

# The Role of Business in Moving from Linear to Circular Economies



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ISBN No: 978-92-807-3885-8

Job No: DEW/2383/NA

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Layout: Jinita Dodhia/ UNON, Publishing Services Section/Nairobi

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Suggested citation United Nations Environment Programme (2021). The Role of Business in Moving from Linear to Circular economies. UNEP, Nairobi.



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# The Role of Business in Moving from Linear to Circular Economies

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# Key messages

The environmental impacts of today's "take, make, waste" or "linear" economy are dramatic and extensive. Resource extraction has tripled since 1970 to a massive 92 billion tons per year, and is projected to grow by another 70 per cent by 2050. Today's global economy is only 8.6 per cent circular. The combustion of fossil fuels, that have driven this growth, has already contributed to a 1.1°C average global temperature increase, and could lead to a 3.5°C increase by 2100 without global action. Many of the impacts of climate change, such as more frequent and intense storms and floods, lengthier droughts, sea level rise, increased number of extreme heat events, changing freeze/thaw patterns, and more frequent and intense forest fires are already being felt in countries and regions such as Germany and China, the Arctic and Australia, USA and Turkey <sup>[1]</sup>.

Parts of the linear economy are having other impacts. The global food system contributes around 70 per cent of biodiversity loss and also consumes 70 per cent of available freshwater <sup>[2]</sup>.

The linear economy also drives huge quantities of waste with around 24 billion t/y being discarded, much in uncontrolled landfills

A rapid shift to a more Circular Economy, which drives reduced use of raw materials, redesign, reuse, repair, remanufacture and recycling at every step of the value chain, could dramatically cut resource use, and coupled with decarbonization, can deliver a low carbon and lower impact future.

Moving from a linear to a circular economy is being driven by 5 key changes:

- Changes to the global policy environment
- Investor demands
- The need for greater business and supply chain resilience
- Changing consumer preferences, and
- The impact of the COVID-19 global pandemic

There is real opportunity for businesses to reduce costs, build resilience in their supply chains, comply with emerging policies and meet investor and customer requirements, through moving to a more circular approach.

To do this, businesses can use a value-chain approach to prioritize where they can take action to have the biggest impact on greenhouse gas emissions and make 'transformational sprints' towards circularity. These value chains, which include all the activities that provide or receive value, from: designing, making, distributing, retailing and consuming a product (or providing the service that a product renders), must be transformed by businesses.

By moving to a more circular business model, businesses can:

- Enter new markets and increase market share
- Reduce costs, risks and future proof the business
- Drive innovation, attract talent, deliver value and align with public expectations.

This brief examines how businesses can deliver this change, using food, electronics and construction value chains as examples. Successful businesses of the future are likely to be ones that deliver excellent value with minimum resource and environmental costs, while moving rapidly toward nature-positive solutions and net zero carbon emissions. Applying circularity principles can help businesses deliver a rapid and successful shift towards delivering these crucial priorities for humanity.

## About GEO for Business

The United Nations Environment Programme [UNEP] and its global partners are proud to offer this series of stimulating briefs about the environmental challenges and business opportunities that demand transformational change at a global scale. These business briefs are meant to communicate the science of the environment to a broad business audience and provide possible pathways and roadmaps that business can follow to address these environmental challenges. The audiences these briefs hope to reach include companies in the supply chains of major multinationals, multinationals themselves as well as small to medium-sized enterprises. The themes of the first five briefs include:

- [how to transform in a time of uncertainty](#),
- [how to transform business models towards a fully circular model](#),
- [how to transform global food systems](#),
- how to build environmentally sustainable and resilient infrastructure,
- and the role finance needs to take in a transforming world.

# 1 What are the impacts of today's linear economy and why would transforming towards a circular economy model be necessary?

Although rising living standards and decreasing poverty rates have accompanied the economic model followed by the world for the last century<sup>[3]</sup>, such global economic prosperity has come at an increasingly steep environmental cost, making this model unsustainable. The doubling of the global population and global domestic product per capita growth in the last 50 years has been linked to material consumption that exceeds several planetary boundaries in many areas<sup>[4]</sup>. These planetary boundaries, which encompass climate change, water use and chemical pollution, among other threats, describe nine biophysical limitations to safe life on Earth<sup>[5]</sup>. Planetary boundaries are being breached, due to the following:

- Extractions of global resources, which have more than tripled since 1970, from 27 billion tons to 92 billion tons in 2017. Without action, resource extraction will more than double from current levels to 170–184 billion tons by 2060<sup>[6]</sup>.
- The combustion of fossil fuels, that have driven this growth in linear economy, has already contributed to a 1.1°C average global temperature increase, and could lead to an increase of 2.8°C or greater by 2100 without significant global action<sup>[7]</sup>.
  - ▶ Impacts from this global temperature increase will include more frequent and intense floods, hurricanes, typhoons, lengthier droughts, sea level rise, more extreme heat events, changing freeze/thaw patterns, coral reef bleaching and ocean acidification, and more frequent and intense forest fires, among others<sup>[7]</sup>.
- The current global food system, which is responsible for 70 per cent of global biodiversity loss<sup>[8]</sup>.
- Indoor and outdoor air pollution, which causes 7 million premature deaths per year<sup>[6]</sup>.
- Plastic pollution in oceans – since 2016, about 11 million tons of plastic have entered oceans per year, mainly from land-based sources<sup>[9]</sup>.

