



## Policy Brief

# EMBEDDING THE CIRCULAR ECONOMY IN GLOBAL VALUE CHAINS: STRATEGIES AND FRAMEWORKS FOR A JUST AND EFFECTIVE TRANSITION

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*Task Force 3*

Governing Climate Targets, Energy  
Transition, and Environmental  
Protection

# EMBEDDING THE CIRCULAR ECONOMY IN GLOBAL VALUE CHAINS: STRATEGIES AND FRAMEWORKS FOR A JUST AND EFFECTIVE TRANSITION

## Task Force 3

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# Abstract

The circular economy transition along global value chains provides levers that can curb raw material use, preserve biodiversity, and reduce pollution, including the emission of greenhouse gases (GHGs). While the transition to circularity is building momentum, several systemic barriers continue to exist. This policy brief presents eight proposals which facilitate the transition to circular value chains in G20 countries and the Global South. In detail, we recommend: (1) advancing the circular design of products, (2) making international trade and investment policies supportive of circular value chains, (3) enhancing funding for circular economy investments and establishing dedicated financing mechanisms for that purpose, (4) developing environmental, social and governance (ESG) and circularity metrics which drive investment decisions towards sustainability, (5) facilitating a localised transition by harnessing regional resources to shorten value chains (6) ensuring that the transition process is just and inclusive for the Global South by supporting reverse logistics and globally applied extended producer responsibility (EPR) standards, (7) using the public awareness momentum created by the plastics crisis to draw attention to the circular economy imperative, and (8) creating a platform for sharing of best practices in circular policy design, implementation and monitoring.

# Challenges

Driven by the growth of global population and gross domestic product (GDP), resource extraction and consumption are projected to double by 2060 (UNEP, 2019). However, in 2020 only 8.6 percent of raw materials extracted globally, mostly minerals and ores, were put back into circulation, a figure dropping from 9.1 percent in 2018 (Circle Economy, 2022).

This low level of resource circularity puts pressure on ecosystems, intensifies pollution and waste challenges, and accelerates climate change. Advancing urbanisation, industrialisation and the steep growth of electro-mobility will likely further increase raw material extraction and exacerbate environmental pressures. According to the World Bank, solid waste generation could increase by 70 percent by 2050, unless governments take drastic action (World Bank, 2018).

In terms of climate impact, 70 percent of all greenhouse gases (GHGs) generated worldwide are attributed to material handling and use: be it the clothes we wear, the phones we use or the meals we eat. This demonstrates how important it is to consider resource use and consumption in our efforts to cut GHG emissions (Circle Economy, 2022).

The digitalisation of industrial production and logistics along the value chains in many sectors has proven a factor of resilience during the pandemic. Yet the development and uptake of the designated Fourth Industrial Revolution (4IR) goes along with a high level of capacity building in the workforce of many production networks, in lower income and emerging countries alike.

However, there are still many obstacles on the way to establishing a truly circular economy and circular global value chains. Modern production remains mostly organised along linear global value chains, with component and product manufacturing taking place in a variety of regions and countries, decided on the basis of the comparative advantages (primarily monetary cost) of each location. Taking into account the particularities of each sector, opportunities for circular growth rely on new technologies, and on innovative business models supported by enhanced public private partnerships. A new circular economy vision is needed to ensure that these value chains become more resilient and sustainable, and to demonstrate how secure and reliable circular business models can support a just transition and equally benefit both the Global North and the Global South.

# Proposal

The following eight proposals demonstrate how G20 leaders can create conditions to close the loop in global value chains. The proposals cover circular product design, the power of international trade policy to boost circular value chains, the importance of funding and transparent circularity financing criteria, and the added value of sourcing regionally. Also, the policy proposals highlight the just transition imperative, provide food for thought on how the public attention to the global plastics waste crisis can be used, and suggest that key policy learning needs to be shared through a common platform.

