

# The Circular Economy is Shrinking: Here's How to Expand it

By taking steps to accelerate circularity across four high-impact value chains, companies and the public sector can relieve planetary pressures and advance climate goals

Reducing global material use through circular strategies, such as reuse, repair, and recycling, can limit global warming to below 2 degrees Celsius and bring human activities back within safe planetary boundaries, according to a new report by impact organization Circle Economy, in collaboration with Deloitte.

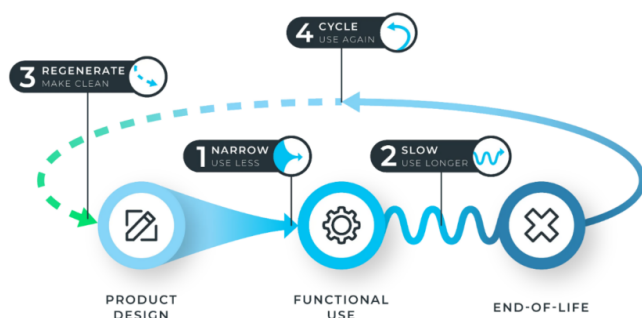
Issued last week in Davos, Switzerland at the World Economic Forum, the “Circularity Gap Report 2023” finds that the global economy is measured to be 7.2% circular today, falling from 9.1% in 2018 when Circle Economy first calculated the figure. The measurement means that of the 100 billion tons of virgin materials now being extracted from the earth annually, only 7.2% make it back into the economy in the form of recycled materials. Over the past six years alone, the global economy has extracted and used almost as many materials as over the course of the entire 20th century, according to the report’s findings.

This low level of circularity “demonstrates how reliant the global economy is on new, virgin materials,” says Matthew Fraser, head of Research and Development at Circle Economy. “There is huge potential to increase the global economy’s use of secondary materials,” he observes.

Current linear processes don’t just sap the planet’s finite materials—they also produce tons of greenhouse gas (GHG) emissions and waste, a considerable part of which can be prevented.

According to the study, key societal needs—such as nutrition and housing—could be fulfilled with just 70% of the materials the world economy currently consumes. Cutting material extraction by 30% will hugely improve environmental health across land, sea and air. The key to this reduction lies in the transition from fossil fuels to more renewable energy sources and lowering demand for high-volume minerals, such as sand and gravel, which are largely used for housing and infrastructure.

4 levers to transition towards a circular economy:



Source: Circularity Gap Report 2023, Circle Economy

In practice, it means boosting renewable energy and renovating old buildings and infrastructure instead of constructing new ones, in combination with designing for disassembly and recyclability. The most appropriate approaches will vary significantly between geographies given the just transition imperative acknowledged in the 2015 Paris Agreement.

The potential reduction of material use will look different across global regions. The United States and EU member states have the largest opportunity to radically reduce their material demand, as they currently represent a disproportionately high level of both material consumption and impacts to the environment. Emerging economies, such as China and Brazil, will need to stabilize their material consumption.

“The linear economy has a number of detrimental effects on the environment that significantly affect peoples’ well-being. Our research shows that by adopting circular economy practices, we can cut material extraction, continue to prosper, and return to living within the safe limits of this planet,” points out Martijn Lopes Cardozo, CEO at Circle Economy.

### **Delivering More Benefit with Fewer Materials**

According to the report, four major global systems account for the lion’s share of global emissions and waste—the Built environment, Food systems, Mobility and transport, and Manufactured goods and consumables. Sixteen ambitious circular economy steps implemented across these systems can reverse the current overshoot of five planetary boundaries, ensuring safety for land, air and water and limiting global warming to below 2 degrees Celsius.

**The food system** now occupies roughly half of the habitable surface of the planet. It is responsible for one-third of global GHG emissions, 8–10% of which relate to the production of lost and wasted food. The systemic and economic

effects within food systems could be one of the most powerful impacts of adopting circular practices. In some countries agriculture alone employs 60% of the workforce, so local pressures are often hard felt.

The biggest area to address is waste, both of food itself and wider production inputs, such as energy, water and land, that are wasted throughout value chain from production to consumption.

Transitioning to a circular food system includes cutting food waste by improving transport and storage management, supporting healthy soils to keep land arable for longer and focusing on local, seasonal and organic produce to reduce the need for toxic fertilizers, fuel and transportation. Approaches range from utilizing advanced technology, such as robotic plant care to optimize fertilizers and water use, to cold storage-as-a-service to preserve product quality.

**The built environment** accounts for roughly 40% of global GHG emissions, with cement production alone contributing around 7% of the CO<sub>2</sub> released into the atmosphere globally. Boosting building's energy efficiency and repurposing existing building stock are just some of the ways to improve the system's carbon footprint. Reshaping urban environments towards greater local self-sufficiency, designed with circularity in mind, can reduce waste created by long supply chains, while also improving living standards.

At design, the blueprint for the long-term local community engagement should precede the city and building blueprints, to ensure social needs are incorporated from the start.

When building, look at better using and reusing already existing structures, for example repurposing both buildings and building materials. Building with (partly) regenerative materials next to recycled materials will push circularity.

Competition to find the most effective solutions can be promoted by organizations as essential component of tenders. Regulators can enable this innovation by acknowledging broader sustainable practices within building regulations.

Collaboration across private and public sectors is vital, especially during planning and financing. Next-generation towns and cities depend on fostering pilot innovations that pave the way for scaled up versions, once the proof of concept and viability has been established. This step likely requires funding with a high

tolerance of risk and potential early failure, with a view to learning for the future.

**The mobility and transport system** is a major driver of climate change and ocean acidification, responsible for approximately 25% of GHG emissions globally. In a circular mobility system, walking, cycling and remote work would be key, as would investment in high-quality public transport and a transition to electric vehicles.

Circularity opportunities in mobility and transportation include shared rentals to accelerate the shift to low emission or electric vehicles via choice architecture, limiting supply of high emission vehicles. Smart city planning with increased focus on pedestrians, cyclists and public transport, can stimulate car-free travel. Private and public sector incentives are needed to encourage the necessary behavioural change for transitioning to this new way of living.

**Manufactured goods and consumables** imply highly energy- and material-intensive industrial processes. The report estimates that over one-quarter of global solid waste generation is industrial waste. This could be improved with more sustainable fashion practices, promotion of responsible buying and extending the lifetime of machinery. Much of the change required comes from looking at the whole ecosystem and innovating to create new ways, new products, and new services that satisfy consumer need while increasing the value derived from the material inputs.

A circularity focus requires adjusting existing or creating new business models and products that provide concrete solutions to sustainability problems. Lessons in doing so can be drawn from the capital goods sector, where circularity is much more mature and models like leasing or products-as-a-service are commonplace. These steps require ground-up collaboration across organizations and suppliers; integration across the supply chain based on increased transparency, specialist control, and less stock movement.

True pricing— the market price plus the social and environmental costs of a product—is the final pillar, not only ensuring the material cost beyond GDP is acknowledged, but to properly empower consumers in their decision making, externalities need to be reflected in the price.

“These findings reinforce that we have reached a point where the planet cannot keep up with the human demand for material goods,” observes Dieuwertje Ewalts, director, Circular economy and sustainability at Deloitte Netherlands. “Circularity

offers us the opportunity to reduce planetary pressures. Involvement from business and the creation of more circular products going forward will be key in creating a positive impact for both the planet and society,” she says.

—by *Andy Marks, editor, Deloitte Services LP*

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