

## Recent Trends in Sustainable Textiles and Apparel Production

Dr. Biswaranjan Ghosh<sup>1</sup>, Mrs. Anumol P. Mohan<sup>2</sup>

<sup>1</sup> Associate Professor, Sardar Vallabhbhai Patel International School of Textiles and Management,  
Dept. of Textile Management Coimbatore, India

<sup>2</sup> Assistant Professor, Carmel College, Department of Bachelor of Vocational Studies,  
Calicut University, Mala, Thrissur

**ABSTRACT:** Human life is sustainable with food, cloth, and shelter as a basic need. The global textile industry is bound to be huge, as it fulfills the second basic requirement of human. In recent years ecological issues have become more important in the textile and apparel industry, an industry known as a polluting industry despite having a natural and environmentally friendly base. Every textile item releases toxic substances that are harmful to the environment. The traditional textile industry consumes large amounts of natural resources and pollutes the environment by involving a huge amount of toxic chemical substances during the production and wet treatment processes. Sustainability has become an essential attribute of today's textile industry. The process of transforming the textile industry into a more sustainable one is very sensitive, needs a lot of knowledge, skills, and commitment. This paper reviews the importance, recent trends, and role of governing bodies in sustainable textile production.

**KEYWORDS:** Ecology, eco-friendly, sustainable textiles, sustainability.

### I. INTRODUCTION

The textiles and apparel industry plays a pivotal role in the Indian economy through its significant contribution to the country's industrial output, employment generation, and export earnings. The industry has achieved a noteworthy position as one of the major exporters of varied textile and apparel products including cotton, natural and manmade fiber, silk based textiles, knitted apparel, and accessories among others. The textile industry is one of the longest and most complex and complicated industrial chains of the manufacturing industry. It involves actors from agricultural, chemical fibers, dyes, and chemical manufacturing, textile and apparel industry, retail and service sector, and waste treatment. The textile manufacturing process is characterized by the high consumption of resources like water, fuel and a variety of chemicals in a long process sequence that generates a significant amount of waste. The common practices of low process efficiency result in substantial wastage of resources and severe damage to the environment. The high impact on the environment has forced the textile industry to take the path of sustainability. Today, consumers are aware of greenhouse emission, global warming, and increasing carbon footprint, which is caused due to textile pollution. Hence, there has been an increase in the demand for sustainable textiles.

### II. IMPORTANCE OF SUSTAINABLE TEXTILES

Sustainable textiles mean that all materials and processes, inputs and outputs, are healthy and safe for humans and the environment, in all phases of the product life cycle and all the energy, material and process inputs come from renewable or recycled sources. It can also mean that materials are capable of returning safely to either natural or industrial systems and all stages in the product life cycle could enhance social well being too. Having a focus on the production of textiles that creates less adverse impact on the environment while satisfying the customer will support the sustenance of human and environmental health and steady growth of sustainable textile industries.

Natural fibers like organic cotton, bamboo, flax, hemp, jute, ramie, sisal, abaca, etc, are examples of sustainable fibers in the textile industry. As sustainability is influencing businesses these days, people have realized that it is not just a craze but a concept for their survival. Though a lot of resources in the form of energy and water are used during fabric finishing and garment manufacturing but the producers in the textile industry are thinking about the sustainable contribution before fabric formation. The use of natural fiber as a raw material for producing textile products can be considered as the first step towards sustainability.

In the recent past, owing to the problems of climate change, global warming and emission of carbon gas textile companies, apparel brands and consumers have more concerned about the development of sustainable textiles. As a result, consumers are demanding textiles that have been produced ethically. This, in turn, has increased the demand for sustainable and eco-friendly textiles. Today, sustainability has become the highest priority for most companies dealing in apparel and textiles.

