



## From Growth to Wellbeing - by GIZ & Partners

### Circular Economy

#### Running out of ecological resources

It is important to understand that our current **economic system** is a **linear one**, piling up enormous amounts of waste everyday with no future usage or value creation. To make this system work, earth's resources are extracted and consumed at ever increasing rates. In 2021, **earth overshoot day**, which marks the date when human demand for ecological resources in a given year exceeds what can be regenerated by the earth in that year, fell on July 29th. This means that, on average, the world's population has consumed the amount of resources the earth can provide in a sustainable regenerative system in any given year after approximately half a year. For some industrial nations, earth overshoot day even happens far earlier in the year. For example, in 2021, the United States reached this benchmark as early as March. For the remainder of the year, stocks of ecological resources are depleted and CO<sub>2</sub> in the atmosphere.

#### The need to change the way of producing, consuming and living

To preserve our planet for future generations the world needs to start **changing its way of producing, consuming and living**. We need **decouple economic growth from resource use** and transition to a transitioning to a regenerative growth model instead.

The **circular economy approach** provides a convincing alternative to our harmful linear system of production and consumption. In a circular economy, **value is maintained as long as possible and resources are fed back into value chains**. Even though the topic of circular economy is already heavily discussed by professionals and researchers alike, the world is still a long way apart

from becoming truly circular. Since 2018, the global impact organization Circle Economy is publishing their so-called **Circularity Gap Reports**, in which they publish an assessment of **how circular the world is**. The results of these reports show that the world's circularity is even on a downward trend at the moment!

#### How can we revolutionize textile production?

To better understand how the world can move from its current take-make-use-dispose pattern to a regenerative growth system, it makes sense to have a closer look at the example of a specific product value chain. In 2020, **textile value chains** ranked **fourth** in the EU, after food, housing and mobility, with regards to highest **negative impact on the environment and climate change** from a **global life cycle perspective**. To address this issue, the EU has developed a strategy for sustainable and circular textiles, as part of its New Circular Economy Action Plan. These efforts mirror global initiatives such as the UN Alliance for Sustainable Fashion or the Sustainable Apparel Coalition.

The question that all of these strategies and initiatives are addressing is the following: How can we revolutionize textile production in such a way that it becomes a circular system that retains the value of resources used across the product life cycle?

Figure 1 illustrates how a circular supply chain could look like and highlights strategies that are effective in creating circularity in textile value chains.

The textile value chain traditionally starts with product design. The **design phase** is crucial to implement circularity throughout the value chain as this is where the foundation for a truly circular system is laid. Products and product inputs must be **designed for disassembly, reassembly and recycling** as well as for **durability, ease**

