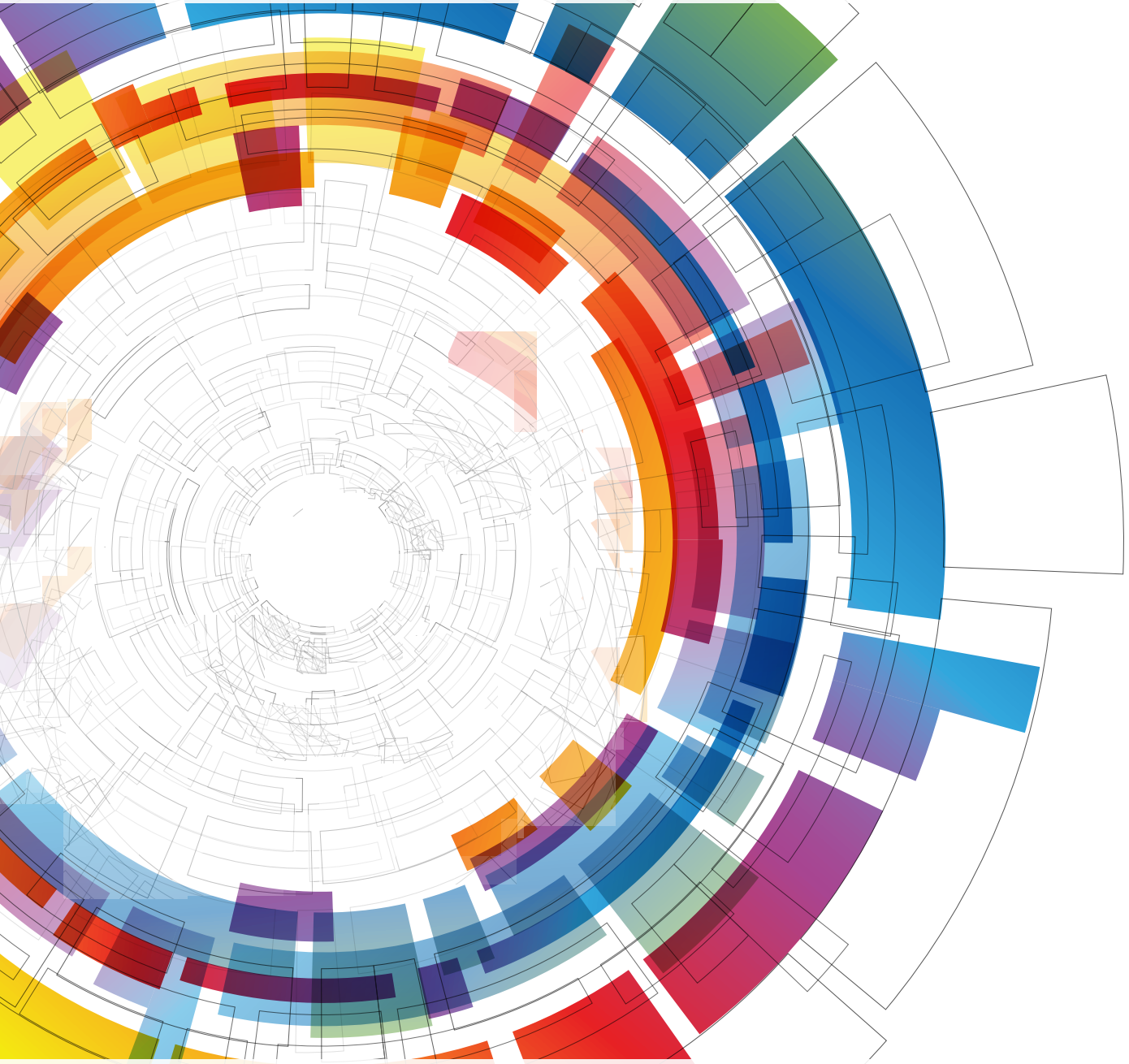
CIRCULAR ECONOMY TRANSITION PAPER SERIES

# Harnessing Trade for the Circular Economy



Circular STEP
Stakeholder Engagement Platform

UNECE

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## Abbreviations

| | |
|---|---|
| ASEAN | Association of Southeast Asian Nations |
| CEFACT | Centre for Trade Facilitation and Electronic Business |
| DNV | Det Norske Veritas |
| DPP | Digital Product Passport |
| EFTA | European Free Trade Association |
| EGA | Environmental Goods Agreement |
| EPR | Extended Producer Responsibility |
| ESG | Environmental, Social and Governance |
| FTA | Free Trade Agreement |
| GHG | Greenhouse Gas |
| HS | Harmonized System |
| IP | Intellectual Property |
| ISO | International Organization for Standardization |
| ITU | International Telecommunication Union |
| MSMEs | Micro-, Small- and Medium-sized Enterprises |
| OECD | Organisation for Economic Co-operation and Development |
| PPP | Public-Private Partnership |
| SDGs | Sustainable Development Goals |
| SPECA | Special Programme for the Economies of Central Asia |
| TESSD | Trade and Environmental Sustainability Structured Discussions |
| ToS-ICP | Team of Specialists on Innovation and Competitiveness Policies |
| TRIPS | Trade-Related Aspects of Intellectual Property Rights |
| UNECE | United Nations Economic Commission for Europe |
| UNEP | United Nations Environment Programme |
| VSS | Voluntary Sustainability Standards |
| WBCSD | World Business Council for Sustainable Development |
| WtE | Waste to Energy |
| WTO | World Trade Organization |

# Preface

A circular economy is an economy where (i) the value of materials in the economy is maximised and maintained for as long as possible; (ii) the input of materials and their consumption is minimised; and (iii) the generation of waste is prevented as well as negative environmental impacts reduced throughout the life-cycle of materials (ECE/CES/2023/3).

The United Nations Economic Commission for Europe (UNECE), one of five United Nations Regional Economic Commissions, has taken important steps to advance the transition to a more circular economy. At its 69th session in April 2021, UNECE member States requested relevant sectoral committees and bodies to scale up their efforts to promote circular economy approaches and the sustainable use of natural resources. Member States also asked to consider how to enhance the impact of existing UNECE instruments, including by proposing ways to identify, evaluate and address gaps in governance and best practices (E/ECE/1494). In its more recent 70th session, in April 2023, the Commission addressed progress made and invited to mainstream digital and green transformations for sustainable development as a cross-cutting priority (E/ECE/1504).

Over the last three years, the UNECE secretariat has responded to this request and worked to integrate the circular economy approach in the full scope of its relevant activity streams. Among others, this includes exploring the role of trade in accelerating the transition to circularity.

This policy paper analyses the role of international trade as an accelerator of the circularity process. It investigates the policies that can boost and those that can hamper the transition, and lays out recommendations for the way forward. Attention is given to the specific position of transition economies and their challenges in using trade as a means to move towards a more circular economy. Finally, the paper presents entry points for the type and nature of assistance that UNECE could provide to its member States to support this transition.

I hope this publication will help policy makers in the region to harness the power of trade for the circular transition, build economic prosperity and resilience, and achieve progress in the attainment of the Sustainable Development Goals (SDGs), particularly SDG 12 on responsible consumption and production.

Elisabeth Türk
Director, Economic Cooperation and Trade
UNECE

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The development of the series of policy papers is led by Elisabeth Türk, Director of Economic Cooperation and Trade Division (ECTD) and benefits from the UNECE-wide task force on circular economy, under the leadership of Dmitry Mariyasin, Deputy Executive Secretary of UNECE.

Chapter 1

# THE LINEAR AND THE CIRCULAR ECONOMIC MODELS

The current global economy relies heavily on the extraction and use of raw materials. Materials are transformed through production processes, used or consumed, and ultimately discarded into the environment. This "take-make-waste" approach is the cornerstone of the linear economic model. This model generates about 50 per cent of all greenhouse gas (GHG) emissions,[1] which puts it at the heart of the harmful impacts that humans have on the environment. With a projected global population growth to 10 billion people by 2060 and an unrelenting appetite for new consumer goods, humanity is on course to increase GHG emissions by 80 per cent[2] while exhausting the Earth's finite base of material resources. At the same time, the world population is projected to generate 3.40 billion tons of waste by 2050.[3]

The underlying paradigm, which assumes that society can enjoy uninterrupted growth based on extraction and pollution by drawing on Earth's finite resources, is not viable in the long term. In fact, there is growing consensus among experts that the current economic methods must be abandoned.[4]

The circular economy model offers a response to this multitude of challenges by reducing waste and closing the material and process loops, thereby preserving Earth's natural capital. The Ellen McArthur Foundation, an international foundation focused on accelerating the transition to the circular economy, defines it as a system solution framework based on three principles, driven by design:

- Eliminate waste and pollution.
- Circulate products and materials (at their highest value).
- Regenerate nature.

1 United Nations Environment Programme, *Global Resources Outlook, Natural Resources for the Future We Want*, A report of the International Resource Panel, 2019. Available at https://www.resourcepanel.org/global-resources-outlook-2019.

2 OECD, Global Material Resources Outlook to 2060: Economic Drivers and Environmental Consequences, 2018. Available at https://doi.org/10.1787/9789264307452-en.

3 World Bank, *What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050. Urban Development*, 2018. Available at https://openknowledge.worldbank.org/handle/10986/30317.

4 As noted in UNEP, *Decoupling Natural Resource Use and Environmental Impacts from Economic Growth*, A Report of the Working Group on Decoupling to the International Resource Panel, 2011. Available at https://sustainabledevelopment.un.org/index.php?page=view&type=400&nr=151&menu=1515.

Underpinning these principles is a transition to renewable energy and materials. In the circular economy, activities are decoupled from the consumption of finite resources, creating a resilient system that is beneficial for business, people, and the environment.[5]

Often mistakenly equated with recycling, the circular economy is a broader, evolving concept that aims to revolutionize humanity's way of producing, consuming, and interacting with nature. The circular economy is characterized by reduced demand for primary materials, brought about by designing various forms of waste out of economic activity. Consequently, moving to a more circular economy can improve the quality of life, create a regenerative society, and develop a sustainable, nature-positive global economy. In the circular economy, products are designed for durability and upgradeability, thereby reducing waste and creating markets for by-products, which expands the scope of economic sectors with less need for extracting primary resources. This essentially means that the circular economy entails reducing, reusing, repairing, remanufacturing, and finally recycling and recovering, as the last and least desirable options.[6]

From this broader perspective, existing linear business models are largely resource-inefficient and wasteful. One of the main challenges in moving to the circular economy has been to stimulate businesses to conceptualize and integrate new business models to address these inefficiencies and create new value. A number of circular business models attempt to close, slow down, narrow, intensify and dematerialize resource loops.[7] The purpose of such efforts is to keep materials circulating in the economy, thereby reducing waste, or to recover materials for their subsequent use within another loop. The resource loops can be closed through different channels: reusing, remanufacturing, repairing or recycling. Box 1 provides an overview of the business opportunities to shape material loops that the circular economy offers.

5 Ellen MacArthur Foundation, "What is a circular economy?", 2022. Available at https://ellenmacarthurfoundation.org/topics/circular-economy-introduction/overview.

6 ReTrace, *Circular Economy and the 6 REs*, 2019. Available at https://www.retrace-itn.eu/2019/07/15/the-6-res-of-the-circular-economy-reduce-reuse-repair-remanufacture-recycle-and-recover/#:~:text=As%20the%20Circular%20Economy%20is,Remanufacture%2C%20Recycle%2C%20and%20Recover.

7 Martin Geissdoerfer, Sandra Morioka, Marly Monteiro de Carvalho and Steve Evans, "Business models and supply chains for the circular economy", *Journal of Cleaner Production*, vol. 190 (20 July 2018), pp. 712–721.

## Box 1 Five business models of the circular economy to shape material loops

| *Method* | *Explanation/example* |
|---|---|
| Closing resource loops | Substituting primary materials with secondary materials through repairing, remanufacturing or recycling |
| Slowing down resource loops | Reducing the environmental footprint by extending the life cycle of products |
| Narrowing resource loops | Improving the efficiency of production, distribution, and consumption processes by implementing technological improvements and reducing waste or energy consumption |
| Intensifying resource loops | Removing idle times when products are not used (e.g. renting apartments that are otherwise empty) |
| Dematerializing resource loops | Moving from products to services (e.g. moving from owning CDs to subscribing to online streaming services to obtain music) |

Source: UNECE, based on Geissdoerfer (2018).

The private sector is at the forefront of innovation and the transition to circularity. To a certain degree, entrepreneurs around the world can shape, steer, and foresee future consumption trends through daily interaction with consumers. Consumers in developed and emerging economies are raising their expectations, moving towards more durable and sustainable products, and are increasingly ready to pay the price for them. Despite those demands, the transition to a more circular economy will be difficult for many established companies, as it will require a complete rethinking of production processes, business model innovation, production redesign, refitting and repurposing of value chains, among others.

As the trend towards circularity continues and governments begin establishing incentives for the transition, less resource-efficient companies will be required to adapt and adopt more circular business models and develop strategies for the transition. As noted in the *Circular Economy Handbook* (Lacy, Long and Spindler, 2020), circular-born companies stand to enjoy an advantage in the transition to a predominantly circular world, as they will offer at least three benefits:

1. Greater resilience (by having more control over inputs to their production processes as compared with linear companies)
2. Higher efficiency (by using fewer inputs, business forecasting models to reduce overstock, and circular design aimed at reducing raw material and sourcing it from cheaper recovered sources)
3. More sustainable business models (product design that fosters repair, upgradeability, easier disassembly, remanufacturing or recycling, no sourcing of virgin raw materials, a reduced carbon footprint and so on).[8]

8 Peter Lacy, Jessica Long, Wesley Spindler, *The Circular Economy Handbook: Realizing the Circular Advantage* (London, Palgrave Macmillan, 2020). Available at https://link.springer.com/book/10.1057/978-1-349-95968-6?page=2#toc.

According to a recent survey of 793 companies[9] across industries in Europe, North America, Central and South America and Asia by DNV (Det Norske Veritas) and the World Business Council for Sustainable Development (WBCSD),[10] the circular economy model is gradually being assimilated into business strategies:[11]

- 75 per cent of companies are analysing or discussing circularity-related options.
- 12 per cent have integrated circular economy into their core business strategies.
- 26 per cent embedded circular economy in their sustainability strategies.

Although the current circular economy maturity of companies might seem low, the survey predicts considerable improvement in the next five years. There are many examples of successful business models, products and services being applied worldwide by both smaller and bigger companies (box 2).

9 Out of 793 companies, 4.3 per cent are active in the primary sector, 73.8 per cent in the secondary sector and 22.9 per cent in the tertiary sector. The majority of interviewed companies are either small (29.2 per cent) or medium (33.3 per cent) in size.

10 ViewPoint Team, DNV, and WBCSD, *Circular Economy: How Are the Companies Transitioning*, 2021. Available at https://www.dnv.com/assurance/viewpoint/viewpoint-surveys/2021Q3/download.html.

11 The study was conducted in March–April 2021.

## Box 2 Examples of circular economy approaches in business

Examples of circular economy approaches abound, as more innovative approaches are created. Big, small and start-up companies are forging the path for bringing circularity into the global economic mainstream:

- *Circos BV* (Netherlands) is an online shop with a rental subscription service for children's and maternity wear, founded with the mission to increase the use and prolong the life of garments that are typically used for only a short time.
- *Close The Loop Ltd.* (Australia) uses technology to convert soft plastics and old printer cartridges into roads, improving their quality and durability.
- *HP* (United States) leads the way in collecting plastics from rivers and lakes before reaching oceans and transforming them into screens and computers.
- *Hygglo* (Sweden) is an online platform for sharing and renting all kinds of products between individuals, particularly items that are not used every day.
- *HYLA Mobile, Inc.* (United States) cooperates with many leading electronics manufacturers, repurposing old smartphones and tablets and similar devices and making them usable again.
- *Levi Strauss & Co.* (United States) repurposes old garments into new clothes, insulation for buildings or upholstery.
- *Loop* (Canada), a pioneer of reusable packaging, provides products in reusable packaging, and cleans and resells returned packaging.
- *Miniwiz Ltd.* (Taiwan, Province of China) upcycles waste and trash into new materials that can be reused.
- *Nike, Inc.* (United States) has recently launched several circular products made from consumer waste, including apparel from 100 per cent recycled polyester.
- *The North Face, Inc.* (United States) has launched a re-commerce platform, which features refurbished products sold at discount prices.
- *Koninklijke Philips NV* (Netherlands) is pioneering the concept of leasing light instead of selling lightbulbs.
- *Ragn-Sells AB* (Sweden) invests in research and development (R&D) for circular methods of water treatment and industrial recycling and recycles 1.5 million tons of materials annually.
- *SOMA* (Serbia) develops new designs, technologies and biotic materials aimed at reducing pollution, enabling sustainable industry practices and boosting the circular economy.

Many of the companies listed here, which represent established international brands, do not yet have their entire operations functioning in accordance with circular economy principles. Also as these examples show, circular economy uptake is taking place mostly in developed economies. Information on circular economy business examples from the UNECE transition countries is difficult to obtain. Finally, particular attention needs to be given to micro-, small- and medium-sized enterprises (MSMEs) from transition economies. They stand to profit from incorporating circular economy practices, serving as a critical facilitator to mainstreaming the circular economy in the UNECE region, but they also face considerable challenges. UNECE's Compendium to support MSMEs in the post-COVID-19 green resurgence (forthcoming), provides relevant guidance material for stakeholders.

