diet shift towards alternative proteins and a shortening of supply chains could result in a decrease in demand for several imported food commodities.** This could imply a sharp decline in soy, beef, and poultry, for which Brazil is currently the main supplier to the EU. 3. **A dietary shift and higher demand for organic products could create import opportunities for (African) producers to supply plant-based proteins and organically produced commodities.** African suppliers could be well positioned to tap into these opportunities through exports of plant-based protein sources, such as pulses (e.g., chickpeas, lentils, and beans). 4. **EU food exports with improved nutritional content could have health benefits along the downstream value chain if they remain affordable; to further reduce environmental and social footprints, local production needs to be enhanced in currently import-dependent regions.** Local production in low-income countries could be enhanced, e.g., through development cooperation programmes that support the development of sustainable intensification practices that increase yields, optimise land use, and promote regenerative agriculture.

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 **Intermodal Mobility**	1. **While in LIC, most people still lack access to safe and affordable transport, only 10 high- and middle-income economies are currently responsible for half of global transport CO_2 emissions.** The current mobility system is highly inefficient regarding resource use, mainly because the utilization rate of cars is extraordinarily low, standing at only 2% on average in Europe. 2. **The EU is the world's top exporter of new vehicles (passenger cars, trucks, and busses), and an additional third of end-of-life vehicles are exported privately; European production therefore directly influences use phase emissions and waste accumulation outside of the EU.** New car exports account for some 5-10% of all export trade flows of the EU, with China, Norway, the UK, and the US as their top destinations. 3. **The EU production of vehicles uses significant amounts of carbon-intensive and deforestation-linked resources, such as aluminium, steel, and rubber, large shares of which are imported.** Almost half of the EU's total aluminium demand (most of it coming from Iceland, Norway, and Russia, as well as Mozambique and the UAE), a quarter of its steel demand (mainly imported from Russia, South Korea, Turkey, and Ukraine), and all its demand for primary rubber (with key origins in Southeast Asia) are covered by international imports. 4. **EU-related passenger and freight transport account for significant amounts of GHG emissions and pollution beyond European borders.** European economic activity is responsible for one fifth of the CO_2 emissions of international shipping. Additionally, flights departing the EU and arriving at non-EU countries emitted over 10% of CO_2 from aviation in 2019.	1. **Fewer EU exports of new and used fossil fuel cars might benefit the transition/ leapfrogging of mobility systems in other regions, but only if the necessary infrastructure for electrification and intermodality can be developed promptly; in the short term, it might leave a gap in meeting mobility needs elsewhere.** Triggering the demand for petrol cars from other producing countries which have potentially less strict emissions regulations, could result in increased emissions. 2. **Decreased demand for resources, such as (primary) aluminium, steel, rubber, and mineral oil, and the need to meet remaining demand with lower-carbon and deforestation-free materials, could result in (temporary) economic losses for current trade partners.** This is a particular challenge for countries with low economic diversification; for instance, aluminium represents 30% of Mozambique's exports, with the EU currently being the top destination for supply. 3. **Increased electrification of vehicles, and the introduction of alternative fuels for shipping and aviation will increase demand for raw materials used for batteries and low-carbon (syn)fuels, such as cobalt, copper, hydrogen, and ammonia.** For some of these materials, EU companies are fully import-dependent (e.g., rare earth materials, cobalt); for others, the EU does currently not have the necessary capacities to produce the quantities needed (e.g., green hydrogen/ammonia, and the renewable energy needed for producing it), and will need to import them to meet the remaining demand. 4. **The use of low-carbon fuels for shipping and aviation will require international ports and airports to be equipped with the respective fuelling infrastructure.** Synthetic fuels for aviation, and the use of hydrogen/ ammonia to fuel ships are among the most promising options but even if the EU drives the development and scaling of these sustainable fuels, a major challenge lies in their widespread deployment, given the globalised nature of current freight and passenger transport.