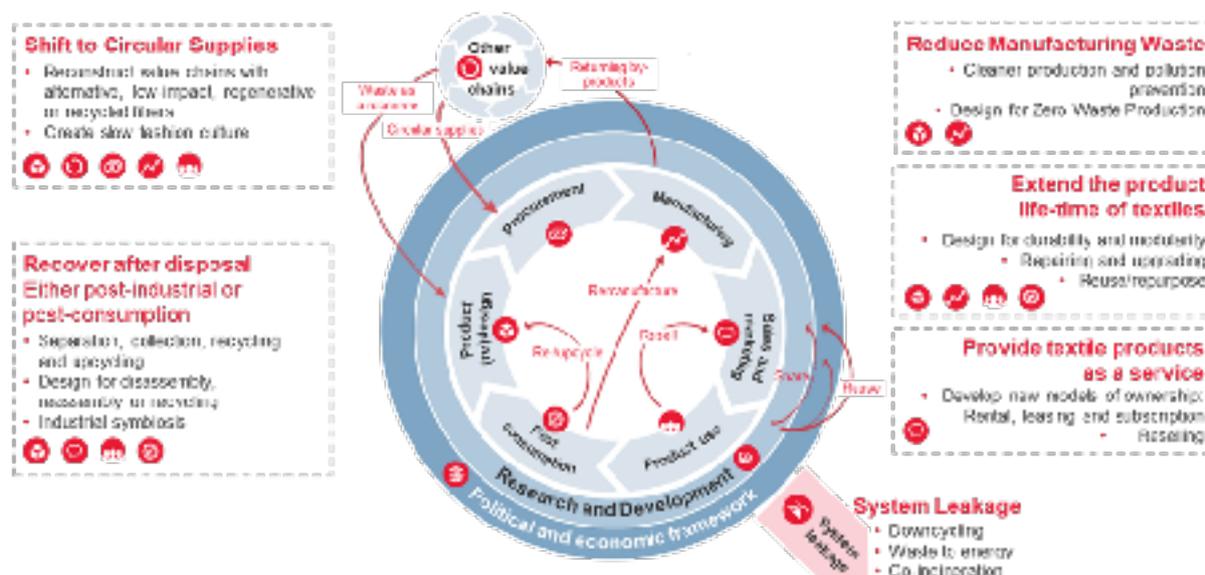


Figure 1: Framework for circular textiles

of reuse, repair and remanufacturing. The recently published Synopsis Report on the Consultation on the EU Strategy for Sustainable and Circular Textiles outlines that design for circularity will be a priority in the EU strategy for circular textiles and that the implementation of eco-design requirements for the European market will be a means to push this endeavor. Secondly, resources used to create garments need to be considered. In the textile value chain, these are usually natural fibers like cotton, or synthetic ones like polyester. A circular textile value chain uses alternative, low-impact or recycled fibers instead of virgin production. This is also part of the Ellen MacArthur Foundation's vision for circular fashion: clothes must be made from safe and recycled or renewable inputs. To get there, the textile industry needs to shift away from using mixed fibers (e.g. poly-cotton) towards using mono-fibers (e.g. pure cotton). Moreover, the use of any other harmful inputs, such as hazardous chemicals should be avoided at any cost.

Subsequently, garment production processes must become cleaner, more resource efficient and apply zero waste principles. A UNEP study has shown that the water- and energy-intensive manufacturing stages of textile production account for the largest part of its climate impact. Thus, innovation in production techniques is needed to reduce the sector's climate impact as well as the generation of waste and by-products. Implementing Extended Producer Responsibility (EPR) schemes for textiles is another means to reduce waste in

production processes. The EU strategy regards EPR as a driver for innovation with regards to eco-design and green industry solutions. EPR schemes also significantly impact collection and sorting rates of waste as has been shown in France already.

The keywords "collection" and "sorting" pin-point to the another challenge the textile value chain. What happens to textile waste after its disposal? Both, post-industrial, as well as post-consumer textile waste needs to be collected, separated and sorted for recovery in the form of recycling, upcycling or industrial symbiosis. The latter is an approach in which waste materials of one industry become input materials for another industry.

Not only the way we produce our clothes but also the way we use them needs to change to enable a circular textile industry. Boost Clothing Care is part of the earlier mentioned vision for a circular economy. The goal is to keep clothes at their highest perceived value for as long as possible to extend the time period they are used. Repairing and upgrading are two strategies to get there as they retain or even increase the perceived value of clothes. Additionally, resource consumption during use phases should be reduced. Too frequent and inappropriate washing not only shortens the lifetime of garments but is also a main reason for releasing unnecessary high amounts of microfibers and wastewater.

Lastly, to transition to a circular fashion industry, we need to facilitate demand for circular products and ser-

vices, raise awareness about the downsides of linear production and disposal techniques among consumers and advertise slow fashion concepts at the same time. This also requires a shift to **circular business models** that support longer product use and to more sustainable purchasing behaviors and lifestyles. These circular business models include new models of ownership like rental, leasing or subscription. Regarding **textile products as a service** is the ultimate pathway to implement such business models accordingly.

