



Textiles and Apparel Medium Risk Sector M

Production of textile fibers and manufacture of textiles and fabrics or similar products such as rope.

Related Sectors:

- Leather and Footwear
- Laundry and Dry Cleaning



Production Processes

Textiles and clothing are manufactured either from natural fibers like wool, cotton, flax or silk, or from synthetic fibers such as nylon, rayon, etc. The key steps in the value chain of the textile industry are: Yarn manufacture, fabric production, wet processing and making up.

Raw fibers are converted into **yarn** by grouping and twisting operations used to bind them together. Unlike manmade fibers, fibers with a natural origin have to be cleaned intensively from impurities first. Fibers must then pass through various preparation steps before they can be spun into yarn.

In a next production phase, yarn is converted into **fabric** by knitting, crocheting or weaving. This fabric production process creates the raw textile material from which most textile products are made.

Before processed into the final products, woven and knit materials usually pass through several water-intensive **wet processing** stages. Wet processes are applied to improve the appearance, durability and serviceability of the finished garment. Wet processing usually involves preparation, dyeing, printing and finishing. This may include treatment in chemical baths, washing and drying. Finishing encompasses chemical or mechanical treatments performed on fiber, yarn or fabric to improve appearance, texture or performance.

Finished cloth can be **made up** into a variety of garments, household and industrial products. The simpler of these products, such as bags, sheets, towels, blankets and draperies are often produced by the textile mills themselves. Clothing and more complex products are usually manufactured by the cutting trades.

Sustainability Issues

- M Energy
- M Water Use
- H Emissions to Water
- M Waste
- M Emissions to Air
- L Ecosystems
- M Workplace Health & Safety
- M Disaster Risk
- H Site Contamination

Sector Rating

- H High risk issue
- M Medium risk issue
- L Low risk issue

Risks & Opportunities

- **Wastewater and liquid waste may contain toxic substances and lead to environmental pollution.**
Wastewater is the largest waste stream of the textile industry. It may contain a mixture of substances such as dyes, salts, acids, alkalis, oils and fats as well as (chlorinated) solvents. Pre-treatment may be required to minimize negative impacts on water quality, health risks and conflicts with other uses.
- **The contamination of property presents a risk to its value, to human health and to the environment.**
Spills of liquids in production, leaks in tanks or pipes and the disposal of liquid waste may contaminate buildings and the ground. This may present a risk to groundwater resources or to human health. Clean-up costs may be considerable. The market value of contaminated property may be impaired. Contaminations can be avoided by training staff and technical measures.
- **A reliable and sustainable supply of high-quality fresh water is essential.**
Producing textiles may require large amounts of fresh water. The most water-intensive production steps are washing of raw materials and the various wet-processing stages. A reliable supply is essential for ensuring continuity of production. Where water supply is limited, conflicts with other uses may arise.
- **Emissions to air can be a nuisance in the areas surrounding of textile plants and entail material risks to human health.**
Production steps that cause emissions to air are mainly wet processes such as coating, finishing and dyeing. Potential pollutants are solvents, dyes, dust and various other substances used in textile production.