

## Tackling International Spillovers:

### An overview of policy options

Center for Global Commons

Institute for Future Initiatives, The University of Tokyo

## **Policy recommendation on Tackling International Spillovers: An Overview of Policy Options**

Today's economies and markets fail to adequately price the full societal costs of business models on our natural world. This undermines our global commons—the stable and resilient Earth systems on which human prosperity and security depend. National policies tend to focus on domestic priorities, ignoring the significant negative environmental impacts on other countries that contribute to the degradation of the global commons.

This Policy recommendation introduces a framework for understanding how four types of national policy levers can tackle international spillovers: (1) target setting and monitoring; (2) public management; (3) regulation; and (4) fiscal policy and financing. It considers both demand and supply-side policy instruments and their impacts on the global commons, and highlights practical lessons on how national policymakers can begin to act now.

It is the result of collaborative efforts under CGC's Global Commons Stewardship Initiative, launched in 2020 with international partners.

# **Tackling international spillovers:** an overview of policy options

---

A discussion paper

December 2023



**CENTER FOR  
GLOBAL  
COMMONS**

# Contents

---

<b>Foreword</b>	<b>3</b>
<b>Acknowledgments</b>	<b>4</b>
<b>Summary</b>	<b>5</b>
<b>1. Introduction</b>	<b>6</b>
<b>2. Four national policy levers to curb international spillovers</b>	<b>12</b>
2.1 Target setting and monitoring	14
2.2 Public administration	19
2.3 Regulation	27
2.4 Fiscal policy and investment	31
<b>3. Behavior change and recommendations</b>	<b>35</b>
<b>Bibliography</b>	<b>38</b>

---



# Foreword

Today's economies and markets fail to adequately price the full societal costs of business models on our natural world. This undermines our global commons—the stable and resilient Earth systems on which human prosperity and security depend. In particular, national policies tend to focus on domestic priorities, ignoring the significant negative environmental impacts on other countries that contribute to the degradation of the global commons. These international environmental spillovers are a pressing global challenge that requires urgent attention.

To tackle these challenges, we need to systematically value natural capital. Such a fundamental shift in economic incentives would discourage destructive extractive practices and safeguard the global commons. The systematic valuation of natural capital would constitute a profound change to our economic systems. This is urgently needed; but it will take time, and it must be accompanied by other policy and business measures that curb international spillovers and drive the transformation of key economic systems toward global commons stewardship.

This discussion paper outlines a four-point framework for national policies and regulation to reduce international spillovers and strengthen the stewardship of the global commons. We focus on target setting and monitoring, public management, regulation, and fiscal policy and financing.

The framework considers both demand and supply-side policy instruments and their impacts on the global commons, offering a holistic approach to designing better national policies to tackle environmental spillovers.

We hope this practical and actionable framework and the many examples throughout this paper will highlight how governments can reduce international environmental spillovers. Success will require collaboration between trading partners, business sectors and nongovernmental organizations, as well as through international fora.

At a time of extremely fraught geopolitics and rising mistrust globally, every country needs to redouble its efforts to lead by example in safeguarding the global commons on which all human life depends. This applies particularly to high-income and upper-middle-income countries, which tend to generate the largest international spillovers. A concerted cooperative effort to tackle international spillovers can strengthen the bilateral and multilateral collaboration needed for global commons stewardship.

The Center for Global Commons at Tokyo University would be delighted to work with international partners to advance this urgent common agenda in support of meeting the objectives of the Paris Agreement and the Sustainable Development Goals.

**Naoko Ishii**  
**Center for Global Commons**

# Acknowledgments

## **Lead authors:**

- Naoko Ishii
- Guido Schmidt-Traub
- Guillaume Lafortune
- Jakob Franke
- Felix Cornehl
- Astrid von Preussen

## **We would like to thank the following contributors who have shared their expertise and insights:**

- Maximilian Bucher-Melcer
- Salma Dahir
- Eamon Drumm
- Dan Esty
- Deeptanshu Kotru
- Carl Kühl
- Guillaume Lafortune
- Eliza Macmillan-Scott
- Reed Miller
- Rebecca Nohl
- Julia Okatz
- Milan Petit
- Elizabeth Petykowski
- Marco Daldoss Pirri
- Janez Potočnik
- Zach Wendling

# Summary

Today's economies seek to generate enhanced prosperity, but the linear production and consumption patterns that underpin them promote unsustainable resource use and the destruction of nature. The scientific evidence is clear: humanity is disrupting the global commons—the stable and resilient Earth systems that are vital for our wellbeing and survival. Major course corrections are needed to shift toward an economic system that achieves prosperity and wellbeing for all without breaching the planetary boundaries, the nine processes that regulate the stability and resilience of the Earth system.

One distinctive feature of environmental pressure is that it transcends national borders. The Global Commons Stewardship Index highlights that 47% of deforestation, 33% of greenhouse gas (GHG) emissions and 24% of water stress are driven by international spillovers—mostly through trade. International spillovers are driven fundamentally by inadequate pricing of environmental externalities and natural capital as well as by national policy frameworks that are designed to meet domestic objectives without paying due attention to spillover impacts.

Deep reforms of economic systems are needed to “internalize” such environmental externalities. Meanwhile, countries can take practical steps toward curbing international

spillovers, with the ultimate aim of systematically valuing natural capital and integrating it into economic decision making.

This discussion paper introduces a framework for understanding how four types of national policy levers can tackle international spillovers: (1) target setting and monitoring; (2) public management; (3) regulation; and (4) fiscal policy and financing. We consider both demand and supply-side policy instruments and their impacts on the global commons. We provide examples and highlight the lessons learned from countries which have advanced this agenda. Much work remains to be done, and we need faster problem solving. The good news is that practical models are emerging for how countries can tackle international spillovers.

Making trade flows more environmentally sustainable is crucial in addressing spillovers; but curbing spillovers must not become a smokescreen for protectionism. Instead, countries should build partnerships to incentivize the conservation and restoration of natural capital while promoting human development, particularly in lower-income countries.

This paper highlights practical lessons on how national policymakers can tackle international spillovers. It complements the paper International Governance for Global Commons Stewardship, which reports on cross-country efforts to protect the global commons.





Human activity is at risk of exceeding the safe operating space for people and the planet.<sup>1,2</sup> While the last 12,000 years constituted a unique geological period of stability that enabled the rise of human civilization, the recent explosion in human activity has pushed us into a new geological epoch characterized by human degradation of critical Earth systems: the Anthropocene.<sup>3</sup> We are undermining the stability and resilience of the global commons—the interdependent Earth systems that are the foundation for humanity prosperity and future wellbeing (see Box 1).

Since 1900, the world's population has increased fivefold, while global gross production has increased eightyfold.<sup>4</sup> Humanity is consuming ever-larger shares of the world's

renewable and non-renewable resources, and emitting unsustainable volumes of waste and pollutants. This makes resource use a critical driver of environmental degradation. The Global Resources Outlook published by the UN International Resource Panel (IRP) revealed that: “90 per cent of biodiversity loss and water stress are caused by resource extraction and processing. These same activities contribute to about half of global GHG emissions.”<sup>5</sup>

In this paper, we adopt the IRP definition of “resources,” which includes land, water, air and materials. The latter comprise biomass (e.g., crops or wood), fossil fuels, metals and non-metallic minerals.

As described in the Global Commons Stewardship Framework, published by the Center

1 Rockström et al., 2009.  
2 Wang-Erlandson et al., 2022.  
3 Steffen et al., 2011.  
4 DeLong, 1998.

5 Oberle et al., 2018.



for Global Commons in 2022, countries must transform four economic and social systems to safeguard the global commons (Figure 1). Each transformation describes a major change in the organization of societal, political

and economic activities that recasts resource use, institutions, technologies and social relations. Together, these transformations will help decouple socioeconomic progress from natural resource use.

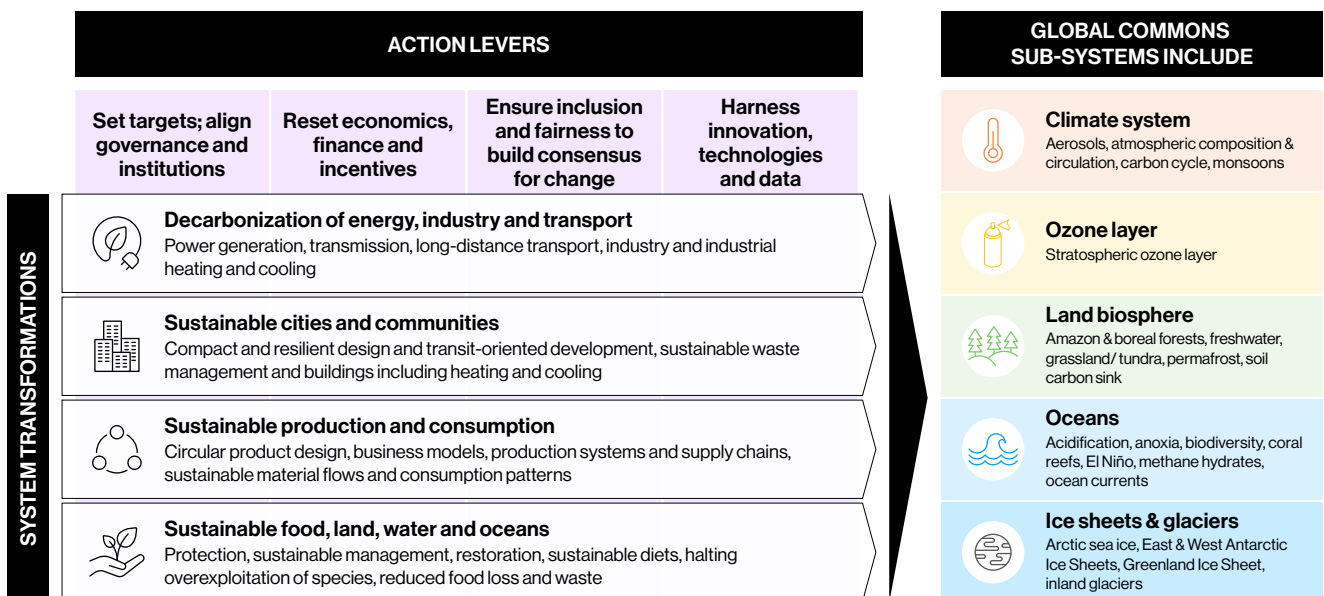
### Box 1 | Defining the global commons

The **global commons** refers to the **stable and resilient Earth system**, which provides **the foundation for humanity’s prosperity and future wellbeing**.