### III. RECENT TRENDS IN SUSTAINABLE TEXTILES

Apparel and textile products evolve through several processes that involve the conversion of fiber to yarn, yarn to fabric and fabric to garment. During these processes, there is numerous evidence from the past that the apparel and textile producers are not giving much attention to sustainable practices. With the growing global interest in sustainability and increased consumer awareness, apparel and textile industries have taken initiatives to offer sustainable solutions in their production lines. There are several approaches taken by the stakeholders in the apparel and textile production starting from fiber production to garment manufacturing even the supply chain management to fulfill the sustainability requirements. Apparel and textile items produced using sustainable practices can contribute to environmental, social, and economic well-being leading to green earth in the future.

#### A. Environmental Sustainability

The global consumption of apparel and textiles is ever-growing, which creates challenges for the environment. To achieve low-cost production, the textile manufacturers in developing countries take advantage of the lack of strict regulations and lower environmental awareness, which hinders environmental sustainability. For achieving sustainable apparel and textile production, the manufacturers should focus on the sustainability aspects of production and follow the sustainability guidelines outlined in the ISO 14000 and other environmental management standards.

**1) Raw Material Selection:** While selecting raw materials for fashion and textile production, the objective should focus on renewable (natural fibers such as cotton, flax, wool, and silk) and recyclable materials (fibers such as recyclable polyester and nylon). As the synthetic fibers are not biodegradable, hence must be selected so that they are recyclable at the EOL to minimize the accumulation of waste.

**2) Eco-friendly Processes:** The conventional fashion and textile manufacturing practices based on non-renewable energy sources (gas, coal, or petroleum) are unsustainable due to their limited availability and waste production that creates an environmental burden. As the term "green production" is becoming important in many of the manufacturing segments, fashion and textile producers and retailers are adopting the terms "green production".

**3) Yarn and Fabric Manufacturing:** Yarn and fabric manufacturing are mechanical processes that need a large amount of energy, generate waste, dust and noise. The total energy consumption in a textile industry can be split as 34% in spinning, 23% in weaving, 38% in chemical processing and 5% in other miscellaneous processes. But the more interesting fact is that the energy consumed during the care and maintenance of cloth is almost four times (75-80%) compared to the energy consumed for its production (15-20%). The global emphasis on sustainability has led to the development of yarn and fabric manufacturing machines that uses less energy, works with higher efficiency and generates less dust and noise. As a result, several new techniques have evolved in spinning (such as open-end rotor and air-jet spinning), weaving (rapier, projectile, air-jet, multi-phase and water-jet looms) and knitting (high-speed circular knitting, computerized flatbed machine, seamless knitting).

**4) Fabric Chemical Processing:** Fabric chemical processing or wet processing is the most environmentally harmful process among all the textile and garment processes as it uses a large amount of water, energy and toxic chemicals. Approaches such as the use of safe chemicals, reduced chemical usage, use of eco-friendly processes, use of enzymes, waterless dyeing, activated carbon usage in dyeing and biotechnology can help in sustainable fashion production,

**5) Effluent Treatment:** Generally, the effluent generated during chemical processing is treated by different techniques before discharged to the water systems. Advanced techniques such as chemical precipitation, biological treatment, activated carbon adsorption, membrane technology, ultrafiltration, microfiltration, nano-filtration, reverse osmosis, coagulation-membrane separation, and evaporation are being widely adopted by textile manufacturers.

**6) Garment Manufacturing:** The garment manufacturing process is energy-intensive and there is a wide range of areas garment manufacturers can focus on to reduce energy usage. The use of energy-efficient tools, equipment and machinery for cutting, sewing, pressing and packaging; and the use of eco-friendly processes are the key factors requiring improvement to produce sustainable fashion. The waste generated during garment production such as paper, plastic, fabric remnants, cardboards used for packaging, and wire coat hangers should be recycled and reused. Several other strategies for saving energy and water, such as installing water-efficient fixtures, training the staff on energy efficiency skillsets, energy-efficient heating/cooling devices, sensor-enabled lighting systems, and rain-water harvesting for non-drinking purposes can also help in achieving sustainable fashion.