Source: Compiled by the author, based on Internet sources. Further information is available at https://www.triplepundit.com/story/2020/brands-circular-economy-2020/709596; https://www.ragnsellsrecyclables.com/; https://www.greenbiz.com/article/how-philips-became-pioneer-circularity-service; https://www.circularx.eu/en/cases/49/loop-packaging-reuse-model.

Greater use of circular economy business models can bring multiple economic benefits. Fostering the transition to the circular economy can help create jobs and support economic growth. The International Labour Organization estimates that with the worldwide adoption of the circular economy model, six million new jobs could be expected by 2030,[12] of which a major share is connected to the renewable energy sector. Transitioning to the circular economy in the European Union could add up to €1.8 trillion in primary resource and non-resource, benefits including externalities by 2030. This value addition to European economy would bring about a corresponding rise in gross domestic product (GDP) of 7 per cent, according to the Ellen MacArthur Foundation.[13]

Circular business models can also help make supply chains more resilient. By improving material productivity (i.e. fostering recovery and/or reuse) and efficiency along the supply chain, such models can help reduce demand for raw materials.[14] This, in turn, can foster competitiveness and help reduce dependence on critical minerals, such as nickel, lithium or neodymium, while alleviating problems related to their price volatility. By thus fostering recovery and/or reuse of critical minerals, the circular economy transition can help address potential supply challenges in sectors that are essential for the green energy transition.[15] Moving towards the circular economy can support current recovery strategies, and, if scaled up, can serve as a global strategy for resilient growth.

In addition to their economic benefits, more circular business models can also support global efforts to combat biodiversity loss and climate change (box 3).

12 International Labour Office, *World Employment and Social Outlook: Greening with jobs*, 2018. Available at https://www.ilo.org/global/publications/books/WCMS_628654/lang--en/index.htm.

13 Ellen MacArthur Foundation and McKinsey, *Growth Within: A Circular Economy Vision for a Competitive Europe*, 2015. Available at https://www.ellenmacarthurfoundation.org/assets/downloads/publications/EllenMacArthurFoundation_Growth-Within_July15.pdf.

14 For details, please refer to the forthcoming UNECE paper on supply chain traceability for the circular economy, to be launched under the same United Nations Development Account project as this paper.

15 As became apparent during the COVID-19 pandemic, recurring supply shocks associated with critical minerals can cause disruptions to global production chains of technically advanced products such as tablets or electric vehicles. For further information, please see the results of a UNECE discussion on future-proofing the supply of critical minerals, available at https://unece.org/sites/default/files/2022-01/UNECE%20UK%20Critical%20Minerals%20Report%20Jan%202022.pdf.

## Box 3 Circular economy and climate change objectives

The way society produces, consumes and disposes of products is at the origin of the stress humans cause to the environment, but it can be the origin of a solution, too. Sitra, the Finnish Innovation Fund, predicts that the circular economy could eliminate 296 million tons of carbon dioxide per year from the atmosphere.[a] The International Resource Panel assumes that by 2050 circular economy practices could reduce the use of natural resources by 28 per cent and emissions of global GHGs to 63 per cent below their 2015 level.[b] Circular steel production and regenerative food production[c] could reduce annual emissions of carbon dioxide into the atmosphere by 1 billion tons and 3.9 billion tons, respectively.[d] The Global Circularity Report 2021[e] estimates that adding another 8.4 per cent of circularity to the economy would bring about irrevocable circular business patterns and a world that is warming at a rate that will keep well below 2°C by 2060.

Source: Compiled by the author, based on sources mentioned.
[a] SITRA, The Circular Economy a powerful force for climate mitigation, 2018. Available at https://media.sitra.fi/2018/05/04145239/material-economics-circular-economy.pdf.
[b] United Nations Environment Programme (UNEP), Resource Efficiency: Potential and Economic Implications. A report of the International Resource Panel, 2017. Available at https://www.resourcepanel.org/file/312/download?token=gM4QyNY1.
[c] Regenerative agriculture describes farming and grazing practices that, among other benefits, reverse climate change by rebuilding soil organic matter and restoring degraded soil biodiversity – resulting in both carbon drawdown and an improved water cycle. For more information, please see Regeneration International at https://regenerationinternational.org/wp-content/uploads/2017/02/Regen-Ag-Definition-2.23.17-1.pdf.
[d] Ellen MacArthur Foundation, Completing the picture: How the circular economy tackles climate change, 2021. Available at https://emf.thirdlight.com/link/w750u7vysuy1-5a5i6n/@/preview/1?o.
[e] Circle Economy, Global Circularity Report 2021, 2021. Available at https://www.circularity-gap.world/2021#downloads.

While not explicitly named, circular economy principles can also be found in the United Nations Sustainable Development Goals (SDGs), notably Goals 8, 9 and 12. SDG 8 (Decent work and economic growth) promotes global resource efficiency in consumption and production. SDG 9 (Industry, innovation, and infrastructure) fosters the adoption of resource-efficient and environmentally sound technologies, while SDG 12 (Responsible consumption and production) emphasizes resource efficiency and waste reduction. Beyond these apparent linkages, the circular economy benefits from a change in production, consumption, and distribution patterns and improved efficiency along the supply chain. This may produce further benefits relating to other SDGs and help achieve broader global policy objectives.

Despite the potential for such benefits, progress towards circularity in the global economy is still slow, with preliminary indicators ranking it in the single digits with a negative trend (8.6 per cent in 2022, down from 9.1 per cent in 2018).[16] International trade and economic cooperation can be a crucial enabler of circularity, helping to scale up circular practices from local to regional and global ones.

This paper analyses the role of international trade as an accelerator of the circularity process. Chapter 2 aims to shed light on how to leverage international trade and economic cooperation as drivers for the circular economy transition, as well as to investigate the links between trade and circular economy and propose avenues to advance the uptake of circular economy through trade. Chapter 3 explores policy interactions between trade and circularity in selected sectors. Chapter 4 analyses the state of play regarding the circular economy transition at the different levels of international trade governance – multilateral, regional

16 Circle Economy, *The Circularity Gap Report 2022*, 2022. Available at https://www.circularity-gap.world/2022#Download-the-report.

and national – and suggests a possible way forward. Chapter 5 examines the state of play in the transition economies of the UNECE region and how the transition will affect these countries. Finally, chapter 6 provides concluding remarks and a list of options and entry points for harnessing trade for the circular transformation. UNECE's Economic Cooperation and Trade Division, together with Circular STEP, UNECE's stakeholder engagement platform, stand ready to support countries in these efforts.

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The current global economy relies heavily on the extraction and use of raw materials. The underlying paradigm, which assumes that society can enjoy uninterrupted growth based on extraction and pollution by drawing on Earth's finite resources, is not viable in the long term. The circular economy model offers a response to this multitude of challenges by reducing waste and closing the material and process loops, thereby preserving Earth's natural capital. Often mistakenly equated with recycling, the circular economy is a broader, evolving concept that aims to revolutionize humanity's way of producing, consuming, and interacting with nature. The private sector can be at the forefront of innovation and the transition to circularity. As the trend towards circularity continues and governments begin establishing incentives for the transition, less resource-efficient companies will be required to adapt and adopt more circular business models and develop strategies for the transition. International trade and economic cooperation can be a crucial enabler of circularity, helping to scale up circular practices from local to regional and global ones.

Chapter 2

# TRADE AND THE CIRCULAR ECONOMY: A REVIEW

## Supply chains as catalysts for the circular economy

This chapter examines how international trade can turn into a driver for accelerating the assimilation of circular economy practices around the world. The most plausible place to start an examination of the interaction between international trade and the circular economy is at the heart of international trade – global supply chains.

For long, international trade has been considered the driving force of efficiency, and it shows a direct relationship to GDP growth.[17] In today's globalized economy, it is not only final products that are exchanged but also services and intermediate products. This moves regional and global supply chains as well as economic clusters to the centre of global trade: the clustering of international supply chains has resulted in the speeding and scaling up of international trade.

Supply chains are critical drivers of globalization, connecting goods, services, digital technologies, and consumers. They have an embedded linear logic designed to sustain the linear economic model. To retain the same degree of importance in the circular economic model, they would need to be fundamentally rethought, reengineered, and repurposed.[18]

In the past, the focus has been on improving efficiency within supply chains, notably by streamlining processes. In the future, the focus may expand to connecting the production and disposal ends of the value chain. Circular economy efficiencies would be sought for all inputs in the production process (land, energy, materials, services, labour, capital goods) and outputs, including by-products. The search for such efficiencies would also cover the consumption and post-consumption (waste) phases, where not only efficiencies but also business opportunities can be sought. In addition to being efficient, future processes and products would be carbon neutral or have minimal environmental impact.

Integrating circularity into supply chains faces a series of challenges. Each product stream in the supply chain will need to be reworked from the bottom up. Such re-engineering of forward and backward production linkages will add another layer of complexity to the already perplexing web of interrelations between supply chain stakeholders. A one-size-fits-all approach will not be possible. Companies respond to market signals and policy signals

17 Esteban Ortiz-Ospina and Diana Beltekian, *Trade and Globalization*, 2018. Available at https://ourworldindata.org/trade-and-globalization. International Monetary Fund, *Global Trade Liberalization and the Developing Countries*, 2001. Available at https://www.imf.org/external/np/exr/ib/2001/110801.htm.

18 A good graphic comparison of a linear and a circular model appears in annex 1.

respective to the flow of supply and demand in different sectors, so companies will have to change the way they operate in response to, or in expectation of, such signals. Some similarities are to be expected, but the design and implementation of such re-engineering will have to be tailored to different companies, markets and configurations of supply chain stakeholders. The supply chain for a product could be organized differently across the world, taking into account regional and stakeholder characteristics, as well as available productive and remanufacturing capacities. If solutions are found, they must include the whole supply chain and not create new environmental challenges.

Circularity-induced changes in production and consumption patterns are likely to affect the current landscape of global trade. The complexity of international trade makes it hard to predict the future, but several trends are likely to appear and each raises questions, as laid out in table 1:

**Table 1** **Making international trace circular: possible trends and key questions**

| | |
|---|---|
| *From one way to two-way supply chains* | • Will recycling, remanufacturing, and repurposing add backward product streams and make the supply chain more complex?<br>• Will better cooperation with upstream supply chain partners be necessary to acquire adequate inputs; and with downstream partners on managing circular economy business models (repair, remanufacturing, sharing, etc.)? |
| *From trade in primary to trade in secondary material* | • Will trade in primary materials decrease and be replaced by more trade in secondary material?<br>• Will trade in second-hand goods increase?<br>• Will regulatory adjustments be necessary to foster increased trade in secondary raw materials, and remanufactured goods, while avoiding situations in which liberalization is a cover for imports of low-quality, hazardous or illegal products with adverse environmental and health consequences? |
| *From global to more regional and local trade* | • Will restrictions on trade in waste and hazardous materials drive circular economy trade towards more local solutions with regional recycling and reprocessing hubs that cater to regional markets?[19]<br>• Will goods destined for end-of life disposal become the most expensive option, to create incentives for closing resource loops? |
| *From dependence to more resilience* | • Can reuse of materials help make supply chains more resilient by reducing the pressure on the supply of primary materials?<br>• Will supply chains become more agile to absorb shocks better and therefore need to feature more smaller local partners (including MSMEs)?<br>• Will use of partners help to alleviate supply chain delays and preserve resources?[20] |

19 IEEP, *EU circular economy and trade: Improving policy coherence for sustainable development*, 2019. Available at https://ieep.eu/uploads/articles/attachments/f560794d-c411-4895-8ae9-910c65548f33/EU%20trade,%20CE%20and%20sustainable%20development%20(IEEP%202019)%20FINAL.pdf?v=63741577228.

20 Peter Miller, *Could Supply Chain Challenges Fuel the Circular Economy?*, 2021. Available at https://www.digit.fyi/could-supply-chain-challenges-fuel-the-circular-economy.

| | |
|---|---|
| *From trade in goods to trade in services* | • Will services become central to circular economy business models as emphasis shifts to design for durability, repair, remanufacturing, recovery, recycling, refurbishing, after-sale service and product-as-service solutions (leases and asset sharing)?<br>• Will trade in services increase in a more circular world, including such services as water and waste treatment, design, information technology (IT) services, environmental consulting engineering, and research and development (R&D)? |
| *From analog to digital* | • Will digital solutions and Fourth Industrial Revolution (4IR) industries, which are already prominent in linear supply chains, support the operating system of circular supply chains in the future?<br>• Will they drive production, logistics, distribution and traceability of goods and underpin all key decision processes within the chain? |

In this context, supply chain transparency[21] deserves a separate mention for its pivotal importance for the operation of future supply chains. All stakeholders along a chain will depend on traceability:

1. Consumers, who want to know where products come from and how they have been produced
2. Producers, who want to improve their efficiency and know about the composition of materials, including the percentage of reused or recycled material
3. Suppliers, who need to access information on products while divulging information on how they source and provide their inputs.

Greater pressure from both, consumers and regulatory initiatives, will boost the demand for transparency along the chain, for the full scope of materials, services and other inputs used in manufacturing a product. For instance, environmental certification will not be possible without traceability. Consequently, circular economy regulations at all levels – local, national, regional and global – would be expected to mandate full transparency along the supply chain so as to guarantee adherence to circularity principles.

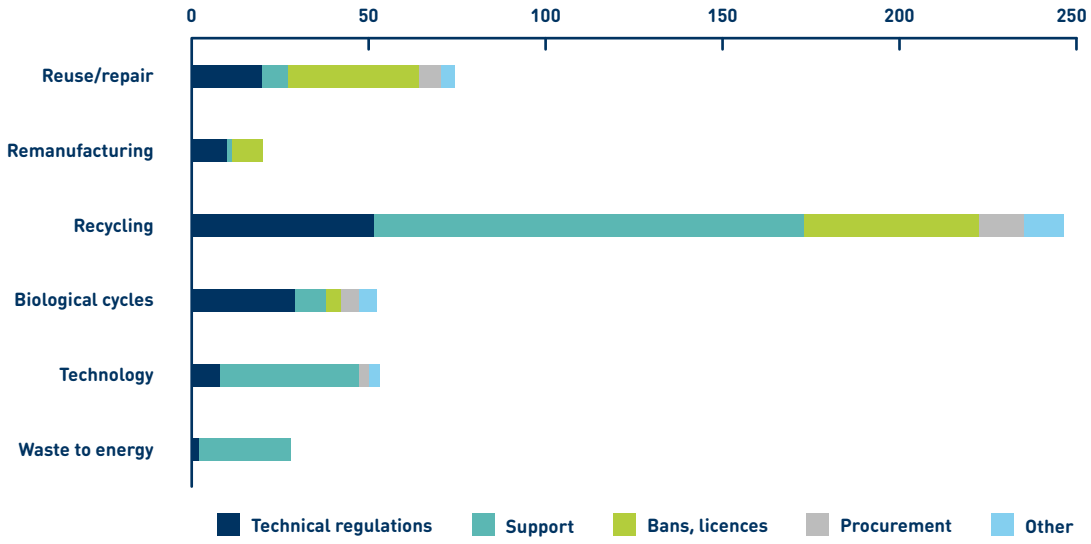
21 Details on UNECE's supply chain traceability workstream appear here: https://unece.org/trade/traceability-sustainable-garment-and-footwear. More on UNECE's Team of Specialists on Environmental, Social and Governance Traceability of Sustainable Value Chains in the Circular Economy can be found here: https://unece.org/trade/uncefact/ToSTraceability.

# The interface between trade and the circular economy

International trade is at the heart of contemporary, nascent circular economy business models, powering them by generating economies of scale and comparative advantages. Its importance has been confirmed by the recent study published by the International Chamber of Commerce,[22] produced after reviewing the literature and interviewing trade practitioners and companies active in the circular economy domain. Other recent reports, for example by the Organisation for Economic Co-operation and Development (OECD),[23] confirm that certain circular economy practices are already present in today's economy, supplementing the current linear model. Yet they are still mainly reserved for niche markets, products, and services.

The next section provides a brief review of selected challenges related to trade policy, as identified in recent studies by the International Chamber of Commerce, the International Institute for Sustainable Development, the OECD and the Quaker United Nations Office. It also builds on data compiled by the World Trade Organization (WTO). Figure 1, for example, shows that between 2009 and 2017, 370 trade- and environment-related measures were notified to the WTO, most of them in recycling, with bans and domestic support being the most frequent tools used.

**Figure 1** **Trade and environment-related measures notified to the WTO (2009–2017)**




Source: Compiled by the author, based on the WTO Environmental Database, 2009–2017, www.edb.wto.org.

22 For the findings of the ICC study, please refer to Christophe Bellmann, *The circular economy and international trade: Options for the World Trade Organization*, 2021. Available at https://iccwbo.org/publication/the-circular-economy-and-international-trade-options-for-the-world-trade-organization.

23 For all findings of the OECD study, please refer to Shunta Yamaguchi, *International Trade and the Transition to a More Resource Efficient and Circular Economy: A Concept Paper*, 2018. Available at https://doi.org/10.1787/847feb24-en.

It must be noted that measuring trade in circular economy-relevant business models remains challenging. Given the difficulties of determining, capturing and measuring relevant data and the constantly evolving nature of circular economy business models, an all-inclusive directory for circular trade or for trade in circular economy goods and services remains elusive. An important attempt to alleviate these difficulties was made by The Chatham House, whose database[24] captures the trade flows of 900 commodities (primary and secondary materials)[25] of potential importance for the circular economy.