ECONOMIC ECOSYSTEM	STATUS QUO OF INTERNATIONAL DYNAMICS	POTENTIAL EFFECTS OF A **SYSTEM CHANGE COMPASS** TRANSITION ON INTERNATIONAL TRADE RELATIONS
 **Consumer Goods**	1. **For most consumer goods, the environmental and social burden of production occurs in producer countries, as the EU is a net importer.** More than 90 % of the water and land use, and 75% of GHG emissions related to the EU consumption of textiles occurs outside of the EU, as the EU imports mainly finished textile products from Asia (three quarters of which come from Bangladesh, China, and Turkey). 2. **E-waste and fast fashion waste generated through Europe's overconsumption is exported to third countries causing hazardous environmental pollution and health risks.** In total, Europe exported 11.6 million tonnes in e-waste in 2017. A significant amount of the EU exports are illegal exports of e-waste to low-income countries that do not have the necessary capacities for refurbishing or recycling, such as Ghana, Nigeria, and Thailand. 3. **There is a high economic dependence of a few individual countries (Bangladesh, Cambodia and Myanmar, and increasingly African countries, e.g., Kenya) on textile exports to the EU.** Bangladesh, where almost 90% of the country's exports depend on the clothing and textile industry, supplies more than 56% of its clothing exports to the EU. 4. **The significant market power of European and North American retailers results in precarious working conditions in producer countries as manufacturers operate on thin margins to compete.** The monthly wage for an employee in clothing production in Bangladesh and Myanmar in 2018 was USD 95, and only USD 26 in Ethiopia. To meet demand during the peak seasons and to keep costs low, garment workers are forced to work up to 14-16 hours per day, seven days a week, resulting in 96-hour work weeks without overtime pay.	1. **A decrease in demand for imported consumer goods such as electronics and textiles could pose a major socioeconomic challenge to countries dependent on EU imports; in the short term, it could drive down profits for producers and further exacerbate already precarious working conditions.** A slump in demand could lead to economic shocks and job losses, resulting in substantial socioeconomic challenges in countries where alternative employment options are rare. 2. **Sustainable product standards could improve the environmental and social footprint along the value chain but might act as de facto trade barriers in the short term; major improvements in transparency and pricing will be necessary to leverage positive impacts of standards.** Standards that aim at improving the circularity of products (e.g., the Eco-design Directive) can reduce waste generation and lower the current negative impacts of waste exports but close collaboration along the whole value chain will be crucial to improve their design for longevity and recyclability.

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 **Nature-based**	1. **Both high-income countries (HIC) and low-income countries (LIC) are significantly affected by declining biodiversity and ecosystems, with agriculture-dependent LIC being at particular risk.** While over half (55%) of global economic value creation—equal to USD 42 trillion—is dependent on high-functioning biodiversity and ecosystem services, it is estimated that a fifth of countries globally are at risk of their ecosystems collapsing due to a decline in biodiversity and related beneficial services. 2. **The EU benefits from ecosystem services provided in other areas of the world, in particular from carbon sequestration. Other ecosystem services, such as water provision and purification, soil health, and pollination, are embedded in imported goods.** EU ecosystems mitigate only 7% of all CO_2 emissions of the EU. Agricultural production and cotton production for textiles (while often being supported by agrochemicals and irrigation), rely on soil ecosystems in croplands, water provision and purification, natural pest control, and crop pollination. Many of these ecosystem services supplied are public goods and are often not priced into the commodities that are traded and tend to be overexploited. 3. **Current remuneration for benefits from international ecosystem services is mainly through carbon finance; while the EU is the largest demand market for international carbon credits, it does not match the actual value of benefits.** While European buyers have purchased more offsets than carbon markets in other regions (increasing to 63% in 2019), there is a disparity between the value of the benefits the EU and other high-income polluting countries have reaped from ecosystem services in other regions of the world and the current remuneration paid.	1. **Countries and regions providing cost-efficient nature-based solutions will likely benefit from increasing European demand for CO_2 compensation, nature-based products, and biodiversity finance.** Currently, Asia and Central/South America are the regions with the largest value and/or volumes of investment—largely driven by the forestry sector.