- Deforestation, although rates have decreased from around 10 million hectares per year in the 1990s to 6.5 million hectares per year in 2010–2015, overall net deforestation continues globally.
- Water pollution, which is responsible for 1.4 million deaths each year, with 2.3 billion people lacking access to safe sanitation services<sup>[6]</sup>.

It has become increasingly clear that “business as usual” is unsustainable for people and the planet. The sixth Global Environment Outlook (GEO-6) has presented how a healthy environment fundamentally underpins human health and well-being. The Sustainable Development Goals (SDGs) recognize that inequality, including poverty and gender discrimination, is causing significant human productivity and prosperity to be wasted<sup>[6]</sup>. To ensure a healthy, prosperous and sustainable future for all, businesses need to change what and how they consume and produce as soon as possible<sup>[10]</sup>. In addition to urgent environmental threats and the risk of volatile resource prices, businesses are facing significant technological innovations and the following external drivers of change, which are encouraging the transition towards more circular business models:

- policy environment changes
- investor demands
- the need for greater business and supply chain resilience
- changing consumer preferences
- the impact of COVID-19.

One way that businesses can respond to these drivers of change is by shifting from a linear business model to a circular one. A linear economy, which describes the process of extracting raw materials, making, using and then disposing of goods, relies on environmentally unsustainable rates of resource extraction and waste disposal, thus threatening planetary boundaries<sup>[11]</sup>. In comparison, a circular model, which emphasizes a reduced use of raw materials and the reuse, repair, redesign, remanufacturing and recycling of resources

at every step of the value chain, ensures that materials or resources keep their maximum possible value as they move and are retained within different value chains (as stated in the United Nations Environment Programme (UNEP) circularity platform). Moreover, the shift from a linear economy to a **circular economy** needs to be gender inclusive if we are to be successful at achieving the sustainable development goals. In section 3, this brief presents examples value chains where pathways to circularity are possible, namely: food, electronics and construction.

Overall, the cornerstone of circular business strategies revolves around four areas:

- designing products and services with minimal resource use from the start to allow for circularity and longevity
- designing out waste and keeping chemicals of concern away from recycled material streams at all stages of the value chain
- designing *in* renewable and recyclable resources to help develop the market for sustainable and second-life materials and to reduce a company's reliance on virgin materials
- designing *in* regenerative raw materials to help reduce material use.

**Figure 1** shows the main actions that can be taken to help build a more circular economy and ultimately shift the current economic model towards a more sustainable future. Adopting a circular model would reduce the use of natural resources, as well as their environmental impacts per unit of output, while continuing to enable improvements in human well-being. Life cycle thinking, which enables the

The rapidly **changing global and national policy environment** provides additional incentives for action. Several countries and regions have placed circularity and sustainable consumption and production at the centre of their policy efforts, including **Chile, China, Colombia, Rwanda, South Africa, Viet Nam** and the **European Union**, and several European countries have developed national frameworks on circularity, such as **Finland, France, Spain** and **Sweden**. The growing number of resource efficiency and recycling targets set by countries are intended to drive global economies and businesses to transition towards circular practices. At the global level, the **Global Alliance on Circular Economy and Resource Efficiency** was launched in February 2021, bringing together governments to work jointly for a global transition to circularity. Several regional alliances also exist, including the **Latin American and Caribbean Circular Economy Coalition** and the **African Circular Economy Alliance**. Specific global conventions, such as the Basel Convention, through its Plastic Waste Amendments, also contribute by further boosting efforts to control transboundary movements of waste, ensure environmentally sound management and prevent and minimize the generation of plastic waste. These kinds of policy drivers foster innovation and contribute to the development of new business models, new services and new value chains that reuse materials and products and reduce or eliminate waste<sup>[12]</sup>. Such new models are likely to create new jobs<sup>[13]</sup>, offer greater inherent resilience and reduce environmental impacts<sup>[14]</sup>.

The company Accenture estimates that the circular economy presents a \$4.5 trillion growth opportunity<sup>[15]</sup>, providing a compelling business case for action. **Investors** are starting to see new financial opportunities and benefits and are providing products to financially support the transformation to a circular

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