Challenges related to trade policy encountered when attempting to engage in circular economy practices are manifold. Three of these challenges are detailed in the following paragraphs.

1. Challenges may arise from path-dependency, as important elements of trade policy are framed on the basis of the linear economic model.

The first group of challenges concerns, for example, the classification of goods that are at the core of circular trade (e.g. the Harmonized System (HS) codes set by the World Customs Organization[26]). Currently, HS codes of goods are based on the physical features of goods, not their intended use. The HS codes do not always differentiate between secondary raw materials and waste. Tracking trade flows in second-hand goods or goods for refurbishment and remanufacturing is a real challenge, given that HS codes do not often distinguish such goods from either waste or new products. Specific HS codes exist only for retreaded tyres, second-hand construction materials and worn clothes. The most recent amendment to the HS system in January 2022 added new codes for electrical and electronic waste and scrap.[27]

The code is revised only every five years, a review cycle that makes it difficult to keep the system up to date with technical, technological and environmentally related developments. In autumn 2022, UNECE and Friedrich-Ebert-Stiftung convened a three day-event "Deep Dive into Circular Economy: HS Codes at Heart", which brought together experts, country delegates, and professionals to discuss the circular economy and the importance of HS codes in achieving circularity.

2. Challenges may arise from policy considerations that call for restricting – or carefully regulating – international trade in circular economy goods.

The second group of challenges stems from policy considerations that call for controls on international trade in circular economy goods. Currently, regulations for the use of waste, scrap and secondary raw materials vary considerably between countries, adding confusion to or even blocking trade.

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24 The Chatham House Circular Economy Trade Database is available at https://circulareconomy.earth/trade.

25 Primary and secondary flows could not be easily distinguished. Some HS codes do not differentiate between used, recycled or new products. Some HS codes include waste, residue and scrap materials in the same tariff line as primary resources. In such instances, Chatham House has opted to include all flows for the sake of inclusivity, thereby probably inflating the volume of trade in circular economy-related goods.

26 The Harmonized Commodity Description and Coding System, also known as the Harmonized System of tariff nomenclature, is an internationally standardized system of names and numbers to classify traded products and is governed by the World Customs Organization.

27 European Commission, Directorate-General for Trade, "News: Tariff changes applicable from 01/01/2022", 2022. Available at https://trade.ec.europa.eu/access-to-markets/en/news/tariff-changes-applicable-01012022.

For example, trade in waste and scrap is sometimes restricted (through export and import bans) because of fears that developed countries will try to shift hazardous goods from their highly regulated markets to developing countries that do not have stringent environmental rules. There, disposal and recycling of such goods might affect the safety of the population or pollute the environment. Challenges also arise from increases in illegal and/or illicit trade, including trade of hazardous waste and chemicals that are potentially damaging to health and the environment.

Although these considerations are relevant, more effort could be made to explore the potential of trade in secondary raw materials while ensuring that all environmental risks are addressed. Current global governance of illegal trade is limited, and there are gaps in the current coverage of illicit trade in hazardous waste (box 4).

Similarly, certain areas of circular economy-related trade are exposed to considerable and frequently differing regulation.[28] Non-tariff measures, non-automatic licensing and taxes are making secondary goods more expensive and less attractive options for sourcing as an input to production processes. These measures have affected cars and car parts, machinery, clothing and medical devices, among others.

Looking at tariff measures, the WTO found that circular economy-related products have an average tariff protection of 5.45 per cent, with peaks of 50 per cent. Problems occur when products with higher value added have stronger protection than the raw materials used in their production (so-called tariff escalation, introduced to encourage domestic production).[29]

**3.** Challenges may arise from policy considerations that aim to drive change, either incentivizing or disincentivizing certain economic activities.

The third set of challenges arises from the need to ensure coherence when implementing policies that aim to drive change. For example, when aiming to drive changes towards reducing the use of plastic- or fossil-fuel-intensive products, attention must be given to policy coherence (i.e. to ensuring that other policies do not subsidize the very same behaviours). Today, some circular trade is hampered by fossil fuel subsidies (which also subsidize plastic products), and by subsidies in the metal sector that favour the raw material over second-hand goods.

Figure 2 compares types and numbers of liberalizing and harmful measures implemented worldwide between 2009 and July 2022 for the most-often traded good that has high recycling potential: metal waste & scrap.[30] Out of 239 measures in the period under consideration about 34 per cent were liberalizing (60 measures in total) while 66 per cent were harmful to international trade (179 measures in total). Tariffs still predominate, but bans, taxes and public procurement are also increasingly used to limit or ban trade in metal scrap.

28 Please see section XIII of the report of the Thirty-first Session of the Working Party on Regulatory Cooperation and Standardization Policies (WP.6). Available at https://unece.org/sites/default/files/2021-11/ECE_CTCS_WP.6_2021_02_E_0.pdf.

29 Karsten Steinfatt, *Trade policies for a circular economy: What can we learn from WTO experience?* Trade and Environment Division, 2020. Available at https://www.wto.org/english/res_e/reser_e/ersd202010_e.htm.

30 Further information is available at https://www.globaltradealert.org.

## Box 4 Regulating international trade in hazardous waste

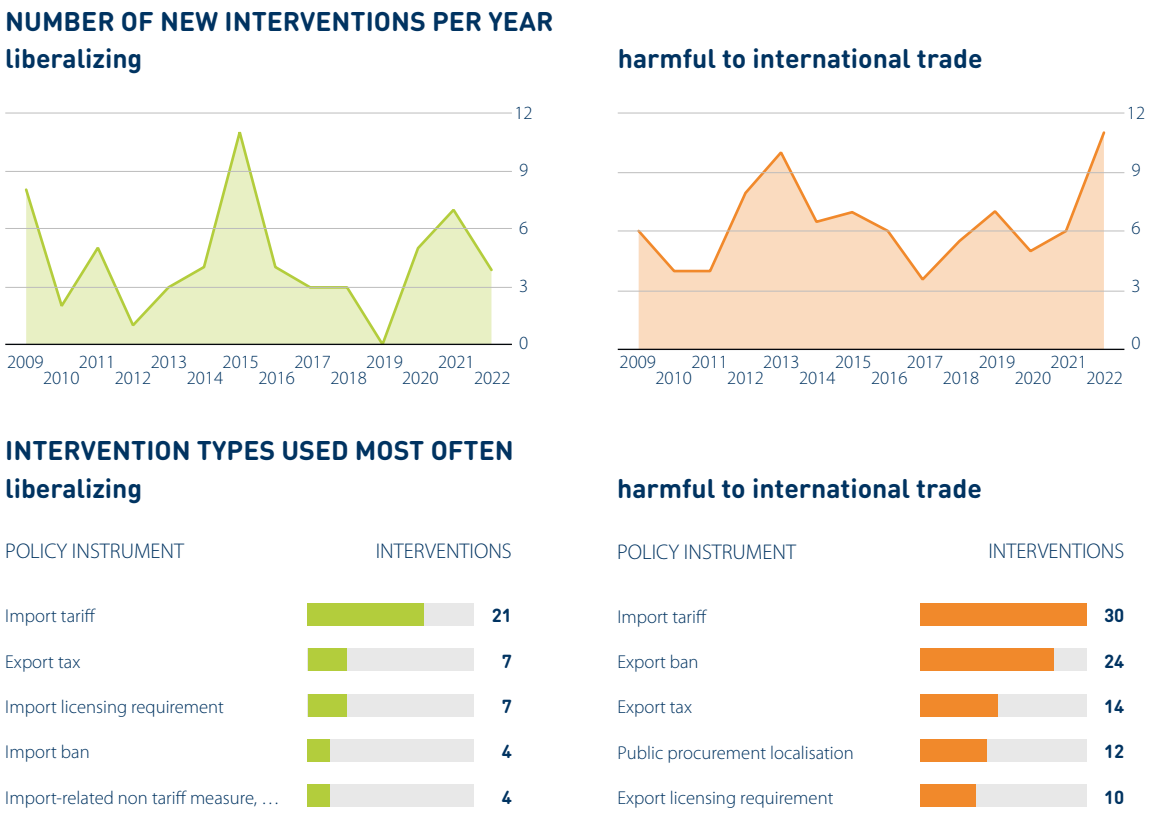
The regulation of international trade in (hazardous) waste, chemicals and pollutants is divided across several conventions. There are gaps in coverage – not all harmful substances are covered – which could endanger human health and safety and the environment.

International trade in hazardous waste is regulated by the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal. It regulates trade in hazardous (i.e. particularly problematic) waste. Differences in implementation can create confusion and diverging requirements across jurisdictions, which cause unnecessary costs and delays. Recently, work under the Convention included a trade-relevant amendment on mixed plastic waste. Recycling plastic waste might be one of the more profitable future business streams, and companies involved in it will depend on the free cross-border flow of recyclable plastic waste.

The Minamata Convention on Mercury, the Stockholm Convention on Persistent Organic Pollutants, the Rotterdam Convention on Hazardous Chemicals and Pesticides, and the Montreal Protocol on Substances that Deplete the Ozone Layer complement the Basel Convention. Moreover, the UN/CEFACT (United Nations Centre for Trade Facilitation and Electronic Business) standard for the transboundary movement of waste enables tracking hazardous waste across borders, in accordance with the Basel Convention.

Source: UNECE, based on the texts of mentioned conventions and on Joachim Monkelbaan, *The circular economy and trade: Some questions and possible ways forward*, 2021.

## Figure 2 Number of new interventions on metal waste & scrap




Source: Compiled by the author, based on data from Global Trade Alert, 2009–2022. Available at www.globaltradealert.org.

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The transition to a more circular economy will require a departure from our current practices as producers and consumers of goods and services. To achieve this transition, to reduce pressure on the environment and to help achieve key sustainability objectives, international trade – and supply chains – could provide the decisive push. For this to happen, supply chains will need to transform to adjust to the new economic reality; and they will in turn shape international trade patterns. The circular transition will also require a fresh look at certain trade policy questions.

Chapter 3

# SCALING UP THE CIRCULAR ECONOMY: TRADE-RELATED POLICY INTERACTIONS AND SPECIFIC SECTORS

International trade does not happen in isolation; it interacts with investment, innovation, digitalisation and procurement, among others, and it exhibits sector-specific particularities. These interactions offer the potential to create synergies along the supply chain, including with respect to the transition to a more circular economy.

## Policy interactions

This chapter examines how investment, innovation and digitalisation, among others, can help trade to enable the uptake of circularity.[31] Today's multifaceted supply chains offer an open laboratory where these elements meet, mix and interact to shape the global economy.

### Trade and investment and financing

In today's economy, international trade and investment are closely interlinked. Trade serves as a facilitator of foreign direct investment, which in turn helps spur imports and exports. Transitioning to the circular economy will not be possible without massive investments along supply chains. This includes investment in new business models (e.g. in new industries, supply chain redesign, green design or bioengineering), procedures, technologies and innovation, and workforce education.

Similarly, investment can drive change, effectively moving other economic actors towards circularity. The most potent investment funds are determined to evoke change by building portfolios that support circular economy and other sustainability objectives while consistently disinvesting from environmentally unsustainable companies or practices. They are having success: sustainable investments around the world grew from $13.3 trillion in 2012 to $30.7 trillion in 2018.[32] Many development institutions that provide large investments in infrastructure and economic development have adopted green strategies, aiming to respond to climate change challenges, and green financing, including the circular economy as a solution.[33]

31 Other UNECE studies on key economic areas for the circular economy transition, such as *Circular Economy Financing and Digital Solutions* are under development and will be published on the UNECE website in due course.

32 Ashley Viens, *The Circular Economy: Redesigning out Planet's Future*, 2019. Available at https://www.visualcapitalist.com/the-circular-economy-redesigning-our-planets-future.

33 For example, see World Bank Group, *World Bank Group Climate Change Action Plan 2021–2025: Supporting Green, Resilient, and Inclusive Development, 2021*. Available at https://openknowledge.worldbank.org/handle/10986/35799.

Finance has the potential to capitalize on the circular economy momentum and help accelerate the circular economy transition. All aspects of finance can play an important role in bringing about the transition, in particular alternative, innovative and blended forms of financing that combine public, private and philanthropic capital. Such forms of financing can fund harder-to-finance circular economy infrastructure and long-term innovation.[34] Yet, there is a significant lack of finance for circular businesses and innovation for countries with economies in transition.[35]

In terms of policy action, investments need a transparent, predictable and enabling environment to thrive, calling for joint efforts by the public and the private sector. As noted by the Ellen MacArthur Foundation,[36] governments, central banks and financial regulators will need to participate and stimulate the shift to circular practices. At the same time, a common set of metrics and better data will be needed for analysing and monitoring the shift.

## Trade and innovation

International trade plays an important role in stimulating innovation and vice-versa. Links between trade and innovation have been long known and can be used to nurture circularity-related innovation. To reshape consumption and production practices, circular economy business models and supply chains need innovative practices, new technologies and new services. The dominance of the linear model will be upended quicker if innovative solutions bring about improvements in efficiency, profitability and scale that ultimately eliminate current unsustainable practices.

For the circular transition to happen, innovation at the design stage of products and services seems to carry the greatest significance (e.g., decisions made while designing a product or service determine its use, lifespan, and disposal). Innovations that promise sustainable results for the future include modular design for electronic equipment (e.g., phones that can be easily disassembled with replaceable parts) and built-to-last design (e.g. kitchen utensils, rechargeable batteries, etc.).

In terms of policy action, governments need to create a stimulating environment that helps companies scale innovation. This could be achieved by promoting investment in MSMEs, R&D, technology parks or production clusters where entrepreneurs, scientists or consumers can generate ideas through interaction, cooperation and sharing. Creating such innovation-promoting ecosystems fosters positive and disruptive innovations. The Silicon Valley ecosystem that harbours some of the world's most innovative and disruptive companies could serve as a good example of such innovation- stimulating environment. Silicon Valley profited from nearby high-end universities, available venture capital and promoting policies by the US Government, but, more importantly, from competition and collaboration between companies and experts within the ecosystem.

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34 Ellen MacArthur Foundation, *Financing the Circular Economy: Capturing the Opportunity*, 2020. Available at https://emf.thirdlight.com/link/17z1dk7idbty-lrrp3s/@/preview/1?o.

35 Patrick Schröder, Jan Raes, *Financing an inclusive circular economy, De-risking investments for circular business models and the SDGs*, 2021. Available at https://www.chathamhouse.org/2021/07/financing-inclusive-circular-economy/summary-0

36 Ellen MacArthur Foundation, *Financing the Circular Economy*, 2020. Available at https://ellenmacarthurfoundation.org/topics/finance/overview/#:~:text=Financing%20the%20circular%20economy%20The%20circular%20economy%20offers,new%20and%20better%20growth%20and%20long-term%20value%20creation.

Incentives for developing and deploying circularity innovations could include taxes, tradable pollution permits, and regulations and policies to improve transparency about the full social costs of alternative products and processes. In addition, governments could consider obliging manufacturers to make products based on "right to repair" principles, prohibiting planned obsolescence and other such design practices. To build up the necessary pool of skills, and to help respond to transition challenges, governments should also promote adjusting educational curricula in schools, as well as upskilling workers in certain segments of the workforce who stand to lose their linear economy jobs so that they can cater to the needs of the circular economy.

Sharing knowledge through digital platforms and making knowledge available to everyone is a precondition to stimulate innovation. Public-private cooperation is needed to help transform supply chains into generators of circularity. In this context, calls have also been made[37] to transfer technology to ensure the transformation includes transition economies, arguing that paying costly royalties could hamper the ability of transition countries to adopt and use circular technologies.

To support member States in their efforts to transition to the circular economy, at its session in 2017, the UNECE Team of Specialists on Innovation and Competitiveness Policies (ToS-ICP) identified good practices and policy recommendations, afterwards developed in a policy paper titled "Towards the circular economy: innovation policy for sustainable production and consumption" (ECE/CECI/2018/3). As a follow-up, good practices and further action were also agreed by ToS-ICP members at a session in 2021 on the topic "Leveraging innovation for the circular economy". The ToS-ICP has also worked on issues related to innovation-enhancing procurement and the platform economy and presented its recommendations to the Committee in 2021.[38] Moreover, ETIN, UNECE's Transformative Innovation Network, an initiative funded by Germany's Federal Ministry for Economic Affairs and Climate Action, brings together innovation stakeholders to harness transformative innovation for sustainable development, including the circular economy transition.

## Trade and digitalisation

The global economy and international trade are powered and transformed by digital technologies. Digitalisation is bringing about a radical change in production processes and consumer behaviour, and is among the main drivers of innovation, productivity and competitiveness.[39] Digitalisation can help foster circularity in numerous ways. This section explores three, focused, trade-related aspects of digitalisation (e.g., platform economy, digitalisation of supply chains and supply chain traceability), while a forthcoming UNECE policy paper in this series will more broadly explore the interaction between digitalisation and the circular economy.

First, digital platforms or applications can help promote sustainable consumption through

37 For instance, Carolyn Deere Birkbeck, *Greening International Trade: Pathways Forward*, 2021. Available at https://wedocs.unep.org/bitstream/handle/20.500.11822/36281/GITPF.pdf.

38 Please see documents ECE/CECI/2021/4 and ECE/CECI/2021/5 at https://unece.org/economic-cooperation-and-integration/events/thirteenth-session-team-specialists-innovation-and-0.

