

The role of international trade in realizing an inclusive circular economy

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Summary of research findings

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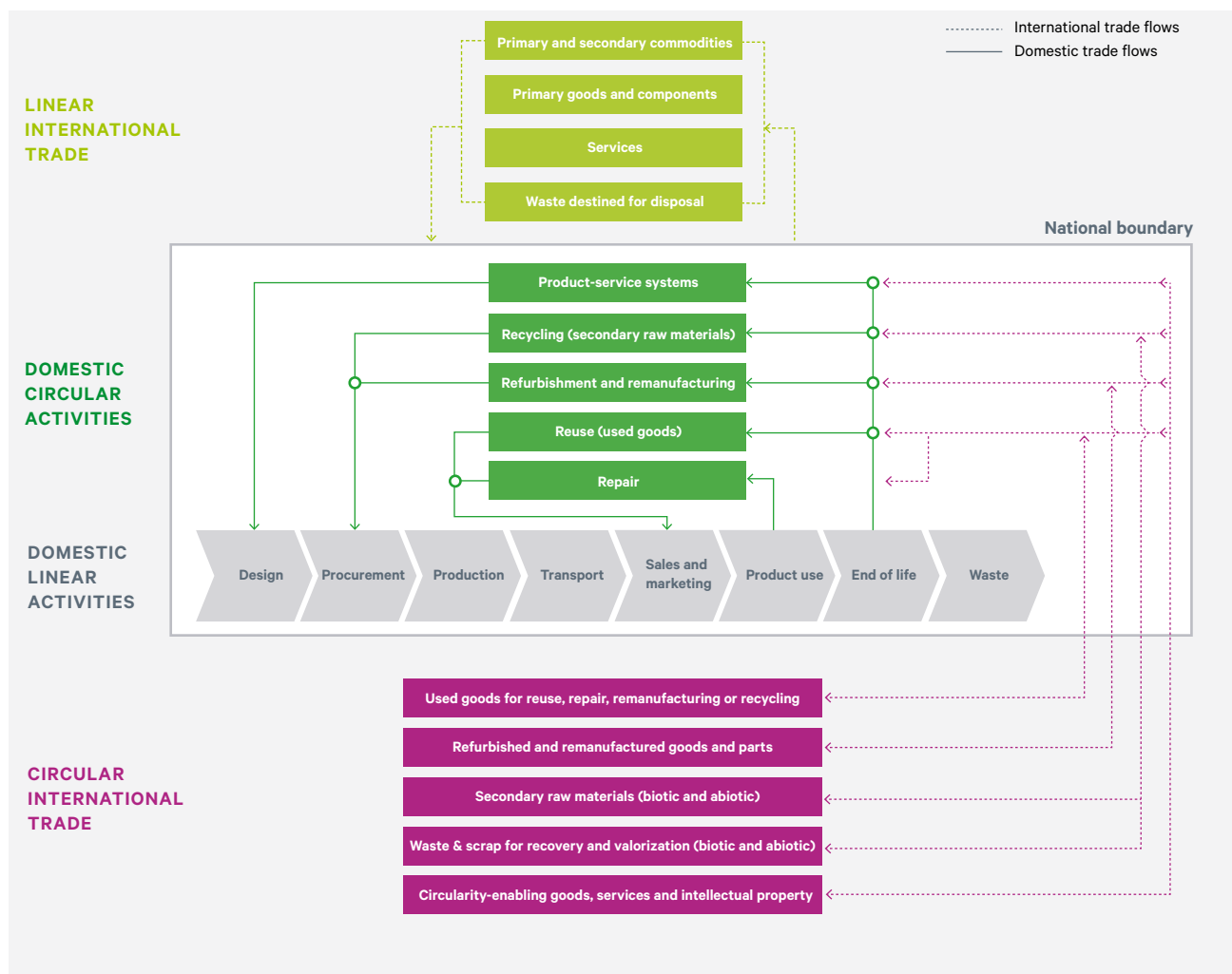
Introduction

