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REVIEW

Sustainable Textile Industry: An Overview

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ABSTRACT

The purpose of this study was to offer a general concept and overview of the textile industry's environmental sustainability assessment. The textile and garment industries cause environmental damage at every stage of manufacturing, from the cultivation of raw materials through the disposal of finished goods. Chemical loading, high water consumption, high energy consumption, air pollution, solid waste, and odour creation are all key environmental concerns in the textile industry. To achieve sustainable production, it is necessary to examine the performance of the textile sector while considering the three elements of sustainability. To study and locate recent and related works, five keywords were used: environmental; sustainability; eco-design; manufacturer; supply chain management. All through the life cycle of textile products, the textile sector has a substantial environmental impact. This paper illustrates how the textile industry may use strategic ways to improve ecologically sustainable textile product usage and manufacturing. A discussion is focused on how to be increased sustainability in the textile industry. This paper introduces key principles for ecologically sustainable business practices to consider (e.g., eco-design, corporate social responsibility, and green supply chain management). It is critical that all stakeholders in the textile industry, including consumers, producers, environmental protection is emphasized in the manufacture and use of textile goods by the distribution chain and customers.

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1. Introduction

Environmental sustainability, from an entrepreneurial standpoint, is a marketing plan for using processes that do not have negative effects on the throughout the life cycle of natural resources (e.g., gathering, production, consumption, durability, energy production, and disposal), the environment or natural resources are considered [1]. The environmental effects of a cotton T-shirt, for example, can be seen in these life cycle stages. Cotton cultivation involves the use of fertilizer, pesticides, and water; dyeing and spinning grown cotton necessitates the use of coal, dyes, and auxiliaries, as well as water and electricity; and T-shirt production requires the use of power generation, washing, and liquid. The collecting, processing, and application steps are repeated to obtain a reorder of T-shirts; End users purchase and wear T-shirt items during consumption; during disposal, end users discard used T-shirts, and producers dispose of excess T-shirt manufacturing or material [2]. As a result, throughout the product life cycle, energy, chemicals, and water are significant environmental effect contributors in the manufacturing industry. To ensure environmental sustainability, apparel designers should produce things using ecologically and socially responsible design approaches and trends; the supply chain must analyze the effects of their business practices on culture, economics, and ecosystem. The environmental sustainability of textile products, a vital component of today's human life, has garnered considerable attention from both suppliers and customers in recent years due to life cycle resource consumption and environmental emissions [3]. Some clothing manufacturers have emphasized sustainable development in their processes. Institutional Knights, a Canada communication and research firm, published the Global 100 Most Sustainable Corporations in the World Index, which includes manufacturers preselected based on the results of four screening methods that assessed 12 key performance indicators of ecological responsibility (e.g., resources and energy usage efficiency) as well as community involvement (e.g., employee turnover and leadership diversity [4]. In order to meet their important criteria, those who do not have enough are compelled to accept short-term decisions that often have unfavourable long-term effects for the environment. Environmental problems caused by low consumption and poverty include chlorine fisheries, which threaten the reef ecology of poor fishermen in Southeast Asia, farmers in Africa burning trees for rice bread, destroying forests, and increasing poverty and deprivation by intensifying erosion and soil degradation [5]. Because of improved production technology used to meet expanding consumer demands, manufacturing activities have grown more important to the global environment. The growth of technology has resulted in environmental, air, and water degradation, ozone layer thinning, and a decline in green area. However, in response to these challenges, a sensitive public opinion has emerged, particularly in industrialized countries. New safeguards have started to be taken, both to sustain industrialization and to improve the environment [6]. Changes in the textile sector, as well as many other industries, have contributed significantly to the rise of environmental challenges in recent years, in tandem with technical improvements. The discharge of significant volumes of chemical loads into the receiving environment is the textile industry's main environmental impact. High chemical and water usage, energy consumption, air pollution, solid waste generation, and odor production are all important considerations. The drugs used in the cultivation of natural fibers and the emissions produced during the creation of synthetic fibers are at the root of the textile and garment industry's environmental issues. To treat the fibers, a number of processes requiring thousands of different chemicals, tons of water, and a large quantity of energy are required. The environmental problems that textile has caused have been reviewed in this review study, and solutions within the range of sustainability have been suggested.