39 Digitalisation and data processing are also behind the upsurge of services trade in recent times. New services, such as streaming or cloud computing, will likely be the dominant trade form in the circular economy. Artificial intelligence is embedded in many technologies already used in circular business models.

peer-to-peer transactions. They can help reduce waste (e.g., redistribution of food waste) excess capacity (e.g., car-sharing companies) or help reduce transaction costs by matching demand and supply (e.g., second-hand sales). Data analytics provided through digitalisation enable consumers and stakeholders in the supply chains to reach informed decisions.[40]

Second, digitalisation can help reshape entire supply chains. One example is the work in the European Union on operationalizing a digital product passport (DPP). The DPP will contain information about a product's origin, the materials used, its recyclability and the stages passed along the supply chain, as well as a manual for its recycling. It is believed that the DPP will help reduce premature obsolescence, destruction of unsold goods and single use of products. As international trade is still an analogue business,[41] there are great hopes that digitalisation will advance transparency, efficiency and circularity throughout the supply chain.

Third, digital solutions can help untangle complex and opaque value chains through advanced technologies, including distributed ledger technology, the Internet of Things and artificial intelligence. For instance, in the garment and footwear industry, blockchain offers opportunities to ensure end-to-end traceability and transparency from field to consumer, supporting both due diligence and more responsible and collaborative business models in the industry. Digitalisation can play an instrumental role in improving risk management for companies, enhancing the reliability of information and enabling new ways for retailers and consumers to interact, creating a more dynamic reaction to consumer needs. For example, digital tools are already changing how clothing is designed, manufactured and serviced. Digital precision technologies could reduce the high percentage of returns of clothing bought online and encourage on-demand custom manufacturing, and in this way improve the efficiencies of industrial processes and reduce the carbon footprint of e-commerce. In addition, blockchain can expand market access and connectivity by bringing higher visibility to small-scale actors that embrace compliance with sustainability requirements.

At the same time, digitalisation could pose several challenges to the circular economy and the environment. Advanced technologies require more computing power, for which more energy-efficient solutions are required and under discussion,[42] and new IT infrastructure increases demand for critical minerals. This poses a risk to the environment through further exploitation of virgin resources and calls for mitigating actions by the architects of circular transition.

In addition, there is a need to bridge the digital divide between developed and transition countries as well as within societies, and to address computer literacy. Digital solutions can be scaled if the creative potential of marginal groups is unleashed and the participation of those that are currently not involved is secured. It has been suggested that all the digital

40 UNECE has produced guidelines on good practices and policy recommendations for the sharing and platform economy for sustainable development (ECE/CECI/2021/4).

41 For instance, the bill of lading, the most important document for customs clearance that escorts goods throughout the supply chain is still predominantly submitted in paper format, adding to the often bureaucratic, time-consuming and inefficient process.

42 For example, please see CERN, *Environmental awareness: the challenges of CERN's IT infrastructure*, 2022. Available at https://home.cern/news/news/cern/environmental-awareness-challenges-cerns-it-infrastructure.

solutions to scale circularity should be a global public good.[43] Data sharing and exchange of information seem to be vital to ensuring a smooth transition to efficient digital solutions for the circular economy. An open-source network accessible by all participants to use circular economy tools as solutions to supply chain challenges is the fastest way to ensure global circularity and avoid excluding transition countries from the circular future.

## Trade and procurement

Public procurement contributes considerably to GDP[44] and has for long been a driver of change. Public procurement could therefore also be a powerful tool to foster investments and innovations in greener technologies and practices and in more sustainable consumption habits. It can create scale for circular businesses, which in turn can lead to more investment and spillovers to other demand sources, such as private consumers. Public procurement policies could stimulate companies' enthusiasm to invest in sustainable business practices and could speed up their adoption. Therefore, a country may analyse its procurement legislation and align that legislation with its circular economy policies.

Traditionally, procurement of an asset by the public sector involves using funding from tax revenues or public borrowing. In a public-private partnership (PPP), by contrast, the public authority specifies its requirements in terms of outputs – not inputs, as in traditional procurement – that set out the public services that the asset is intended to provide but do not specify how they are to be provided. It is then left to the private sector to design, finance, build and/or operate the facility to meet these long-term output specifications.[45]

Circular economy principles are inherent in the PPPs for the SDG model as both strive towards value for people and for the planet. To this end, circular economy approaches should be implemented across the four stages of the PPP process – design, finance, construction, and operation and maintenance – to ensure that circularity elements are considered throughout PPP projects. In practice, industries are already and increasingly integrating circular economy principles within PPP projects. To showcase what is already being done and advise governments on potential policy actions to further incentivize the circular economy approach in all PPP projects, UNECE is collecting examples and has elaborated two guides that include policy recommendations on the regulatory framework of SDG-compliant PPPs for the circular economy agenda (Guidelines on Promoting Circular Economy in PPPs for the UN SDGs (ECE/CECI/WP/PPP/2022/4) and Guidelines on PPPs for the SDGs in Waste-to-Energy Projects for Non-Recyclable Waste: Pathways towards a Circular Economy (ECE/CECI/WP/PPP/2022/3)).

Finally, recognizing the role of public procurement as an instrument for stimulating innovation in circular technologies and processes, in 2021 UNECE published good practices and policy recommendations on innovation-enhancing procurement (ECE/CECI/2021/5).[46]

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43 World Economic Forum, *Why digitalization is critical to creating to a global circular economy*, 2021. Available at https://www.weforum.org/agenda/2021/08/digitalization-critical-creating-global-circular-economy.

44 According to the WTO, nowadays, public procurement amounts to up to 15 per cent of GDP in developed countries; see https://www.wto.org/english/tratop_e/gproc_e/gproc_e.htm.

45 UNECE, Training Module: Introduction to Public-Private Partnerships. Can public-private partnerships improve infrastructure and deliver better public services?, 2012. Available at https://unece.org/DAM/ceci/images/ICoE/Introductionppp.pdf.

46 Moreover, UNECE is developing a policy paper on innovation-enhancing procurement for the circular economy to show how procurement can support the circularity transition.

# Specific sectors

For international trade to develop its full potential to scale circularity, action is needed in the economy's main sectors. This chapter briefly reviews the potential of services trade to foster circularity, followed by a sketch of sectors considered "circularity hotspots": agrifood, textiles and critical minerals. The selection of sectors presented is not comprehensive (for instance, it does not include plastics, which are prominently discussed in other, similar publications).

## Trade in services

International trade in services has been growing steadily. In recent years such growth has been generated through the wide adoption of information and communication technology, automatization and their integration of the global economy in supply chains. "Servicification," a practice in which services become an increasingly important part of goods manufacturing, is widespread and on the rise.

Services will also play a key role in the circular economy transition.[47] Sectors such as water and waste treatment will be essential to scaling up circularity. To this should be added services such as design, IT, environmental consulting engineering, research and development, and digital services as they are intrinsically related to innovation, digitalisation and manufacturing. Services are central to all current business models of the circular economy: repair, remanufacturing, recovery, recycling and sharing.

Exploiting the potential of a sharing or platform economy could be a central driver in the transition towards an increasingly circular economy. Using excess capacity through platform approaches is fundamentally transforming consumption patterns as doing so facilitates sharing, allowing for enhanced efficiency and sustainability, enabling people to consume more while producing less.[48] In the future circular economy, renting will likely become a more prevalent mode of use for material goods, as it can help save energy, enhance use efficiency and strengthen durability (cars that are shared are considered more durable, due to frequent maintenance intervals).

As in other areas essential for the circular economy, services trade suffers from regulatory incompatibilities and differences. Therefore, an integrated approach that harmonizes regulation across countries while treating goods and services trade in parallel seems to be important for the way forward, to unleash the full potential of services trade.[49]

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47 See also Saara Tamminen, Malena Sell, Tim Forslund, Alice Tipping, Marta Soprana, Christophe Bellmann, *Trading Services for a Circular Economy*, 2020. Available at https://www.iisd.org/publications/trading-services-circular-economy.

48 For example, if power drills, a household item that is typically used only a few times, could come as a service, demand for such items could fall by as much as 90 per cent. See Michael Munger, *Coase and the "sharing economy"*, 2015. Available at https://iea.org.uk/wp-content/uploads/2016/07/Coase-interactive.pdf.

49 Calls have been made for liberalization of environmental services for positive contribution to the environmental goods market by allowing firms to source the services they need from price-competitive foreign services suppliers, in the proposal by Australia, Canada, Mexico, New Zealand and Switzerland at the Special Session of Trade in Services within the WTO (reference document JOB/SERV/293/Rev.1). Also noted in International Institute for Sustainable Development, Options to Incorporate Circular Economy Provisions in Regional Trade Agreements, 2021. Available at https://www.iisd.org/publications/circular-economy-regional-trade-agreements.

## Trade in agricultural products

Globally about 70 per cent of fresh water is used in agriculture.[50] In 2019, 31 per cent of human-caused GHG emissions came from agrifood systems.[51] And in 2020, 811 million people were chronically undernourished, an increase by 161 million from 2019.[52] Securing a sufficient food supply for a bigger world population while reducing the environmental pressures of food production thus remains a key challenge.

Reducing food loss and waste is a critical component of circularity and resource efficiency in the agrifood sector. When food is lost or wasted, resources used to produce it – the water, fuels, fertilizers, land, and labour – have also all gone to waste. Food losses from farm gate to consumers are estimated at 30 per cent of all food, so enormous quantities of resources go to waste. Reducing food loss and waste can thus generate a triple win, addressing food security, the environment (water, climate, pollution) and the economy[53].

Yet, a circular approach in agrifood is much broader than reducing food loss and waste. It also requires minimising upstream inputs – through measures such as precision agriculture, technology and farming practices – and ensuring circularity downstream for agricultural by-products and residues. All actors, from governments to agrifood companies, retailers and consumers have critical roles to play, both in driving the demand for sustainably produced agrifood products and in reducing food loss and waste. A forthcoming UNECE policy paper, part of this series, will explore more broadly the linkages between circular economy and agrifood.

Trade is a key enabler of efficient food production, and agrifood trade will remain essential to meet the exponential rise in the global demand for food. While the notion of food "produced nearby" is intuitively appealing, transportation constitutes only a small part of the carbon footprint of food systems.[54] Thus, market and regulatory systems need to continue facilitating trade while stimulating change in what is consumed and how it is produced.

50 World Bank, *Chart: Globally, 70% of Freshwater is Used for Agriculture*, 2017. Available at https://blogs.worldbank.org/opendata/chart-globally-70-freshwater-used-agriculture.

51 FAO. The share of food systems in total greenhouse gas emissions. Global, regional and country trends, 1990-2019 (2021). Available at https://www.fao.org/3/cb7514en/cb7514en.pdf.

52 United Nations, Resolution adopted by the General Assembly on 17 December 2021 (A/RES/76/222), 2021. Available at https://documents-dds-ny.un.org/doc/UNDOC/GEN/N21/408/82/PDF/N2140882.pdf?OpenElement.

53 See UNECE Code of Good Practice https://unece.org/info/publications/pub/375551.

54 University of Oxford, Ritchie, H., and Roser, M., *Environmental Impacts of Food Production*, 2020. Published online at OurWorldInData.org, available at https://ourworldindata.org/environmental-impacts-of-food#breakdown-of-where-food-system-emissions-come-from.

## Box 5 UNECE Agricultural Quality Standards

As one of UNECE's longest-standing intergovernmental bodies, the Working Party on Agricultural Quality Standards sets minimum quality standards (also referred to as marketing standards or trade standards) for fresh fruit and vegetables; dry and dried produce; meat; seed potatoes; eggs and cut flowers. The use of its common terminology and harmonized requirements helps buyers and sellers understand the quality of the products being marketed, thus reducing transaction cost and risk, while also enabling price differentiation for higher-quality produce. The standards are thus an important component of a broader system of quality assurance and control supporting international trade.

The UNECE agricultural quality standards set minimum quality requirements as regards intactness, soundness, freshness, absence of pests, among others. Many of of these minimum requirements are needed to ensure that produce can withstand transportation and handling and arrive in a satisfactory condition at the destination. As such, these requirements not only facilitate trade but can also help reduce food loss and waste along the supply chain.

Linked to these standards, UNECE is also working to address food loss and waste in supply chains. It has developed the following tools:

- A Code of Good Practice to help maintain quality along the fresh fruit and vegetables supply chains and thus prevent food loss and waste
- Explanatory brochures on reducing losses in harvest and post-harvest handling of four groups of fruits and vegetables (forthcoming)
- Minimum Quality Specifications (MQS) for Fresh Fruit and Vegetables
- Food Loss and Waste Measuring Methodology for Fresh Produce Supply Chains, to help quantify losses in fresh produce supply chains

Source: UNECE.

## Trade in textiles

The apparel and textile industry plays a vital role in the world economy. In 2021, the global revenue of this market accounted for $1.5 trillion, and it is estimated to grow to approximately $2 trillion by 2025.[55] The industry is particularly relevant in emerging and transition countries:[56] the industry in the Asia-Pacific region employs 75 per cent[57] of all garment sector workers in the world. However, as fundamental as the industry may be for industrialization and eradication of poverty in such countries, the extreme impacts it creates in environmental and social dimensions call for urgent change.

55 P. Smith, *Revenue of the apparel market worldwide from 2013 to 2026*, 2022. Available at https://www.statista.com/forecasts/821415/value-of-the-global-apparel-market.

56 P. Smith, *Global apparel market CAGR from 2015 to 2020, by region*, 2022. Available at https://www.statista.com/statistics/821513/global-apparel-market-growth-forecast/.

57 United Nations, *Collapsing consumer demand amid lockdowns cripple Asia-Pacific garment industry*, 2020. Available at https://news.un.org/en/story/2020/10/1075882.

According to numerous reports, each year about 90 million tons[58] of waste are created and roughly 87 per cent of textiles are discarded or burned,[59] together costing $100 billion. In total, about $500 billion of value is lost for lack of recycling and because of poor utilization of clothing. This is not to mention the health impacts; for example, about 8 per cent of dermatological diseases[60] are reported to be caused by chemicals in clothing and footwear. Complex global value chains, with production facilities scattered all over the world, make it hard to obtain accurate information about how and where such impacts occur. Full transparency and traceability along the value chain could relegate unsustainable practices to the past.

Implementing transparency and traceability along the supply chain allows truthful information to be obtained that can help reduce the use of new sources, reuse products and parts, and recycle waste. Instead of the "use and discard" model, garment and footwear production and consumption should embrace circularity by design and create attractive alternative business models to reverse fast fashion trends.

Enabling the availability and access to reliable information – by tracking and tracing data along the supply chain – is crucial to accelerate the shift towards circular economic models (e.g. tracing origin, composition, production processes and chemicals' use, durability, recyclability, reusability and waste production). Producers and brands should have the information they need to make verifiable claims about sustainability and circularity that consumers, governments, and regulators can trust. Indeed, a recent screening in the European Union of sustainability claims in the textile, garment, and shoe industries, suggested that 39 per cent could be false or deceptive.[61]

The full potential of trade policy can be leveraged to support these efforts with stringent sustainability and circularity goals, as well as key performance indicators (KPIs) and commensurate legal frameworks. These need to include targeted provisions in sustainability chapters of free trade agreements (FTAs), and rules on the shipment of waste to countries conditional on their ability to manage that waste sustainably. Advanced technologies such as blockchain, Radio-frequency identification (RFID) tags, Artificial Intelligence and the Internet of Things are key mechanisms to increase connectivity among supply chain actors by enabling real-time identification and tracking of products and their components across their entire life cycle.

To address these key issues, the joint initiative of UNECE and the International Trade Centre called "Enhancing Transparency and Traceability of Sustainable Value Chains in Garment and Footwear",[62] with support from the European Union, aims to strengthen sustainable and circular business models in the garment and footwear industries "(Sustainability Pledge)".

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58 Abigail Beall, *Why clothes are so hard to recycle*, 2020. Available at https://www.bbc.com/future/article/20200710-why-clothes-are-so-hard-to-recycle.

59 World Bank Group, *How Much Do Our Wardrobes Cost to the Environment?*, 2019. Available at https://www.worldbank.org/en/news/feature/2019/09/23/costo-moda-medio-ambiente.

60 UNECE, UN/CEFACT Conference on Traceability for Sustainable Value Chains: Textile and Leather Sector, 2018. Available at https://unece.org/info/events/event/18459.

61 European Commission, Sweeps, 2021. Available at https://ec.europa.eu/info/live-work-travel-eu/consumer-rights-and-complaints/enforcement-consumer-protection/sweeps_en.

62 For more information about the project, see https://unece.org/trade/traceability-sustainable-garment-and-footwear.

UNECE, through UN/CEFACT,[63] developed Policy Recommendation N°46[64], including implementation guidelines, traceability and information exchange standards, and capacity-building efforts. The latter aims to support all stakeholders in the uptake of traceability and transparency approaches and relevant technological solutions to address the skills and digital divide, particularly for MSMEs, for a just transition to the circular economy.

## Trade in critical minerals

Because of their unique capabilities, minerals such as lithium, nickel, cobalt, copper, and rare earths are essential for future high-tech and low-carbon products (batteries for electric vehicles, magnets for wind turbines, fibre-optic cables, semiconductors, computers, etc). These minerals are in critically short supply, and the demand for them is expected to dramatically outgrow that supply. Most developed economies depend on their import, and some exporting countries use export restrictions in regulating trade in them.

