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Textile Waste Management and Circular Fashion

Vaishali Singh, Rashmi Dubey and Sakshi

Introduction:

The global fashion and textile industry has grown at an unprecedented pace over the last three decades, driven largely by the rise of fast fashion, which prioritises rapid production cycles and low-cost, short-lived garments. While this model has made clothing more accessible than ever, it has also created a mounting crisis of textile waste. Garments today are produced faster, worn fewer times, and discarded sooner than at any point in history. As landfills fill up with unsold and used clothing, and as textile production continues to strain natural resources, the concept of circular fashion has emerged as a critical response — one that seeks to replace the traditional 'take-make-dispose' model with a closed-loop system in which materials are reused, repaired, and recycled rather than wasted.

The Scale of the Problem

The statistics surrounding textile waste are sobering. The global fashion industry is estimated to generate around 92 million tonnes of textile waste every year, a figure projected to exceed 134 million tonnes by 2030 if current consumption patterns continue. Of the total fibre input used for clothing worldwide, roughly 87 percent is ultimately incinerated or sent to landfill, while less than 1 percent is recycled back into new garments. The environmental cost is equally significant: the fashion sector contributes close to 10 percent of global carbon emissions — more than international aviation and maritime shipping combined — and synthetic textiles are responsible for around 35 percent of the primary microplastics found in the world's oceans. Alongside this, consumer behaviour has shifted considerably; people today purchase far more clothing than they did two decades ago, yet keep each garment for roughly half as long, accelerating the cycle of disposal.

In India, the picture is similarly concerning, though the scale differs. The country generates an estimated 7.1 million tonnes of textile waste annually, arising from both pre-consumer manufacturing offcuts and post-consumer discarded garments. Textile hubs such as Tirupur in Tamil Nadu, known as

Vaishali Singh, Rashmi Dubey and Sakshi
PhD Scholar, Department of Apparel and Textile Science,
Chandra Shekhar Azad University of Agriculture & Technology Kanpur (U.P)

India's knitwear capital, alone generate close to 200,000 tonnes of cutting waste every year, much of which currently ends up in landfills or informal burning sites due to the absence of organised recycling infrastructure.

Understanding Circular Fashion

Circular fashion refers to a systemic shift away from the linear model of production and consumption toward one where garments and materials are designed, produced, and used with their entire lifecycle in mind. Rather than treating a discarded garment as waste, circularity treats it as a resource for the next cycle of production. This approach typically rests on several interconnected strategies: designing garments for durability and disassembly, extending the active life of clothing through repair and resale, and ultimately recovering fibres through recycling once a garment can no longer be reused. Business models associated with circular fashion include clothing rental and subscription services, resale or 'recommerce' platforms, take-back schemes run by brands, and fibre-to-fibre recycling technologies that break down old textiles into raw material for new fabric.

Economically, the opportunity is substantial. Industry estimates suggest that adopting circular business models in fashion could unlock an economic opportunity worth as much as 700 billion US dollars globally by 2030, while the resale and rental segments are among the fastest-growing categories in the apparel market. In India specifically, one industry analysis suggests that a well-organised approach to textile waste — encompassing reuse, repair, upcycling, and recycling — could unlock nearly one lakh crore rupees in value annually, while also generating a substantial number of green jobs.

Policy Response: Extended Producer Responsibility

A key regulatory mechanism driving the shift toward circularity is Extended Producer Responsibility (EPR), a policy approach that holds manufacturers and brand owners accountable for the entire lifecycle of the products they place on the market, including collection, recycling, and disposal after consumer use. The European Union has been at the forefront of this shift, having reached a provisional agreement in early 2025 on reforms to its Waste Framework Directive that will require fashion brands to fund the collection and treatment of textile waste based on how recyclable and sustainable their products are. In India, the Ministry of Environment, Forest and Climate Change, in coordination with NITI Aayog and the Ministry of Textiles, has been working on a draft EPR framework for textiles, with final notification anticipated in the coming years. Export-oriented Indian manufacturers are also

facing pressure to comply with EU-linked EPR requirements even ahead of domestic regulation, since European buyers increasingly expect documented evidence of responsible waste management across their supply chains.

Strategies for Building a Circular Textile System

- Reduce: Encouraging mindful consumption and slower fashion cycles to lower overall garment production and purchase volumes.
- Reuse and Resale: Expanding secondhand clothing markets, thrift platforms, and peer-to-peer resale to extend the useful life of garments.
- Repair and Upcycling: Promoting garment repair services and creative upcycling of old textiles into new products, preserving both material and cultural value.
- Recycling and Fibre Recovery: Investing in fibre-to-fibre recycling technologies that can convert old textiles into new yarn, reducing dependence on virgin fibre production.
- Circular Design: Designing garments from the outset for durability, easy disassembly, and mono-material construction, which simplifies recycling at end of life.
- Rental Models: Growing clothing rental and subscription services, particularly for occasion wear, which reduce the need for one-time-use purchases.

Challenges to Circularity

- Collection and sorting infrastructure remains fragmented and largely manual in most countries, including India, limiting the speed and scale at which textile waste can be processed.
- Fibre-to-fibre recycling technology is still relatively immature; blended fabrics containing multiple fibre types are particularly difficult to recycle economically.
- Low consumer awareness about the environmental cost of fast fashion and the value of repair or resale continues to sustain high disposal rates.
- The absence of finalised regulatory frameworks in several countries, including India's still-developing EPR rules for textiles, creates uncertainty for manufacturers seeking to invest in circular practices.
- Economic incentives currently favour cheap virgin fibre production over recycled alternatives, making circular materials less price-competitive in many markets.

The Way Forward

Building a genuinely circular textile economy will require coordinated action

across government, industry, and consumers. Policy frameworks such as EPR need to move from draft stage to full implementation, backed by clear targets, monitoring mechanisms, and support for the informal recyclers and waste workers who already handle a large share of textile waste collection in countries like India. Investment in organised collection networks, automated sorting technologies, and fibre-to-fibre recycling facilities is essential to close the current gap between the volume of waste generated and the volume that is actually recovered. At the same time, fashion education and home science curricula can play an important role by embedding sustainable design, textile recycling literacy, and circular business thinking into the training of future designers and textile professionals. Finally, consumer behaviour change — encouraging longer garment use, resale, and repair over impulsive fast-fashion purchases — remains an indispensable part of the solution.

Conclusion

Textile waste represents one of the fashion industry's most pressing environmental and economic challenges, but it is increasingly being reframed as an opportunity rather than merely a burden. Circular fashion offers a coherent pathway to address this challenge by keeping materials in use for as long as possible and recovering value from garments at the end of their life rather than discarding them. With supportive policy frameworks such as Extended Producer Responsibility gaining momentum globally and in India, along with growing investment in recycling technology and shifting consumer attitudes, the transition from a linear to a circular textile economy is gradually gaining ground. Realising its full potential, however, will require sustained collaboration between policymakers, industry, designers, and consumers alike.

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