The global commons consists of interdependent and interconnected **sub-systems (e.g., the land biosphere sub-system is made up of forests, freshwater, biodiversity and other ecosystems)** and **functions**, and their interlinked **processes** (e.g., carbon, water, and nutrient cycles).

**Safeguarding the ‘global commons’ is essential to ensuring the planet functions within ‘safe and just’ earth system boundaries** – a necessary condition for justice, people and planet – and requires integrated, often location-specific, strategies at the local, national, and global level.

**FIGURE 1**  
The Global Commons Stewardship Framework



The degradation of the global commons is driven by domestic action, which extends beyond national borders through trade and other cross-border activities. The resulting international spillovers are documented by the Global Commons Stewardship Index (GCSI), compiled by the Sustainable Development Solutions Network (SDSN), the Yale Center for Environmental Law & Policy and the Center for Global Commons. The index ranks countries on their international spillovers.<sup>6</sup>

In addition to environmental spillovers, driven by international trade and domestic policies, countries also generate economic, social and security spillovers. These non-environmental spillovers can have a significant impact; but our focus in this paper is on environmental spillovers and how they affect the global commons.

6 SDSN, 2021.

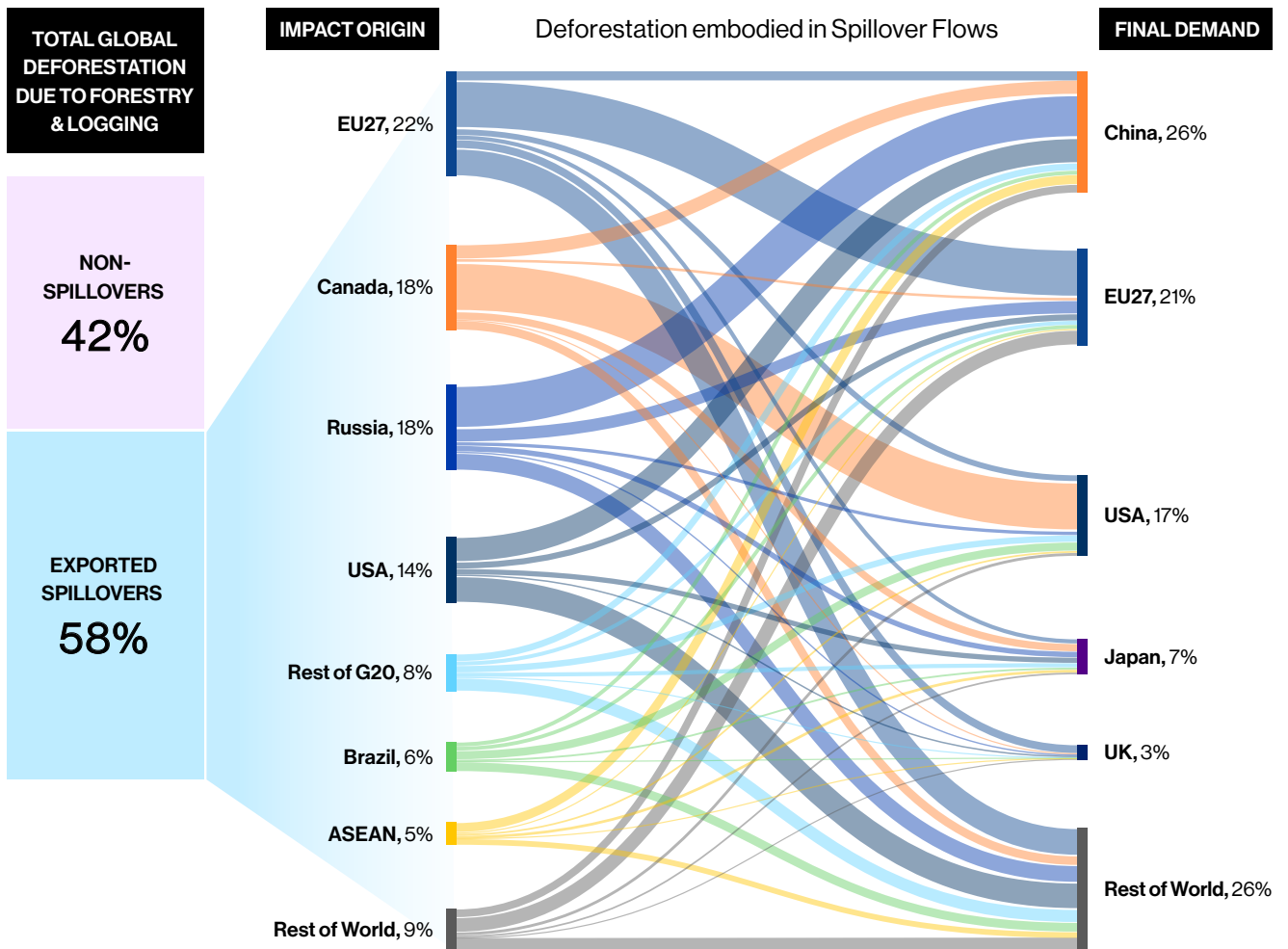
International spillovers are driven fundamentally by inadequate pricing of environmental externalities and natural capital as well as by national policy frameworks that are designed to meet domestic objectives without paying due attention to spillover impacts.

The GCSI reveals that high-income countries generate the largest environmental spillovers. These countries therefore have a special responsibility to curb spillovers in collaboration with their trading partners. They are not just importers of environmental spillovers through the footprint embedded in goods they import, but can also be the origin of significant environmental degradation. For example, the European Union, Canada and United States are the source of 54% of spillovers from deforestation through forestry and logging (see Figure 2).



**FIGURE 2**

Spillovers from deforestation due to forestry and logging



**Source:** SDSN, Yale Center for Environmental Law & Policy, and Center for Global Commons at the University of Tokyo. 2023. Global Commons Stewardship Index 2022. Paris; New Haven, CT; and Tokyo.

We focus on the European Union as a source of major spillovers to illustrate some of the practical policy solutions and challenges. Table 1 illustrates three indicators of the European Union’s spillovers and the main sectors that generate spillovers. For GHG emissions, the key drivers are electric power generation, transmission and distribution, gas extraction

and basic organic chemicals. For deforestation, the main causes are forestry, cattle husbandry and beverage crop farming. For water stress, leguminous crops and oil seeds, wheat, fruit and nuts have the greatest impact. Other high-income countries exhibit similar patterns of environmental spillovers.

**TABLE 1:**

Spillover impacts from the EU's final demand by top source (Top 10) industries in foreign countries for GHG Emissions, Deforestation and Water Stress.

GHG Emissions	in Tg CO <sub>2</sub> eq	Deforestation	in Ha	Water Stress	in km <sup>3</sup> H <sub>2</sub> Oeq
Electric power generation, transmission and distribution	410	Forestry and logging	395,318	Growing leguminous crops and oil seeds	159
Gas extraction	348	Raising of cattle	158,230	Growing wheat	99
Basic organic chemicals	110	Growing beverage crops (coffee, tea etc)	151,048	Growing fruits and nuts	97
Road transport	107	Growing fruits and nuts	82,507	Growing crops n.e.c.	56
Hard coal	95	Growing leguminous crops and oil seeds	65,870	Growing rice	40
Textiles and clothing	85	Raising of animals n.e.c.; services to agriculture	52,756	Basic iron and steel	29
Basic inorganic chemicals	63	Raising of sheep	38,274	Growing spices, aromatic, drug and pharmaceutical crops	29
Raising of animals n.e.c.; services to agriculture	56	Growing maize	23,226	Growing sugar beet and cane	26
Waste collection, treatment, and disposal	55	Growing rice	11,496	Growing grapes	26
Computers; electronic products; optical and precision instruments	51	Vegetable products	6,976	Basic organic chemicals	24

**SOURCE:** SDSN, Yale Center for Environmental Law & Policy, and Center for Global Commons at the University of Tokyo. 2023. Global Commons Stewardship Index 2022. Paris; New Haven, CT; and Tokyo.

The GCSI reveals that the largest spillovers are caused by land use, food, oceans and water. The food system is the biggest driver of spillovers, so we place particular focus on agriculture and the international food system more broadly.

Tackling the environmental destruction inherent in today's extractive and linear economy, of which spillovers are one aspect, requires a fundamental reform of the global economic system. Most important is the recognition of the true value of natural capital and the introduction of effective mechanisms to ensure this is incorporated into market prices (see Section 2.2.3). In other words, internalizing externalities requires accounting for nature. Such deep reform is a necessary ambition; but on its own it is unlikely to deliver the pace and scale of change required to avert the risk of reaching dangerous tipping points. Further-

more, even effective efforts to price and value nature will need to be complemented by additional policies, such as policies that reduce inequalities.

The experience of carbon pricing offers important lessons for wider efforts to realize natural capital accounting at scale. Despite a widespread consensus on the importance of carbon pricing, a harmonized global carbon price remains a distant prospect. While an increasing number of national and regional schemes have emerged (see Section 2.2.3), their effective prices vary widely. This illustrates the fact that their design is inherently shaped by political and social concerns. Similarly, although there is a clear common unit of measurement—tons of carbon dioxide (CO<sub>2</sub>) equivalent—the “market prices” in voluntary carbon markets vary widely according to credit type, year and demand sector. Overall,



standards are improving; more countries are introducing and tightening carbon pricing mechanisms and, over time, convergence may be possible.

The challenges to valuing other aspects of natural capital (e.g., biodiversity, water) are even more fundamental. There is not yet a scientific consensus on a common unit of measurement or accompanying standards.

Many promising initiatives are emerging to address these challenges and lay the foundations for a system that effectively values nature. In practice, attempts at reform will be gradual, regional and imperfect in nature, as their implementation is technically, politically and socially difficult. In the meantime, countries can and should use the policy toolkit at their disposal to take meaningful action.



## National policy levers to curb international spillovers

Our analysis of national policy instruments for curbing international spillovers focuses on four types of policy levers: target setting and monitoring; public management; business standards and regulation; and fiscal policy and financing.

standards and regulation; and fiscal policy and financing. These are summarized in Table 2 and are discussed in detail below.