## **PROPOSAL 1: ESTABLISH CIRCULAR MATERIAL TRANSITION TARGETS AND KEY PERFORMANCE INDICATORS (KPIs) THAT DRIVE THE CIRCULAR DESIGN OF PRODUCTS**

### **Rationale**

- The global focus on plastic waste as a circular material has spurred innovation in both the Global North and the South. However, there is a lack of clarity on other materials, especially with respect to trade flows (Zhang & Boliño, 2020). Emphasis should be placed on mass consumption materials that are easy to process.
- Materials disclosure mechanisms are necessary to increase transparency in hazardous chemical use without compromising trade secrets and proprietary formulations. The Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) and Classification, Labelling and Packaging Regulation (CLP) EU regulation revision roadmaps are a leap forward in disclosure but risk creating a leap backwards in the affordability of implementation due to the cost and time of identifying safer substitutes (Vinceti et al., 2021). Best practice guidelines would be helpful, especially for small and medium enterprises (SMEs) as well as organisations in emerging markets that do not have large research and development (R&D) budgets. Lack of regulatory enforcement mechanisms and reliable information-sharing platforms lead to a significant and increased risk of a chemical safety divide between the Global North and South.
- Eco labelling for material efficiency targets should be linked to material passport databases that facilitate the identification of material mixes while tracking the number of times materials have been reused (Cordella et al., 2020; Interreg new, 2020). Although emerging industrialised countries already have a high degree of material circularity, there is no mechanism for tracking or valorising such activities as a percentage of local and global GDP contributions.

## Implementation

Global collaboration on material efficiency and circular trade flows cannot be limited to high-level policy discourse. Instead, G20 countries need to adopt a comprehensive approach including the development of KPIs to influence the behaviour on every level from producer to consumer (Anbumozhi, Ramanathan and Wyes, 2020). Such interventions can coincide with investments aimed at reducing the digital divide and should include improving research infrastructure as a part of physical asset investments. Linking economic valuations to safer and more efficient materials flows can yield significant trade benefits for all countries globally, but only if there are targeted material transition strategies.

## **PROPOSAL 2: IDENTIFY ACTIONS AND FOSTER COLLABORATION FOR MAKING TRADE AND INVESTMENT POLICY SUPPORTIVE OF CIRCULAR SUPPLY CHAINS**

### Rationale

- Trade plays an important role in fostering global, efficient and reliable circular supply chains. Open trade fosters access and affordability of goods, services and technologies while also creating economic opportunities in developing countries. However, governments must act collectively to avoid possible pitfalls of illegal or under-regulated trade in waste, used and other goods that can undermine circular supply chains.
- Trade-related challenges to circular supply chains include (i) difficulties in existing classifications to distinguish between waste and reusable materials so that reusable materials end up being redirected from productive purposes to the waste stream; (ii) heterogeneity of national regulations and standards; (iii) trade-distorting measures such as export or import restrictions and subsidies.
- A reliable and transparent trade and investment policy environment is necessary to encourage global firms and their suppliers in the Global South to make long-term investments in circular supply chains. The World Trade Organization (WTO), as an international organization dealing with the rules of trade between nations, is the natural forum to discuss such policies. WTO members have paid increasing attention to circular supply chains in recent years. In the WTO Committee on Trade and Environment (CTE) recent discussions on circular supply chains covered the trade aspects of domestic initiatives on waste and chemicals management, extended producer responsibility (EPR) and recycling, as well as on support for developing countries to facilitate their participation in e-waste recycling. Circular economy issues were also identified as priorities in ministerial statements of two environmental

initiatives in December 2021: the Trade and Environmental Sustainability Structured Discussions (TESSD) and the Informal Dialogue on Plastics pollution and environmentally sustainable plastics trade (IDP).

## **Implementation**

G20 members should take a leading role guiding the WTO to further enhance transparency through policy dialogues on trade and circular supply chains, with a view to identify actions and foster collaboration on related challenges and opportunities. For instance, it has been suggested that deliverables at the WTO could cover the inclusion of circular economy chain considerations in possible negotiations on environmental goods and services. The G20 should use the CTE, TESSD and IDP for sharing experiences on effective approaches to promote circular supply chains and finding concrete solutions to enhance the mutual supportiveness of trade and investment policies.

## **PROPOSAL 3: ENHANCE CIRCULAR ECONOMY FINANCING AND ESTABLISH DEDICATED FUNDING MECHANISMS**

### **Rationale**

- Circular finance still lacks harmonised frameworks, taxonomies and metrics. Yet, financial institutions are slowly moving forward with initiatives to advance circular finance solutions in various ways. Some financial institutions have even set multi-billion dollar targets for investing in projects boosting circularity (UNEP FI 2021).
- However, circular economy and circular value chain finance and spending remains low compared with spending in the traditional linear economy. Current investment levels are not enough to drive the circular economy and circular value chains at scale.
- The rollout of recovery and economic stimulus packages in response to the COVID-19 pandemic provide a valuable chance to promote a transition to a low-carbon circular economy (Anbumozhi, Kalirajan and Yao et al., 2022). Until now, economic stimulus packages have primarily been used to support resource-intensive economic systems, rather than to invest in the transition towards circular value chains.
- For mainstreaming circular economy finance in advanced economies, the concept of “just transition” needs to be internalised with ongoing and future investments. A just transition keeps track of impacts on the winners and losers of changes and supports equality of access to the opportunities created by global circular value chains (Schröder and Raes, 2021).