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- **The transition to an inclusive circular economy is essential to help address current global environmental and societal challenges.** An inclusive circular economy seeks to achieve absolute decoupling of resource use and environmental impact from equitable economic prosperity and human development. It does this by slowing, narrowing and looping the flow of materials through the economic system, while regenerating natural systems and designing out toxicity. By focusing on environmental issues, human needs, sustainable livelihoods, decent work and social justice, an inclusive circular economy can make important contributions to human development, to poverty reduction and to improved well-being around the world.
 - **No country can achieve an inclusive circular economy on its own.** Each is dependent, to varying degrees, on international trade in circular economy-enabling goods and materials, services and intellectual property. The actions of individual countries in pursuit of circularity will create ripple effects along entire global value chains, with the potential for negative effects on other countries. If an inclusive circular transition is to be realized, greater collaboration among the global community is necessary.
 - **Circular trade encompasses any international trade transaction that contributes to realizing a circular economy at the local, national and global levels.** This includes the trade in circular economy-enabling goods, services, and intellectual property; second-hand goods for reuse, repair, remanufacture or recycling; refurbished and remanufactured goods; secondary raw materials; and non-hazardous waste, scrap and residues that can be safely recovered or valorized.
 - **A Chatham House research paper aims to increase the global community's understanding and awareness of the intersections between international trade and an inclusive circular economy.** It does this by presenting an overview on: (i) what constitutes circular trade; (ii) the global dynamics of circular trade, including geographical distribution, exposure to geopolitical trends and events, and how circular trade actions of a single country can result in unintended consequences for others; and (iii) the role of supply-chain transparency and traceability in realizing an inclusive circular economy.

This document provides a summary of the paper's key findings, followed by an outline of five key areas for global collective action.

What is circular trade?

Figure S1. Linear, domestic circular and international circular trade flows



Note: Domestic linear trade flows not included to aid clarity.

Source: Adapted from OECD (2018), International Trade and the Transition to a Circular Economy, Policy Highlights, RE-CIRCLE Project, <https://www.oecd.org/environment/waste/policy-highlights-international-trade-and-the-transition-to-a-circular-economy.pdf>.

- Circular trade encompasses any international trade transaction, either material or immaterial, that contributes to circular economy activities at the local, national and global levels.
- This includes the trade in circular economy-enabling goods, services and intellectual property; second-hand goods for reuse, repair, remanufacture or recycling; refurbished and remanufactured goods; secondary raw materials; and non-hazardous waste, scrap and residues that can be safely recovered or valorized.
- Each trade flow (see Figure S1) offers unique opportunities and challenges in terms of delivering an inclusive circular economy.