ECONOMIC ECOSYSTEM	STATUS QUO OF INTERNATIONAL DYNAMICS	POTENTIAL EFFECTS OF A **SYSTEM CHANGE COMPASS** TRANSITION ON INTERNATIONAL TRADE RELATIONS
 **Energy**	1. **Increasing the share of clean energy is a global challenge; while HIC also need to decrease their energy consumption, almost 10% of the global population, all of them living in LIC, do not have access to electricity.** Energy production is responsible for almost three-quarters of global GHG emissions—with a stark disparity between consumption rates per capita in HIC and LIC. The share of modern renewables in total final energy consumption reached 11% in 2018 globally, and amounts to 22% in the EU. At the same time, the number of people without electricity access still stood at 770 million in 2019, 75% of whom live in sub-Saharan Africa. 2. **For over 50% of its energy consumption, the EU is dependent on imports of fossil fuels, mainly from Russia.** The main imported energy products are petroleum products, in particular crude oil (65%), followed by gas (27%) and solid fossil fuels, in particular coal (6%). For imports of crude oil, natural gas and coal, the EU mainly depends on Russia, which covers about one third of the import of crude oil import, 45% of EU natural gas imports, and 47% of solid fuel (mostly coal).	1. **The clean energy transition in the EU is likely to decrease demand for fossil fuels and increase demand for renewable energy imports from adjacent regions; this could facilitate the leapfrogging to clean energy production systems in African countries.** A swift phaseout of oil, gas, and coal would significantly decrease the European dependency from imports from Russia. It might also lead to declining prices for African suppliers of crude oil, particularly after 2030. The increasing European demand for imports of green hydrogen presents an opportunity for north African countries that can produce green hydrogen cost-efficiently due to significant solar and wind energy potential and their geographical proximity. As hydrogen can be seasonally stored and transported over long distances using gas pipelines, this could ultimately lead to an integrated low carbon Mediterranean electricity market. 2. **Demand for critical materials will likely increase due to the scaling up of the European transmission grid and energy storage capacity to cover increased electricity demand from electrification.** The increased global demand will most likely lead to price increases and raises the risk of sourcing conflict metals/minerals (e.g., from the Democratic Republic of the Congo). On the other side, this development means economic opportunities for countries producing these critical raw materials.

ECONOMIC ECOSYSTEM	STATUS QUO OF INTERNATIONAL DYNAMICS	POTENTIAL EFFECTS OF A **SYSTEM CHANGE COMPASS** TRANSITION ON INTERNATIONAL TRADE RELATIONS
 **Circular materials**	1. **Europe is the most import dependent region on the planet.** Comparing production and consumption of all materials (non-metallic minerals, biomass, fossil fuels, and metal ores), only North America and Europe consume more materials than they produce. All other regions are net exporters of material resources. Large parts of this vulnerable dependence are caused by underutilisation and wastefulness (see built, mobility, consumer goods, and ecosystems above). 2. **Europe is particularly import dependent when it comes to those metals and raw materials that are essential to create the infrastructure needed for the green transition.** The EU is 100% import reliant on rare earth elements, 98% of which are sourced from China. Rare earth elements cannot be substituted with materials of comparable quality or at reasonable price points. Hence, Europe is close to 100% reliant on China for creating the infrastructure needed to achieve essential elements of the European Green Deal. 3. **Europe's consumption of raw material is at the expense of natural ecosystems and societies living in other parts of the world. Moreover, by exporting its waste to other regions, the EU is outsourcing the pollution associated with its resource consumption.** The production of virgin raw materials, particularly metals, is the cause of enormous environmental pollution as well as toxic effects on humans and natural ecosystems. As a result, Europe's way of overconsuming material produced elsewhere effectively outsources the environmental and social costs associated with raw material production, particularly mining. In 2020, waste exports from the EU to non-EU countries reached an all-time high volume of 32.7 million tonnes—a 75% increase since 2004.	1. **The envisioned system change scenario for the use and stewardship of raw materials in the EU would lead to a drastic reduction in material imports and exports.** In a sustainable, circular economy, materials will be kept in use for extended periods of time and the need for materials would decrease in the first place through better system design. Europe could become self-sufficient regarding its own resource needs, increasing its geopolitical independence (just as with green energy). In addition, Europe could become the main economic area for closing the loop on circular materials: I 2. mporting waste and end-of use products from elsewhere in the world, transforming them into high-value secondary materials and using those abundant secondary raw materials to create high-value products for global application.