2. Textile Industry's Environmental Impacts

The major environmental effects of the textile industry include the discharge of large amounts of chemical loads due to the high consumption of water and harmful chemicals used in this industry. The corresponding water pollution, energy requirements in production processes and knowledge air emissions, packaging and waste management production issues, and the formation of toxic fumes caused by bleaching, dyeing, and printing procedures [7]. The textile industry is responsible for some of the world's most severe economic and environmental effects. The worldwide textile sector (which includes the garment and footwear industries) is expected to reach $2 trillion in annual sales by 2018 [8]. After losing its status as the world's second-largest garment exporter to Vietnam in 2020, Bangladesh regained it in 2021, earning $35.81 in export revenue. Bangladesh earned $35.81 billion in 2021, according to the Export Promotion Bureau (EPB), whereas Vietnam earned $32.75 billion, according to the General Statistics Office [9]. Bangladesh sacrificed its second-place ranking as a garment exporter to Vietnam in 2020, earning $27.47 billion versus $29.80 billion. Because of the magnitude of the market, the textile sector is one of the most significant polluters of the environment, using chemical ingredients and processes [10]. Toxic chemical wastes from

textile manufacturing are discharged into water sources, generally untreated, causing long-term damage to the soil, water, and ecology (Geotextiles N.D.). In addition to the cultivation of raw materials, the textile industry has damaging consequences throughout the life cycle of textile products, including raw material production (e.g., fibers, yarns, and textiles), garment production (e.g., arrangement and packaged foods), and expenditure of constructed textile products (e.g., end consumption, reprocessing, and disregarding) [11]. Excessive quantities of water, fossil fuels, and electrical energy are required during textile production operations such as dyeing, printing, and finishing, in addition to chemical emission into water sources. Textile dyeing needs almost 2.27×10^{12} litres of freshwater each year, while the generation of virgin polyester for fabric necessitates about 70 million barrels of oil [12]. Fast fashion is a marketing method that enables for the quick manufacture of popular products in stores. According to a recent estimate, the worldwide fashion e-commerce market is predicted to increase at a compound annual growth rate (CAGR) of 21.6 percent from $549.55 billion in 2020 to $668.1 billion in 2021. The increase is primarily due to businesses resuming operations and adjusting to the new normal as they recover from the COVID-19 pandemic's effects [13]. Due to rapid product adaptability and poor quality, fast fashion has contributed to the formation of a non-eco-friendly discarded clothing culture, in which buyers discard items after wearing it once or twice. This clothing culture has an impact on the amount of waste that ends up in landfills throughout the world [14].

3. Textile Industry Utilization and Manufacture that is Environmentally Sustainable

As a result of the textile industry's significant environmental consequences, sustainable development has become a key problem for textile producers' operations, as well as customers' lifestyles and product purchasing decisions [15]. As a result, textile organizations should implement incentives to strengthen their constituents (such as ownership, logistics providers, and stores) to participate in eco-friendly fashion activities [16]. Corporate social responsibility (CSR), green supply chain management (GSCM), and eco-design are the three types of environmental sustainability initiatives used by textile companies.

3.1 Corporate Social Responsibility (CSR)

CSR (Corporate Social Responsibility) is a self-regulatory corporate model which allows a company to be socially accountable to itself, its customers, and the broader population. Companies can be conscious of the impact on all areas of society, including economy growth, social, and environmental, by contributing to social responsibility, also known as corporate citizenship. Corporate social responsibility, also referred to as corporate citizenship, refers to a company's decision to operate in ways that benefit society and the environment rather than damaging them in the regular course of business. The fundamental environmental goal of CSR is to protect the environment, with a focus on carbon footprint reduction. Currently, the textile industry is the largest consumer a fifth of all chemicals produced by all industries globally. As a result, the textile industry accounts for more than 10% of global carbon emissions, and toxic gases such as N_2O, which is 300 times more harmful to the environment than CO_2, are generated as a result of low-cost synthetic fiber production's [17]. Corporate Social Responsibility urges textile firms to devote their resources and finances to environmentally friendly business operations in order to reduce carbon emissions [18]. CSR seems to have a lot of benefits for companies, according to Epstein-Reeves, including (a) creativity, (b) cost reductions, (c) trademark individuality, and (d) long-term planning [19]. For starters, commercial R&D efforts could result in game-changing products with environmental sustainability at their core (for example, Unilever's water-saving air conditioner) [20]. Second, CSR lets corporations to save money by minimizing packaging and energy use (for example, Levi's Water for customers and employees) [21].

