

Fashion Sustainability

Fashion Sustainability – Quick Reference Notes

1. Why Sustainability Matters in Fashion

Issue	Impact
Resource Consumption	• 93?billion?m³ of water per year (??1?cup per second for each person) • 150?billion?kg of fiber produced annually
Carbon Footprint	• Apparel sector = ~10?% of global CO? emissions (??1.2?Gt CO?e)
Waste Generation	• 92?Mt of textile waste generated each year; only ~15?% is recycled
Social Concerns	• Low?wage labor, unsafe factories, gender inequality

2. Core Pillars of Sustainable Fashion

Pillar	Key Concepts	Practical Examples
Environmental	• Reduce water & energy use • Minimize chemical pollution • Lower carbon emissions	• Closed-loop water systems in dyeing • Use of renewable energy in factories • Low-impact fibers (e.g., Tencel, recycled polyester)
Economic	• Viable business models that reward circularity • Transparency in supply chains	• Rental & resale platforms (e.g., Rent the Runway) • “Take-back” schemes for garment recycling
Social	• Fair wages & safe working conditions • Gender equity & empowerment • Community development	• Certifications (FairTrade, SA8000) • Partnerships with local artisans

3. Sustainable Materials & Fibers

Category	Examples	Sustainability Highlights
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Natural & Regenerative	• Organic cotton	
	• Hemp	• Lower pesticide use
	• Linen	• Faster growth, less water
	• Bamboo (mechanically processed)	
Cellulose-Based (Regenerated)	• Tencel/Lyocell	• Closed-loop solvent recovery (99% reuse)
	• Modal	
Recycled & Upcycled	• Recycled polyester (rPET)	• Diverts waste from landfill
	• Recycled nylon (e.g., Econyl)	• Cuts virgin material demand
	• Upcycled denim	
	• Piñatex (pineapple leaf)	• By-product utilization
Innovative Bio-Materials	• Mylo (mycelium leather)	• Lower carbon intensity
	• Spider-silk protein fibers	
Low-Impact Synthetics	• Recycled polyester blends	
	• Bio-based polyester (e.g., from sugarcane)	• Reduced fossil-fuel dependency

4. Circular Design Strategies

1. Design for Longevity

- Durable construction, timeless silhouettes, easy repair (e.g., removable buttons).

2. Design for Disassembly

- Use of single-type stitches, detachable components, mono-material fabrics to simplify recycling.

3. Material Pass-Through

- Choose fibers that can re-enter the production loop (e.g., polyester → rPET → new garment).

4. Modular & Convertible Pieces

- Garments that transform (e.g., jacket → bag) to extend functional life.

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5. Take?Back & Recycling Programs

- Brand?run collection points, partnership with