Weaving Sustainability into India’s Textile Future

Promoting Circular Economy Across India’s Textile Value Chain

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Key Takeaways

India’s textile and apparel industry has long been central to the country’s manufacturing strength. It makes a significant contribution to India’s economy, industrial output, and exports, while holding a strong position in global textile trade. With changing global demand patterns, sustainability is becoming a major growth lever for the sector. Policy action is supporting organic fibres, safer chemicals, circular production, waste recovery, eco-labelling, and traceability. Cleaner technologies, recycling, responsible sourcing, and waste reduction can help Indian textiles remain competitive in international markets.

India’s Textile Sector and the Pathway to Circular Growth

Often called the **“spinning wheel”** of India’s industrial growth , the textile and apparel sector is a key pillar of the manufacturing economy . As per the **National Account Statistics 2025**, the sector accounts for **~2% of India’s GDP** and **~11% of manufacturing GVA**. India is also the world’s **sixth-largest** exporter of textiles and apparel, holding **~4%** share in global exports. The sector also provides direct employment to more than **45 million people**, including many women and rural workers.

Given its economic scale, export linkages, and employment intensity, sustainability has become increasingly important for the sector. As global markets are shifting towards environmentally responsible production, India’s textile industry has an opportunity to strengthen its competitiveness.

Within this scope, **circular production** is gaining momentum across the sector. India's rich heritage of textile craftsmanship and resource-conscious production is receiving wider recognition, as global markets increasingly value products with a lower environmental footprint.

Circular Economy in the Textiles Sector

A circular economy is an economic system where materials and resources are reused, recycled, and kept in use for longer. This helps **reduce waste and emissions** while promoting a more sustainable mode of production. Its core principle is to ensure circularity in the use of inputs.

In the textile sector, sustainability and circularity are important for **reducing the adverse effects of a supply chain**. The existing materials are reused without changing their basic structure. This lowers the use of energy, chemicals, and water, while reducing environmental impact.

Circularity Visible in India's Textile Value Chain

Circularity in India's textile value chain is reflected in measurable recovery, recycling, reuse and livelihood outcomes.

- Of the **~7.8 million tonnes** of textile waste managed annually, **over 90%** is sourced from domestic pre-consumer (factory scrap) and post-consumer waste.
- More than **70%** of the total textile waste is currently recovered and channelled into recycling, upcycling, downcycling or reuse.
- Recovery is especially strong at the pre-consumer stage, where nearly **95%** of textile waste is collected and reused through established value-chain networks.
- The spinning sector shows one of the clearest examples of closed-loop circularity. **Nearly all spinning waste is reintegrated within production.**
- Circularity is also visible in post-consumer textiles. About 55% of this waste is diverted from landfills through India's extensive collection and sorting network.
- This ecosystem supports nearly **40-45 lakh livelihoods**, with women from marginalised communities playing a major role in collection, sorting and redistribution.

India's Local Textile Waste Recovery Models

Navi Mumbai's Circular Textile Recovery Model: India's first Municipal Textile Recovery Facility in Belapur, Navi Mumbai, recognises textile waste as a circular economy opportunity. The facility integrates collection, sorting, upcycling, technology and livelihoods into one circular recovery ecosystem. It has collected 30 MT of post-consumer textile waste, sorted 25.5 MT, processed over 41,000 items and developed 400+ upcycled samples. It has reached 1.14 lakh families, and supported women artisans through exhibitions and market access.

Panipat as a Downstream Textile Recycling Hub: Panipat has emerged as a **major textile recycling hub**. As a specialised downstream processing centre, it receives a large share of pre-consumer textile waste from other clusters. The cluster handles nearly 3,500-5,250 TPD of waste and supports collection, sorting, processing, knitting and recycling. This creates strong scope for higher-value textile-to-textile recycling through improved material separation.

Mongolpuri's Cutting Waste Sorting Network: Katran Market in Mongolpuri, Delhi, shows how informal networks support textile circularity. Roadside handlers collect cutting waste from trucks arriving from Noida, Gurugram, Manesar, Jaipur and Delhi. The waste is then sorted and segregated by colour, improving its value for recycling. The market supplies over 10 TPD of sorted cutting waste to formal recycling clusters in Panipat. Thus, creating an important link between local collection and downstream textile recovery.

Sustainability in textiles can further be understood through different stages of the production cycle. It is now influencing choices related to raw materials, manufacturing processes, quality standards, and market access across the value chain.

Input Stage: Fibre, Chemicals and Material Sustainability

The sustainability of textile production begins at the input stage. Fibre and raw material choices shape the environmental footprint of the entire value chain. Policy support is therefore being directed towards organic fibres, new-age natural fibres, and reduced use of hazardous inputs.