3.2 Green Supply Chain Management in the Textile Industry

Green Supply Chain Management (GSCM) strives to reduce environmental damage caused by industrial operations, thereby incorporating environmental concerns into supply chain management. Academics and practitioners alike have embraced the GSCM. The construction of a green supply chain has gained a lot of traction, and businesses in the textile sector are focusing more on increasing the visibility, efficiency, and cost-cutting of their supply chains [22]. Consumers are becoming more environmentally conscientious of the things they buy as awareness of environmental concerns and global warming grows [23]. Supply chains are created with the goal of achieving long-term competitive advantages for all parties involved. Manufacturing companies have been urged to "green" their supply chains as a result of social and political concerns about environmental issue [24]. Green production companies set up systems for suppliers or subcontractors to buy environmentally friendly products and then follow basic principles to reduce waste and improve operational efficiencies throughout their supply chains, resulting

in increased monetary and environmental efficiency [25]. To maintain administrative consistency of their business operations, green manufacturing businesses frequently support their supply chain partners in building an environmental management system (EMS) using ISO 14000 techniques in order to attain ISO 14001 certification. The EMS can be used to discover alternative mechanisms and opportunities for managing environmental repercussions effectively. Overall, green manufacturing firms may need to help their supply chain partners acquire environmental management skills by providing training projects and sharing their green experience [26]. In order to address current environmental issues in the textile industry, it is necessary that both manufacturers and other stakeholders (e.g., supply chain, marketing director, and consumers) are aware of their increased duties in the textile product life cycle, such as creating, using, and disposing [27].

3.3 Eco-design

Eco-design means creating goods and services that meet your customers' needs while using the least amount of resources and having the least impact on the environment and society [28]. Codesign is the process of developing or designing goods, activities, procedures, or organizations with the purpose of reducing or eliminating environmental, societal, or economic harm. Eco-design includes things like sustainable flooring, green energy heating systems, eco-friendly packaging, and even recyclable products. Ten essential environmental factors lie at the heart of eco-design [29]. Utilizing things that have a lower environmental impact results in less pollution and waste by using fewer materials in the whole production process, as well as less resources within the manufacturing process [30]. Reducing the environmental influence on product delivery by ensuring that items consume less resources to make less waste and pollution when used by end users. When in use, product function is optimized and the most effective service life is ensured, making recycling and reuse easier and minimize the environmental impact of disposal [31]. Eco-design is one of the most important commitments made by textile sector during product design, the important first step of the product life cycle, to achieve environmental sustainability [32]. H&M, Stella McCartney, and the Council of Fashion Designers of America, among many others, have lately launched large campaigns campaigning for environmental approaches in the fashion industry (CFDA). As part of its aim to be "climate positive" throughout its supply chain by 2040, the H&M group has announced a historic vow to employ 100 percent recycled or sustainable-source materials in its goods by 2030 [33]. According to the life cycle approach, eco-design can be implemented at several stages of environmental sustainability, comprising resource, processing, packaging, shipping, utilization, and disposal (United Nations Environmental Programme, N.D.). According to previous research, eco-design techniques have two crucial components: (a) Material selection and (b) Manufacturing process.

3.3.1 Material Selection

In the material phase, selection of materials refers to the use of biodegradable environmental assets and manufacturing methods without the use of toxic insects or fertilization [34]. These natural materials must meet environmental standards in both their properties and procedures (e.g., energy usage, material compositions, and disposal) to be suitable for eco-design (United Nations Environmental Programme, N.D.) [35]. To be appropriate for eco-design, these natural materials must meet sustainability targets in both their qualities and methods (e.g., energy usage, material compositions, and disposal) (United Nations Environmental Programme, N.D.). Cotton, flax, hemp, mulberry, and ramie are some of the most popular natural fibers used in the fashion business. Organic natural fibres meet environmental standards for composition and biodegradability, and they provide good technical performance (e.g., air conditioning, resistance to water, and cool buildings) and properties (e.g., anti - microbial, moisture wicking skills, and antiatopic properties) than synthetic fibers [36].