Table S1. Overview of five different circular trade flows

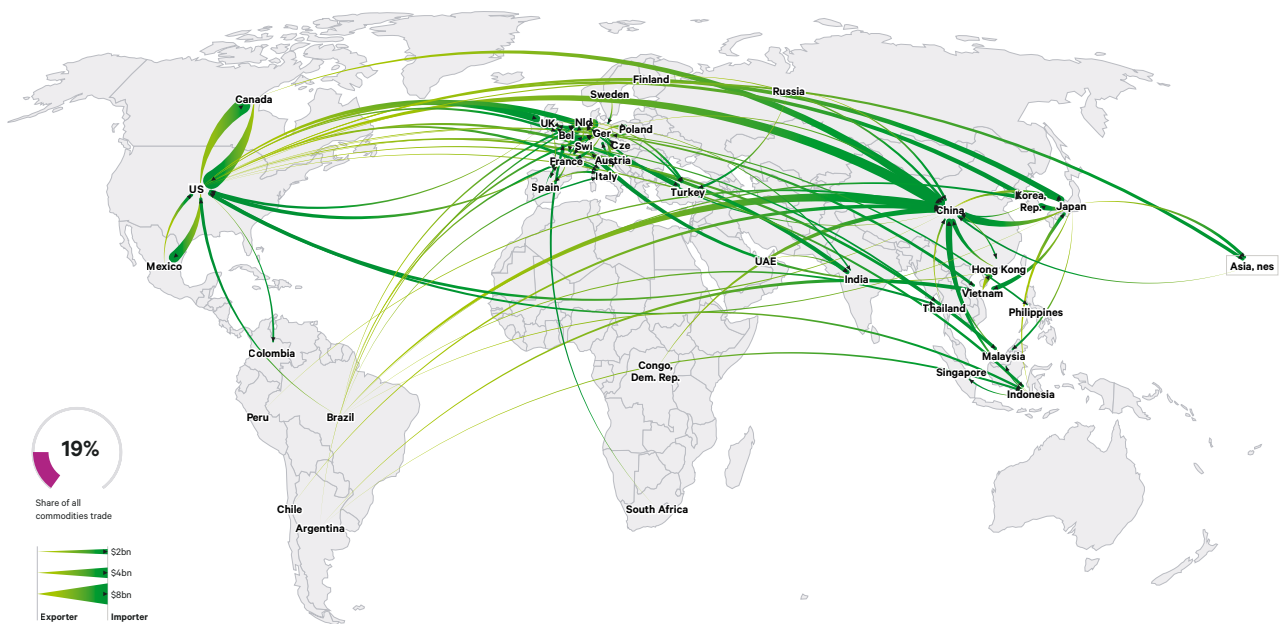
Circular trade flow	Description	Benefits	Challenges
Circular goods, services and intellectual property (IP)	Finished goods, services and IP that enable a country (or company) to conduct circular activities.	<ul style="list-style-type: none"> • Ability to develop circular business models (access to design software, product-system-services (leasing and renting), and real-time condition-monitoring); • Ability to conduct reuse, repair, remanufacturing or recycling activities (access to equipment and spare parts or components); • Improved supply-chain traceability (access to digital hardware and software and physical sensors); and • Ability to produce circular materials domestically (access to material science and biorefining equipment and infrastructure). 	<ul style="list-style-type: none"> • Lack of global agreement on what constitutes CE goods and services in relation to trade; • Perceived risk of undercutting domestic production of ‘like’ goods; and • Geopolitical tensions regarding trade of advanced technologies (and IP control) may result in additional trade barriers to certain CE-enabling goods and services.
Used goods for reuse, repair, remanufacturing and recycling	Used goods and parts can be traded with the intention of being sold into a secondary market: (i) directly; (ii) after being repaired, within the secondary market (otherwise referred to as ‘cores’); (iii) to be remanufactured; or (iv) to be recycled. Used goods that cannot be reused, repaired, remanufactured or recycled should be classified as waste.	<ul style="list-style-type: none"> • Presents export opportunity; • Provides affordable access to high-quality goods to importing country; • Can extend the useful lifetime of goods; • Generates demand for local repair industry; • Provides source of valuable secondary raw materials; and • Enables access to remanufacturing cores, spare parts and components. 	<ul style="list-style-type: none"> • Risk of lock-in to inefficient and polluting products (for example, used diesel and petrol cars or energy-inefficient electronic equipment); • Risk of undercutting domestic production of similar goods; • Risk of shorter product lifespan putting pressure on domestic waste management services; • Risk of increased maintenance and repair costs and poor access to spare parts; • Risk of receiving damaged or obsolete goods through misclassification or damage in transit; and • In some cases, can increase total consumption of primary goods.

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Circular trade flow	Description	Benefits	Challenges
Refurbished and remanufactured goods	Refurbished goods go through a less rigorous testing process in which only broken parts are replaced, and therefore cannot be compared to new equivalent goods. Remanufactured goods are goods that have been restored to useful life. The most common types of refurbished or remanufactured goods traded come from the automotive and aviation, electronics, furniture, industrial machinery and medical equipment sectors.	<ul style="list-style-type: none"> • Provides affordable access to high-quality goods (both consumer goods and industrial equipment); and • Provides value-added export opportunities for those undertaking remanufacturing. 	<ul style="list-style-type: none"> • Most countries do not distinguish between remanufactured and second-hand goods (or waste and scrap), leading to high tariffs and technical barriers to trade; • Lack of universally recognized standard for remanufacturing, despite existing standards being available; • Difficult for importers to identify high-quality from low-quality remanufactured goods; • Unpredictable supply of remanufacturing cores; and • Not applicable to all goods – rather to a subset of high-value, long-life goods.
Secondary raw materials	Secondary raw materials are commonly referred to as materials that can be used in the manufacturing process that directly displace or complement the use of new materials.	<ul style="list-style-type: none"> • Enables aggregation of secondary materials in areas of highest demand to maximize economies of scale for processing and manufacturing to ensure they are reintegrated back into the economy most efficiently; and • Displaces, in some cases, use of new raw materials. 	<ul style="list-style-type: none"> • Unpredictable supply (in terms of both quality and volume); • Price volatility tied to supply and demand of new materials; and • Lack of harmonization on waste definitions, standards, regulations and conformity assessments increases transaction cost and risk.
Waste and scrap for recovery or valorization	Waste is considered non-hazardous if it (or the material or substances it contains) are not harmful to humans or the environment. It is considered circular if the waste and scrap materials are recovered or valorized.	<ul style="list-style-type: none"> • If a country does not have the specialized facilities or cannot afford to recover value, such waste can be shipped to a country that is able to carry out this process at an affordable price in an environmentally and socially safe manner; and • Valuable feedstock at low prices for industry (particularly in developing countries). 	<ul style="list-style-type: none"> • Difficult to police due to heterogeneity of material stream, resulting in high levels of illegal waste trade; • Lack of harmonization on waste definitions, standards, regulations and conformity assessments increases transaction cost and risk; • Strengthening waste trade regulations raises transaction costs and reduces access to low-value material feedstock for domestic production; and • Difficult to determine if waste (hazardous or non-hazardous) produced from recovery and valorization activities can be adequately managed in importing country.