**TABLE 2:**  
Policy instruments for tackling environmental spillovers

			
<b>Target setting and monitoring</b>	<b>Public management</b>	<b>Business standards and regulation</b>	<b>Fiscal policy and financing</b>
<ul style="list-style-type: none"> <li>• National targets for all major environmental dimensions</li> <li>• Consumption-based targets to tackle spillovers</li> <li>• Official spillover data and monitoring</li> <li>• Availability and access to nature data</li> </ul>	<ul style="list-style-type: none"> <li>• Policy coherence</li> <li>• Policy spillover assessments</li> <li>• Carbon and other natural capital pricing</li> <li>• International trade and voluntary partnership agreements</li> <li>• Border adjustment mechanisms</li> <li>• Public procurement</li> </ul>	<ul style="list-style-type: none"> <li>• National certification and standards</li> <li>• Supply chain legislation</li> <li>• Support for international business standards</li> </ul>	<ul style="list-style-type: none"> <li>• Development and climate finance</li> <li>• Financing just energy transition programs and other national transformation programs</li> <li>• International carbon and nature markets</li> </ul>





These policy instruments are part of the regular toolkit that policymakers are already deploying widely. However, most countries are not yet using them to tackle the drivers of negative environmental spillovers. As reviewed in Section 1, two principal reasons explain why national policies tend not to adequately address international environmental spillovers.

First, market prices often do not reflect the full social cost of natural resource use; or, put differently, these market prices are subject to externalities. This incomplete pricing of natural capital incentivizes excess use of natural resources and degradation of natural environments. Second, national policies and other instruments are designed to address domestic

priorities and therefore systematically fail to take into account the detrimental impacts of environmental spillovers.

Table 3 summarizes key elements of how policy levers relate and contribute to each driver of environmental spillovers. All levers must be adjusted to address the lack of natural capital pricing and to better align national policy instruments with environmental spillovers.

**TABLE 3:**  
How policy instruments currently relate to drivers of environmental spillovers

POLICY LEVER	LACK OF NATURAL CAPITAL PRICING	NATIONAL INSTRUMENTS NOT ALIGNED WITH SPILLOVERS
 <p><b>Target setting and monitoring</b></p>	<p>Targets and monitoring systems miss dimensions of natural capital and resource use that are critical for global commons stewardship. Available nature data remains inadequate to operationalize natural capital accounting.</p>	<p>Targets and monitoring focus on production-based metrics that ignore trade and other environmental spillovers.</p>
 <p><b>Public management</b></p>	<p>National policies and public management systems do not use their influence to promote natural capital accounting for public and private entities, including through trade policy and public procurement.</p>	<p>Countries do not align policies across government with achieving environmental priorities and do not assess policy proposals against this objective. In particular, trade policies and public procurement pay too little regard to their international spillover impacts.</p>
 <p><b>Business standards and regulation</b></p>	<p>Business standards have started to incorporate natural capital pricing, but these principles focus on carbon and must now be rolled out more broadly to "natural capital."</p>	<p>Emerging business standards on GHG emissions apply to the entire supply chain, including scope 3 impacts. They must now be broadened and widely applied in full.</p>
 <p><b>Fiscal policy and financing</b></p>	<p>Development and climate finance does not yet promote systematic natural capital accounting. One promising tool may be international carbon and broader nature markets, which must reform further to meet the highest standards of environmental integrity and benefit sharing.</p>	<p>International finance, both official and private, is insufficient. Interesting models are emerging for scaling up such finance.</p>



Policy levers must tackle both demand and supply-side factors. Supply-side measures aim to increase or decrease the supply of certain goods and services that have associated spillovers. Demand-side measures aim to increase or decrease demand for certain goods and services that have associated spillovers. While supply-side measures often receive a lot of attention, demand-side measures are also critical for the transition to an economy that meets human needs within the planetary boundaries.

While innovation can play a critical role in reducing environmental harms, including international spillovers, a discussion of policy levers to promote innovation is beyond the scope of this paper.

Below we outline each policy instrument and its link to environmental spillovers, as well as examples and key challenges around their implementation. We close with recommendations on how countries can align the policy levers to reduce spillovers in support of safeguarding the global commons.

## 2.1 Target setting and monitoring



What does not get measured does not get managed. Therefore, as an initial step, countries should incorporate spillovers into their national targets and data systems. This will

enable effective monitoring and support the development of strategies to curb international environmental spillovers.

2.1.1

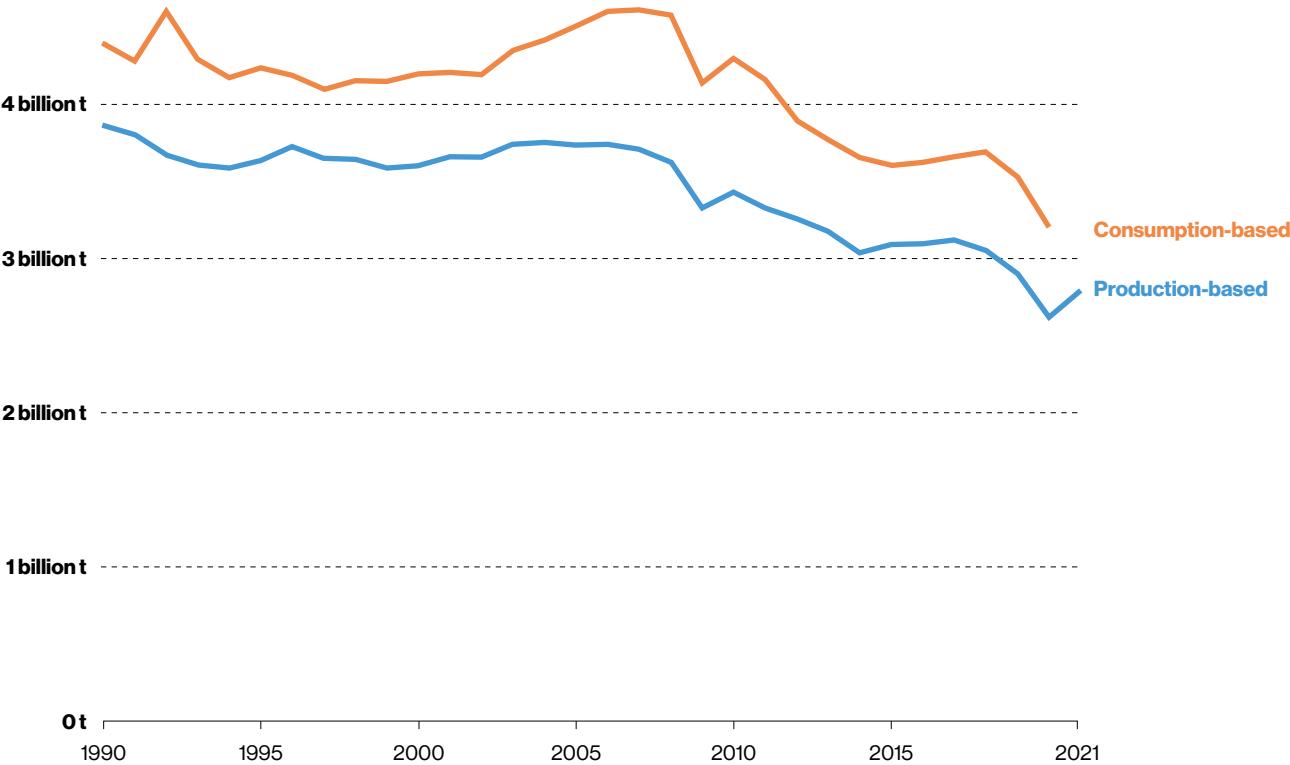
# Consumption-based targets

There are two types of targets with regard to environmental impacts. Production-based targets account for the total environmental impact (e.g., GHG emissions) of the production and consumption of goods and services within a country. Consumption-based targets

adjust for trade by adding the environmental impact embodied in net imports of goods and services. National climate and nature targets tend to focus primarily on production-based metrics, which ignore international spillover effects.

**FIGURE 3:**  
Production vs. consumption-based CO<sub>2</sub> emissions in the EU (27)

Consumption-based emissions<sup>1</sup> are national emissions that have been adjusted for trade. This measures fossil fuel and industry emissions.<sup>2</sup> Land use change is not included.



**1. Consumption-based emissions:** Consumption-based emissions are national or regional emissions that have been adjusted for trade. They are calculated as domestic (or 'production-based' emissions) emissions minus the emissions generated in the production of goods and services that are exported to other countries or regions, plus emissions from the production of goods and services that are imported. Consumption-based emissions = Production-based - Exported + Imported emissions

**2. Fossil emissions:** Fossil emissions measure the quantity of carbon dioxide (CO<sub>2</sub>) emitted from the burning of fossil fuels, and directly from industrial processes such as cement and steel production. Fossil CO<sub>2</sub> includes emissions from coal, oil, gas, flaring, cement, steel, and other industrial processes. Fossil emissions do not include land use change, deforestation, soils, or vegetation.

**SOURCE:** Our World in Data based on the Global Carbon Project, 2022.

<https://ourworldindata.org/co2-and-greenhouse-gas-emissions>

Figure 3 illustrates the significant gap between production and consumption-based CO<sub>2</sub> emissions in the European Union. In April 2022, Sweden became the first country in the world to set consumption-based targets for achieving net-zero carbon emissions.<sup>7</sup> Building on this example, high-income countries should take the lead in adopting consumption-based targets and monitoring systems to track environmental impacts beyond national borders. Consumption-based targets should be set not just for GHG emissions, but also for natural capital and resource use. Some European countries have already set targets for reducing material con-

7 Lafortune & Drumm, 2022.

sumption (Finland<sup>8</sup>, Netherlands<sup>9</sup>, Austria<sup>10</sup>), or have committed to doing so (Germany<sup>11</sup>). Setting overall targets on natural resource use is an important lever to tackle spillovers that are associated with resource extraction and production.

It will be important to reference consumption-based targets in international commitments, such as Nationally Determined Contributions (NDCs) and National Biodiversity Strategies and Action Plans (NBSAPs).

