



# Sustainable Trade in Resources

## GLOBAL MATERIAL FLOWS, CIRCULARITY AND TRADE

Economic and human development are inextricably linked to demand for natural resources and energy. As global demand for material resources has increased dramatically in recent decades, rising international trade has become an essential means to overcome the constraints posed by local resource scarcity.

While the contribution of international trade in fuelling economic expansion has long been recognised, its impact on the environment is more ambiguous. Trade can prove damaging to the environment by boosting overall resource production and use, shifting production to countries with less-stringent environmental legislation, and increasing energy use and pollution linked to transportation. Yet, when accompanied by appropriate measures, trade can enable and accelerate the transition to a greener, more circular economy – for instance, by facilitating access to green technologies and to environmental goods and services.

### Trends in international trade

Trade in material resources – biomass, fossil fuels, metals and non-metallic minerals – has grown strongly over the past half century. The volume of trade has increased at a faster pace than the volume of extracted resources, signifying a growing dependence of the global economy on material trade.

The composition of trade has changed in recent decades, with numerous countries shifting to becoming net importers of

resources, but very few switching to becoming net exporters. In the new millennium, emerging economies such as China and India have become net importers, whereas a number of high-income countries such as the United States and Australia have become important global exporters, in part in response to higher resource prices. The shift towards fewer net exporters of resources signals an increased vulnerability of the world trading system, as rising demand is being met by ever fewer producers.

### Material footprints of trade

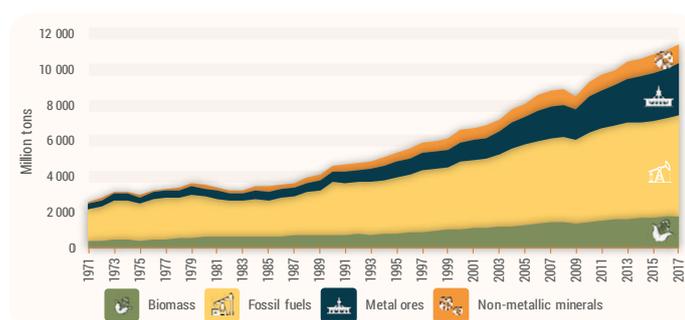
In addition to rising international trade in material resources, the so-called upstream resource requirements of traded commodities have also increased. These represent the additional materials, energy, water and land used in the extraction and production of traded goods but left behind as wastes and emissions in the exporting country. They can serve as useful proxies for the ecological impacts of trade.

When considering the whole life cycle of traded products, trade is responsible for much larger amounts of material extraction than direct trade flow indicates. One-third of the total volume of materials extracted in the world economy is linked to the production of traded goods. Furthermore, the indirect or embodied materials in trade (35 billion tons in 2017) far exceed – by a factor of three – the direct volume of goods traded across nations (11 billion tons in 2017).

When looking at the raw material trade balance, based on the attribution of globally extracted materials to traded goods, as compared to the physical trade balance, this reveals that only Europe and North America have remained net importers of materials. By contrast, Asia and the Pacific has shifted to becoming a net exporter of materials driven by large export volumes of manufactured goods.

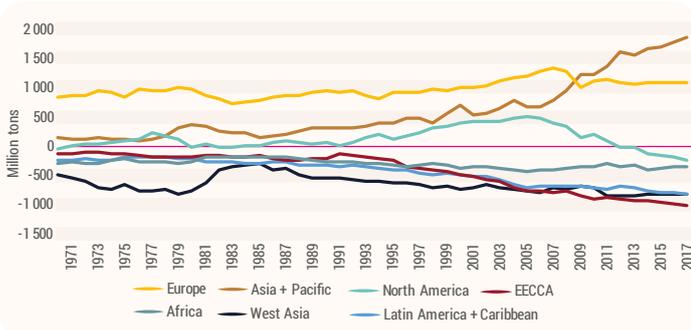
Such analysis of the material footprints of trade highlights that resource-intensive processes have shifted from high-income, densely populated importing countries to low-income, more sparsely populated exporting countries. This signifies a corresponding shift in associated environmental burdens.