3.3.2 Manufacturing Processes

Designers may utilize textile science to create new types of eco-friendly materials by integrating natural materials, technologies, and knowledge into efficient technologies instead of using harmful chemical technologies in production [37]. Textile science for clothes is an innovative approach that employs direct correlation and physiological relationships from natural materials and techniques to create rich, unique, and individualized experiences (Van der. Mulberry fiber was mixed with titania nanorods (a natural photocatalytic material) to develop the concept of anti-yellowing and antibacterial textile [38]. The selected material and design of the product have an impact on the environmental impact of a manufacturing process. This is because the quantity of carbon emitted in consuming electrical energy for a manufacturing process is directly related to the amount of carbon emitted in the manufacturing process. The growing global population has increased demand for manufacturing commodities [39]. More pollution has resulted because of the increased productivity. A rise in production is positive from a manufacturing standpoint since it lowers manufacturing costs; nevertheless, an increase in energy consumption leads to an increase in car-

bon dioxide emissions, which is bad for the environment. Consumption-driven energy generation is a major contributor to carbon dioxide emissions and climate change. As a result of this issue, a community-wide awareness campaign to minimize pollution and promote more sustainable production has been planned [40]. Sustainable manufacturing is a method of enhancing environmental performance in the manufacturing process. Sustainable production refers to items that are planned, manufactured, distributed, used, and disposed of with low (or no) environmental and occupational health risks, as well as little resource use (materials and energy). This strategy is primarily motivated by fast growing issues such as environmental harm, massive volumes of waste, occupational health issues, and increased usage of non-renewable resources [41].

4. Five Ways Textile Manufacturers Can Reduce Their Environmental Impact

The environmental impact of the textile industry has long been a source of debate, with everyone from concerned consumers to government officials offering suggestions on how to make substantial, beneficial improvements. Here are five ways that textile makers can help the industry advance [42].

4.1 Reducing the Usage of Harmful Processes is a Smart Idea

One strategy for textile companies to improve is to examine which procedures are the most harmful to the environment and look for ways to change or eliminate them. Aalto University researchers developed a non-toxic way for producing waterproof, breathable textiles. It entails applying a carnauba wax covering [43]. The team also discovered that textile manufacturers could dye and waterproof materials at the same time using their technology. This technique's multitasking component could help the environment by minimizing the number of resources used during production**.** Instead of changing the production process, there are other options for reducing pollution, including: (1) the use of new, less polluting technologies; (2) effective treatment of effluent to meet specified discharge requirements using conventional and novel techniques such as electro-oxidation, coagulation-flocculation, biological treatment, photochemical processing, ion-exchange, and a variety of membrane techniques; and (3) recycling waste several time [44].

4.2 Research into Several Ways to Make Recycled Textiles

To reduce their environmental impact, a rising number of textile enterprises have turned to recycled materials. Nylon is made from recycled fishing nets by one company, while post-consumer cotton and polyester are the focus of another. The first cloth created wholly in a laboratory was nylon. It was employed for military products and as a silk substitute for items like stockings when it initially became accessible around World War II. Because of its durability and beneficial stretch qualities, it's now more frequently used in athletics, swimming, and other technical performance apparel. Textile Interchange, as an organization, assists the apparel and textiles industry in making the transition to more environmentally friendly materials that are better for people and the environment than traditional materials. Bio-based nylons (made from renewable raw materials) have the potential to be a viable replacement to virgin nylon. Recycled nylon is typically created from pre-consumer fabric waste, but it can also come from post-consumer sources like industrial fishing nets. The Recycled Claim Standard (RCS), the Global Recycled Standard (GRS), and SCS Recycled Content are all "chain of custody" standards that monitor recycled nylon through the supply chain [45]. Waste isn't going away, and these forward-thinking companies want to use it to create new products. Recycling benefits the environment in more ways than just textiles. Some companies claim that their textile-processing methods save 98 percent of water while reducing carbon dioxide emissions by 90 percent [46]. These new textiles are not yet widely available, but once consumers are aware of their existence, they may become more popular. Many environmentally concerned shoppers want to help the Earth by wearing eco-friendly clothing, and this is one method to do it.