8 Government Resolution on the Strategic Programme for Circular Economy, 2021

9 Circular Dutch Economy by 2050, 2023

10 Dao, 2023

11 Nationale Kreislaufwirtschaftsstrategie (NKWS), 2023

## 2.1.2

# Official spillover data and monitoring

Collecting official data on natural capital and spillovers is a fundamental prerequisite to effective policy making to address spillovers. There are various potential indicators. Many—including the valuation of nature and ecosystem services—are still under development. It is important that these not only quantify risks, but also recognize the real value of natural capital. Governments can play a vital

role in driving the development and uptake of better metrics through their adoption in public administration (statistics, policymaking) and regulation. In many cases, this will require additional investments in national statistical offices, which can mainstream and systematize spillover data throughout governments, as illustrated by the example of the European Union (see Box 2).

---

---

## Box 2 | Spillover monitoring in the European Union

The European Commission has established an evaluation framework called the Consumption Footprint, which is a set of indicators based on lifecycle assessment for measuring the environmental impact of EU consumption.<sup>12</sup> This framework serves as a crucial collection of indicators to support the goals of the European Green Deal, such as the circular economy, zero pollution, sustainable food production and biodiversity preservation. Eurostat has contributed to the advancement of multi-regional input-output tables, which is the most accurate technique to measure spillovers. Eurostat, in collaboration with the SDSN, has integrated a section on estimating spillover effects caused by EU consumption in the annual Eurostat Sustainable Development Goals (SDG) monitoring publication.<sup>13</sup> However, compiling input-output tables is complex, and national statistical offices around the world lack the capacity to ensure regular updates.<sup>14</sup>

12 Sala & Sanyal, 2022.

13 Woelm, 2021.

14 Dietzenbacher et al., 2013.

To assess spillovers, accurate data on natural capital and resource use is important; but these are currently patchy and out of date, and can be difficult to access. Better data is needed to operationalize public and private commitments to nature-positive initiatives. As a first step, we recommend better data standards to ensure the quality, comparability and interoperability of data on nature. Since a lot of the data will be collected by nongovernmental organizations (NGOs) and businesses, countries should consider creating incentives for data collection and disclosure through robust data-sharing architecture.

Policymakers should drive these changes to nature data architecture and should develop harmonized accounting standards for natural capital, as supported by the International Sustainability Standards Board (ISSB). Proxy measures such as the carbon opportunity

cost of land—the carbon storage or ongoing sequestration foregone due to the use of land for other purposes—could be considered in relation to international spillovers (see Section 2.2.3).<sup>15</sup> Policymakers should also support an effective track-and-trace system that enables suppliers to collect and provide data on their products.

One particular challenge is that low-income countries often lack the resources to collect data on environmental degradation; and in consequence, high-income countries lack a complete understanding of their spillovers. In 2019, the share of official development assistance (ODA) dedicated to data was 0.3%, which is far too little.<sup>16</sup> Advancing monitoring, evaluation and progress in addressing spillovers worldwide must become a strategic lever for development partners.

15 Searchinger et al., 2022.

16 Misra & Tian, n.d.

## Improved availability of, and access to, nature data

There is no shortage of data to start acting on the major failures to preserve natural capital and to enhance the stewardship of global commons. All governments and all businesses know some of the gravest challenges that must be addressed.

However, the availability and accessibility of nature data are insufficient to manage progress toward nature-positive transformations in line with the Global Biodiversity Framework.

One critical gap is the lack of high-resolution, in-situ biodiversity and other nature data, which can now be collected at low cost using new technologies such as environmental DNA; low-flying drones combined with artificial intelligence algorithms for video analysis; and a multitude of low-cost sensors, such as camera traps and acoustic sensors.

In response, the [Taskforce on Nature-related Financial Disclosures](#) (TNFD) — working with the [Science-based Targets Network](#) (SBTN), the Capitals Coalition and other partners — has initiated the development of a global data utility for nature data. The aim of this initiative is to identify use cases for new data (e.g., for the financial sector); to develop standards for collecting and sharing high-quality in-situ data; and to propose IT architecture for making such data widely available. Such a public data utility might comprise national data portals and specialist data portals developed for specific applications. Together, these could make a major contribution toward strengthening the pricing of natural capital as well as measuring and tackling environmental spillovers. Governments should consider how they can contribute to and advance efforts to improve nature data availability and access internationally, as well as through leading by example domestically.

## 2.2 Public management



A broad range of public management policies can affect environmental spillovers. Many more can help decouple socioeconomic progress from natural resource use. To focus our discussion, we consider only the policies

and management tools that are most directly targeted toward addressing environmental spillovers. Business standards and regulation are discussed in the next section.

### 2.2.1 Policy coherence

Countless government institutions and policies may have a direct or indirect impact on generating international spillovers. Tackling spillovers therefore requires a government-wide commitment; and governments should ensure policy coherence toward this broad objective by aligning a broad number of policy instruments, as required under SDG 17.14.1, “Number of countries with mechanisms in place to enhance policy coherence of sustainable development.”

Few countries have so far developed a coherent policy package to systematically address environmental spillovers (see Box 3). Despite international efforts since 2015, there are still no robust international comparisons

of policy coherence for sustainable development efforts at the national level.

Different institutions need to align on the shared principle of reducing spillovers and consider impacts across different policy areas. Policymakers should introduce mechanisms that encourage stronger cooperation and coherence—for example, through coordinated strategies, inter-ministerial working groups and evidence-based policymaking, including robust ex-ante and ex-post policy impact assessments (see 2.2.2 Policy spillover assessments). For example, climate policy needs to be holistic and consider policy impacts and tradeoffs across adaptation, mitigation, biodiversity and other relevant

objectives. This will allow a greater focus on strategies that deliver positive outcomes across various dimensions, while managing drawbacks. For example, rice cultivation is a major driver of (spillover) emissions and

water stress. Working with trading partners to adopt novel but proven methods of rice cultivation, such as the System of Rice Intensification, can reduce emissions, reduce water use and boost resilience and yields.

---

---

### **Box 3** | The policy coherence challenge of the EU Green Deal

The European Green Deal has an ambitious cross-cutting mission: a new growth strategy to transform the European Union into a fair and prosperous society, with a modern, resource-efficient and competitive economy that reduces net emissions of GHGs to zero by 2050 and decouples economic growth from resource use. Translating this comprehensive vision into concrete and coherent action across a diverse range of policy areas is challenging. The international impacts of the Green Deal raise further policy coherence issues. For example, the EU regulation on bioenergy mandates must be coherent with the European Union's supply chain regulation on deforestation. The European Union's encouragement of bioenergy production conflicts with the stated objective to reduce deforestation internationally. The International System Change Compass examines how EU external relations and trade flows with other states will be impacted by the European Green Deal agenda and outlines a framework to tackle key international issues, tensions and tradeoffs that arise.<sup>17</sup>

17 Grabbe et al., 2022.





## Policy spillover assessments

Countries routinely conduct policy impact assessments to evaluate the potential environmental, socio-political and economic impacts of new policy proposals. But policy impact assessments rarely address the spillovers that domestic policies may generate. Introducing systematic assessment of spillover impacts can help policymakers identify tensions between domestic policy objectives and international spillovers so that these can be better managed by governments.

One practical example for such spillover assessments is to apply global carbon opportunity

costs, which measure the land-use efficiency in terms of carbon retention and capture.<sup>18</sup> This measure can be used to assess the impact of outsourcing food production, pursuing different nutrition standards (e.g., plant-based versus animal-derived proteins), as well as the impact of domestic land use changes on global GHG emissions. For example, when a country converts agricultural land into forest without changing the demand for food, this might displace agricultural production abroad with a potentially high carbon opportunity cost.

18 Searchinger et al., 2022.

## Carbon and other natural capital pricing

As reviewed in section 1, a principal driver of the degradation of the global commons is the lack of a coherent pricing system on natural capital, including GHG emissions and broader nature-related services. There has been a longstanding debate on whether countries should pursue market-based mechanisms, such as emissions trading schemes, environmental taxation and regulation. An emerging consensus view is that all these tools can play a role.<sup>19,20</sup> What matters is how natural capital in its broader coverage is priced at acceptable levels.

As for carbon pricing on GHG emissions, there has been substantial progress in many G20 countries—such as the European Union, the United Kingdom, Canada, California and

China—in introducing explicit carbon pricing,<sup>21</sup> covering some 23% of total GHG emissions in 2022.<sup>22</sup> In the European Union and some other markets, carbon prices are now approaching levels that will initiate major shifts away from fossil fuel use. It is critical that all major economies in the G20 and beyond adopt ambitious carbon pricing mechanisms to lower GHG emissions, as this will reduce the need for technically and politically complex carbon border adjustment mechanisms (see Section 2.2.5).

Such pricing mechanisms must be broadened beyond carbon to cover nature and other resource use. Of perhaps greatest importance is the need to put monetary value on nature and related forms of natural capital using market-based mechanisms (e.g., nature

19 World Bank, 2022.

20 Petykowski et al., 2019, European Commission, 2021b.

21 World Bank, 2022.

22 Ibid.

credits), targeted tax instruments (e.g., tax credits for regenerative farming) and government regulation, as well as voluntary business standards. A critical focus of national regulations should be to encourage natural capital accounting as part of national accounts, such as the System of Environmental and Economic Accounts and similar approaches.

Business standards that can promote natural capital accounting are discussed in Section 2.3. A major gap, though, is that such business frameworks focus on target setting and (risk) disclosure, so they do not necessarily promote natural capital pricing.

Another example could be the taxation of raw material use. As noted above, the IRP has shown that the extraction, processing and use of raw materials cause 90% of biodiversity loss and water stress, as well as about half of global GHG emissions.<sup>23</sup> Material taxation could be an effective incentive to move from a linear economy toward more circular approaches that eliminate waste and pollution, keep products and materials in use at their highest value for the longest time possible and regenerate natural systems.

23 Oberle et al., 2018.

## 2.2.4

# International trade and voluntary partnership agreements

Bilateral and multilateral trade agreements govern international trade, which makes them a critical policy instrument for managing environmental spillovers.<sup>24</sup> These include preferential agreements between two or more countries for a subset of goods and services.

It is increasingly common to include environmental commitments and standards in trade

24 Yamaguchi, 2020.

agreements to ensure a level playing field, but also to reduce environmental spillovers.<sup>25</sup> However, such standards may increase barriers to trade. Exporting countries may see them as protectionist measures by importing countries;<sup>26</sup> and the track record of environmental standards in reducing spillovers is uncertain (see Box 4).