Figure 1. Global physical trade by material composition, 1970-2017



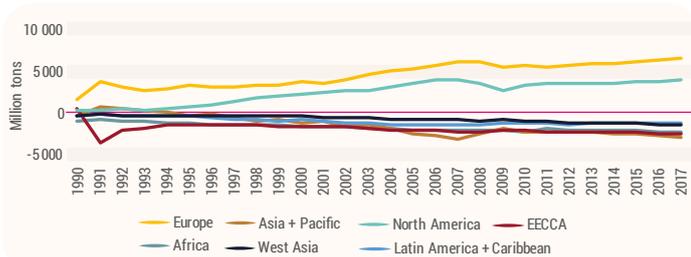
Note: Physical trade is measured as (imports + exports)/2.  
Source: UNEP 2020

**Figure 4. Physical trade balance by world region, 1970-2017**



Source: UNEP 2020

**Figure 7. Raw material trade balance by world region, 1990-2017**



Source: UNEP 2020

## Role of trade in accelerating the transition to a green and circular economy

Given that the extraction, processing, use and disposal of material resources deeply affects the planet's climate, environment and underlying resource base, urgent and concerted action is needed to make the global economic system sustainable. A transition to a circular economy – one where greater efficiency is achieved by closing, extending and narrowing material loops – can play a key role in decoupling economic growth from environmental degradation by greatly reducing the need for resource extraction and use of energy inputs.

While countries are mostly adopting circular economy principles at a national level, trade and trade flows play a critical role in a transition to a circular economy due to global value chains. Both multilateral trade rules and regional trade agreements can be used proactively to advance the circular economy and minimize the environmental impacts associated with resource extraction.

Multilateral trade rules set out by the World Trade Organization (WTO) need to strike a balance between enabling countries to adopt environmental protection and circular economy measures and related technical regulations and standards, while abiding by the principle of non-discrimination in trade. Environmental considerations, including those related to resource extraction, should be prioritized in ongoing multilateral trade negotiations. The WTO could also serve

as a platform for countries to share best practices on environmental issues and could contribute to enhancing transparency in environmental practices. The WTO's Aid for Trade could also support developing countries in building targeted capacity.

Regional trade agreements could be used to alleviate barriers to trade and investment in environmental goods and services by harmonizing product standards that are relevant to circularity, and by tailoring market access commitments to industries and products of importance for advancing the circular economy such as waste management. Regional trade agreements can also play a key role in reducing material resource extraction – for instance, by discouraging or prohibiting harmful fossil fuel subsidies and liberalizing trade in renewable energy. At a minimum, there is a critical need to ensure that regional trade agreements do not undermine commitments made under the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, by better aligning their respective provisions.

While reducing future resource demand through decoupling and circular economy strategies is desirable from an environmental standpoint, it is nonetheless important to consider the implications – in terms of lost export earnings – for low-income, resource-dependent countries. For these countries, governance strategies would be needed to capture a greater share of value, break away from the enclave nature of the extractive sector, and diversify their economies, including into emerging sectors such as recycling and renewables. Trade agreements should be leveraged in a way that aids developing countries in reducing the environmental impacts associated with resource extraction, while mitigating any negative spillover effects resulting from a circular economy transition. This will require, among others, targeted capacity-building and development assistance, and affording developing countries sufficient policy space to use a wide range of policy instruments to achieve resource-based industrialization at the local level.

### Policy Recommendations

- Enhance alignment between international trade and environmental legal frameworks
- Align trade agreements with domestic environmental policies and priorities
- Ensure that trade agreements move towards a circular economy that is inclusive of developing countries
- Proactively use regional trade agreements to advance circularity and reduce demand for primary raw materials
- Advance the development of international standards for circularity

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The full report can be downloaded at: [www.resourcepanel.org/reports/sustainable-trade-resources](http://www.resourcepanel.org/reports/sustainable-trade-resources)