4.3 Stop Following the Rapid Fashion Trend

The rise of fast-fashion refers to clothing that textile manufacturers produce in a hurry to keep up with ever-changing customer trends. There's also a trend away from long-lasting apparel. Many fast-fashion retailers anticipate that customers will only wear their clothes a few times before discarding them [47]. Because of the brief cycle, there is no need to focus on high-quality, long-lasting items. Consider this: traditional clothing has two cycles every year, whereas fast fashion has 50. For each week of the year, that's virtually a new cycle. People are buying more clothes but wearing them less frequently because of this trend. Textile companies might make a sincere attempt to avoid the fast-fashion trend Many enterprises in the United States and internationally sell ethically sourced clothing that stands in opposition to fast fashion's trash mentality. Made-to-measure and customized clothing can help to mitigate the problems connected with "rapid fashion"

while also benefiting the garment business. Because of the high-quality materials, great craftsmanship, and precise fit, a custom or made to measure clothing is more likely to be used for longer. Extending the lifecycle of a garment minimizes the amount of unwanted clothing that ends up in landfill by preventing it from being discarded after one use. The fabric is cut to order, ensuring that there is no excess stock stored by a retailer at the end of each season, which is then significantly discounted to clear it swiftly [48]. More and more fashion brands are considering their production's environmental and social impact. Sustainable brands, on the other hand, will not necessarily be more expensive than brand-name clothing, for which consumers often pay a premium for the image but rarely for the quality or sustainability. The environmental impact of washing clothing garments is enormous. Every year, the average family does over 400 loads of laundry and uses roughly 60,000 litres of water. Heating the water for washing and running the drying cycle both use a lot of energy [49].

4.4 Upgrade Wastewater Management Procedures

The textile business generates a significant amount of effluent, particularly during the coloring and finishing processes involved with apparel. Consider that the industry consumes approximately 100 to 200 liters of water for every kilogram of the finished product [50]. Recycling wastewater is one option. A membrane bioreactor and reverse osmosis were utilized in one project in a Pakistani textile plant to do this, making the water suitable for reuse during cloth cleaning [51]. Another option is to remove pollutants such as dyes from wastewater before it leaves the facility and contributes to pollution. A PhD student recently investigated different approaches to accomplishing that goal [52]. Her studies cleansed the wastewater while consuming less energy and using fewer chemicals. Many of the solutions aren't yet ready for general usage, but textile makers should stay on top of developments and be ready to embrace them as soon as they become available. One of the most difficult aspects of wastewater treatment is selecting what to do with the sludge produced. When compared to standard wastewater treatment systems, solar photocatalytic wastewater treatment can reduce sludge by over 80%. Thermal hydrolysis technology has three applications: wastewater treatment, waste by-product reduction, and biogas production. Large amounts of sludge created during the industrial wastewater treatment process must be dealt with in traditional wastewater treatment plants. Thermal hydrolysis facilities, on the other hand, consider sludge to be a valuable source of energy rather than a waste. The production of biogas begins after the wastewater has been treated and the sludge has been collected. In enormous vats, the sludge is heated and compressed. Temperatures of 160 to 165 degrees Celsius are required, with pressures ranging from high pressure (7 – 11 or 12 bars) [53]. Batch or biothelys and Exelyis are the two types of thermal hydrolysis. Because of a microbial decomposition – oxidation – process known as "solar irradiation", sludge, also known as "organic content", is drastically decreased by a photocatalytic system. Solar irradiation has a synergetic effect that reduces the quantity of carbon in the sludge when paired with hydrogen peroxide – carbon being the principal ingredient in organic material.