Circularity, the secondary use of such critical minerals, can offer important entry points for solutions. Yet even with today's technological solutions, rare-earth metals are still difficult to recycle: the process is energy-intensive, produces harmful emissions and entails additional downstream separation processes. Further research in recycling and design will be necessary to make it easier to obtain rare-earth metals from waste and future products.

The European Union has developed a strategy to promote sourcing and securing a constant supply of these critical minerals. It is founded on scaling domestic sourcing and circularity and securing supplies abroad. The latter includes using trade-related instruments such as signing bilateral trade agreements, promoting open trade and abolishing export restrictions, and using dispute settlement practices. The European Union, Japan and the United States have already brought a case against China at the WTO for its practices of placing export quotas and tariffs on some rare earth metals. After the decision by the WTO Appellate Body in 2014, China had to reverse those practices. UN/CEFACT has been mandated by member States to develop a global standard for the traceability of supply chains for critical raw materials (e.g. copper, lithium and cobalt). This includes traceability of origin and compliance with environmental, social and governance (ESG) standards, up to the extraction of such critical raw materials, for gaining higher visibility over sourcing locations and practices. The aim is to inform strategies for the sustainable and circular transformation of the extractive industries, which have an immense potential to drive growth, support sustainable development, and reduce poverty, particularly in emerging countries.

63 For more information, see https://unece.org/trade/uncefact.

64 For more information about the Recommendation No. 46, see https://thesustainabilitypledge.org/toolbox/2200030_E_ECE_TRADE_466_WEB.pdf

## Box 6 UNECE's work on supply chains of critical minerals

Ahead of COP26, UNECE co-hosted a high-level briefing and discussion with the United Kingdom Mission on 23 November 2021 on Future-proofing Supply of Critical Minerals for Net-Zero: Cross-sectoral Perspectives, where speakers identified the following key areas for accelerating the sustainable, resilient, and ethical supply of critical minerals:

- The need for strong environmental, social, and governance (ESG) standards in production, to ensure economic benefits are shared and to minimize environmental impact
- The importance of transparency and traceability along the value chain
- The need to accelerate the transition towards the circular economy and make greater use of secondary resources
- The need to leverage the full potential of trade policy in supporting this effort
- The importance of stringent policies on climate and sustainable development and of legal frameworks for sending clear signals to suppliers

Source: UNECE (meeting report available at https://unece.org/sites/default/files/2022-01/UNECE%20UK%20Critical%20Minerals%20Report%20Jan%202021.pdf) and https://unece.org/sustainable-energy/events/forum-climate-financing-CRM

Ahead of COP27, the UN system, leveraging its convening power, partnered with the incoming Egyptian Presidency of COP27 and the UN Climate Change High-Level Champions for COP26 and COP27 to organise a series of five regional forums on "Towards COP27: Regional Forums on Climate Initiatives to Finance Climate Action and the SDGs".

The regional forum hosted by UNECE took place on 17 October 2022 and identified a number of key areas for action, including in the field of international trade and supply chains. To deliver on climate change and sustainable development, the UNECE region must optimize the management of endowments of natural resources, including critical minerals. A resilient, sustainable and ethical supply of critical minerals is essential for clean energy, mobility transitions, and digital transformation. Resilience in resource supply requires careful attention to several important environmental, economic and social considerations. Governments, industry, the financial sector, and civil society must cooperate to share relevant social and environmental information and knowledge.

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The transition to a more circular economy involves a departure from our current practices as producers and consumers of goods and services. The mutually supportive linkages between international trade and investment, innovation, digitalisation and procurement need to be leveraged to spur the transition. Trade in goods and services, as the channels of international trade, will be transformed through the adoption of the circular economy model. Services trade and trade in rare-earth metals are seen as essential because of their link with digitalisation. Trade in agrifood and textiles, both circularity hotspot sectors, in turn, will require attention to turn circularity challenges into opportunities.

Chapter 4

# REGULATORY FRAMEWORKS FOR TRADE AND THE CIRCULAR ECONOMY

The regulatory framework for international trade covers three levels of governance:

1. **Multilateral:** The WTO has a binding system of international rules governing international trade. In addition, multilateral meetings, conventions, and rules affect international trade (e.g., the United Nations Environment Assembly, Basel Convention, or Convention on International Trade in Endangered Species) as well as typically non-binding international standards.
2. **Regional:** Rules are created by supranational bodies (e.g., at the European level), and regional trade agreements address trade-related issues. As of 1 December 2022, 355 FTAs were in force and have been notified to the WTO, including bilateral and regional trade agreements.[65] The UNECE region also hosts important regional initiatives, such as Special Programme for the Economies of Central Asia (SPECA),[66] serviced jointly by UNECE and UNESCAP.
3. **National:** Each country makes its rules in line with its national objectives and follows its international commitments. Each country is also free to conclude FTAs with other bilateral and regional partners, establishing binding commitments.

This chapter sketches the current state of play at different levels of trade governance regarding the transition to the circular economy and suggests possible entry points for a sustainable and coherent way forward.

## Multilateral level

### World Trade Organization

Existing international trade rules were designed for the linear economic model. Yet, sustainable development and the protection and preservation of the environment are two of the WTO's main objectives. As discussed in numerous academic and policy publications, WTO members can, in short, introduce measures relating to environmental protection provided they are not disproportionate and discriminative. The WTO has a standing Committee on Trade and Environment (which examines the impact of trade policies on the environment and vice versa and provides transparency on trade-related environment measures) and a

65 For an overview of regional trade agreements, please see the WTO website: http://rtais.wto.org/UI/PublicMaintainRTAHome.aspx.

66 The countries of SPECA are Afghanistan, Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan. Afghanistan is not a member of UNECE.

separate body (the Special Session of the Committee on Trade and Environment) charged with dealing with negotiations on trade and environment mandated by the Doha Declaration from 2001 on environmental goods and services.

At the same time, circular economy-related topics are making their way into international trade debates. Issues such as trade and environmental measures, plastics pollution, carbon border adjustment mechanisms, and environmental goods and services are increasingly present in trade discussions. Awareness is growing among some stakeholders that trade could be used as a powerful lever to advance the greening of the world economy. Also apparent are important concerns that circular economy-related trade policy instruments could facilitate or result in barriers to trade (mostly import and export restrictions on scrap and waste that could be used as inputs in secondary production processes), posing challenges to trade-led development efforts. The WTO has lately seen numerous developments on issues related to trade and environment, also touching on circularity.

The WTO is also dealing with trade and the environment in several other negotiating bodies (the negotiating group on rules is negotiating the fisheries subsidies agreement), and in a Special Session of the Committee on Agriculture (on so-called green box subsidies), as well as in its regular bodies: the TRIPS Council addresses plant variety, patentability of animal inventions, and the relationship with the Convention on Biological Diversity, as well as biopiracy and transfer of green technologies; the Technical Barriers to Trade and Sanitary and Phytosanitary Measures Committees examine regulation and measures by members aimed at protecting the environment; and the Committee on Market Access analyses the impact of border measures such as the carbon border adjustment mechanism developed by the European Union. More recently, three plurilateral initiatives were added:

- The Trade and Environmental Sustainability Structured Discussion (TESSD) is the most prominent initiative, with the largest support and scope of work of 74 members. TESSD members identified circular economy as one thematic area to discuss and advance in 2022 (box 7).[67]
- The Informal Dialogue on Plastics Pollution and Sustainable Plastics Trade has 67 members supporting it and aims to promote sustainable and environmentally safe trade in plastics.
- The Fossil Fuel Subsidy Reform initiative has 47 member countries behind it (as of autumn 2022) and aims to advance transparency on and reform of these subsidies.

All three initiatives presented their views in the form of ministerial statements[68] that were presented at the WTO Ministerial Conference in mid-June 2022.

Another area of WTO plurilateral negotiations, led by 46 WTO members, concerns the Environmental Goods Agreement. Ongoing since 2014, these negotiations aim at eliminating tariffs on a number of important environment-related products to make them more accessible worldwide and cheaper for producers and consumers.[69]

67 INF/TE/SSD/W/17/Rev.1, available at https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/INF/TESSD/W17R1.pdf&Open=True.

68 Please see relevant WTO documents: WT/MIN(21)/6/Rev.2 (TESSD initiative), WT/MIN(21)/8 (Informal dialogue on plastic pollution) and WT/MIN(21)/9/Rev.1 (Fossil fuel subsidy reform).

69 More information on the Environmental Goods Agreement is available on the WTO website https://www.wto.org/english/tratop_e/envir_e/ega_e.htm.

## Box 7 The Trade and Environmental Sustainability Structured Discussion

Launched in November 2020 with 53 participants, the TESSD initiative currently has the support of 74 WTO members, representing more than 80 per cent of world trade. This plurilateral initiative was intended to complement and support the work of regular WTO bodies, most notably the Committee on Trade and Environment. Members are encouraged to exchange views and experiences, identify areas for future work of the WTO and produce recommendations for their ministers regarding trade and environmental sustainability. To guarantee inclusiveness – and departing from the usual WTO practice – these discussions feature representatives of other international organizations, academia, the business community, and civil society.

Throughout 2021 members held four plenary meetings and several informal meetings on different initiatives. Members mostly discussed the trade-related aspects of climate change adaptation, fossil fuel subsidy reform, the circular economy, biodiversity loss, border carbon adjustment measures, plastic pollution and greening Aid for Trade.

The ministerial statement on the TESSD initiative (WTO document INF/TE/SSD/W/17) calls for intensifying work in the areas of interest and exploring how trade can best help achieve environmental objectives. It also urges advancing discussions on environmental goods and services and identifying and compiling best practices to promote the circular economy and sustainable supply chains. Furthermore, the initiative will seek to identify challenges for the developing and least developed countries and work on building their capacity to meet high environmental standards and objectives.

The members adopted a road map of concrete actions to be executed throughout 2022 on furthering the work under the initiative, divided into three working groups: (1) trade-related climate measures, (2) environmental goods and services, and (3) the circular economy. All three groups will address cross-cutting issues such as subsidies, sustainability standards and supply chains, and capacity-building.

The circular economy working group plans to address questions such as:

- What barriers exist to the creation of efficient supply chains for scrap or material for remanufacture? How can those barriers be addressed?
- What trade policy tools could be deployed to incentivize greater resource efficiency?
- What types of measures could help developing and least developed members to integrate themselves into global circular supply chains?

Source: UNECE, based on WTO documents.

Note: For more information on the TESSD initiative, see https://www.wto.org/english/news_e/news21_e/envir_15dec21_e.htm.

As part of an increasing number of stakeholder events and research on the topic of circular economy and international trade, a number of policy suggestions have been made in papers from renowned institutions.[70] They include suggestions to consider:

- **Reviewing current HS principles and classifications** to ensure that the circular transition is not constrained by erroneous or non-existing classification of goods (which requires securing the support of World Customs Organizations members for revising current HS principles)
- **Liberalizing trade in environmental goods and services** and exercising caution so that further liberalization of goods and services does not undermine environmental objectives and the circular transition
- **Removing barriers to trade** in waste, scrap, second-hand goods, secondary raw materials and remanufactured goods, while avoiding allowing liberalization to become a cover for imports of low-quality, hazardous or illegal products with adverse environmental and health consequences
- **Temporarily exempting a commonly agreed list of circular economy-promoting products and services** from subsidies rules at the WTO, with a view to stimulating circular practices and production
- **Recalibrating incentives and disincentives**, e.g. eliminating environmentally harmful subsidies and taxing fossil fuels and consumption of virgin natural resources
- **Revising the WTO Trade Facilitation Agreement** to support trade facilitation in reverse supply chains and to fast-track products under verified environmental standards
- **Expanding Aid for Trade** and other technical assistance to transition economies, with specific assistance to switch to circularity

## International standards

In addition to legally binding multilateral trade rules, international standards can play a key role in efforts to harness the power of trade for the circular economy transition. Standards can open or close markets to the entry of goods and services. They prescribe product characteristics, design production and disposal procedures, and they may lead circular transformation. Standards can promote circular trends both down the supply chain (e.g., quality standards for secondary raw material, refurbished or remanufactured goods) and up it (e.g., ecodesign, sustainable production, recyclability or reparability).

International standards related to trade are proposed by standard-setting organizations such as the International Organization for Standardization (ISO), for quality management, environmental management, health safety, food safety and the like, as well as the International Telecommunication Union, for information and communications technology; the International Electrotechnical Commission; the Codex Alimentarius, for food safety;

70 Among others: Christophe Bellmann, *The Circular Economy and International Trade: Options for the World Trade Organization (WTO)*, 2021. Funded by the International Chamber of Commerce Research Foundation, available at https://icc.se/wp-content/uploads/2021/12/20211214_Circular-Economy.pdf. Joachim Monkelbaan, *The Circular Economy and Trade: Some Questions and Possible Ways Forward*, 2021. Supported by Quaker United Nations Office and the Friedrich-Ebert-Stiftung, available at https://quno.org/sites/default/files/resources/The%20Circular%20Economy%20and%20Trade_paper_A4_24_09.pdf. Saara Tamminen, Malena Sell, Tim Forslund, Alice Tipping, Marta Soprana, Christophe Bellmann, *Trading Services for a Circular Economy*, 2020. Funded by the International Institute for Sustainable Development, available at https://www.iisd.org/publications/trading-services-circular-economy.

and UNECE for agriculture, electronic interchange of structured data, resource management systems and the like). These standards are voluntary and are developed through international consensus. Governments may adopt these international standards into their legislation, making them binding.

International standards have usually been developed with a linear economic approach as the underlying model. Many current standards do not promote recycling, repairing or refurbishing. Recently introduced circular standards[71] vary considerably in their design and implementation across different jurisdictions. This divergence can create a technical barrier to trade in circular economy goods by hampering trade, increasing costs of adjustments, and preventing iteration in circular supply chains. Therefore, cooperation and coordination between countries and mutual recognition and harmonization of standards are critical. In 2018, the ISO started intensive work (in Technical Committee 323[72]) on designing standards that will promote the circular economy and attainment of the SDGs. The intention is to build international consensus on a set of principles, terminology, and a framework for the circular economy and to develop a management system standard.

The issue has also been picked up in UNECE Working Party 6, where participants discussed the topic extensively during the 2021 annual session. It showed that many governments do not have appropriate regulations to support a circular approach. The use of conformity assessment (for example testing, inspection, certification, verification) in the right way can be an enabler for future trustworthiness in the circular economy, supported by international standards with clear requirements for goods. Metrology and the regulatory design of product minimum standards are also key in moving towards the circular economy. Further rethinking and redrafting regulations is an enormous challenge, in particular because the linear model is integrated into current processes. Working Party 6, with its convening power and work on standardization polices, strives to contribute to resolving this challenge.

In addition, Voluntary Sustainability Standards (VSS) and private standards (such as the Global Partnership for Good Agricultural Practices, sometimes referred to as GLOBALG.A.P) aim to support a quick transition to a circular, more sustainable future. They have been constructed to tackle overarching concerns about the private sector imprint on our society, such as child labour, sustainability, biodiversity, gender equality, climate action, etc. The companies that promote or adopt such standards self-certify their products fulfil strict criteria to satisfy the objectives mentioned above. Some countries require that companies have certificates from the Global Partnership for Good Agricultural Practices in order to export agricultural products. Discussions and strategic dialogue related to the VSS, related policies and experiences is ongoing in the framework of the UN Forum of Sustainability Standards.[73]

More than 500 VSS are currently applied worldwide, adding to the growing complexity that small producers face if they want to export to developed markets. To help remedy these problems, a mechanism that reduces the costs of production and information gathering for vulnerable small producers from transition countries needs to be found.

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71 For example, please see https://www.iec.ch/blog/european-standards-circular-economy.

72 Details on ISO/TC 323 are available at https://www.iso.org/committee/7203984.html.

73 UN Forum of Sustainability Standards, available at https://unfss.org. For additional details, see also the Standards Map by the International Trade Centre, which provides information on VSSs.

# Regional level

The regional level could offer a quicker and more pragmatic path towards circularity. Important developments are occurring at the regional level in Europe, and occasionally, circularity is entering regional trade agreements (see also box 8 on circularity in the Association of Southeast Asian Nations).

### The European Union

The European Union is, at this stage, the most prominent driver of circularity in the world.[74] As a part of its Green Deal, work on the circular economy is accelerating. In this context, the European Union adopted its Circular Economy Action Plan, and its members are starting to follow by introducing regulations to implement the plan.

Among other objectives, the Circular Economy Action Plan aims to use the sizeable European single market to promote "sustainable products, services, and business models as the norm and transform consumption patterns so that no waste is produced in the first place".[75] This means that companies will need to prove that their products meet high environmental standards.

As explained earlier, the European Union is also discussing the introduction of a DPP, which would contain information about a product's origin, materials used, recyclability, and stages passed along the supply chain, as well as a manual for its recycling. The DPP is expected to eliminate practices such as planned premature obsolescence, destruction of unsold goods and single use of products.

In February 2022, the European Union issued a groundbreaking proposal for a Directive on Corporate Sustainability Due Diligence,[76] with the purpose to hold large European companies accountable for human rights violations and environmental harm caused throughout their supply chains in high-impact sectors, e.g., agriculture, textiles, minerals. The proposal will require such large enterprises to track, disclose and communicate publicly their due diligence processes. It seeks to enhance responsible and sustainable behaviour by global value chain actors by identifying, mitigating and preventing adverse effects on social and environmental elements. This regulatory development illustrates a significant step towards transparent and responsible behaviour with an impact on global value chains. In parallel, the European Union developed a strategy[77] that lays out a set of actions and measures to support the transition towards sustainable and circular textiles (e.g., the DPP, design requirements and extended producer responsibility schemes to boost reuse and recycling of textile waste).