25 Elliott & Esty, 2021.

26 Esty, 2022.

---

---

## Box 4 | The EU-Mercosur Trade Deal

The proposed trade deal between the European Union and the South American Mercosur trade bloc includes sustainability principles for the trade in natural resources, such as forestry products, fisheries and other wildlife. For example, the deal prohibits trade in illegally harvested timber, with the aim of combating illegal logging and promoting the sourcing of timber from sustainably managed forests.<sup>27</sup> It also includes a precautionary principle, ensuring that the European Union and the Mercosur countries can continue to protect health and the environment even if trade is negatively affected, including in situations where scientific information is not conclusive.<sup>28</sup>

The trade agreement also aims to strengthen the implementation of several multilateral environmental agreements signed by the European Union and the Mercosur countries, such as the Paris Agreement and the Convention on International Trade in Endangered Species of Wild Flora and Fauna.<sup>29</sup>

Negotiations on the agreement were concluded in 2019, but its ratification has been delayed by disagreements over environmental standards. While the European Union is seeking stronger measures to avoid deforestation, Mercosur countries are understandably concerned about the imposition of additional technical barriers to trade as protectionism in the guise of environmental provisions. If environmental standards are required only by some trading partners, trade flows may simply be diverted to other regions which do not have high environmental standards.<sup>30</sup>

One solution is to broaden international cooperation between trading partners to support the transition toward more sustainable practices.

27 EU-Mercosur Trade Agreement: Trade and Sustainable Development, 2022.

28 Petykowski et al., 2019.

29 EU-Mercosur Trade Agreement: Trade and Sustainable Development, 2022.

30 Fritz, 2020.

To allay understandable criticism from exporters of natural resources that deforestation regulation and other environmental standards in trade agreements are protectionist and discriminatory, importing countries need to work with their trading partners to make better environmental practices attractive. This will involve the provision of strong economic incentives accompanied by support to meet higher environmental standards. Most critical is working with trading partners to build deep partnerships that

systematically and sustainably reward the preservation and restoration of natural capital. Technical and financial assistance can play a role—for example, to help smallholder farmers, who are unable to comply with complex trade requirements.<sup>31</sup> Particularly for lower-income countries, collaboration should be geared toward driving their socioeconomic development in ways that are consistent with safeguarding the global commons.

31 Ruehl et al., 2023.

Voluntary partnership agreements (VPAs) are an important complementary tool for curbing environmental spillovers. These are government-to-government partnerships that can accompany trade agreements.<sup>32</sup>

32 Petykowski et al., 2019.

They can offer financial and technical support, as well as favorable market access for countries to meet sustainability targets, which in turn reduce environmental spillovers (Box 5).<sup>33</sup>

33 Petykowski et al., 2019.

---

---

### **Box 5** | Example—VPAs agreements on forest law enforcement, governance and trade

The European Union has implemented various VPAs to incentivize sustainable timber production. Under the VPAs, Forest Law Enforcement, Governance and Trade (FLEGT) issues licenses that attest to the legality of timber to export to the European Union. Importers of FLEGT-licensed timber products can place their imports on the EU market without the need to conduct additional due diligence.

The multilateral global trading system is facing significant challenges and calls for reform. These include calls for making full use of trade policy to address problems of the global commons—a sentiment shared by the president of the World Trade Organization (WTO), Ngozi Okonjo-Iweala.<sup>34</sup> To strengthen and better govern the use of trade agreements to curb environmental spillovers, it is important to set international rules and standards for how sustainability standards

34 Okonjo-Iweala, 2021.

can be used in a way that is compatible with the principle of free trade. In particular, the WTO's principle of non-discrimination may conflict with the objectives of environmental policy that seek to penalize economic activities that cause spillovers of harm. The ultimate objective should be to internalize externalities in internationally traded goods, but a grand bargain on reforms of the multilateral trading system might help reconcile these tensions.

## 2.2.5

# Border adjustment mechanisms

One of the most contentious policy challenges is how to level the playing field for companies operating in countries with higher environmental standards, which in turn impose higher costs on their own companies. It is clear that countries—particularly the richest ones that generate

the most environmental spillovers—need to take the lead in internalizing the full costs of natural capital depreciation, which in turn will impose costs on their businesses. But without any countervailing mechanisms, imposing higher domestic costs of doing business

may lead companies to shift production to markets with lower environmental standards and costs; or companies may lose market share to competitors that are subject to lower environmental standards and costs. Such leakage would negate some of the environmental benefits of these policies and make them politically unacceptable to domestic audiences.

Aligned approaches to introduce natural capital valuation and pricing would be the optimal outcome. Voluntary cooperation among countries can be a helpful building block in this pursuit, reducing the risk of leakage through shared standards, disclosures and

trade provisions (see Section 2.2.4). However, it is unrealistic to expect all major economies to agree to the same implicit pricing of natural capital in parallel, so policymakers in European Union have proposed the need for border adjustment mechanisms—particularly for carbon pricing in form of a carbon border adjustment mechanism (CBAM). The most significant CBAM proposal comes from the European Union (Box 6). Canada and the United Kingdom are considering options for similar mechanisms.<sup>35,36</sup> In 2021, the G20 finance ministers agreed to coordinate more closely on carbon pricing mechanisms.<sup>37</sup>

35 European Commission, 2021a.

36 World Bank, 2022.

37 European Commission, 2021a.

---

---

## Box 6 | The EU CBAM

The EU CBAM aims to prevent the risk of carbon leakage to markets where the cost of carbon emissions is lower.<sup>38</sup> To this end, the CBAM aims to level the effective carbon price of imports and EU products. Importers will need to buy carbon certificates that correspond to the carbon price that would have been incurred had the products been produced in the European Union.<sup>39</sup> According to the European Union, the CBAM is compatible with WTO rules; but the WTO is expected to bring a legal challenge forward.<sup>40</sup> In any case, the CBAM will take effect gradually, to ensure stability for business. It will first apply to the most carbon-intensive sectors: iron and steel, cement, fertilizers, aluminum and electricity generation. The current CBAM does not cover food and other agricultural products, but they may be covered in future phases.

38 European Commission, 2021a.

39 European Commission, 2021a.

40 World Economic Forum, 2022.

CBAMs have been met with strong opposition, particularly from developing countries. Concerns center around technical details, such as how to compute and compare explicit as well as implicit carbon pricing

(e.g., through regulation).<sup>41</sup> Other concerns focus on fairness, including the treatment of countries that do not have the capacity

41 Dominioni & D. Esty, 2023.

to introduce domestic carbon pricing mechanisms.<sup>42</sup> Another fairness point relates to the fact that high-income countries, where CBAMs originate, account for high current and historic GHG emissions. A further concern stems from the fact that some developing country markets—particularly in Latin America—fear that their markets might be overwhelmed with exports from China and India that may no longer make it onto the EU market following the adoption of CBAMs.

Proponents and opponents of CBAMs each have strong arguments. In the end, there seems to be no politically and economically feasible way for a country to take the lead on pricing carbon without measures to protect domestic industry from differential carbon pricing. Since all major economies have

42 Ibid.

recognized the need for some kind of carbon pricing, CBAMs seem necessary; but they should be implemented with the greatest possible extent of international consultation and coordination. Ideally, CBAMs become moot if all major economies move toward consistent carbon pricing mechanisms and ensure appropriate transparency. It would be reasonable to exclude some of the poorest countries from the administrative burden of administering CBAMs through appropriate exceptions.

Another challenge is to broaden CBAMs to cover environmental spillovers that are not linked to CO<sub>2</sub> emissions from energy use. The EU CBAM might over time include emissions from land use and food systems; but more clarity—for example, on robust methodologies—is needed to include all dimensions of natural capital.

## 2.2.6

# Public procurement

Across Organisation of Economic Co-operation and Development (OECD) countries, public procurement accounted for 12.6% of gross domestic product (GDP) in 2019. Government procurement practice and standards drive substantial demand for products and services directly, and they also set an example for private procurement.<sup>43</sup> Policymakers can therefore use public procurement to help shift away from products with high environmental spill-

43 OECD, 2022.

overs and encourage the emergence of new, more sustainable technologies (Box 7). The OECD's Methodology for Assessing Procurement Systems—originally developed by the World Bank and the Development Assistance Committee—now includes a supplementary module which aims to provide a “harmonized tool” to assess the integration of sustainable development considerations in public procurement systems.<sup>44</sup>

44 OECD, 2021.

---

---

## Box 7 | Procurement to drive lower-carbon diets

Meat consumption is a major driver of environmental spillovers,<sup>45</sup> so an increasing number of countries—particularly in Europe—are encouraging shifts to more plant-based diets,<sup>46</sup> including through procurement for state facilities such as state schools and hospitals.<sup>47</sup> The city of Turin, for example, has introduced vegetarian school meals, cutting school meal emissions by 32%, and thereby reducing demand for meat imports. Procurement standards supporting alternative proteins could lower the costs and increase the effectiveness of key production technologies, such as extrusion and extrudable fat technologies.<sup>48</sup> This could in turn bring forward the tipping points at which alternative proteins reach cost and performance parity—for example, for microorganisms and animal-cell-based proteins. Together, these advances could help to raise alternative proteins' projected European market share in 2035 from ~10% to ~20%.

45 FOLU, 2019; Willett et al., 2019.

46 FAO, 2021.

47 FAO, 2021.

48 Systemiq et al., 2023.

## 2.3

# Business standards and regulation



Beyond public policies and management, regulation and business standards can internalize the full value of changes to natural capital to shift business behaviors and ensure a level playing field. For many commodities, international demand significantly exceeds potential sustainable supply—for example, for palm oil fruits—so regulations and compulsory

business standards will need to complement voluntary approaches over time.<sup>49</sup> A rapidly growing number of international business standards are providing countries with alternatives to national regulation. Leveling the playing field is critical so that domestic

49 SDSN, 2019.



companies are not disadvantaged internationally by higher environmental standards; but efforts like border tax adjustments for carbon pricing (section 2.2.4) are technically and politically highly complex. We distinguish

below between three standards and regulatory instruments: national certification and standards; direct supply chain legislation; and national support for international standards for business standards and disclosure.

### 2.3.1

## National certification and standards

Countries are increasingly setting business standards for goods and services to enter their markets—for example, in relation to bio-fuels (see Box 8). Such standards can reduce negative spillovers by raising the production standards in a country of origin. But they can also be costly to implement, particularly if different countries pursue different standards across a broad range of commodities. Moreover, they can impose significant costs on exporting countries that must be partially offset through financing levers (see Section 2.4).

