

Circular Economy

ISSUE The global economy today is largely based on a linear, take-make-waste model in which over 60 billion tons of natural resources are extracted per year, and over 13 billion tons of waste are disposed into landfills, incinerators, and waterways. Cars sit idle approximately 90% of the time, approximately 40% of office space is unused, and nearly 2 billion people do not have access to waste collection. This process of mass extraction, industrial production, consumption, and waste is accelerating and resulting in natural resource depletion, ecosystem degradation, release of hazardous chemicals into the soil, air and waters, greenhouse gas emissions, and marine debris. Greenhouse gas emissions are at an all-time high with 40-50% of emissions from sources tied to materials flow in developing countries (i.e. industry, buildings, agriculture & forestry, transport). Approximately 280 million tons of plastic are in the ocean today and 8-13 million tonnes of plastic enter the ocean every year. These trends are predicted to increase. Over the next 20 years demand for electricity will increase 30%, arable land need will increase 200%, and water needs will increase 140%.

This linear system is one of the major social and economic drivers undermining the stability and resiliency of Earth's systems and, consequently, adversely affecting human health and the environment. These environmental impacts adversely affect livelihoods, the economy, and society at large.

Tackling this challenge requires a circular economy model that emphasizes public-private sector partnerships to catalyze a closed loop approach to production and consumption through improved

material use, product design, industrial process change, waste management, and material recovery and recycling. The circular economy model provides tremendous opportunities for reducing natural resource extraction and emissions of hazardous chemical emissions and greenhouse gases, along with fast tracking the achievement of commitments by countries with the major international conventions. At the same time, it provides solutions to foster new businesses and catalyzes economic and employment growth. Within the European Union, a transformation

towards a circular economy is estimated to save nearly USD 700 billion, create millions of jobs, and ultimately boost GDP by 3-4%.

Nations are able to minimize greenhouse gas emissions through reduced fossil fuel extraction. They can reduce hazardous chemical emissions through both improved end-of-life practices to capture and properly dispose of these substances and through redesigned materials and products. A circular economy also helps countries safeguard terrestrial, freshwater, and marine biodiversity by reduced unsustainable resource extraction and reduced marine debris. Consequently, circular economy is a delivery mechanism for not only SDG 12 (Responsible Consumption and Production), but also SDG 9 (Industry, Innovation and Infrastructure), SDG 13 (Climate Action), SDG 14 (Life Below Water) and SDG 15 (Life on Land).

SOLUTION

The circular economy requires fundamental changes in the way society produces and consumes. This means adopting a systemic approach that addresses the entire lifecycle of products:

- **Material and design engineering** - promoting the use of recycled content & alternative sources of feedstock for plastics and redesigning products to foster reuse, recycling, shared use, and extended life;
- **Consumer use** - changing individual and business behaviors to catalyze demand for sustainable products and processes; and,
- **Recovery and recycling** - improving efficient waste collection, tracking, management and trade markets to prevent improper incineration and discharge into waterways and to promote recycling of material back to the first intervention point.

The circular economy model is being addressed through a variety of sectors, including plastics, electronics, food and beverage, transportation, pharmaceuticals, construction, and textiles.

For manufacturers, a systemic approach includes sourcing secondary or renewable materials; optimizing resource use and minimizing externalities during production; keeping products, components, and materials at their highest value at all times through sharing, repairing, reusing, remanufacturing, and recycling; and establishing effective secondary materials systems to connect recycled materials directly to manufacturers. Increasingly industries are adopting “extended producer responsibility” as they recognize their role in the management process and their responsibility for the end-of-life phase of their products. Small and medium-sized enterprises are seen as particularly critical players in innovating new products and services while large corporations play a key role in setting standards and policies with governments.

Both producers and consumers need heightened responsibility and awareness of the need for renewable technologies and materials. Governments need to adopt suitable, clear, and stable policies and tools that incentivize circular economy principles and support effective and environmentally sound after-use material management and recycling systems. Multilateral development banks (e.g. European Investment Bank, World Bank) and private investors also have a role to play by investing in innovations, industrial symbioses and product-to-service approaches that align with the circular economy model.

The challenge is profound, but a few global market leaders are driving the process and starting to create demand signals. Royal Philips, for example, offers “health services,” which enables it to offer a product that customers want while retaining ownership of its equipment so as to be able to eventually reintegrate them into its supply chain. Nike has committed to closing their product loops. Lego has committed to moving away from oil based products by 2030. Renault Nissan Alliance has run an automotive remanufacturing plant since 1949. And the engineering and design firm Arup is leading thinking on how to transform the built environment: they have achieved reductions of 75% in weight and 40% in materials, compared with traditional construction methods, through using 3D-printed steel components.



Individual governments and multilateral government organizations also recognize the need to remove barriers and establish enabling conditions for private sector innovation. The problem is that these solutions and policies remain nascent and small-scale, and their broader uptake is frustratingly slow. Only through disruptive, systems level change—a complete overhaul of key economic systems and development pathways—can we hope to get on the right path. We are still far from achieving that goal; however, we are seeing that the question is no longer “why,” but rather “how” to adopt a circular economy approach.

LOOKING AHEAD

Circular economy is recognized as a unique opportunity for the GEF to pursue a suite of environmental benefits through public-private partnerships. The GEF’s comparative advantage is its convening power and its ability to bring together all the actors in these complicated and interlinked global supply chains—including governments, industry, and the finance sector—to scale-up existing experiences

with the circular economy. Furthermore, as developing country governments are pursuing circular economy roadmaps, the GEF can assist in creating the enabling environments for private-public partnerships and promoting effective regulations and public services while helping to understand the short and long-term benefits as well as costs of transitioning economies from linear to circular models.

Recognizing the need for a global platform to catalyze private-public collaboration toward a circular economy, the GEF co-chairs the Platform for Accelerating the Circular Economy, together with Royal Philips and UN Environment and hosted by the World Economic Forum. Circular Economy is highlighted in the GEF-7 strategy within the International Waters and the Chemicals and Waste focal areas as well as within the Sustainable Cities Impact Program. As indicated, the GEF-7 investments will focus on actions that can lead to global supply chains and regional and national economic development strategies moving from take-make-waste to redesign-reduce-reuse-repair-recycle approaches.