ECONOMIC ECOSYSTEM	STATUS QUO OF INTERNATIONAL DYNAMICS	POTENTIAL EFFECTS OF A **SYSTEM CHANGE COMPASS** TRANSITION ON INTERNATIONAL TRADE RELATIONS
 **Information and processing**	1. **Information and processing technologies promise rapidly enhanced standards of living and societal benefit—but they come with significant dangers that materialise if not well managed.** Digital technology and processing capabilities can provide better services and improve living standards and productivity in other economic ecosystems as well as increase societal participation. However, the resource demands (materials, particularly rare earth minerals, as well as energy) of information and processing technologies are mounting quickly. 2. **LIC are significantly disadvantaged in their ability to partake in the digital revolution:** In LIC there is a lack of availability of internet access, mobile coverage, and reliable electricity. In addition, costs are high and content is rarely available in local languages. These disadvantages are compounded by societal barriers. In 2020, women in lower- and middle-income countries (LMIC) were 15% less likely to use mobile internet than men—equalling more than 230 million fewer women than men. 3. **Current international dynamics offer two competing digital economy models—with the EU potentially offering a third way.** Its Global Gateway initiative combines a market-based model with human-centred normative guardrails, particularly focusing on data and privacy rights. Nevertheless, a primary focus on infrastructure deployment and funding will be insufficient to solve the bigger question of what kind of digital economy model LIC and LMIC want to deploy for their citizens. The current dynamics are focused on opportunity, rather than purposeful development and new forms of collaboration around digital technology.	1. **To realise the catalytic potential of information and processing technology for LIC and LMIC, addressing infrastructure and capability issues must go hand in hand.** Training and education programs, going from digital literacy all the way to advanced programming and modern manufacturing methods, are necessary to elevate usage of digital technologies from mere “consumership” towards usership and enablement of dematerialised, decentralised and highly efficient provisioning systems. 2. **Improved information and processing systems, along with critical digital education, will lead to more distributed and relocalised employment, resulting in a potentially more equitable distribution of highly skilled employment. Trade in electronic waste material is likely to become equally as unwanted as trade in plastic waste.** Europe is well advised to envisage LIC and LMIC not just as new markets to conquer (a stereotypical American perspective) or sphere of influence to control (a stereotypical Chinese perspective). Instead, recognising the growing information and processing ecosystems in LIC and LMIC, as well as the associated growth in human skill and digital education that increases cooperation and integration in shared projects, will be key to local development as well as Europe’s prosperity and wellbeing.

Policy recommendations across all eight ecosystems

Based on the analysis above, this report provides **recommendations to EU policymakers for achieving fairer and more sustainable international dynamics across all ecosystems:**

- **Develop a knowledge base of in-depth impact assessments per economic ecosystem**. This knowledge base should provide information on the expected impacts of a systemic EGD implementation along international value chains, and flag current dependencies.
- **Promote highly efficient material resource use for low-carbon products and technologies in European markets to avoid a mining boom in resource-rich countries**. A sudden surge in material requirements from decarbonisation efforts in the EU linked to the demands of renewable energy production could cause large-scale environmental damage in resource-rich countries.
- **Cooperate with international trade partners to identify synergies between European sustainability standards and LMIC's domestic policy goals**. Such cooperation could be the basis for future partnerships and for shaping development strategies in a co-creative way.
- **Incentivise and enable European companies to reduce the negative footprint of their exports and implement sustainability measures across their international subsidiaries**. Instead of "dumping" unsustainable products on the global market or shifting unsustainable production to other parts of the world, the EU could pursue different policies and financial incentives, as well as bridging potential short-term losses.
- **Create financial mechanisms and engage the private finance sector to make additional funds available for LIC that want to adapt their production systems so they are more circular and less-carbon-intensive**. This can make LIC production systems more competitive and allow these countries to pursue other policy priorities.
- **Support the local availability of technological capacity that enables LIC to champion low-carbon and circular business models, bridge losses in previous export segments, and leapfrog to sustainable technology pathways**. This can include facilitating broader technology transfer, supporting context-adjusted innovation, and providing amnesties on intellectual property rights where needed. Initiatives such as these could be inspired by, or linked with, the UN Technology Facilitation Mechanism that encourages multi-stakeholder collaboration to provide LIC with access to technologies needed for achieving the SDGs.