## **B. Corporate Social Responsibility**

Sustainable practices of the 21st Century often involve corporate social responsibility (CSR) or social accountability. In addition to managing the environment, sustainability also focuses on relationships between manufacturers, retailers, communities, and other institutions. CSR is based on the essential principles of sustainable practices for manufacturers and retailers that affect human well-being. Some apparel and textile brands are being rated in terms of their social accountability and the value they offer to society. The fragmented textile production and inherently complex processes make it difficult to adopt the sustainable practices of CSR in textile production compared with the others.

## **C. Economic Sustainability**

Economic sustainability in textile ensures that the business is achieving its targeted profitability, simultaneously using the resources in a sustainable manner (i.e. the business is not creating environmental concerns or using excessive resources). There is a steadily increasing trend in the number of firms considering their relationship to the community, to improve economic sustainability. Manufacturing of apparel and textile products in a country to be sold locally or globally has a direct or indirect influence on that country's economy. The sustainability practices in the apparel and textile sector should not ignore the dilemma of resource depletion.

## **IV. ROLE OF GOVERNING ORGANIZATIONS**

Several international government organizations, non-governmental organizations (NGOs), and private firms have been developed in the last decade or so to monitor, assist and evaluate the performance of manufacturers and retailers in sustainability. Several standards have been developed to provide guidelines supporting the three pillars of sustainability. The leading role is played by the International Standards Organization (ISO). Apparel and textile manufacturers and retailers are the leading players in sustainable textile production. Consumers of fashion products also play a vital role in sustainability. Consumers can select or reject a product if it is not manufactured with the right use of energy, resources, or even labor.

## **V. CONCLUSION**

It is a proven fact that consumer awareness will play an important role in the growth of sustainable textiles in the future. The real meaning of sustainability is to change the way of doing things to become more environmentally friendly. This will help to preserve scarce natural resources. If the entire supply chain in the textile industry becomes responsible, it can significantly contribute to increasing the supply of sustainable textiles.

The textile industry is going through a period of change to create demand for sustainable textiles. In the current scenario, the success of the business is closely linked with economic, social, and environmental stability. The government also has the responsibility to create a feasible situation for the companies to pursue the approach of sustainability.

## **REFERENCE**

1. Nayak, R., Singh, A., Panwar, T., & Padhye, R. (2019). A Review of Recent Trends in Sustainable Fashion and Textile Production. *Workforce*, 13, 11-2.
2. Prabavathi, V., & Vanathi, R. (2019). Role of Supply Chain Management in Indian Textile Industry and the key issues faced by the Textile Supply Chain. *Journal of Contemporary Research in Management*, 14(2).
3. ADNAN ALI, M. U. H. A. M. M. A. D., & IMRAN SARWAR, M. U. H. A. M. M. A. D. (2010). Sustainable and Environmental friendly fibers in Textile Fashion (A Study of Organic Cotton and Bamboo Fibers).
4. Waite, M. (2009). Sustainable textiles: the role of bamboo and a comparison of bamboo textile properties-Part 1. *Journal of Textile and Apparel, Technology and Management*, 6(2).

5. Curteza, A. (2011). Sustainable textiles. In *Radar* (Vol. 2, No. 1, pp. 19-21).
6. Growing awareness increases demand for sustainable textiles. (April 2014) Retrieved from <https://www.fibre2fashion.com/industry-article/7312/growing-awareness-increases-demand-for-sustainable-textiles#:~:text=Textile%20industry%20is%20well%20known,energy%2C%20water%20and%20natural%20resources.&text=Production%20and%20processing%20of%20sustainable,and%20ensure%20proper%20working%20conditions.>

---

*Cite this Article: Dr. Biswaranjan Ghosh, Mrs. Anumol P. Mohan (2021). Recent Trends in Sustainable Textiles and Apparel Production. International Journal of Current Science Research and Review, 4(2), 78-81*