In addition, the Circular Economy Action Plan anticipates the development of new circular standards, to be promoted in discussions and negotiations with trading partners.

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74 Ellen MacArthur Foundation, *Which country is leading the circular economy shift?*, 2021. Available at https://ellenmacarthurfoundation.org/articles/which-country-is-leading-the-circular-economy-shift.

75 European Commission, *Environmental footprint methods*, 2021. Available at https://ec.europa.eu/environment/news/environmental-footprint-methods-2021-12-16_et.

76 The proposal is available at https://ec.europa.eu/info/sites/default/files/1_1_183885_prop_dir_susta_en.pdf.

77 Communication on the strategy is available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52022DC0141.

It is expected that these measures will have a profound impact on the nature of world trade in circular economy products. The European Union has distinctive economic power in influencing future trends because of the sheer size of its market and the purchasing power of its consumers. Producers who need to adjust to the high standards to satisfy the market's demands will most likely avoid applying different (lower) standards of other markets. Moreover, as sustainability and circularity requirements are increasingly adopting a supply chain approach, these requirements will trickle down to suppliers, including in developing and transition economies. It is therefore important that developing and transition economies and their fragile private sectors are consulted and considered when designing such standards.

### Box 8 Association of Southeast Asian Nations

ASEAN adopted the Framework for Circular Economy in October 2021. The Framework aims to guide ASEAN in achieving a resilient circular economy, resource efficiency, and sustainable and inclusive growth. It provides a structural guide to all stakeholders for a quick transition. Trade features very prominently in its five strategic objectives, identified as follows:

1. Standards harmonization and mutual recognition of circular products and services
2. Trade openness and trade facilitation in goods and services
3. Enhanced role of innovation, digitalization and emerging technologies
4. Sustainable finance and innovative investments
5. Efficient use of energy and other resources

Source: Compiled by the author, based on https://asean.org/asean-adopts-framework-for-circular-economy.

In the past two decades, the regional level has seen much rule making on issues related to international trade and investment. As of 1 December 2022, 355 FTAs were in force and have been notified to the WTO, including bilateral and regional trade agreements.[78]

Regional initiatives can help foster circular trade. For example, trade liberalization for environmental goods and services could possibly be achieved more quickly at the regional level. And more and more often regional trade agreements are looking at trade and environment issues. In the trade agreement between the European Free Trade Association and Indonesia, for example, palm oil producers must have private environmental standards for that production in order to obtain preferential tariff treatment. Another example is the promotion of energy efficiency, low-emission technology, and renewable energy as one of the nine sustainability provisions of the European Union–Viet Nam FTA.

Circular economy provisions are starting to be inserted into trade agreements newly negotiated by the European Union. So far, three of its FTAs vaguely advocate promotion of the circular economy: those with Mexico, New Zealand, and Australia. A few other FTAs currently being negotiated contain the circular economy wording, without binding commitments.[79]

## National level

78 For an overview of regional trade agreements, please see the WTO website http://rtais.wto.org/UI/PublicMaintainRTAHome.aspx.

79 A thorough analysis of the inclusion of the circular economy in FTAs can be found in Saara Tamminen, Malena Sell, Tim Forslund, Alice Tipping, Marta Soprana, Christophe Bellmann, *Trading Services for a Circular Economy*, 2020. Available at https://www.iisd.org/publications/trading-services-circular-economy.

Countries worldwide have started introducing circular economy policies. Examples include the governments of Australia, China, Finland, France, India, Indonesia, Japan, Peru, Portugal, the Republic of Türkiye, Serbia, Slovenia, and the United States. According to the circular economy policy database of Chatham House as of 2022,[80] 39 countries have a national circular economy policy or strategy. A UNECE policy paper, part of this series, explores what institutional arrangements and cross-sectoral collaborations can best support the development of circular economy roadmaps and policy tools.

As part of their circularity-related policies, some countries are introducing trade-related policies such as standards, export or import bans, or taxes. Policymakers have a wide range of tools at hand to foster circular trade. For example, governments can choose to:

- **Spark the circular transition through advocacy campaigns**, raising the level of knowledge and acceptance of the circular economy among producers/consumers
- **Enable the circular transition by supporting innovation**, improving skills, expanding access and understanding of technology, creating industrial clusters, and promoting technology parks
- **Support the circular transition through financing and investment** in R&D and in digital and physical infrastructure, and by partnering with the private sector, including through PPPs
- **Encourage the circular transition by making circular products more affordable** than their linear competitors (through fiscal incentives, taxes and levies)
- **Use product design standards** on product durability, reparability, recycled content or reuse of components that are as globally harmonized as possible
- **Disincentivize linear activities**, through differentiated taxation levels for recycled and virgin material-based products, bans of plastic packaging, and taxation of landfill and incineration practices

Noteworthy are extended producer responsibility (EPR) schemes that aim to reduce the environmental impact of actions across the whole product supply chain, including the disposal or recycling of products. Such schemes incentivize producers to think carefully about each step in the supply chain and the environmental footprint of their actions. In addition, several jurisdictions are advancing on the introduction of digital product passports to inform consumers and regulators on the sustainability and circular performance of products placed on markets for responsible production and consumption choices. For instance in the European Union the introduction of digital product passports for specific product categories, such as batteries or clothing is mandated for 2027.

For EPR, as well as other regulatory policies, to be effective, they need to be introduced in as many countries as possible to prevent possible free-rider practices of producers that could shift production to jurisdictions that lack EPR requirements. At the same time, care and attention must be given to ensuring that circular economy-related policies do not turn into barriers to trade.

80 Chatham House circular economy database available at https://circulareconomy.earth/?policy=cep.

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Efforts to harness the power of trade for the circular transition need to be made at all levels of trade governance: multilateral, regional and national. The circular economy is a cross-cutting affair comprising closely intertwined environmental, economic, and social dimensions. It requires an urgent, coordinated, and strategic approach with universal political backing. Achieving this approach also requires giving attention to ensuring that efforts to foster circular trade do not result in barriers to trade for those countries whose exports sectors have not yet fully embraced circularity.

Chapter 5

# TRADE AND THE CIRCULAR ECONOMY IN TRANSITION ECONOMIES

In their pursuit of sustainable development, countries with economies in transition face many challenges, including structural challenges involving low productivity, ageing populations, outward migration, a challenging business environment, a depleted industrial base, and reliance on exports of primary commodities or low value-added goods, among others. The COVID-19 pandemic has exacerbated these difficulties and added insecurity, loss of employment, increased risks and fiscal deficits. Recent supply chain disruptions have additionally aggravated what already was a difficult economic situation in transition economies.

In circumstances where decision makers need to fight economic and social difficulties daily, many in transition economies are struggling to provide forceful support to a circular concept. At the same time, as evidenced by discussions in UNECE, making the transition to circularity can also be a potential avenue to a resilient, sustainable, and inclusive recovery.

This chapter looks at the interface between trade and circularity in the 17 transition economies in the UNECE region,[81] a topic that has so far been only marginally explored in the literature. Thus, this overview remains sketchy and further research is needed.[82]

81 Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Georgia, Kazakhstan, Kyrgyzstan, the Republic of Moldova, Montenegro, North Macedonia, the Russian Federation, Serbia, Tajikistan, Turkmenistan, Ukraine and Uzbekistan.

82 A recent report by UNECE examined the state of play of countries participating in SPECA in terms of sustainable trade, including progress towards a more circular economy. However, information is scarce and more research is needed. The participating countries are Afghanistan, Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. The current report does not cover Afghanistan as it is not a UNECE member State. "Promoting sustainable trade and circular economy in SPECA countries: State of play and way forward".

# Available data

No comprehensive source of data exists on the state of circularity and even less so on circular economy-related trade. This lack of data is particularly pronounced for countries with economies in transition. This chapter therefore resorts to several measures and data sources that provide initial insights on issues related to circularity and to circular economy-related trade.

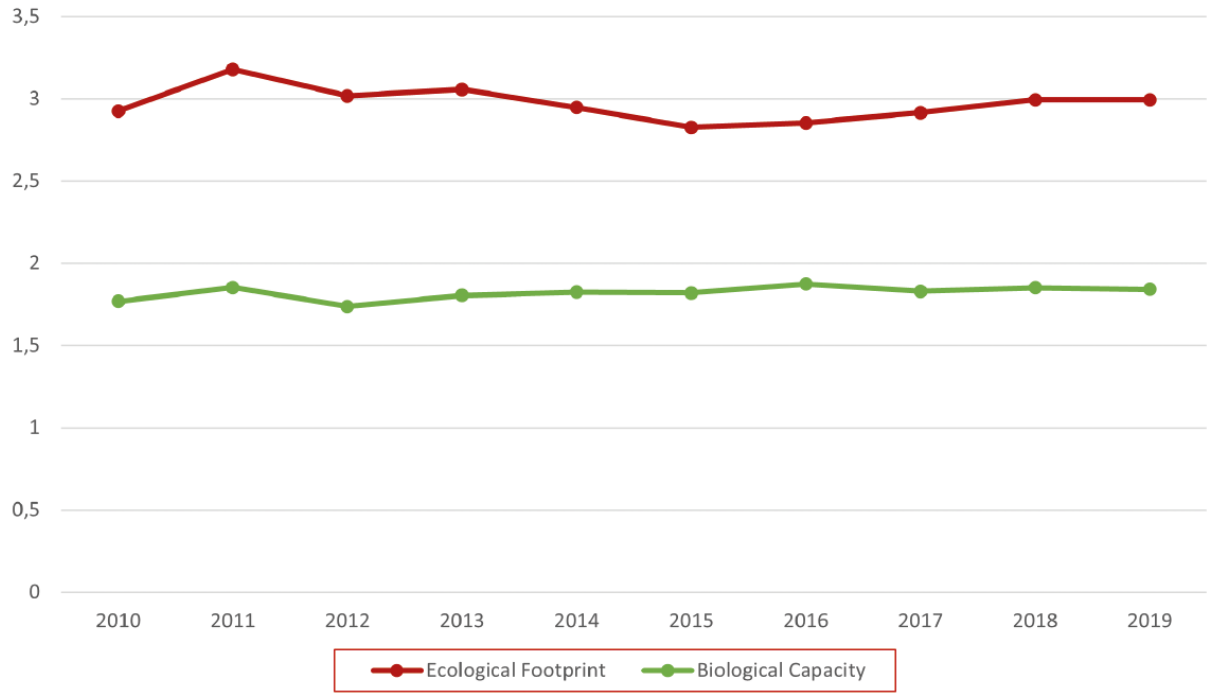
When analysing the impact the region has on the environment, one possible indicator could be the Ecological Footprint Indicator.[83] Calculated yearly for each country by Global Footprint Network, the indicator captures the difference between a country's biological capacity and its ecological footprint.

As a group, countries with economies in transition are in an ecological deficit (e.g. in 2019 each group member would require 1.2 global hectares) (figure 3). The ecological deficit (the difference between the biological capacity and the ecological footprint of a region or country) describes a situation in which a country or a group of countries generates more waste and consumes more biological resources than it or they could regenerate. The ecological reserve describes the opposite.

In 2019, Kazakhstan and Ukraine were the only two countries out of 17 UNECE programme countries that displayed an ecological reserve (0.04 and 0.21 global hectares, respectively) (figure 4). Bosnia and Herzegovina, Montenegro, Turkiye, Turkmenistan, and Serbia displayed the largest deficits in the region, below -1.5 global hectares.

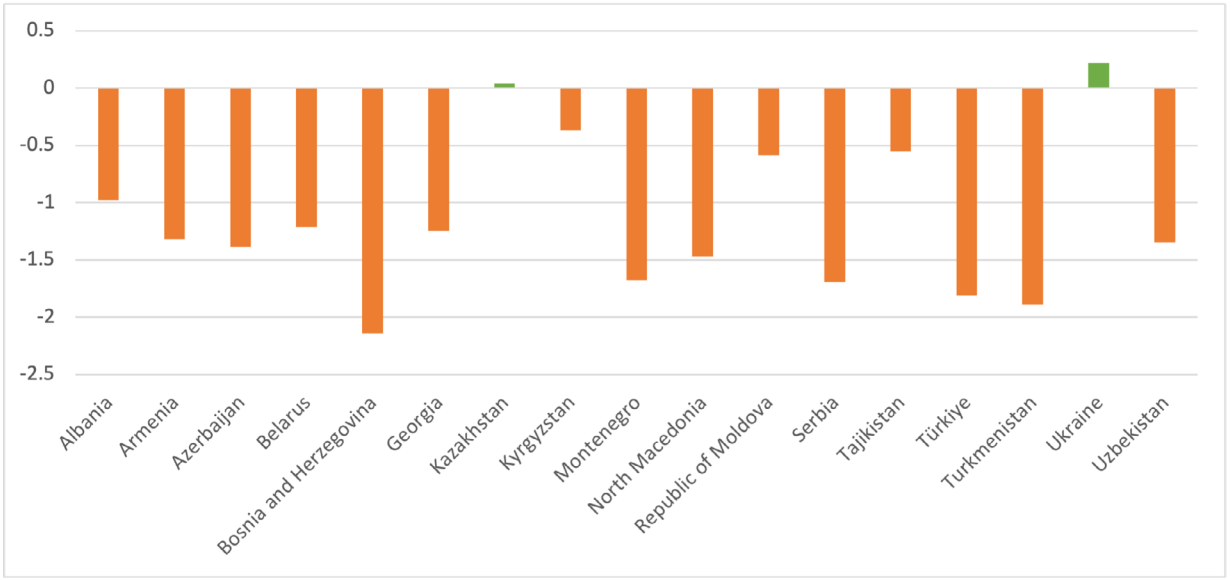
83 Calculated yearly for each country by Global Footprint Network, available at https://www.footprintnetwork.org. The Ecological Footprint Indicator is the difference between a country's biological capacity and its ecological footprint. Biological capacity is the ability of the ecosystem within a geographical area to regenerate demand from people who live in that area, i.e. to produce biomaterial and to absorb waste. The ecological footprint is a measure of the geographical area that the population of a country would require in order to absorb the waste generated and resources consumed by that population. Both biological capacity and the ecological footprint are expressed in terms of a global hectare, a unit that describes a hectare with biological productivity at the world average.

## Figure 3 Ecological footprint and biological capacity per capita, region, past 10 years




Source: Compiled by the author, based on data from Global Footprint Network, 2019. Available at https://data.footprintnetwork.org.

## Figure 4 Ecological deficit or surplus per capita, by country

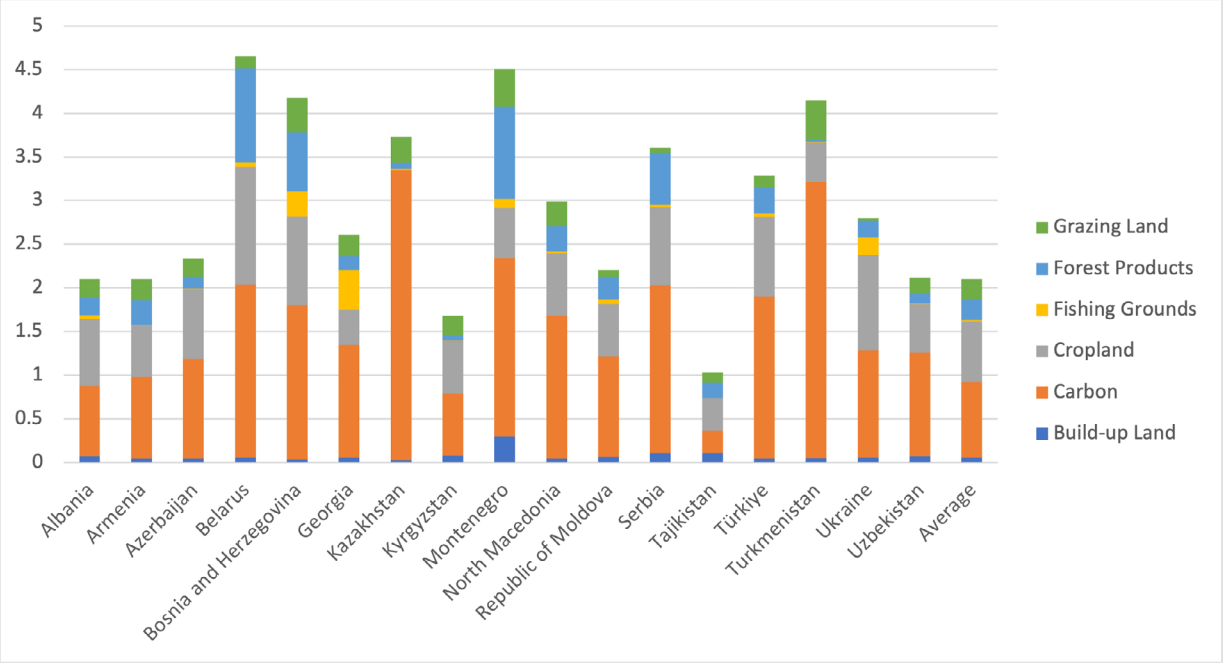



Source: Compiled by the author, based on data from Global Footprint Network, 2019. Available at https://data.footprintnetwork.org.