National standards are undeniably needed to curb negative environmental spillovers, but countries should aim for maximum harmonization under WTO rules (see Section 2.2.3) and by pursuing principles-based approaches. A critical principle is to internalize the full value of changes to natural capital into the market prices for commodities. Such natural capital accounting, as recommended by the Capitals Coalition and others, is particularly critical for the agricultural and forest commodities that drive the bulk of international spillovers.

### Box 8 | EU policies on indirect land use change

Bioenergy production has a high opportunity cost of land, causing environmental spillovers through the “outsourcing of land.” Under the Fit for 55 Plan, the European Union will import more wood and devote 22 million hectares to energy crops by 2050 due to land use change—roughly equal to one-fifth of Europe’s cropland.<sup>50</sup> Historically, bioenergy has been considered to be “carbon neutral” and has received significant public subsidies, but this ignores its high carbon opportunity cost. Only 35% of the land providing non-food products to the European Union is cultivated domestically, which causes net land imports of up to 180 million hectares per year (more than three times the area of France).<sup>51</sup> In addition to its high carbon opportunity cost, such land use change is also by far the biggest driver of biodiversity loss.<sup>52</sup> Overall, better information on the environmental and socio-economic costs and benefits that are associated with the global biomass trade is important.<sup>53</sup> The European Union is the biggest consuming region (measured in cropland area) and a net

50 Searchinger et al., 2022.

51 Bruckner et al., 2019.

52 WWF, 2022.

53 Bruckner et al., 2019.

importer of non-food land use, and thus plays a central role in determining global pathways for non-food land use.<sup>54</sup> In response, the European Union has implemented a delegated regulation on indirect land use change (ILUC) in 2022, which sets standards and criteria for bioenergy imports with high carbon opportunity costs due to ILUC.<sup>55</sup> The European Commission also aims to create a trajectory for the gradual phaseout of biofuels by 2030.<sup>56</sup>

54 IPBES, 2019.

55 European Commission, 2019.

56 European Commission, 2022c.

## 2.3.2

# Supply chain legislation

Supply chain legislation and other obligations go beyond national certification and standards, by requiring companies to disclose and address specific challenges in their international supply chains. Historically, such supply chain legislation has focused on labor conditions and the respect for human rights, but countries — particularly in Europe (see Box 9) — are now expanding such legislation to cover environmental challenges in supply chains. Canada and other countries are also taking steps toward legislating due diligence

requirements for companies importing into their markets in line with OECD due diligence standards for multinational corporations. To reduce the economic burden, particularly on small and medium-sized enterprises, alignment of national legislation with international standards will be key. Moreover, standards should be tightened over time by using a risk-based approach — which requires companies to identify and address the most significant risks first — or similar strategies to ensure effectiveness without overwhelming companies.

---

---

### Box 9 | The EU supply chain legislation

The European Commission has adopted a directive on corporate sustainability due diligence, which will impose significant transparency and disclosure requirements on large EU firms.<sup>57</sup> As the legislation comes into force over the coming years, companies operating in the European Union will need to conduct human rights and environmental due diligence on their entire supply chains, and will be held accountable and responsible for any harm. The law will be actively monitored and breaches sanctioned.

57 European Commission 2022b.

Business groups have been advocating for a reduction of the directive's scope or a delay in its implementation because they fear a decline in the competitiveness of EU firms. Estimated compliance costs considering the number of companies affected amount to one-off costs of €500 million to €680 million, and recurrent (annual) costs of EUR 1.72 to 2.37 billion recurrent (annual) costs (or 0.01 to 0.02% of EU GDP in 2021).<sup>58,59</sup> However, firms may also realize economic benefits, based on factors such as better risk management.<sup>60</sup>

58 Ibid.

59 Statista, 2021.

60 European Commission, 2022a.

### 2.3.3

## Support for international business standards

In recent years, international NGOs have worked successfully with business and in some cases national governments to advance international standards for disclosure, science-based targets and natural capital accounting. On the disclosure side, the TCFD has set climate disclosure standards that are applied on a voluntary basis by many major corporations. The United Kingdom and other countries have integrated these standards into national legislation and listing rules for stock markets. Building on this model, the TNFD is developing a disclosure framework for nature-related risks and opportunities in order to incentivize financial investments in nature-positive outcomes.

Science-based climate targets have been pioneered by the [Science-based Targets Initiative](#) (SBTi), a global consortium of non-government organizations. It has set science-based targets for most economic sectors, which have now been adopted by thousands of companies.<sup>61</sup> The SBTi is preparing standards for setting science-based

targets for nature with an initial focus on land-use and water.

The [ISSB](#) was initiated inter alia by the International Financial Reporting Standards Foundation, which sets accounting standards that apply in about 140 countries, to develop and drive the adoption of accounting standards that incorporate natural capital. The aim is to align these international standards with the science of 1.5°C. The standards are increasingly being adopted by companies from across the globe; in particular, financial services companies are beginning to incorporate them into investment decisions. Such “soft standards” offer an important and novel mechanism for countries to work with and—where possible—to endorse in order to raise business standards that can curb environmental spillovers. Critically, however, they must be adequately resourced: we are already seeing signs that the SBTi might be overwhelmed by the demand for setting science-based targets.

61 SBTi, 2023.

## Fiscal policy and financing



So far, we have focused largely on actions that importing countries can take domestically to curb their environmental spillovers. But without countervailing measures, such actions may impose socioeconomic costs on exporting countries. These costs risk undermining the economic, political and social case for global commons stewardship. Shifting capital to support the transitions toward sustainable development is critical to provide real incentives and fair rewards for the preservation and restoration of the global commons. This is also critical to reward an alternative economic model for economies that depend on natural resource exports, and thus for a fair transition and human development.

Therefore, high-income importing countries should promote international financing and investment mechanisms to support their

trading partners in transitioning their economies toward sustainable development that combines socioeconomic progress with lower environmental damage. While deep reforms are needed to strengthen natural capital pricing, countries can already be strategic in how they deploy their funds and use their clout to mobilize financing to effectively tackle spillovers.

Crucially, supporting natural resource exporting economies toward a sustainable transition is also an opportunity to reinforce and sustain economic ties between countries. It can safeguard the supply of critical goods and services (e.g., food security, commodity supply) in the face of increasing instability due to, for example, overexploitation and/or lack of climate adaptation measures.

## Development and climate finance

Enabling developing countries to meet their climate and related development goals is expected to require external financing of \$1 trillion per year by 2030, according to Finance for Climate Action.<sup>62</sup>In this landmark report, Vera Songwe, Nick Stern and Amar Bhattacharya lay out a comprehensive agenda for climate finance that covers the reform of multilateral development banks (MDBs), public finance and commercial finance. The realization of the report's recommendations has the potential to have positive ripple effects on reducing negative environmental spillovers.

The report proposes a new way of coordinating different sources of financing and capabilities, with the aim of lowering the cost of capital and providing targeted finance for countries' transition strategies. One key part of this is reforming and scaling up MDBs and ODA. While concessional climate finance accounts for a small share of the overall financing needs, concessional finance is critical for mobilizing larger volumes of private finance and for enabling greater domestic resource mobilization by reducing, managing and sharing risk more effectively. Furthermore, developed countries must honor their financing commitments if the fragile international consensus on climate

and other environmental action is to be maintained. Fair development and climate finance sit at the center of any solution to the crisis of global commons.

Another critical element is to encourage the trend of greening cross border flows (e.g., foreign direct investment) through an emphasis on environmental and social sustainability, including through international standards and other initiatives to increase supply chain transparency (see also Section 2.3). Multi-national corporations' growing demand for traceability along their international supply chains, increasingly enabled by digital environmental and social management systems, sheds light on and offers potential to transform the intertwined relationships between end consumers and producers.

Through accounting for modest financial flows, technical assistance and capacity building can play crucial roles in supporting developing countries to accelerate socioeconomic development with lower environmental costs. This will also require meaningful and mutually beneficial partnerships between developed and developing countries that rely on exports of raw/low processed commodities.

62 Independent High-Level & Expert Group on Climate Finance, 2022.

## Financing Just Energy Transition Program and other national transformation programs

A major outcome of the Glasgow Climate COP26 was the announcement of the first Just Energy Transition Program (JETP) for the coal transition in South Africa, with an initial funding package of \$8.5 billion. The JETP is a financial restructuring deal provided by major creditors to sovereign and sub-sovereign entities in exchange of climate outcomes. This is particularly relevant today, given that low growth and strong inflation rate forecasts in developing countries are increasing financial and fiscal pressure on already debt-ridden countries. The JETP offers financial headroom without increasing the short-term debt repayment sustainability.

Since COP26, several other JETPs have been launched. In spite of numerous difficulties, these JETPs have generated real traction in the host countries by elevating the transition issues to the top of the political agenda; mobilizing domestic stakeholders to identify and tackle just transition challenges; and generating additional and better coordinated international support, including blended

financing with help from the domestic and international financial sector.<sup>63</sup> The JETP concept has established itself as a novel and effective mechanism for financing large-scale decarbonization and could be replicated to address large-scale spillovers.

Recently, discussions have turned to what equivalent programs might look like for halting deforestation, meeting the objectives of the Global Biodiversity Framework at national level and switching to sustainable agriculture. Under the Forest and Climate Leaders Partnership that emerged from the Glasgow COP26, countries are exploring forest and land use investment packages; while the French government, in collaboration with Conservation International, has advanced the very similar concept of priority conservation partnerships. A shared approach to supporting large-scale domestic and international investments in sustainable land use is clearly and urgently needed, and a related initiative may be launched at COP28 in the United Arab Emirates.

63 Blended Finance Taskforce, 2020.

## International carbon and nature markets

Voluntary and regulated international carbon markets can be an important source of climate finance. In fact, with public budgets under strain, there is no credible alternative to mobilizing this volume of financing for forest conservation and restoration through other sources.

Carbon markets have recently come under criticism for not upholding environmental integrity and for diverting too much funding to middlemen. Carbon markets must accelerate their journey toward becoming the high-integrity financing mechanisms the world needs. Recent efforts to promote the high-quality supply of carbon credits—including the core carbon principles published by the Integrity Council for the Voluntary Carbon Market and emerging rating agencies for carbon projects—all point in the right direction. On the demand side, the Beyond Value Chain Mitigation Standards developed by the SBTi, the recommendations of the UN High-Level Expert Group on the Net-Zero Emissions Commitments of Non-State Entities and advances in corporate accountability standards promise to establish transparent, high standards for the use of carbon offsets.