Develop a knowledge base of in-depth impact assessments per ecosystem

Promote efficient material resource use for low-carbon products & technologies in the EU

Identify synergies between European sustainability standards and LMIC's domestic policy goals

Reduce the negative footprint of exports and in international subsidiaries

Engage public & private finance for a joint innovation investment in LIC production system adaption

Support technological capacity of LIC to champion low-carbon and circular business models

The aim of these recommendations is to show how the EU could address trade-offs and ensure that the transitions of economic ecosystems along the value chains are socioeconomically just. This includes recommendations on how negative external effects of a transition can be mitigated. The recommendations also show how environmental and social costs currently incurred in the production of European consumption goods abroad can be internalised. While some sustainability transitions will be challenging in terms of fair international impacts, they **also offer significant opportunities to improve the stark environmental and social imbalances in current trade relationships**.

Ultimately, the transition in Europe must ensure that the environmental footprint of the EU's exports is reduced. The EU must also pursue these changes in ways that mitigate potential short-term negative impacts and create opportunities for trade partners, thereby allowing them to achieve their own environmental and social policy goals and continue trading with Europe.

The EU can lead in the creation of innovations to solve crucial global governance[17] gaps that impede a fair global transition

The EU—as a powerful import and export market and a recognised "soft" power—can set an example in cooperation with trade partners for a sustainable transition. However, the EU's international relations are not exclusive, and they do not work in isolation. Most of the changes require updates in global governance. This analysis and its recommendations need to be seen in a wider political context: While the EU has the power to be a catalyst of system change, states are likely to push back and many in the EU itself will have political objections. Nevertheless, it is crucial that the EU accepts its international responsibility and is an initiator that engages with private and public actors that may oppose such shifts in the global governance system.

Based on the overarching Compass principles, together with the transition needs of each economic ecosystem, **this report identifies the key gaps in global governance that are stalling a coherent transition to sustainable and fair global resource flows**:

- International institutions tend to be shaped by the paradigm of so-called neoliberal economics that usually leads to the pursuit of short-term GDP-based economic interests rather than long-term human development.
- International institutions suffer from a lack of legitimacy due to insufficient representation of LIC interests, scientists, and nongovernmental actors.
- The global governance landscape is highly fragmented and suffers from siloed approaches that lead to a lack of policy coherence.
- The current governance of international markets and value chains does not sufficiently incentivise sustainable resource use and does not reflect the true costs of natural resource extraction.
- The international community lacks a shared understanding and joint targets regarding global resource use and fair distribution of associated benefits.

The report then offers an initial assessment of how to remedy those gaps. Opportunities to overcome global governance challenges include:

1. Adjusting the specific governance mechanisms that currently shape global value chains (Horizon 1).
2. Bridging the institutional gap for sustainable global resource management (Horizon 2).

17 Global governance refers to the complex of rules, policy interventions, and institutions that are used to manage international and transnational interactions within and among the state, civil society, and the private sector. In contrast to the narrow definition of governance exclusively focused on non-hierarchical modes of steering society and private transnational actors, the authors apply the more comprehensive understanding which comprises hierarchical as well as public-private and private modes of governance and considers their interactions.

3. Institutional redesign for the long-term improvement of the legitimacy and effectiveness of key international institutions (Horizon 3).

Some gaps might be remedied by mobilising existing international institutions, others will require reforms or even new institutions.

FIGURE 3

Three horizons to implement recommendations to global governance systems

HORIZON 1

TAKING CONCRETE STEPS TO ADJUST INTERNATIONAL MARKET GOVERNANCE

Based on current global market governance, initiate specific adjustments—requiring cooperation of existing institutions and different actors

- **Accountability of multinational companies**
- **International cooperation on fiscal policies**
- **Green technology transfer & capacity building**
- **Redesigning subsidies and tariffs with adverse environmental and distributional effects**
- **Shifting financial incentives towards rewarding sustainable resource use**
- **Competition and antitrust regulations to foster sector cooperation**

HORIZON 2

BRIDGING THE INSTITUTIONAL GAP FOR GLOBAL RESOURCE MANAGEMENT

New governance arrangements and initiatives might be indispensable to agree on science-based targets that translate into clear guidance for resource use; leveraging international agenda-setting and coalition-building could pave the way

- **Strengthening the international agenda for resource governance**
- **Transparent data on resource use and its impacts to underpin new governance**
- **Innovative mechanisms for financing the global transition to sustainable resource use**