Global dynamics of circular trade

Figure S2. Map of highest-value international flows of secondary goods, materials and waste



Source: Chatham House circulareconomy.earth (2022), 'Trade', <https://circulareconomy.earth>.

- **The global distribution of value from circular trade flows is highly uneven.** Around 99 per cent (\$287 billion) of the total value of trade in secondary goods, materials, waste, scrap and residues in 2020 was traded between and among high- and middle-income countries. Moreover, around 45 per cent (\$131 billion) of the total value is traded solely between high-income countries. Trade to and from low-income countries comprises only around 1 per cent (\$4 billion) of the total value.^{1,2}

¹ A caveat to this finding is the lack of clarity on the extent of informal trade (particularly between low-income countries) in these trade flows, which is not formally captured in trade databases.

² Chatham House circulareconomy.earth/trade?year=2000&category=2&units=value&autozoom=1.

- **Deeply entrenched inequities between the Global North and Global South, combined with growing geopolitical risks and tensions, threaten to prevent an inclusive circular economy.** Global inequities in power relations, digital trade capabilities, trade infrastructure, access to circular finance and industrial and innovation capabilities risk further exacerbating the circular trade divide. If an explicit goal to reduce inequality is not embedded into the global circular economy transition, then it is highly likely that these inequities will create a circular trade divide in which the gains accrued from circular trade are highly unevenly distributed between developed and least-developed economies. The circular trade divide, should it persist and grow, will significantly restrict a globally inclusive transition and undermine the UN's 2030 Agenda for Sustainable Development and SDGs.
- **Geopolitical risks and heightened tensions threaten the achievement of sustainable development objectives.** Trends such as economic nationalism and deglobalization could limit the benefits offered by international trade of goods and services, including those that enable the circular transition. Countries will be more likely to pursue circular strategies aimed at achieving resource security rather than collective sustainability objectives. Plurilateral initiatives among groups of like-minded countries are far from perfect, but offer a valuable step towards more global approaches and higher levels of ambition.

Balancing the benefits and risks

Circular trade offers many economic, environmental and social opportunities.

- Trade in circular economy-enabling goods, services and IP allows countries and companies to access the necessary knowledge, equipment and skills to implement new circular business models (such as leasing or renting) or to conduct reuse, repair, remanufacturing and recycling activities.
- Trade in used goods for reuse, repair or remanufacturing enables affordable access to essential goods and services to those in secondary markets, and generates local demand for industry and employment in repair and remanufacturing.
- Trade in secondary raw materials and waste destined for recovery enables the aggregation of materials in areas of highest demand to maximize economies of scale, making it more economically viable to transform waste into resources for new production.

However, if poorly regulated, circular trade can have negative impacts.

- Many loopholes and grey areas currently exist in the global trading system that enable high levels of illicit waste shipments. These shipments risk contributing to environmental pollution and increased human exposure to hazardous chemicals.
- High volumes of used goods can also flood secondary markets – threatening local industries and overwhelming the capacity of local waste management systems.
- Under certain circumstances, overdependence on circular trade flows may increase exposure to similar supply-chain risks and shocks. For example, due to volatility in the quality, quantity and price of used or refurbished goods, secondary raw materials or waste for recovery.
- Such impacts must be mitigated through a globally coordinated approach.

Benefits vs risks

- Achieving a balance between maximizing the benefits of circular trade and mitigating the risks will be different for each country, depending on a range of economic and geopolitical factors.