There has been a recent surge in developments involving biodiversity credits. Examples include the Biodiversity Credit Alliance; the United Nations Environment Programme's recent Stepping Up on Biodiversity report; and the Biodiversity Credit Markets: The Role of law, Regulation and Policy report of the Taskforce on Nature Markets. These important initiatives are still at an early stage, so it remains to be seen if nature credits will remain separate from carbon credits.

The carbon market tools that already exist incorporate nature and social co-benefits into carbon credits, which tend to fetch higher market prices, so one option is to strengthen the accounting for “co-benefits” in carbon markets. In some cases, it might be useful to establish distinct nature credits; but this would require clarity on where the additional demand for such credits might come from, because such credits cannot be used for offsetting. Separating nature and carbon credits would also require parallel registries and market infrastructure, so it remains to be seen if the benefits from separate nature credits warrant these extra investments.



## Conclusions and recommendations



As the GCSI makes clear, many countries—particularly high-income ones—generate vast environmental spillovers. Such spillovers are at the core of the tragedy of our global commons. They are driven by twin challenges: first, market prices do not reflect the full value of natural capital; and second, most national policies do not factor in impacts beyond national borders, such as imported GHG emissions or deforestation caused through international supply chains or domestic bio-fuel mandates.

Deep reforms of economic systems are required to value and price natural capital, so

that international environmental spillovers can be curbed. But these reforms will likely take time to implement.

Meanwhile, environmental spillovers can be curbed through four practical policy levers described in this paper: target setting and monitoring; public policies and management; business standards and regulation; and fiscal policy and financing. We illustrate gaps as well as the feasibility of rapid progress with examples—particularly from the European Union, which among the G20 has dedicated the most policy attention to curbing environmental spillovers (Table 4).

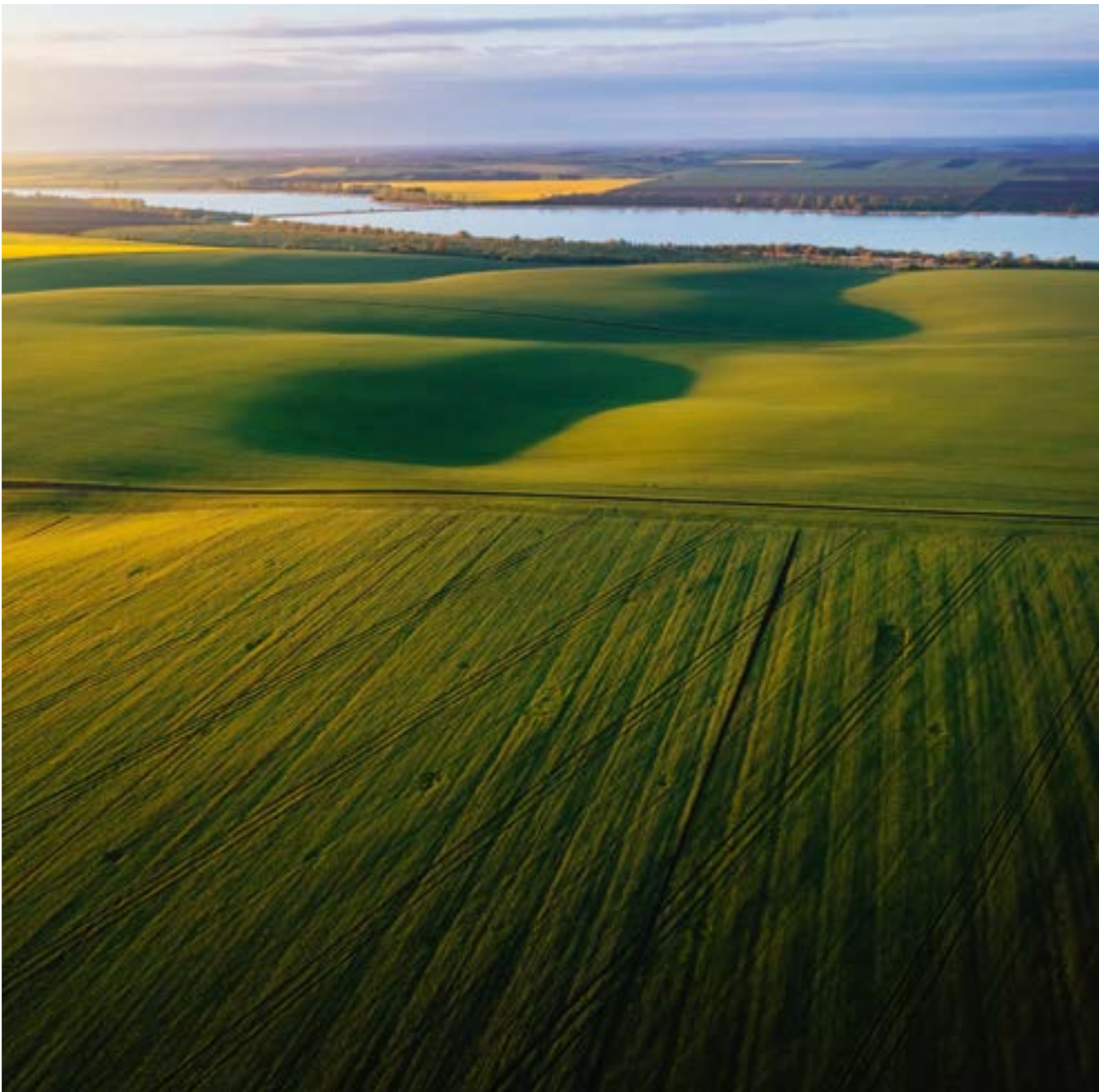
**TABLE 4:**

Practical steps to curb the twin drivers of environmental spillovers

POLICY INSTRUMENT	LACK OF NATURAL CAPITAL PRICING	NATIONAL INSTRUMENTS NOT ALIGNED WITH SPILLOVERS
 <p><b>Target setting and monitoring</b></p>	<ul style="list-style-type: none"> <li>• Integrate principles of natural capital accounting into official statistics.</li> <li>• Improve the quality and availability of data for nature.</li> </ul>	<ul style="list-style-type: none"> <li>• Adopt consumption-based targets.</li> <li>• Track environmental spillovers as part of official statistics.</li> <li>• Provide technical support on spillover monitoring/data for nature to trading partners.</li> </ul>
 <p><b>Public policies and management</b></p>	<ul style="list-style-type: none"> <li>• Introduce dedicated natural capital pricing mechanisms and integrate them into trade policy and public procurement.</li> </ul>	<ul style="list-style-type: none"> <li>• Assess environmental spillovers of all major policy proposals and implement structures to increase policy coherence.</li> <li>• Consider environmental spillovers in multi- and bilateral trade agreements and design partnership agreements to provide meaningful incentives that value and reward the preservation and restoration of natural capital.</li> <li>• Carefully design border adjustment mechanisms to curb spillovers, and provide a level playing field and incentives for harmonization of natural capital pricing and environmental policies.</li> <li>• Align public procurement with environmental spillovers.</li> </ul>
 <p><b>Business standards and regulation</b></p>	<ul style="list-style-type: none"> <li>• Support business standards for disclosure, target-setting and accounting that are science based and cover entire supply chains.</li> <li>• Broaden the focus beyond GHG emissions to include nature and other dimensions of natural capital.</li> </ul>	<ul style="list-style-type: none"> <li>• Strengthen national supply chain legislation to cover environmental spillovers through coverage of entire value chains.</li> <li>• Encourage the broad-based adoption of international business standards for disclosure, science-based target setting and accounting.</li> </ul>
 <p><b>International financing and investment</b></p>	<ul style="list-style-type: none"> <li>• Strengthen carbon markets, and consider the development of nature markets or better inclusion of nature in carbon markets.</li> </ul>	<ul style="list-style-type: none"> <li>• Scale up MDBs and ODA funds to targeted sustainable development strategies in close collaboration with private investors, in line the with recommendations in Finance for Climate Action.</li> <li>• Strengthen and build out JETPs for developing countries facing the greatest challenges in transitioning from fossil fuels</li> <li>• Consider the nature equivalents for JETPs.</li> </ul>

While domestic policy levers can have a significant impact on global commons stewardship, they must be deployed carefully. Trade flows must change and become sustainable to address spillovers; but curbing environmental spillovers must not become a smokescreen for protectionism. Unilaterally imposing barriers to trade risks hurting trade partners, without providing incentives for countries to improve global commons

stewardship. Instead, countries should consider how they can build deep partnerships with trading partners that systematically and sustainably reward the preservation and restoration of natural capital. Particularly for lower-income countries, collaboration should be geared toward driving their socioeconomic development in ways that are consistent with safeguarding the global commons.



# Bibliography

Blended Finance Taskforce. (2020). *Better Finance, Better Food: Investing in the New Food and Land Use Economy*.

Bruckner, M., Häyhä, T., Giljum, S., Maus, V., Fischer, G., Tramberend, S. & Börner, J. (2019). *Quantifying the Global Cropland Footprint of the European Union's Non-food Bioeconomy*. *Environmental Research Letters*, 14(4), 045011.  
<https://doi.org/10.1088/1748-9326/ab07f5>

Circular Dutch economy by 2050. (2023). Government of the Netherlands.  
<https://www.government.nl/topics/circular-economy/circular-dutch-economy-by-2050>

Dao, B. (2023, January 23). *Austria's New Year's Resolution: Wellbeing within planetary boundaries*.  
<https://meta.eeb.org/2023/01/12/austrias-new-years-resolution-wellbeing-within-planetary-boundaries/>

Dominioni, D. & Esty, D. (2023). *Designing Effective Border-Carbon Adjustment Mechanisms: Aligning the Global Trade and Climate Change Regimes*. *Arizona Law Review*, 65:1.