Promoting Organic Fibre Production

India's push for organic fibre production is being strengthened through certification frameworks and cultivation support programmes.

- **National Programme for Organic Production (NPOP):** It supports the development of certified organic products. It covers the **accreditation of certification bodies** and the setting of organic production standards. It also supports the promotion and marketing of organic products. The NPOP standards are recognised by the European Commission and Switzerland for unprocessed plant products. For textiles, it is especially relevant because it covers organic cotton fibre along with organic agricultural products.

Organic Production

The focus is on preserving soil's reproductive and regenerative capacity through proper plant nutrition and sound soil management. It follows a grassroots-level approach to **sustainable cultivation**.

- **Jute-ICARE :** The Jute-ICARE (Improved Cultivation and Advanced Retting Exercise) programme was launched in 2015 to **promote sustainable and scientific jute cultivation**. Farmers receive support through high-yielding certified seeds and retting accelerators. It also promotes improved agronomic practices to enhance productivity and fibre quality.

Since its launch, the programme has expanded from 130 blocks in 7 states to 289 blocks across 10 states. Coverage also increased from ~1.11 lakh hectares to ~2.15 lakh in 2024-25.

- **New Age Fibre Mission (MM-III):** As one of the mini-missions under the Mission for Cotton Productivity, it seeks to **promote allied natural fibres.**

New age Natural fibres

These are plant-based fibres offering **eco-friendly alternatives** to traditional textiles and synthetic materials. These include innovative and sustainable materials derived from plants and other natural sources.

Natural fibres such as **ramie, sisal and flax** have significant economic and environmental value in India and global markets. They offer sustainable alternatives to synthetic fibres across the textile value chain, composites and other industrial uses.

Their lower environmental impact and versatile properties create strong potential for wider use in sustainable textile production.

The Mission aims to position India as a **global leader** in sustainable and high-quality fibre production. It promotes climate-smart cultivation, mechanisation, and innovation. The initiative also encourages the use of allied natural fibres as eco-friendly alternatives to synthetic materials, with a strong focus on optimising cultivation practices.

- **National Fibre Scheme:** The scheme aims to strengthen self-reliance across the fibre value chain, supporting natural fibres, man-made and new-age fibres. It focuses on enhancing domestic fibre availability, reducing import dependence, and encouraging innovation in advanced textile materials.

By encouraging natural and certified inputs, these measures support the first step of circularity: reducing environmental stress at material stage.

Reducing Use of Hazardous Chemicals in Textiles Supply Chain

- **Pilots for Sustainable Textile Production:** A series of pilot projects have been undertaken to build awareness on sustainable production and consumption. They also strengthen capacity around global best practices. Their focus areas include safer chemicals, eco-friendly textiles, and organic textiles.

One such pilot project is **"Eliminating Hazardous Chemicals from the Textile Fashion Supply Chain in India**". It covers **400 factories** across eight clusters and four fashion houses. The project is designed to **mitigate 1,47,000 tCO_2eq** and also reduce harmful chemicals use by 10,530 tonnes.

This ongoing project aims to remove hazardous chemicals from India's apparel supply chain, promote sustainable production practices, and reduce environmental hazards.

- **Regulation of Hazardous Dyes and Persistent Pollutants:** Use of benzidine-based dyes and their salts in dyeing and colour processing industries has been restricted. Further, the handling of **70 azo**

dyes has been prohibited. India also ratified the **Stockholm Convention**in2006; a global treaty aimed at protecting human health and the environment from Persistent Organic Pollutants (POPs).

Reducing use of hazardous chemicals is important for circularity, as cleaner materials are easier to reintegrate into the value chain.

Production Stage: Textile Processing and Manufacturing

The manufacturing stage is central to textile sector's environmental footprint, given its intensive use of water, energy, and other resources. Sustainable manufacturing measures are promoting cleaner infrastructure, efficient resource use, circularity, and lower emissions.

Integrated Textile Parks for Sustainable Manufacturing

PM Mega Integrated Textile Region and Apparel (MITRA) Parks are envisaged as **world-class, integrated textile hubs** to boost investment, employment, and exports. They are built around the **'5F' vision**: Farm to Fibre to Factory to Fashion to Foreign. Under this approach, modern textile infrastructure is being developed with end-to-end manufacturing facilities. Sustainability is built in through Common Effluent Treatment Plants (CETPs), wastewater recycling, scientific waste management, and shared utilities.