## Implementation

G20 members should consider the use of blended-finance mechanisms, combining public, private and philanthropic capital to finance the harder-to-finance infrastructure, and riskier, long-term innovations (Ellen MacArthur Foundation, 2020).

Policy makers should also provide economic incentives and consider fiscal policy interventions such as taxes on virgin plastics, taxes on raw materials extraction, value-added taxes (VAT) reductions for reuse / repair and sustainable behaviour, shifting the tax burden from labour or education to material inputs, active labour market policies, changes in depreciation methods for circular products (UNEP FI, 2020; Ellen MacArthur Foundation, 2020).

Circular economy finance can be de-risked and expanded by making it an "opt-out" rather than an "opt-in", through policies and the establishment of relevant standards and criteria on a variety of fronts, nudging banking institutions towards more sustainable and ethical investment decisions.

### **PROPOSAL 4: DEVELOP ESG METRICS THAT EVALUATE COMPANY PERFORMANCE ON CIRCULARITY PRINCIPLES WHICH ARE USED BY FINANCING INSTITUTIONS TO DEPLOY CAPITAL PER THEIR INSTITUTIONAL MANDATES**

#### **Rationale**

Sustainable finance investors are increasingly using environmental, social and governance (ESG) rating providers (ERPs) to evaluate companies' commitments to climate change mitigation using circularity principles. ERPs evaluate the opportunities and risks of such investments; access to, and cost of, finance is linked with these ESG ratings. With 85 percent of institutional investors committed to ESG (KPMG, 2020), it is important for G20 members, representing about 90 percent of global GDP and 80 percent of global trade, to develop a consensus-led multilateral framework for ESG ratings.



- **Inconsistencies in rating methodologies, taxonomy, and applications**
  - Methodologies determine the rating score e.g., the portions of products, components and/or intermediates considered parts of circular value chains. Ratings methodologies vary between ERPs, and can be ambiguous, opaque and inconsistently applied to a company's processes, and across companies.
  - Taxonomy covers definitions such as which mechanisms define circularity and which products, components and intermediates, and stages of product lifecycles, are included. ERP taxonomy varies widely across sectors, policy regimes and geographical locations.
  - Applications of ESG ratings use broad metrics such as the amount of product recycled, percentage of renewable electricity used, extent of forest resources conserved, which do not automatically imply circularity integrated into global supply chain designs.
  
- **Multinational operations without unified ESG rating principles**
  - Most large companies operate in multiple geographical locations and their products are part of various interlinked value chains or international production networks (IPNs). Companies often claim high ESG ratings based on final assembly chains, while components are externally manufactured in low- or no-ESG rated value chains. Companies need to follow unified multinational ESG ratings, and related investments must fairly account for end-to-end product lines.
  
- **Inadequate ERP rating capabilities**
  - ESG rating developers and auditors are ill-equipped to undertake in-depth checks of complex production systems. This leads to ad-hoc, inaccurate and/or under-reported quantifications, and frequent manipulations for higher ratings.
  - Governments have started addressing this issue. For example, India's market regulator – the Securities and Exchange Board of India – has proposed that every ERP should have at least one specialist each in data analytics, sustainability, finance, infotech and law (Securities and Exchange Board of India, 2022). Also, the Association of South East Asia Nations (ASEAN) developed a Taxonomy for Sustainable Finance, which serves as a common

building block fostering ESG investments across the 10 member jurisdictions (ATB, 2022).

- **Inequities in global ESG ratings**

- Developed countries primarily defining ESG ratings will lead to them again dominating the developing countries' sustainable finance options in terms of cost, amount and capital flows. Inequities in ESG ratings will also prevent the harmonisation and optimisation of multinational circular value chains.