- Despite the many benefits offered by circular trade, it also presents several risks for countries. First, over-reliance on overseas circular trade could increase vulnerability to global supply-chain shocks and price-volatility. Second, access to circular trade flows is also affected by the introduction of circular economy-oriented policy and legislation among trading partners. Finally, countries can inadvertently encourage the import of low-quality or polluting second-hand goods, thereby risking lock-in to inefficient and polluting products, undercutting domestic production of similar goods, increasing CO₂ emissions, reducing product lifespans and putting pressure on domestic waste management services.
- Circular economy and trade policymakers face the task of finding the optimal balance between opening up to circular trade flows and maximizing the opportunities presented, while at the same time building resilience to the inherent risks.
- More stringent circularity requirements for products, for example, could create additional technical barriers to trade for supply-chain actors in developing countries.
- Expanding product circularity regulations (such as improved durability, reparability, reduced toxicity, etc.) increases the likelihood of high-quality secondary products remaining in domestic circulation in high-income countries. This could lead to a gradual decline in exports of quality of used goods to secondary markets in low- or middle-income countries, with those countries receiving more low-quality goods from which residual value cannot be easily extracted or which have become obsolete (with poor access to spare parts).
- Current circular economy policies generally fail to adequately consider the direct impacts on non-domestic value-chain actors. Concerted efforts by the national policymakers and the international trade community (in forums such as WTO's Trade and Environmental Sustainability Structured Discussions or Informal Dialogue on Plastics Pollution) are necessary to mitigate the trade-related environmental and societal risks associated with the global circular economy transition.

Enhancing transparency and traceability

Supply-chain transparency and traceability are necessary pre-conditions for realizing inclusive circular trade. Recent regulatory mechanisms requiring greater levels of transparency and circularity reporting – coupled with development of numerous supply-chain transparency and traceability standards, circularity metrics and tools, and technological developments (blockchain in particular) – show promise in this respect.

Several ongoing developments are helping to enhance transparency and traceability:

- **Policy:** Via its European Green Deal and Circular Economy Action Plan, the EU is in the process of introducing a series of ambitious circular economy policy initiatives, including the Sustainable Products Initiative and corporate due diligence and corporate sustainability reporting. If enacted, these promise to have profound consequences on transparency and traceability in circular trade.
- **Circularity standards and metrics:** Standards for supply-chain transparency and traceability recently produced or under development include the GS1 Global Traceability Standard (GTS2), PR3's standard for reuse packaging, UNECE's traceability standards for sustainable garments and footwear, or the circularity.ID Open Data Standard for fashion.
- **Technological innovation:** Increased transparency and traceability must be underpinned by a new generation of digital and physical tracking technologies – such as blockchain – that provide robust certification and verification records, as well as real-time identification and tracking of components and products across their entire life cycle.
- **Trade processes:** Technological innovations will enable necessary improvements to trade-relevant transparency and traceability processes. Examples include the introduction of digital product passports and fast-track permits to authorized economic operators, or digitization of the Basel Convention's prior informed consent procedure.

Global collaboration is required. Despite advances in this area, increasing transparency and traceability is challenging as it requires collaboration, coordination and trust between a wide range of actors along the entire length of a supply chain – and often across multiple jurisdictions.

Financing an equitable scaling of circular transparency and traceability. Consideration should be given within multilateral forums as to how international consortiums can be financed to scale up adoption of transparency and traceability protocols and systems across global value chains. However, this process must not overburden those that may struggle to absorb the costs (particularly MSMEs and informal waste-picker cooperatives in low- and middle-income countries).

A pathway forward: Recommendations for collective action

The paper recommends an alternative pathway for the circular transition, towards a global trade regime that enables fair, inclusive and circular societies. Any solution to overcome circular trade barriers requires a collaborative and coordinated global response to ensure that all countries and territories – developing economies in particular – benefit equally from the transition.

To help achieve an inclusive circular economy, the paper identifies five key areas for collective action by the global community:

- The development of a shared language on circularity – for example, on the definition and classification of goods.
- Necessary reductions in technical barriers to circular trade, including addressing regulatory divergence and contradictory requirements between jurisdictions.
- Improved trade facilitation measures, such as measures to reduce the complexities of product classification and cumbersome permitting processes, particularly for products classified as hazardous.
- Dedicated capacity-building support from the international community and targeted assistance programmes to mitigate the impacts of increasing barriers to circular trade and changing patterns of demand.
- Taking advantage of significant opportunities to further embed both circularity and inclusivity in trade and economic cooperation agreements of all types.



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