The development of **seven** PM MITRA Parks has been approved with an outlay **of ₹4,445 crore up to 2027-28**. The seven sites have been finalised in Virudhunagar, Tamil Nadu; Warangal, Telangana; Navsari, Gujarat; Kalaburagi, Karnataka; Dhar, Madhya Pradesh; Lucknow, Uttar Pradesh; and Amravati, Maharashtra.

As on December 2025, MoUs with potential investments of over **₹27,434 crore** have been signed. The required land has been fully acquired and handed over to the respective SPVs.

Green and Circular Economy Support under RAMP

As per the Economic Survey 2023-24, MSMEs accounted for over 80% of India's textile and apparel production capacity. Several initiatives have therefore been undertaken to strengthen MSME participation, improve competitiveness and support sustainable growth.

Under the RAMP Programme, the Government has introduced the MSE-GIFT and MSE-SPICE schemes for Micro and Small Enterprises in 2023 . These schemes encourage sustainable practices through support such as interest subvention and capital subsidy.

- **MSE-GIFT:** The scheme aims to support the **adoption of green technologies and clean energy** in MSMEs. It seeks to create an enabling ecosystem for sustainable practices through financial and awareness support. This includes 2% annual interest subvention on term loans up to ₹2 crore, 75% credit guarantee coverage, and IEC activities for outreach.
- **MSE-Scheme for Promotion and Investment in Circular Economy (MSE-SPICE):**The Scheme aims to help micro and small enterprises **adopt sustainable practices and contribute to greener development.** It supports resource-efficient and circular solutions that reduce environmental impact while improving efficiency and cost-effectiveness. Its key features include 25% capital subsidy for eligible plant and machinery investments, along with nationwide awareness promotion.

Textile Sector under the Indian Carbon Market (ICM)

Greenhouse Gas Emission Intensity (GEI) targets have been notified for carbon-intensive sectors under the CCTS. This brings petroleum refineries, petrochemicals, textiles, and secondary aluminium under the ICM compliance mechanism. Under this framework, obligated entities, including those in the textile sector, are required to disclose their **Scope-1 and Scope-2 emissions:**

- **Scope 1 emissions are direct greenhouse gas emissions** from sources owned or controlled by an organisation.

    · **Scope 2 emissions are indirect emissions** arising from an organisation's consumption of purchased electricity, steam, heat, or cooling.

Entities that perform better than their assigned targets become eligible to receive Carbon Credit Certificates. These certificates can then be traded with entities that are unable to meet their targets, creating a market-based incentive for lowering emissions.

Carbon Credit Trading Scheme (CCTS)

Notified in 2023, the Scheme provides the **framework** for operating the Indian Carbon Market (ICM). It aims to reduce greenhouse gas emissions by pricing emissions through carbon credit certificate trading. By attaching economic value to emission reduction, the scheme encourages industries to improve efficiency, shift to cleaner technologies and reduce their carbon intensity over time.

Roadmap for Sustainable Textile Manufacturing

The Government has undertaken several studies and projects to support cleaner textile manufacturing. These focus on best practices and guiding improvements in water and energy efficiency, chemical management, and related processes. They include the preparation of Best Available Techniques Reference/ Comprehensive Industry Document (BREF/COINDS) documents and a roadmap for green transformation.

Tex Eco Initiative

The initiative promotes **globally competitive and environmentally sustainable** textile and apparel manufacturing. It aligns India's textile industry with international sustainability standards and emerging green market opportunities.

Post-Production Stage: Waste Management

The post-production stage of textiles determines how textile waste is collected, recycled, and reintegrated into the value chain. Thus, efforts to strengthen circularity in this sector are increasingly focused on better waste mapping, recycling, and resource recovery.

India's Textile Waste Recycling Potential

India's textile recycling sector is projected to grow strongly with rising demand for sustainable fashion. The sector is estimated to reach **USD 3.5 billion by 2030**. This rapid growth highlights significant employment potential. The sector is expected to generate nearly **1 lakh green jobs** over the next five years.

Solid Waste Management and Resource Recovery

The Solid Waste Management Rules, 2026 under the Environment (Protection) Act, 1986, came into full effect on April 1, 2026. The revised rules incorporate the principles of circular economy and extend producer responsibility. They place greater focus on **efficient waste segregation and management.**

They also create a structured end-use pathway for non-recyclable dry waste. Industrial units using solid fuel, including cement plants and waste-to-energy plants, are required to gradually increase the use of Refuse Derived Fuel (RDF) from 5% to 15% over six years.

> RDF is defined as fuel made from high-calorific municipal solid waste, including textiles. This supports the diversion of high-calorific waste, including textiles, from disposal towards productive use.