## **Implementation**

- G20 members must invest time and effort to build consensus for an equitable ESG rating system using unified scoring methodologies and taxonomies, which account for the unique geographies, resources and economic development priorities of each member country.
- G20 countries also need to help build globally accepted auditing and reporting mechanisms and work towards a common taxonomy on circular investments.
- This multilateral ESG rating system should include the principles of circularity to ensure close adherence to the purpose of minimising climate impact and maximising resource efficiency.

## **PROPOSAL 5: NURTURE A LOCALISED CIRCULAR ECONOMY TRANSITION HARNESSING REGIONAL RESOURCES TO SHORTEN VALUE CHAINS, REDUCE EMISSIONS, BOLSTER LOCAL ECONOMIES AND CREATE LONG-TERM VALUE**

### **Rationale**

A localised, decentral transition to a circular economy can encourage regions, SMEs and social entrepreneurs to identify, harness and better utilise regional resources, in terms of materials, infrastructure and institutions. The results are shorter, more circular value chains, reduced emissions, bolstered local economies and greater sustainability values in the long run. A decentralised approach for a circular economy that includes renewable energy production will help local regions and small businesses to increase their self-reliance on commodities, resources and energy use.

- The COVID-19 crisis showed that there is an increasing need for resilient production and consumption systems fostering sustainability and circularity involving local infrastructure and actors. (Sarkis, 2020).
- A combination of crises and opportunities, emerging from COVID-19 pandemic, decarbonisation and the circular economy, has reemphasised that equity, safety,

welfare, health and education, as well as associated public services are fundamental issues for social sustainability at a local level (Tasaki et al., 2021).

- Although many recent international agreements and related national action plans on sustainability have set ambitious long- and mid-term goals, it is not clear what society will look like after it has achieved those goals (Hotta et al., 2021a).
- How can we balance the transition to a circular economy at the local level with circularity embedded in supply chains and waste flows? Typically supply chain risk assessment focuses on normative guidelines based on single best-practice examples and there has been little works exploring the concepts of supply chain risk assessment in connection with resilience and the circular economy (Anbumozhi, Kimura and Thangavelu, 2020)..

## **Implementation**

The Regional Circulating and Ecological Sphere (Regional CES), conceptualised by the Japanese government, is a decentralised system to optimise carbon and material circulation, and to reduce waste efficiently in each industry or sector (Takeuchi et al., 2019).

G20 members should build the capacity of local governments to act as facilitators and planning organisations, forming a local, decentralised loop in terms of materials, finance and people (Liu, 2018). Investing in social entrepreneurship models and promoting public and private investment to facilitate model cases adapted to different local contexts can enhance the transition process (Hotta et al., 2021b). To close circularity gaps, global value chains should introduce and promote sustainability criteria, standards and KPIs, especially in regions where sustainability is scarcely practiced (Lavtižar, 2021). By linking digital opportunities to localised value chains, G20 members can encourage socio-technical innovation fostering new business models and lifestyles (PECoP-Asia and APRSCP, 2018).

## **PROPOSAL 6: ENSURE THAT THE TRANSITION TO A CIRCULAR ECONOMY IS JUST AND INCLUSIVE FOR THE GLOBAL SOUTH BY SUPPORTING REVERSE LOGISTICS AND GLOBAL EPR STANDARDS**

### **Rationale**

G20 members need to create a foundation by providing support related to infrastructure, capabilities and skills to less developed countries by leading and encouraging producers to design products that can be disassembled. The G20 can set criteria based on circular economy principles by collaborating with local governments in the Global South for a just transition by involving organisations, manufacturers and formal recyclers to close the loop by reverse logistic processes.

- In 2017, global material consumption exceeded 100 billion tons per year (UNEP, 2016). 90 percent of these resources were resources exported by countries in the Global South (De Wit et al., 2020) for consumption in the economies of the Global South. Those materials are often used by economies in the Global North.
- Despite the emergence of vast production networks and global supply chains that feed into multinational companies, there has been limited investment in infrastructure for handling the “end of use” of their products sold globally, especially in developing countries where manufacturing, remanufacturing and recycling, and recovery capabilities are in their infancy (Calzolari, T. et al., 2021).
- This challenge can be overcome by creating a global EPR system that aims to enhance the capabilities and skills at the final destination in developing countries without facilities to contribute to the circular economy as part of a just transition (Maitre-Ekern, 2020).