Looking at ecological footprint per capita per category in figure 5, one can clearly see the disaggregation of the footprint and the linkages of consumption and waste to different categories. Carbon footprint features most prominently in the majority of the countries in the region. This is because the energy used to live and to consume, produce, transport, and dispose of products relies mainly on fossil fuels.

The second-biggest footprint is in cropland, reflecting the heavy dependence on agricultural production and the consumption of agricultural products in many countries in the region. The deficit in cropland is growing steadily as the intensity of agricultural production increases, while the biological capacity remains the same. Intensive farming also requires more inputs of fossil fuels, thereby increasing the carbon footprint. The forest footprint comes third, as the exploitation of forests in the region and exports of wood and wooden products feature high among exports.

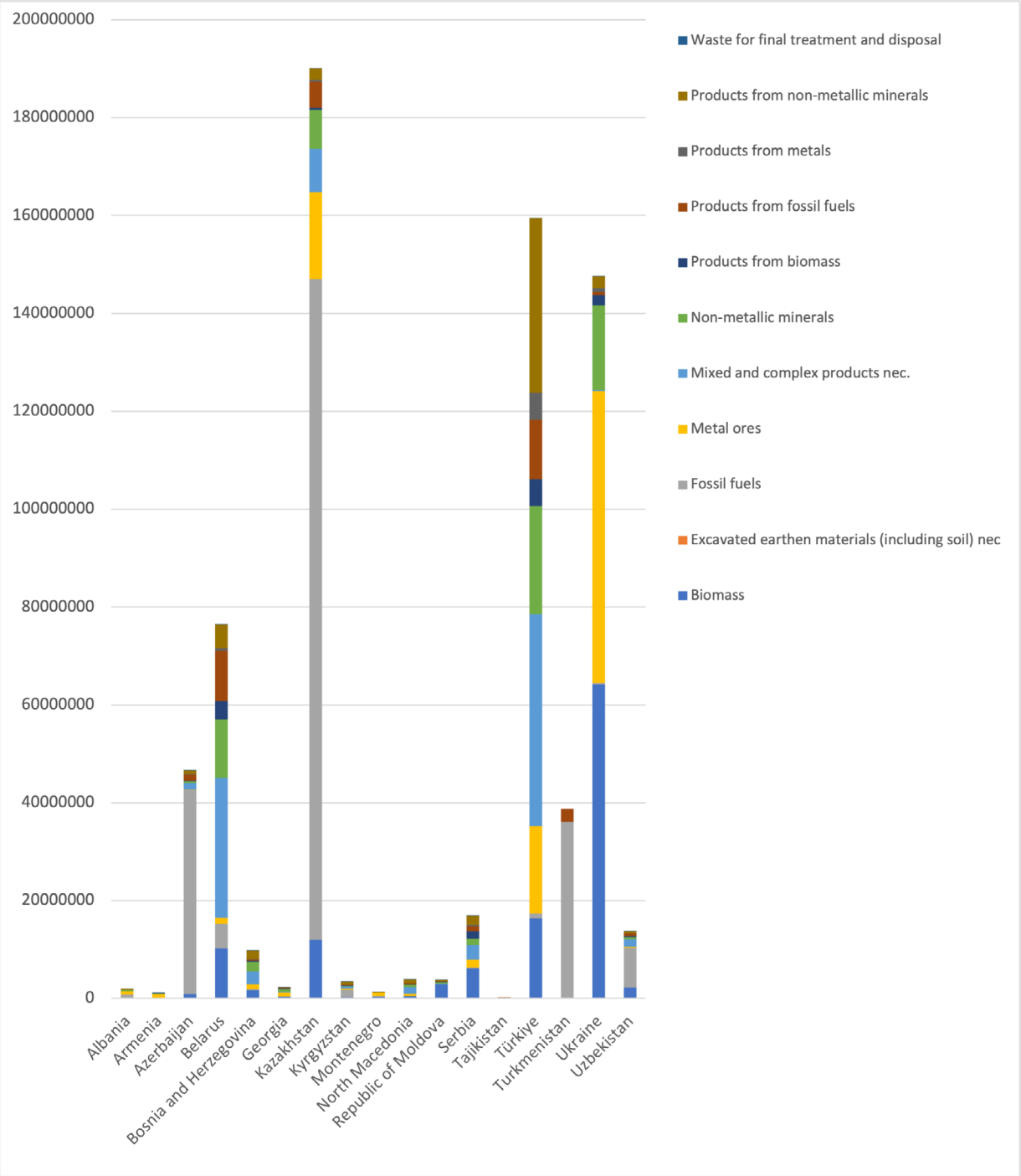
## Figure 5 Ecological footprint per capita by category




Source: Compiled by the author, based on data from Global Footprint Network, 2019. Available at https://data.footprintnetwork.org.

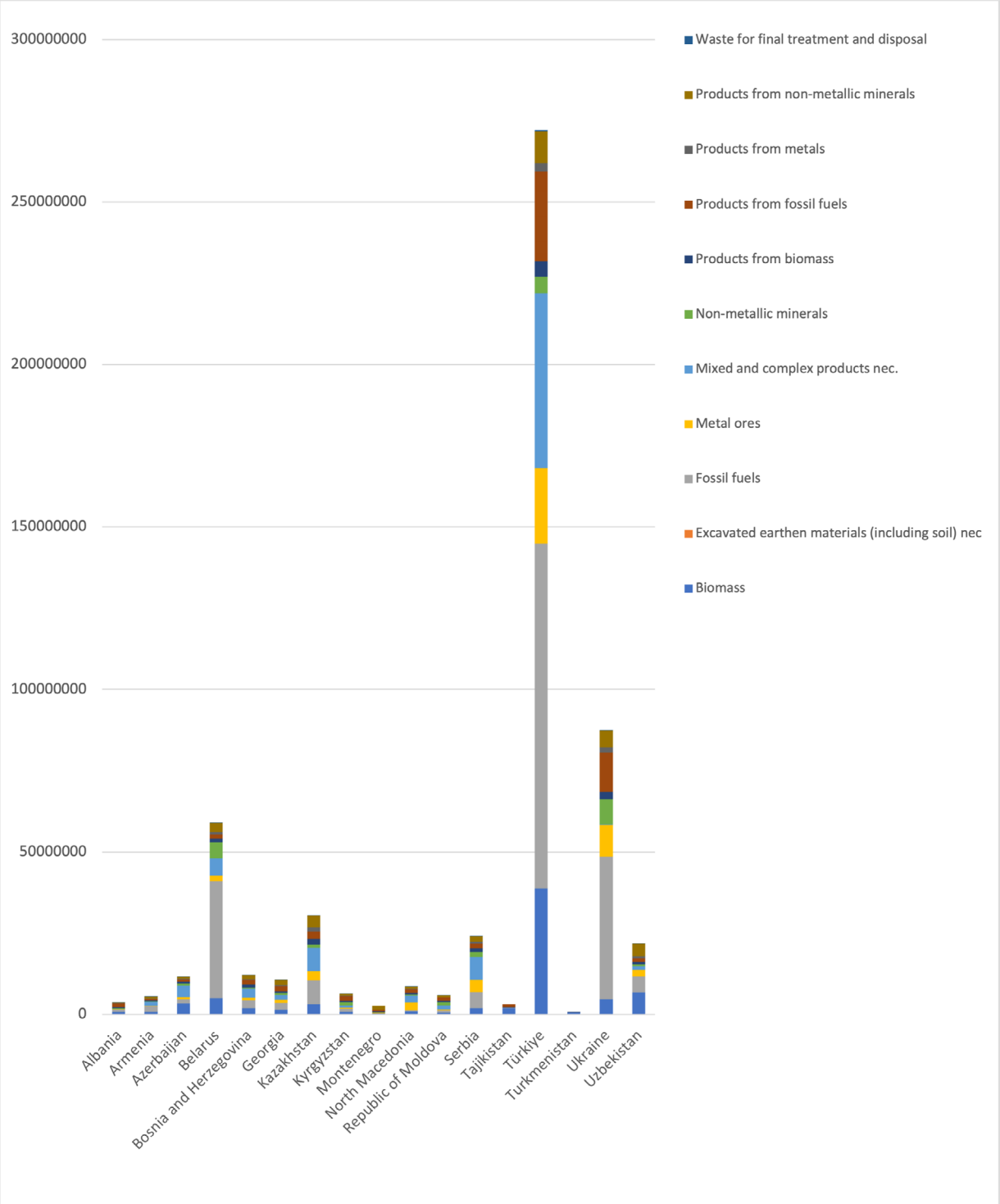
This can be seen from the next two figures (figures 6 and 7), as biomass features quite high among exports from Belarus, Kazakhstan, Türkiye, and Ukraine. These two figures show exports and imports of material groups in UNECE programme countries and illustrate that Türkiye and Kazakhstan consume the most materials, including fossil fuels and biomass, while other countries in the region, such as Armenia and Albania, use much less, reflecting differences in industrialization and resource dependency.

## Figure 6 Exports by country and material group, 2019




Source: Compiled by the author, data and image from WU Vienna: Material flow by country, 2022. Available at http://www.materialflows.net/visualization-centre/data-visualisations.

## Figure 7 Imports by country and material group, 2019




Source: Compiled by the author, data and image from WU Vienna: Material flow by country, 2022. Available at http://www.materialflows.net/visualization-centre/data-visualisations.

The countries of the region import a relatively low volume of primary raw materials, as can be seen in figure 7, with fossil fuels forming the biggest portion of such imports. Products containing minerals and mixed and complex products are high on the list of imported products. Both figures confirm that the majority of countries in the region still pursue an economic strategy centred on exporting raw materials and essential, labour-intensive manufacturing products.

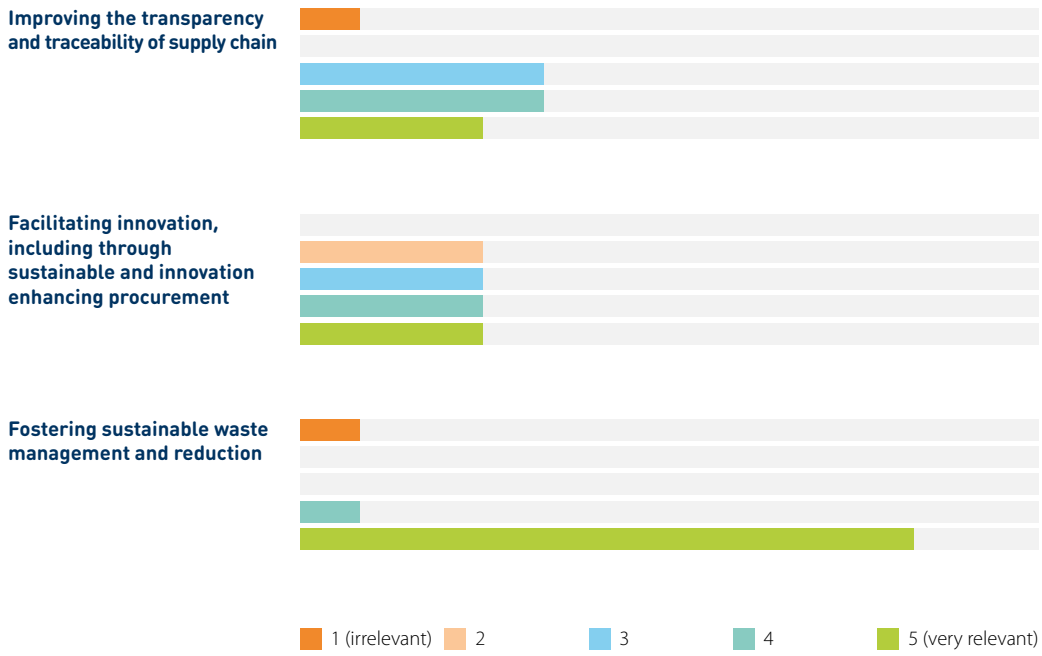
## Figure 8 Mapping of National Circular Economy Policies worldwide, 2022


Source: Circulareconomy.Earth, 2022, Chatham House. Available at https://circulareconomy.earth/?policy=cep.

# Policies

Awareness of and interest in circular economy solutions is present and developing. Several countries with economies in transition have developed or are currently developing road maps or action plans for the circular economy. Serbia has adopted a Road Map for Circular Economy, and the Republic of Türkiye has a Circular Economy Concept and an Action Plan. Georgia, Montenegro and Tajikistan are developing circular economy strategies. Thus far, none of the countries of the United Nations Special Programme for the Economies of Central Asia (SPECA) has introduced a national circular economy policy, but they have introduced some legislative efforts promoting a green economy and environmentally friendly trade.[84] As part of their circularity-related policies, some countries are also introducing trade-related policies such as standards. Typically, however, the circular economy concept remains linked predominantly with waste management and recycling (figure 9).

## Figure 9 Relevance of key circular economy topics (survey)




Source: Compiled by the author, based on UNECE survey on the occasion of the Regional Policy Dialogue on "Harnessing trade and economic cooperation for the transition to a circular economy in UNECE region", 28 October 2021.

Note: Answers might not be representative because of the small sample size.

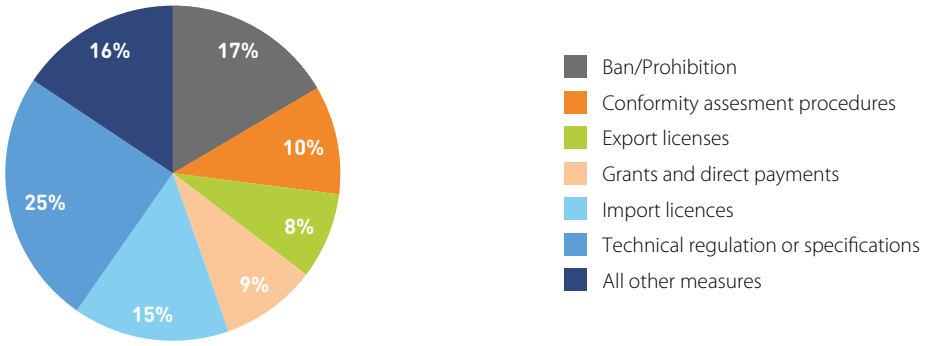
84 UNECE has supported the SPECA countries in developing the Principles of Sustainable Trade, available at https://unece.org/fileadmin/DAM/SPECA/documents/gc/session14/Principles_of_Sustainable_Trade___Trade___English.pdf.

As regards policymaking at the interface between trade and the environment, the WTO Environment Database offers a starting point. Importantly, there has been more dynamism in terms of policymaking at the interface between trade and environment (figure 10). In the period 2009–2020, the countries from the region notified 1,847 measures related to the environment to the WTO. The trend is clearly growing, as in 2009 only 74 notifications from the region were recorded whereas in 2020 there were 359.

Among the notified measures, technical regulations, bans and import licences dominate. All countries in the region have over the years submitted notifications, led by Ukraine (440 notifications) and Kazakhstan (329). Measures have been introduced to achieve various environmental objectives, including eco-design, to meet requirements of different international environmental conventions on energy labelling, water management, air quality and soil improvement, and the like.

It has to be borne in mind that Montenegro (which acceded to the WTO in 2012), the Russian Federation (2012), Tajikistan (2013), and Kazakhstan (2015) did not notify measures before their respective accessions. In addition, Azerbaijan, Belarus, Bosnia and Herzegovina, Serbia, Turkmenistan,[85] and Uzbekistan are at different stages of the accession process and have therefore not notified measures to the WTO.

## Figure 10 Environment-related measures notified to the WTO




Source: Compiled by the author, based on data from the WTO Environment Database, available at https://edb.wto.org.

Note: Members notified include Albania, Armenia, Georgia, Kazakhstan, Kyrgyzstan, the Republic of Moldova, Montenegro, North Macedonia, Tajikistan and Ukraine.

85 Turkmenistan officially applied for WTO membership in November 2021. The Working Party to negotiate conditions of Turkmenistan's accession has not been officially formed. Updates will be available at https://www.wto.org/english/news_e/news22_e/acc_23feb22_e.htm.

# Challenges and opportunities

Being at the source of global supply chains, providing fossil fuels or raw material resources (sometimes without much value addition), transition economies risk losing if demand for their exports declines. Agriculture and industries such as textiles and footwear, which are primary sources of income, stand to be dramatically transformed by the circular transition. Therefore, transition economies will need to readjust their industrial strategies to be prepared to meet these challenges.

Although a number of challenges exist, the circular economy offers important opportunities for diversification. The circular economy might favour proximity and aim at closing loops as close to their origin as possible, i.e. also within countries with economies in transition. In the informal economy, repurposing, repair, remanufacturing, and recycling are already occurring in transition countries. Moving towards processes that are regulated (stricter eco-standards) and closely inspected (proper equipment) can help avoid the environmental and health degradation sometimes associated with the informal sector.

It is hoped that transition economies can turn their vulnerability (dependence on exports of primary raw materials) into strength (e.g. becoming exporters of secondary raw materials and harnessing other circular economy-related export opportunities). Entry points may include the following:

- **Combining labour-intensive and innovative activities:** Repair, remanufacturing and recycling are labour-intensive, promising employment for the workforce in transition economies. Yet, focusing on these industries alone could undermine their creative potential in building new higher value-added sectors and climbing the development ladder. Innovative high-growth enterprises offer opportunities in this regard.[86]
- **Supporting MSMEs:** The transition costs for MSMEs – vulnerable and vital parts of transition economies – need to be made bearable. Complying with standards that are not harmonized or acquiring information about importing requirements add costs to the exports of MSMEs. Support and investment in skills for the circular economy are needed, including for MSMEs.[87]
- **Looking at both production and consumption:** Transition economies are home to the next generation of consumers. Embedding circular consumer practices at such a nascent stage could help meet the populations' needs, ultimately also driving further change in production practices.[88]
- **Exploring regional approaches:** There is considerable potential to increase regional cooperation and trade in circular economy products and services, also among

86 The role of innovative high-growth enterprises in driving structural economic transformations in transition economies, including the shift to higher value added sectors, and policy tools to support them are analysed in the UNECE handbook, "Supporting innovative high-growth enterprises in Eastern Europe and South Caucasus" and a forthcoming similar handbook for the SPECA countries. The handbook is available at https://unece.org/info/publications/pub/359322.