NTTM Support for Conversion of Textile Waste

Under the National Technical Textiles Mission (NTTM), several R&D projects have been sanctioned for sustainable technologies and materials. These include projects on converting textile waste, biomass, and bio-residues into advanced green materials. The focus areas include carbon fibres and functional textiles.

Effluent Discharge Standards for the Textile Sector

Environmental standards for emission and discharge from industries, including textiles, are notified under the Environment Protection Rules, 1986. Under these, the textile industries and clusters must install and operate Effluent Treatment Plants (ETPs) or Common Effluent Treatment Plants (CETPs). This ensures that effluent discharge meets the prescribed environmental standards.

Mapping India's Textile Waste Value Chain

Released in 2026, the report **"Mapping of Textile Waste Value Chain in India"** provides a data-driven assessment of textile waste generation. It identifies opportunities to strengthen circularity across the textile value chain. The report also offers a practical blueprint for turning textile waste into an economic resource through recycling, upcycling, and resource recovery.

Promotion Stage: Market and Enterprise Support

Sustainability in textiles goes beyond production and waste management. It is also being supported through standards, traceability, market support, public procurement, and awareness initiatives. These measures help embed sustainable practices across the textile value chain.

Standards and Sustainability Benchmarks

- **Eco-Labelling for Sustainable Textile Products:** Under the Eco-Mark Scheme, 2024, textiles have been identified as one of the product categories eligible for Eco Mark certification under Indian

Standards. For the sector, **13** Indian Standard titles have been notified. An Eco-Mark is granted to products that meet specified environmental criteria. These cover resource use, climate impact, biodiversity, energy use, waste, emissions, and hazardous substances.

- **Quality Certification and Traceability of Indian Textiles:** To strengthen the global positioning of **Brand India** in textiles, initiatives such as **Kasturi Cotton**and **Silk Mark** have been introduced. These give premium Indian cotton a distinct identity in domestic and international markets. Traceability systems also support responsible sourcing and greater supply chain transparency for global buyers.

Such standards can create market confidence for products made through resource-efficient and environmentally responsible processes.

Promoting Upcycled Products through Public Procurement

A tripartite **Memorandum of Understanding (MoU)** was signed in 2024 between the Textiles Committee, Government e-Marketplace (GeM), and the Standing Conference of Public Enterprises (SCOPE). It aims to encourage and institutionalise the public procurement of upcycled products. This is intended to create **wider market access** while supporting circularity in the textile sector.

Awareness Initiatives for Sustainable Textiles

- **SURE (Sustainable Resolution):** This is one of the Indian apparel industry's **largest voluntary sustainability commitments.** It is led by the Clothing Manufacturers Association of India (CMAI), Reliance Brands Limited (RBL), the United Nations in India, and the Ministry of Textiles. The initiative seeks to drive the industry's transition towards more sustainable practices. It reflects a collective commitment to place the Indian fashion industry on a cleaner and more environmentally responsible path.
- **Circle Back Campaign:** Several initiatives have been undertaken by the Government to promote sustainability across the textile value chain. These include the Circle Back campaign, which raises **awareness among students about textile recycling.** Exhibitions such as **Vastra Katha** at Bharat Tex 2024 and 2025 have also helped showcase sustainable textile practices.
- **ESG Platform for Sustainable Textile Practices:** An Environment, Sustainability and Governance (ESG) Task Force has been constituted to deliberate on sustainable production, certification, exports, and allied matters.

It has enabled industry-focused programmes such as Circular Samvaad and the Cluster Exchange Mechanism to promote knowledge exchange and best practices.

Bharat Tex: Advancing Sustainability and Innovation in Textiles

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Bharat Tex is India's **flagship global textile event**. It reflects the country's growing role in the global textile economy. It brings together the full textile value chain, from fibre and yarn to fabrics, garments, technical textiles, and sustainability-led innovations, on a single integrated platform.

Following its first two editions in 2024 and 2025, Bharat Tex 2026 is being designed as a broader industry platform. It will bring together exhibitions, knowledge sessions, reverse buyer-seller meets, and policy dialogue. The event places particular emphasis on sustainable and circular textiles, technical textiles, MSME participation, innovation, and global market access.

A Sustainable Future for India's Textile Sector

India's relationship with textiles is embedded as deeply in its cultural heritage as in its economic foundations. For centuries, Indian households and artisan communities have long practised reuse, repair, and resource-conscious production. These traditions closely reflect what is now described as circularity.

Today, they are being reinforced through policy support for sustainable inputs, responsible production, better waste management and traceability.

These measures show how sustainability and circularity are becoming more closely linked in India's textile sector. It connects traditional wisdom with modern industrial transformation. This is strengthening both competitiveness and environmental resilience in one of the country's most important sectors.

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