HORIZON 3

WORKING TOWARDS INSTITUTIONAL REDESIGN OF EXISTING INSTITUTIONS

To strengthen legitimacy & coherence, the representation of low-income countries, and a paradigm shift from GDP to welfare metrics across international institutions

- **Strengthening legitimacy through just and diverse representation**
- **Policy coherence and redefining guiding paradigms across international institutions**

Adjusting governance mechanisms that currently shape global value chains (Horizon 1)

Addressing specific gaps and constraints in international market governance can be an approach **to help internalise climate and resource extraction costs, avoid resource overuse, and ensure fair wages and decent working conditions throughout value chains**. This section of the report looks at the **concrete steps** that can be taken to implement specific system-level orientations that can transform global market governance. It examines the kind of cooperation and negotiations necessary to take these steps. And it identifies organisations and transnational governance programs that would need to be involved. These steps include:

- Creating an international level playing field by strengthening the accountability of multinational companies for upholding environmental and social standards along value chains.
- Launching international research and consultation efforts on how intergovernmental cooperation on fiscal policies can contribute to a more just distribution of benefits from resource extraction.
- Accelerating green technology transfer and capacity building by adjusting intellectual property rights (IPR) governance, trade agreements, and carbon and nature accounting systems.
- Phasing out subsidies and tariffs with adverse environmental and distributional effects by adjusting WTO classifications and trade agreements and promoting reform efforts.
- Shifting financial incentives towards rewarding sustainable resource use by harmonizing sustainable investment frameworks and reporting standards.
- Developing clear, practical, and consistent guidance on best practices in competition and antitrust regulations to foster sector cooperation on sustainability.

Bridging the institutional gap for sustainable global resource management (Horizon 2)

While significant progress can be made through changing the way existing governance mechanisms function, there remain gaps with respect to the governance of natural resource management**. To govern a global transition to sustainable natural resource use in a coherent way, new governance arrangements and initiatives are needed that focus explicitly on resources, thereby addressing current institutional gaps.** Some observers are calling for new cooperation on resource governance and starting exploratory conversations on developing an international agreement on natural resource management.[18]

By focusing on resource use, the global policy community has the opportunity to demonstrate a new era of global governance, making both negotiation processes and eventual multilateral agreements/global targets more inclusive, engaging, and better able than current agreements to prompt concrete action.

The report identifies the following key means to bridge the institutional gap:

- Strengthening the international agenda for resource governance.
- Providing a foundation for new governance arrangements by creating and making transparent data on resource use and its impacts widely available.
- Developing new governance arrangements that facilitate innovative mechanisms for financing the global transition to sustainable and equitable resource use.

18 Colette van der Ven, *An International Agreement on Natural Resource Management: An Overview of the Opportunities and Challenges* (TULIP Consulting, February 2022), 61, https://www.tulipconsulting.ch/post/an-international-agreement-on-sustainable-resource-management.

Institutional redesign for the legitimacy and effectiveness of key international institutions (Horizon 3)

There is consensus in the literature on the need to address the **"crisis in multilateralism" that is linked to the insufficient legitimacy and effectiveness of key international institutions**. A number of publications draw the conclusion that the current institutional backbone of the global governance architecture—based on the post-war establishment of the Bretton Woods institutions, the UN Charter of 1945, and the signing of the General Agreement on Tariffs and Trade (GATT)—should be fundamentally reformed, as it still reflects the uneven distribution of power at that time. These publications call for a new international order based on an amended UN Charter that would give central place to fundamental principles of good governance.[19] Other scholars highlight the need for more incremental institutional reforms of existing international organisations. Both approaches highlight the following needs:

- Strengthening legitimacy through just and diverse representation.
- Strengthening effectiveness through policy coherence and redefining guiding paradigms across international institutions.

International diplomacy as the ultimate multi-issue problem solving arena

As the world approaches ecological and social tipping points, leaders have committed to action in their domestic arenas. The only logical conclusion of these commitments—and the one that is required for success—is to include the international sphere in actively solving the global crises now facing humanity. International relationships, trade, and governance are not indirectly affected areas of the global race to bring human activity within earth's planetary boundaries. They are, and must be, part of the driving force to create solutions and accelerated action. This report is a call to action to make international relationships, trade, and value chains part of the solution to humanity's ecological and social crises. It is a necessary change if we are to keep promises across regions and to future generations.