87 Under the United Nations Development Account project "Global Initiative towards the post-COVID 19 resurgence of the MSME sector", UNECE held a webinar series in May and June 2022 on empowering MSMEs to harness the opportunities from transitioning to sustainable trade and the circular economy in the context of the post-COVID-19 recovery.

88 Felix Preston, Johanna Lehne and Laura Wellesley, *An Inclusive Circular Economy: Priorities for Developing Countries*, 2019. Available at https://www.chathamhouse.org/2019/05/inclusive-circular-economy.

countries with economies in transition.

***

The circular economy transition, and its trade-related dimension, will have profound implications, creating both, challenges, and opportunities for countries with economies in transition. It is therefore important, that the circular economy transition, and particularly its trade-related dimension, is approached inclusively. The transition to a circular economy should be inclusive, in that it promotes social, economic and environmental objectives and leaves no one behind. Transition countries need to benefit from policy space and support to build their capacity and unleash their hidden innovative potential that could benefit the global circularity movement.

A participatory approach by countries and stakeholder groups and the development of support schemes can help the transition run smoothly. The international donor community[89] helped by the financial institutions and international organizations needs to create transition environment with a safety net for those who need it. Governments need to promote concrete supporting measures (transferring technologies, know-how and machinery, and building capacity) through rules that lead companies to invest in establishing circular businesses in economies in transition.

89 The WTO-led Aid for Trade seems to be an excellent program to encourage the circular transition, but other bilateral, regional and multilateral programmes could be used too.

# Chapter 6
# CONCLUSIONS AND RECOMMENDATIONS

The current economic linear structure is causing negative environmental, social, and health-related externalities and is not sustainable in the long term. It is driving, and it is driven by, a seemingly insatiable demand to consume new products. In fast fashion, roughly 87 per cent of textiles are discarded or burned each year, costing $100 billion. Over 95 per cent of plastic packaging value is wasted every year, costing up to $120 billion and polluting rivers and oceans.[90] Subsidies in the metal industry are disincentivizing the use of secondary materials that could replace them. These are only some examples of inefficiencies and failures of the existing logic.

Society needs to ensure that our way of living, consuming, and producing is as least polluting, careless and inefficient as possible. Further economic growth needs to be detached from the use of primary materials. The circular economy is designed to do that. It mandates reusing, repairing, remanufacturing, recycling, sharing, and renting, thereby extending the use of goods and reducing the need for primary materials. Furthermore, it reduces waste and creates a second life for products and new value from reusing goods and materials. By reducing idle times and making supply chains transparent, the circular economy can generate a more efficient way of producing goods and services that raises productivity and competitiveness while helping us decarbonize the planet.

To achieve the SDG objectives while pursuing economic growth, humanity needs to place the circular economy at the heart of economic philosophy and action. Today, the circular economy exists at the fringes; it is used as a supplement to the existing model and is considered by many as a policy option, not an imperative. In the future, it is possible that the disruptive force of the circular economy model will profoundly change the existing configuration of supply chains, redistribute welfare, and create a new economic reality.

Having a cross-cutting nature, the circular economy relies on support from and synchronization with all major policy areas. For example, when speaking about trade and economic development, the circular economy needs to be reflected in fiscal and monetary policies (for instance, central banks could use their leverage to encourage the financial system to favour circular economy projects), as well as policies on investment, innovation, trade, agriculture, industry, labour, procurement, digitalisation, and services, among others.[91] The circular economy will permeate life in many ways, requiring the breaking of established silos when designing regulation; it will also require new skills and open new opportunities. This is also true for the way international trade occurs around the globe, and how it is currently regulated at the multilateral, regional and national levels.

The focus will be on eliminating or drastically reducing trade flows that continue to reduce

90 Data to be found at https://www.visualcapitalist.com/the-circular-economy-redesigning-our-planets-future.

91 This topic is discussed in the UNECE paper, part of this series, titled "Institutional Arrangements for the Circular Economy".

or erode progress towards achieving the circular economy principles and on fostering and enabling circularity-enhancing trade.

The cooperation of all stakeholders is necessary to make the change happen. Governments needs to cooperate in designing legislation, establishing standards and removing hurdles, and no one must be left behind. The private sector, social partners and governments must collaborate to enable an innovation ecosystem that fosters change. All stakeholders along the supply chain need to work together on the realization of these objectives. In short, the circular transition is a team sport; it cannot be played alone.

The circular economy, most probably, will not eliminate the need for virgin materials altogether. Rare-earth metals are an excellent example of a resource that will continue to be extracted from both primary and secondary sources in the future.

Transition economies have a rich history of repairing, recycling or remanufacturing goods and using them on a more long-term basis than is the case in the market economies. Therefore, their starting point already contains many circularity principles that could be revamped and used for the design of new circular goods and services or for improving existing ones.

Some trade enthusiasts fear that the circular economy might result in reduced international trade in the future. Indeed, fewer primary materials might be traded, and trade in environmentally damaging products will likely be reduced. As was the case in the past, trade will adjust and transform. Trade in services as well as in secondary materials and goods will most probably increase. Reverse supply chains will add to trade frequency, which also indicates more trade. Through population growth and a raised standard of living in developing and transition countries, a more extensive consumer base will likely increase the demand for circular goods and services.

This report is prepared from the perspective that trade could be a force for good: a force to accelerate the circular switch. For that to happen, trade needs to be empowered, and the barriers need to be removed. Along these lines, a possible pack of actions for the way forward could include the following ones:

a. **Raising awareness:** Raising awareness is needed for both circularity as such and for the interface between trade and the circular economy. Doing so involves bringing the circular economy to the attention of the trade community and, vice versa, bringing trade to the attention of the circular economy community. Awareness-raising involves both the public and private sectors.[92] Activities could build on existing awareness-raising and advocacy campaigns run by key circularity players, such as the Ellen MacArthur Foundation or SITRA, and, on the trade side, could involve actors and platforms such as the WTO TESSD. The UNECE Stakeholder Engagement Platform Circular STEP can play a key contributing role in countries with economies in transition.[93]

92 Raising awareness should also involve academia, which brings technical expertise and another perspective to conversations about circularity and its interfaces with trade.

93 The press release about the network can be found here: https://unece.org/circular-economy/press/unece-launches-platform-policy-dialogue-circular-economy.

b. **Sharing of experiences:** Sharing experiences on how to harness opportunities and how to address challenges at the interface between trade and the circular economy would help identify opportunities, success stories and potential barriers. UNECE's regional and national policy dialogues can provide a starting point for such informal exchanges of experiences and best practices. Ultimately, an effective sharing of experiences could benefit from a more structured approach. The current absence of a forum for discussing policy responses to circularity is in stark contrast to related areas such as trade or climate, which both benefit from established forums for policy exchange and rulemaking.

c. **Improving the facts base:** Availability of and access to trade-related data, providing the basis for informed and fact-based policy choices is crucial for ensuring the success of the circular transition. Although selected measures of circularity are available for some countries, data on the trade-related aspects of circularity and data for countries with economies in transition are almost non-existent. Hence, measuring and monitoring circularity and its trade-related dimension for countries with economies in transition should be a priority action. Concerted efforts are needed, involving a wide range of different actors, e.g. UNECE (through its work on statistics), think tanks (e.g. Chatham House, Ellen MacArthur Foundation) and international organizations (e.g. OECD, WTO etc.).

d. **Integrating trade-related elements into countries' circular economy road maps and strategies.** Circular economy road maps or strategies and subsequent implementing tools (e.g. laws, regulations such as EPR) are key tools for shaping the circular transition through national policymaking. As an increasing number of countries are developing circular economy road maps, attention should be given to including a trade-related dimension into these overarching policy documents and processes. As this paper suggests, this would include a broader approach to trade, including aspects of investment and financing, innovation, and digitalisation, as well as a sectoral approach (e.g. based on circularity hotspot sectors, such as textiles, agrifood and critical minerals, among others).

e. **Turning supply/value chains into a driver of circularity.** Supply/value chains have been greasing the global economy, traditionally, however, based on a linear economic model. Redesigned supply/value chains can help drive circularity. Innovation, supporting a fundamental re-think of economic and business strategies, is central in this regard, and so are transparency and traceability, allowing consumers (both private and corporate) to make informed purchasing choices. UNECE's Toolkit for Transparency and Traceability in Textiles and Footwear and the recently established Team of Specialists for Transparency and Traceability of ESG Value Chains, provide UN-supported tools and forums for taking this further.

f. **Envisaging circular economy-enhancing trade policy options at the different levels of governance.** Effective integration of circularity into trade policy requires action at the multilateral, regional and national levels. In addition to integrating the circular economy into countries' strategies for trade promotion, value chain upgrading and broader economic development, this would also include integrating circular economy-related provisions into regional trade agreements and adding a circular economy dimension to multilateral trade policy process. The recently formed Working

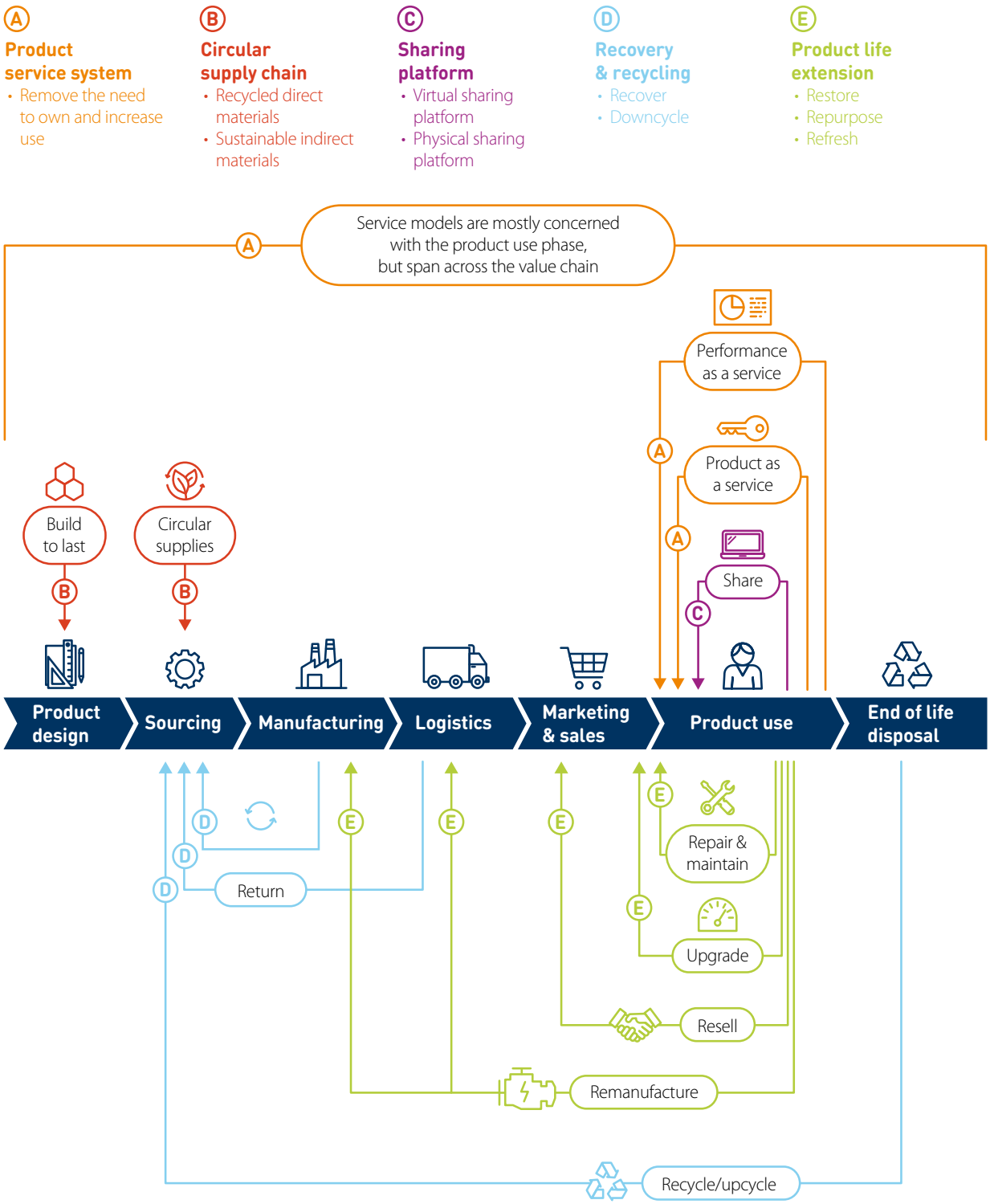
Group on circular economy in the WTO TESSD process could offer a starting point. Particular attention needs to be given to ensuring that circular economy-enhancing trade policy options do not result in potential barriers to trade.

g. **Making the transition inclusive.** Not all actors are equally well placed to benefit from the circular transition. MSMEs, including women-owned ones and those in countries with economies in transition, will need assistance to respond to challenges and to harness opportunities. International organizations, including financial institutions and the international donor community, as well as the most profitable companies, need to create an enabling environment for a transition that includes a safety net for those who need it. Concrete support measures[94] need to be put in place. Repurposing Aid for Trade technical assistance to be used for the change to circularity could provide a powerful boost for transition economies.

94 E.g. transferring technologies, know-how and machinery; bridging the digital divide and facilitating access to global digital platforms; and more broadly, education, technical assistance and capacity-building.

# Annex 1

## Figure A1 Comparing circular business models and the linear value chain




Source: Saara Tamminen, Malena Sell, Tim Forslund, Alice Tipping, Marta Soprana, Christophe Bellmann, Trading Services for a Circular Economy, 2020. Available at https://www.iisd.org/publications/trading-services-circular-economy.

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## Get in touch

Ms. Elisabeth Türk
Director, Economic Cooperation and Trade Division of UNECE
Email: ece-trade4circularity@un.org

To join the Circular STEP network and receive updates about the circular economy, visit:
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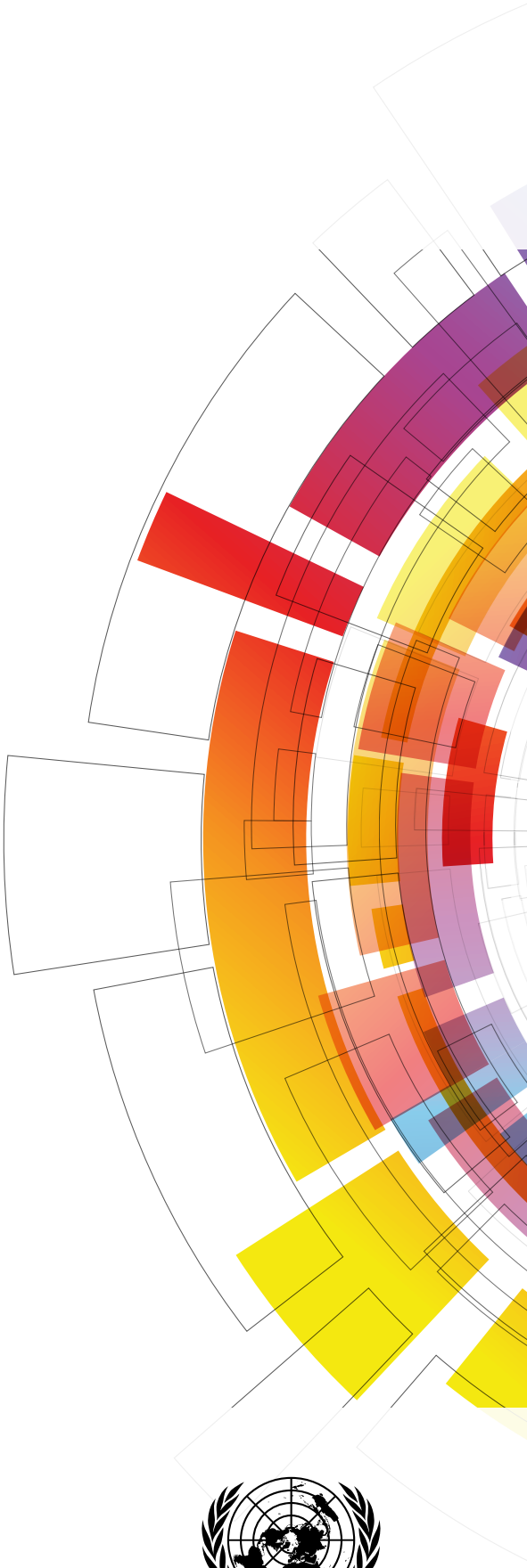

For further information, please contact
Ms. Elisabeth Türk,
Director, Economic Cooperation and Trade Division of UNECE

Palais des Nations
CH - 1211 Geneva 10, Switzerland
E-mail: ece-trade4circularity@un.org
Website: http://www.unece.org

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