### The path to transition, barriers and solutions

With all the negative environmental and social consequences of linear production systems and all the strategies and approaches for circularity already out there, **what is currently keeping us from transitioning to the circular economy and how can we overcome these barriers?**

Five barriers to transitioning to a circular economy are: (1) a **lack of information**, (2) **upstream decision making** is not in line with **downstream needs for circularity**, (3) **technological innovations** are not mature enough, (4) **collecting and sorting** is often done wrong, and (5) **economic and political structures** still favor linear processes.

- » **First**, as explained before, data on material flows is urgently needed to be able to close value chains and implement circularity. However, global value chains with multiple contractors and sub-contractors are immensely complex and present a major challenge for transparency and circularity. On top of that, data on the quality and composition of material flow is only scarcely available.
- » **Second**, decisions made on product specifications during the design stage influence end-of-life management processes. Until today, products are normally not designed for circularity or recyclability. Consequently, different brands are starting to experiment how they can embrace eco-design principles in their product lines. However, so far this has proven to be a quite challenging task for international brands and retailers to tackle by themselves. Thus, Multi-Stakeholder-Initiatives such as the Partnership for Sustainable Textiles support international brands and retailers in integrating the eco-design principles in selected product lines. For example, as part of the Recycling Working Group nine member companies of the partnership nominated ten of their products and had them analyzed regarding potential to improve recyclability, longevity and grade purity.
- » **Third**, it was made clear that innovation in production techniques is needed to reach circularity. Even though innovation is already happening, it is still in its infancy and thus expensive. Until now, even using the most advanced chemical recycling technologies remains 10% to 20% more expensive than using virgin materials.
- » **Fourth**, collection and sorting might happen but the loop does not close at the end of life. It even happens that sorted waste materials get mixed again during transport or are sent to landfills and incineration chambers. Even if the industry acts to collect and sort their material waste, municipalities have to shoulder the burden of taking care of waste management at the end. In a way, product responsibility to close the loop is left with the local governments where pre- and post-consumer waste is created.
- » **Lastly**, we are living in a linear world. Virgin materials are much more accessible at high scale and cheaper in price and the use of secondary materials isn't encouraged, on policy level. Additionally, the policy environment surrounding value chains and production processes is very fragmented and still designed for a take-make-waste models of production and consumption.

Facing these barriers, five solutions can be presented that indicate the direction we need to take to implement circularity: (1) **multi-actor coordination and collaboration**, (2) changing from a waste management to **resource management mindset**, (3) enabling **access to resources** such as **finance and technical knowledge**, (4) **multi-level governance**, and (5) establishing an **enabling policy framework**.

- » **First**, cleaner production solutions and closed-loops cannot be implemented by one company or government alone. A distribution of responsibility within global value chains and trust-building among diverse actors in these value chains are essential.
- » **Second**, the far most important step for companies is to facilitate a mindset shift from waste to resource management. If companies start managing raw materials as company assets, new business benefits, tangible and intangible can arise. As such, not only resource efficient production, but also designing for recycling and harvesting income from processing by-products would start to make business sense.
- » **Third**, access to resources such as finance and technical knowledge must be enabled. Financial actors

should act as catalyzers for access to research and development, technology transfers and infrastructure development for closed-loop solutions.

- » **Fourth**, multi-level governance is needed. At a national level, waste management has to be modernized in alignment with industrial development policy to facilitate closed-loop practices in companies. At the local level, municipalities need capacity building and resources to develop and implement private sector support instruments for circular measures such as material exchange hubs, repair centers, circular business incubation and grant schemes.
- » **Finally**, for companies to act responsibly, policy makers need to come with a carrot and stick. Regularity instruments such as landfill bans or recycling and reuse targets are essential to make resource management reasonable for companies. To provide a level playing field, industry standards and guidelines need to be upgraded to encourage design for circularity and EPR schemes must be set up, allocating responsibilities to the right and most powerful actors in value chains.

**Development cooperation can play a catalyzer role enabling material flow assessment, increasing data transparency, showcasing the added value of multi-actor collaboration, demonstrating good multi-level governance and providing access to technologies and financial resources.**

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