This means policymakers must deliberately plan for managing the international effects of their policies, and it means diplomats must think in terms of joint innovation, partnerships, and increasingly dematerialised trade relationships.

A vision of the future

This report provides a guide for European leaders to **take account of how the green and social transition envisioned in the EGD will change international relationships and require new forms of collaboration and governance**. Many complexities and pitfalls abound in this global transition. However, it promises a future where people enjoy a better quality of life thanks to well functioning, accessible, clean, and healthy economic and financial systems around the globe that serve people and planet at the same time. With improved social cohesion and connectedness, people will enjoy the value of nature more directly and equitably while experiencing a new sense of security—both environmental and geopolitical—with stabilized environmental conditions and social safety nets. Using the systemic analysis presented in this report, not only can Europe attain its ambitions of a green continent, but humanity can achieve global wellbeing within planetary boundaries.

19 For example, Augusto Lopez-Claros, Arthur L. Dahl, and Maja Groff, *Global Governance and the Emergence of Global Institutions for the 21st Century*, 1st ed. (Cambridge University Press, 2020), https://doi.org/10.1017/9781108569293.

Sharan Burrow, General Secretary, International Trade Union Confederation

"In the European Green Deal, the EU set itself the target to "leave no one behind." Now is the time to deliver. And this promise must be true for governments around the globe with investment in jobs— climate friendly jobs—centerstage. There are no jobs on a dead planet, so at this time of multiple crises we must build an economy and work force that are resilient to future shocks and stresses from health pandemics, climate change, and conflict. The *International System Change Compass* report analyses the global implications of achieving the European Green Deal, unpacks the problems of neo-colonial resource extraction patterns, and shows how to build more holistic green transition partnerships with low- and middle-income countries that are better for people, planet, and prosperity across the board. We must change EU and global rules to build a green and just future for all. The *International System Change Compass* shows the way."

Leonore Gewessler, Federal Minister for Climate Action, Environment, Energy, Mobility, Innovation, and Technology of Austria

"Our highly globalised world is deeply interconnected and interdependent. That is true when it comes to the current energy crisis because of the invasion of Ukraine and equally so for the biodiversity and climate crises. These challenges emphasize the urgency to make a step-change in the transformation of our systems instead of resorting to incremental adaptations. The European Green Deal (EDG) is crucial if we want to be serious about making this step-change. It gives us the opportunity to take Europe's responsibility seriously and to make the changes that we urgently need. The *International System Change Compass* provides a highly valuable orientation on how to navigate the EGD in our globalised context and underlines the imperative need to not only carry out the energy and climate transition, but to do so in a just and fair way. Because the EGD does not operate in a secluded space, but in an interconnected system. This is a global challenge, and we can only succeed if we think globally and work globally, too."

Jennifer Morgan, Special Representative for International Climate Policy, German Federal Foreign Office

"Our current systems are no longer fit for purpose—too often reinforcing inequality and polluting behaviour rather than sustainable development or the restoration of natural ecosystems. COVID-19 and extreme climate conditions are just the most recent warnings that we need to start putting the safety and wellbeing of people and planet first. In these times of disruption, business as usual models no longer build long-term prosperity for anyone but a wealthy few. We can continue to take incremental steps and be disrupted or respond to the multiple crises through transformative action to build a better world, resilient to future global crises.

Governments need to push the reset button to ensure that the well-being of the planet and people are prioritised over short-term economic growth. The European Green Deal has the potential to be this reset button for the EU. However, the climate crisis and its impacts don't respect borders, which is why we need to build off the European Green Deal to embrace a new climate foreign policy. This means using all of the EU's external levers—trade, development, financial or security—to solve the global crises now facing humanity. The *International System Change Compass* offers a vision of how to elevate the EU's international relations to build new and just relationships—working with partners to shape new governance structures fit for a healthier future for people and planet."

Teresa Ribera, Deputy Prime Minister for the Ecological Transition of Spain

"Following the 2020 report on how to implement the European Green Deal in a time of recovery, this new report from the *International System Change Compass* team highlights the global implications of achieving the European Green Deal. This is a most valuable and timely reflection, as Europe seeks to deliver on its climate ambitions while achieving more green strategic autonomy, in light of the interdependencies and vulnerabilities made apparent by the COVID-19 crisis in 2020 and the energy crisis fueled by the Russian invasion of Ukraine in 2022. The EU's commitment to human rights, international development, and ecological balance needs to permeate ongoing discussions on the Fit for 55 package, the decarbonisation of economies, and the need to strengthen governance of global supply chains and trade relations. European decisionmakers will surely welcome the analysis and policy orientations on how to ensure the SDG goals remain central to these debates."