DeLong, J. B. (1998, May 24). *Estimating World GDP, One Million B.C. - Present*.  
<http://holtz.org/Library/Social%20Science/Economics/Estimating%20World%20GDP%20by%20DeLong/Estimating%20World%20GDP.htm>

Dietzenbacher, E., Los, B., Stehrer, R., Timmer, M., & de Vries, G. (2013). *The Construction of World Input-Output Tables in the WIOD Project*. *Economic Systems Research*, 25. <https://doi.org/10.1080/09535314.2012.761180>

Elliott, E. D., & Esty, D. C. (2021). *The End Environmental Externalities Manifesto: A Rights-Based Foundation for Environmental Law* (SSRN Scholarly Paper No. 3762022).  
<https://papers.ssrn.com/abstract=3762022>

Esty, D. (2022). *Mastering the Labyrinth of Sustainability: Toward a New Foundation for the Market Economy - Groupe d'études géopolitiques*.  
<https://geopolitique.eu/en/articles/mastering-the-labyrinth-of-sustainability-toward-a-new-foundation-for-the-market-economy/>

Commission Delegated Regulation (EU) 2019/807 of 13 March 2019, (2019) (Testimony of European Commission). *Official Journal of the European Union* L 133/1  
<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019R0807>



European Commission. (2022a). *Executive Summary of the Impact Assessment Report Accompanying The Document Proposal for a Directive of the European Parliament and of the Council on Corporate Sustainability Due Diligence and Amending Directive (EU) 2019/1937*.

European Commission (2022b). *Proposal For a Directive of the European Parliament and of the Council on Corporate Sustainability Due Diligence And Amending Directive (EU) 2019/1937 (2022) (Testimony of European Commission)*.  
<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52022PC0071>

European Commission. (2022c). *EU Biodiversity Strategy Actions Tracker*.  
<https://dopa.jrc.ec.europa.eu/kcbd/actions-tracker/>

European Commission. (2021a). *Carbon Border Adjustment Mechanism [Text]*. European Commission. [https://ec.europa.eu/commission/presscorner/detail/en/qanda\\_21\\_3661](https://ec.europa.eu/commission/presscorner/detail/en/qanda_21_3661)

European Commission. (2021b). *Revised EU Directive on Environmental Crime [Text]*. European Commission. [https://ec.europa.eu/commission/presscorner/detail/en/qanda\\_21\\_6745](https://ec.europa.eu/commission/presscorner/detail/en/qanda_21_6745)

FAO. (2021). *The State of Food and Agriculture 2021. Making agrifood systems more resilient to shocks and stresses*. Rome, FAO. <https://doi.org/10.4060/cb4476en>

Food and Land Use Coalition. (2019). *Growing Better: Ten Critical Transitions to Transform Food and Land Use*. FOLU. <https://www.foodandlandusecoalition.org/wp-content/uploads/2019/09/FOLU-GrowingBetter-GlobalReport.pdf>

Fritz, T. (2020). *EU-Mercosur-Abkommen—Risiken für Klimaschutz und Menschenrechte*. Greenpeace. <https://www.greenpeace.de/publikationen/greenpeace-misereor-dka-studie-eu-mercosur-abkommen-0620.pdf>

Grabbe, H., Potočník, J., & Dixon-Declève, S. (2022). *International System Change Compass: The Global Implications of Achieving the European Green Deal*.  
<https://www.opensocietyfoundations.org/publications/international-system-change-compass>

Finland's Ministry of the Environment (2021). *Government Resolution on the Strategic Programme for Circular Economy*. <https://ym.fi/documents/1410903/42733297/Government+resolution+on+the+Strategic+Programme+for+Circular+Economy+8.4.2021.pdf/309aa929-a36f-d565-99f8-fa565050e22e/Government+resolution+on+the+Strategic+Programme+for+Circular+Economy+8.4.2021.pdf?t=161943221>

- Independent High-Level & Expert Group on Climate Finance. (2022). *Finance for Climate Action: Scaling Up Investment for Climate and Development*.  
<https://www.lse.ac.uk/granthaminstitute/publication/finance-for-climate-action-scaling-up-investment-for-climate-and-development/>
- IPBES. (2019). *Global Assessment Report on Biodiversity and Ecosystem Services*. IPBES secretariat.  
<https://www.ipbes.net/node/35274>
- Lafortun, G. & Drumm, E.T. (2022). *How to Curb Negative International Spillovers? SDG Action*.  
<https://sdg-action.org/how-to-curb-negative-international-spillovers/>
- Misra, A. & Tian, Y. (n.d.). *2021 Partner Report on Support to Statistics*. PARIS21. from  
<https://www.paris21.org/2021-PARIS21-Partner-Report-on-Support-to-Statistics>.
- Nationale Kreislaufwirtschaftsstrategie (NKWS). (2023). Bundesministerium Für Umwelt, Naturschutz, Nukleare Sicherheit Und Verbraucherschutz.  
<https://www.bmuv.de/themen/wasser-ressourcen-abfall/kreislaufwirtschaft/nationale-kreislaufwirtschaftsstrategie-nkws>
- Oberle, B., Bringezu, S., Hatfield-Dodds, S., Hellweg, S., Schandl, H. & Clement, J. (2018). *Global Resources Outlook*.  
<https://www.resourcepanel.org/reports/global-resources-outlook>
- OECD Methodology for Assessing Procurement Systems. (2021). *MAPS Sustainable Public Procurement module*. MAPS Initiative.  
<https://www.mapsinitiative.org/methodology/supplementary-modules/sustainable-procurement/>
- Okonjo-Iweala, N. (2021). *Ngozi Okonjo-Iweala on the Need to Rejuvenate Multilateral Trade Deals*. The Economist.  
<https://www.economist.com/by-invitation/2021/10/26/ngozi-okonjo-iweala-on-the-need-to-rejuvenate-multilateral-trade-deals>
- Petykowski, E., Benson, S., Simons, R. & Smith, T. (2019). *Transforming Trade: A Reform Agenda towards Sustainable Food and Land Use Systems*.
- Rockström, J., Steffen, W., Noone, K., & et al. (2009). *Planetary Boundaries: Exploring the Safe Operating Space for Humanity*. *Ecology and Society*, 14(2): 32.  
<https://www.ecologyandsociety.org/vol14/iss2/art32/>
- Sala, S., & Sanye, M. E. (2022). *Consumption Footprint: Assessing the Environmental Impacts of EU Consumption*. JRC Publications Repository.  
<https://publications.jrc.ec.europa.eu/repository/handle/JRC126257>

Sala, S., & Sanye, M. E. (2022). *Consumption Footprint: Assessing the Environmental Impacts of EU Consumption*. JRC Publications Repository.  
<https://publications.jrc.ec.europa.eu/repository/handle/JRC126257>

SBTI. (2023). *Companies Taking Action. Science Based Targets*.  
<https://sciencebasedtargets.org/companies-taking-action>

SDSN. (2019). *SDSN Policy Brief: International Spillovers and the Sustainable Development Goals (SDGs). Measuring How a Country's Progress towards the SDGs is Affected by Actions in Other Countries*.  
<https://resources.unsdsn.org/sdsn-policy-brief-international-spillovers-and-the-sustainable-development-goals-sdgs-measuring-how-a-countrys-progress-towards-the-sdgs-is-affected-by-actions-in-other-countries>

SDSN, Yale Center for Environmental Law & Policy, and Center for Global Commons at the University of Tokyo. 2021. *Global Commons Stewardship Index 2021*. Paris; New Haven, CT; and Tokyo.

Searchinger, T., James, O., & Dumas, P. (2022). *Europe's Land Future? Opportunities to Use Europe's Land to Fight Climate Change and Improve Biodiversity—And Why Proposed Policies Could Undermine Both*.  
<https://searchinger.princeton.edu/publications/europes-land-future>

Statista. (2021). *EU GDP 2021*. Statista.  
<https://www.statista.com/statistics/279447/gross-domestic-product-gdp-in-the-european-union-eu/>

Steffen, W., Grinevald, J., Crutzen, P., & McNeil, J. (2011). *The Anthropocene: Conceptual and Historical Perspectives*. *Philosophical Transactions of the Royal Society A*, 369, 842–867.  
<https://doi.org/10.1098/rsta.2010.0327>

Systemiq, University of Exeter, Sharpe, S. & Bezos Earth Fund. (2023). *The Breakthrough Effect: How to Trigger a Cascade of Tipping Points to Accelerate the Net Zero Transition*. Systemiq.

Wang-Erlandson, L., Tobian, A., van der Ent, R. J., & et al. (2022). *A Planetary Boundary for Green Water*. *Nature Reviews Earth & Environment*, 3, 380–392.

Willett, W., Rockström, J., Loken, B., Springmann, M., Lang, T., Vermeulen, S., Garnett, T., Tilman, D., DeClerck, F., Wood, A., Jonell, M., Clark, M., Gordon, L. J., Fanzo, J., Hawkes, C., Zurayk, R., Rivera, J. A., De Vries, W., Majele Sibanda, L., Murray, C.J.L. (2019). *Food in the Anthropocene: The EAT–Lancet Commission on Healthy Diets from Sustainable Food Systems*. *The Lancet*, 393 (10170), 447–492.  
[https://doi.org/10.1016/S0140-6736\(18\)31788-4](https://doi.org/10.1016/S0140-6736(18)31788-4)



Woelm, F. (2021). *SDSN Supports Eurostat in Strengthening Indicators of International Spillovers*.

<https://www.unsdsn.org/sdsn-supports-eurostat-in-strengthening-indicators-of-international-spillovers>

World Bank. (2022). *State and Trends of Carbon Pricing 2022*. Washington, DC: World Bank.

<http://hdl.handle.net/10986/37455>

World Economic Forum. (2022, December 19). *What You Should Know about Carbon-Reduction Incentive CBAM*. World Economic Forum.

<https://www.weforum.org/agenda/2022/12/cbam-the-new-eu-decarbonization-incentive-and-what-you-need-to-know/>

WWF. (2022). *Living Planet Report 2022*. WWF.

<https://www.wwf.de/living-planet-report>

Yale Center for Environmental Law & Policy, Center for Global Commons at the University of Tokyo, & SDSN. (2021). *Global Commons Stewardship Index 2021*.

<https://resources.unsdsn.org/global-commons-stewardship-index-2021>

Yamaguchi, S. (2020), "Greening regional trade agreements: Subsidies related to energy and environmental goods", OECD Trade and Environment Working Papers, 2020/01, 6-8.

<https://doi.org/10.1787/7e1fe8ed-en>.



**CENTER FOR  
GLOBAL  
COMMONS**