### **Implementation**

Multinational companies must include in their decision the supply chain constraints to circularise the flow of materials from the final destination to factories. The scarcity of facilities at the destination must be included in the design process of their products by involving the supply chain actors for global collaboration on material efficiency and circular trade flows. Therefore, the producers must design a circular process throughout reverse logistics by including local actors at the final destination in the Global South. They can incentivise and support circularity by facilitating material recovery systems.

G20 members can formulate practical product recovery guidelines and collection systems in the Global South by encouraging remanufacturing, refurbishing and repair to extend the lifespan of products. Thus, the G20 should create enabling conditions for a global EPR standard between developed and developing countries.

## **PROPOSAL 7: MAKE USE OF THE PUBLIC AWARENESS MOMENTUM CREATED BY THE PLASTICS CRISIS TO DRAW ATTENTION TO CIRCULAR VALUE CHAINS AND THE JUST TRANSITION IMPERATIVE**

### **Rationale**

The global public attention to climate change and plastic pollution leaking into the environment and damaging our planet provides momentum for the creation of circular plastic value chains (MacArthur, 2013). We require public awareness that is evidence-based and makes behaviour change accountable by:

- Turning plastics concerns into behaviour change need to be more structured, using the best available science. This means going beyond the sporadic media “moments” and into collaborative campaigns and movements among stakeholders that attract massive public attention that leads to immediate calls for mindset and behavioural changes and treatment of plastics (Heidbreder, 2019; Moss, 2021).
- Circular economy definitions need to be clear and standardised for the public to support their production and consumption decisions (Kirchherr, 2017). Different stakeholders have a varied and incomplete understanding of the circular economy. To make circularity a reality, we need to redesign production, consumption, trade and logistics systems (Preston, 2012). This will create a healthier community and spur green growth (Hammer et al., 2011).
- The role of individuals must be improved in addressing plastic pollution. Reinforcing the understanding that although plastic pollution is manmade, people as consumers are the agent of behaviour change in their respective roles in the society and economy. Moreover, while many projects have yielded promising success at the local level in small size, there are insufficient resources to scale them up (Provencher, 2020).

### **Implementation**

G20 members are encouraged to promote standardised and publicly recognised definitions of the circular economy for plastics and other resources to implement public awareness programmes. The impact should be measured to generate further research and effectively drive behavioural change towards sustainable consumption.

In addition, G20 members should support grassroots movements and campaigns to encourage the promotion of local norms, values and improve public procurement of circular products and services. It is also essential to enable an effective learning environment by exchanging experiences and building technical and institutional capacities of local governments and civil society organisations for a circular economy.

Lastly, by setting concrete circularity targets for the circular economy transition in their respective countries, G20 leaders could attract the attention of the international community and hold them accountable for the transformation.

## **PROPOSAL 8: CREATE A PLATFORM FOR SHARING BEST PRACTICES ON POLICY DESIGN, IMPLEMENTATION AND MONITORING**

### **Rationale**

- G20 members should establish a platform for exchange of experiences in establishing global circular value chains to find a common and systematic approach.
- While the main driver of the transition to a circular economy is the private sector, governments and consumers play a crucial role in creating a conducive market environment. Designing policies supporting circular supply chains might be new to many policy makers in the Global South, hence experience exchanges between advanced and developing countries is essential.
- There have been some circular economy platforms at country level (e.g. CE-HUB in the UK, CRCLR house in Germany) but circular economy networks, business models and public private partnership mechanisms should not be limited to one country. The G20 CE platform can connect governments and existing national circular economy platforms in all member countries. Most importantly, it could promote international cooperation for developing circular economy projects/models and thereby fostering circular global value chains.
- Published information on a platform on successful circular economy transformation can benefit not only G20 members but also others, particularly in the Global South. This helps increase the impact of G20 activities on the global transition towards a circular economy.

### **Implementation**

- The G20 platform on circular value chains should include not only experience sharing in the form of publications (e.g. articles on the platform website, newsletters, reports) but also round-table discussions and business-connection activities. Thus, it can be beneficial to not only the policy makers but also enterprises and the general public.
- The platform should develop guidelines for G20 members on how to embed circular economy elements in global value chains. Based on broader guidelines, countries can specify their policies and adopt business models according to their local conditions.

These guidelines should be revised and updated on a regular basis to incorporate technology advancements and progressive political mandates.

- A unified set of criteria to monitor, report and verify the circular economy transition at country, sectoral and local level should also be established by the platform.

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