Evelien van Roemburg, Head of EU Office, Oxfam International

"The ambition of the European Green Deal focuses predominantly on a green and just transition within Europe, whereas the direct and undeniable impact of the climate crisis and the EU's excessive use of resources falls particularly hard on vulnerable and marginalized communities in low- and middle-income countries. The *International Systems Change Compass* paints a very important picture of how the EGD should be implemented in a globalised and interdependent world, as part of an approach that is rooted in climate justice, that addresses the profound inequality that drives the climate and the resource crisis, and that recognizes the leadership of women and young people in driving the truly just transition we need."

Achim Steiner, Administrator, United Nations Development Programme

"The *International System Change Compass* details how the European Green Deal will reverberate far beyond the borders of the European Union. It is expected to drive forward profound shifts in global trade flows, value chains, and consumption—helping the world to take decisive climate action and restore our natural world. The findings of the report will also feed into the United Nations Development Programme's tailored support to 170 developing countries across the world as they work towards the Sustainable Development Goals. That includes unlocking new sources of finance to advance a just transition to clean energy systems, helping to create new green jobs and eradicate extreme poverty, and working with communities to co-create innovative climate action solutions. Together with key partners like the European Union and its member states, the United Nations is co-investing with countries and communities across the world in a greener, more inclusive, and more sustainable future for all."

Nicola Sturgeon, First Minister of Scotland

"Europe has a historic responsibility to take the lead in the just transition to a net zero and climate resilient future not just at home, but globally. Following centuries of benefitting from greenhouse gas emissions, all countries must now deliver the fastest possible just transition to end their reliance on fossil fuels and shift towards renewable energy and hydrogen—recognising that this is the only way to secure a bright future for our workers, our communities and, of course, our planet. Businesses and the financial sector will be critical partners in realising that fairer, greener future. It is time for Europe to address the twin crises of climate change and biodiversity loss and support the countries that are now suffering the effects of climate change they have done so little to cause. The *International System Change Compass* offers a way forward for achieving the holistic transformation of our economies and international relations that is so desperately needed to address climate justice, develop a circular economy and to leave a habitable, prosperous, and more equal planet to future generations."

Jutta Urpilainen, European Commissioner for International Partnerships

"The EU believes that global challenges should be tackled, and Sustainable Development Goals put back on track through inclusive, fair, and value-based international partnerships. With our Global Gateway strategy, we will mobilise investments in infrastructure and translate the Green Deal into our external action. The *International System Change Compass* provides crucial insights on how to accomplish systemic, transformational change toward more resilient, greener, and just societies."

Jeremy Wates, Secretary General, European Environmental Bureau

"This important report is a timely reminder of the global consequences of current European consumption patterns and the EU's responsibility to reduce its environmental footprint in other parts of the world, as well as domestically. It provides a strong rationale for setting clear, ambitious targets for the reduction of the EU's resource use and material footprint in absolute terms; this is not only crucial to achieve a more just society living within planetary boundaries but also to reduce Europe's vulnerability to supply chain disruption of the kind we have seen recently following Russia's brutal invasion of Ukraine."

EXCERPT FROM THE FOREWORDS TO THE REPORT

Frans Timmermans, European Commission Executive Vice-President for the European Green Deal

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"While the challenges we face seem daunting and time to act is running out, we can still stem the tide. It requires that we work together across borders, sectors, and systems. This report provides valuable guidance on managing the necessary global change in a just and inclusive manner... This is not just about the European Union: the climate and biodiversity crises are global crises. Our policies must support adaptation and mitigation efforts across the world."

Mia Amor Mottley, Prime Minister of Barbados

"The absence of a climate finance framework for financing loss and damage, adaptation, and mitigation is why little progress has been made. This *International System Change Compass* report argues that the European Green Deal should help drive and fit into a new global framework."

Download the full report at
https://www.opensocietyfoundations.org/publications/international-system-change-compass

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