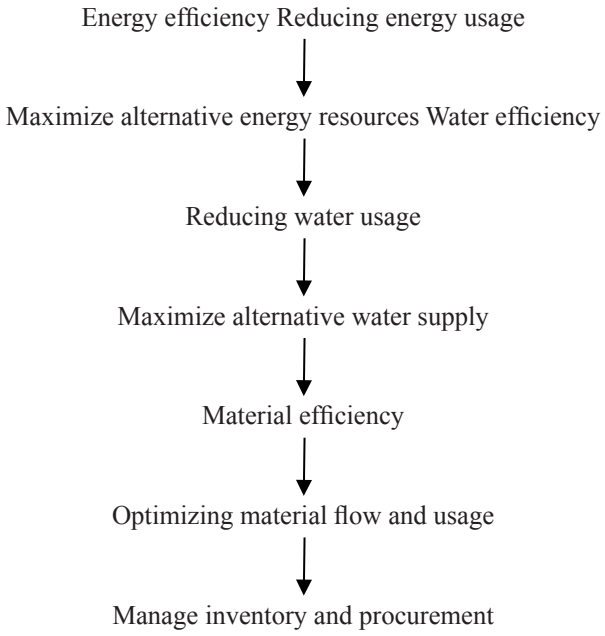
4.5 Manufacture Fabrics that are Less Likely to Shed

Manufacturers of textiles can also benefit the environment by designing fabrics that are less likely to shed plastic microfibers during the washing process. One of the key causes for the release of such particles, according to a research team, is the amount of water utilized during a wash cycle. According to their findings, a delicate wash cycle lost 800,000 more fibers than a conventional wash cycle. As a result, our oceans are becoming more polluted with plastic. Microplastics are often carried out to sea because at-home laundry machines lack the extensive filters needed to effectively remove microplastics from wastewater. According to scientists, these particles are now found everywhere in the ecosystem, from deep seas in the Pacific and Atlantic oceans to Australia's beautiful beaches. The fibers may be particularly hazardous to marine species, which has had a significant influence on the food chain. Microplastics have been discovered in most of the marine creatures we monitor, including turtles, seals, and dolphins. Professor Tamara Galloway, an ecotoxicologist at the University of Exeter, told the Guardian that microfibers are the most common sort of microplastic [54]. "While humans can't be certain of the health effects of swallowing microfibers from textiles, humans can speculate." The recycled water can result in significant cost savings, particularly in terms of water, energy, and chemical usage. Before water is removed for treatment to eliminate leftover chemicals and other effluents created, wastewater is recycled in process baths and rinsing waters. Because steam condensate and cooling water are pure, they are easily recovered. Their thermal energy can quickly recoup the cost of the purchase [55]. However, this new research suggests that delicate cycles amplify the unfavourable effect.

5. In the Ready Mate Garment Industry, Ensuring Environmental Sustainability is a Responsibility

A sustainable manufacturing framework is essential to ensure sustainable development for green earth. The methods given below can be used to do this [56].

5.1 Resources Efficiency



5.1.1 Energy Efficiency Reducing Energy Usage

The energy efficiency implies using less energy to do the same work, i.e., eliminating energy waste. Energy efficiency has several advantages, including lowering household and overall expenditures, as well as reducing greenhouse gas emissions and demand for energy imports. While renewable energy technology can assist achieve these goals, improving energy efficiency is the most cost-effective – and often the most rapid – option to cut fossil fuel use. Every sector of the economy, including buildings, transportation, manufacturing, and energy generation, offers significant opportunity for efficiency improvements [57].

5.1.2 Maximize Alternative Energy Resources Water Efficiency

The feasibility of removing four commercial reactive wool dyes from industrial wastewaters was investigated to address stresses on water resources sustainability management, water quality parameters of lake water induced by climate change, rainwater harvesting, and drainage water salinity and quality [58]. With major geographical disparities in DO decreasing, the risk of oxygen depletion was clearly anticipated. A longer residence duration is projected, accompanied with rising phosphate and chlorophyll a level and falling nitrate levels.

5.1.3 Reducing Water Usage

Growing populations, changing socioeconomic situations, and climate change are all contributing to the scarcity of water as a natural resource. Furthermore, water demand is predicted to climb further in some areas because of electrification with newbuild thermal power plants, and much more so if electricity generation is decarbonized with a large contribution of carbon capture and storage technology in fossil-fuel-fired plants. To keep the increased water abstraction and consumption of CCS power plants to a minimum, novel engineering solutions are required [59].

5.1.4 Maximize Alternative Water Supply

Water is used extensively in the production of electricity at thermal power plants, primarily for the condensation of steam in the steam turbines' condensers. Water diverted from surface or ground water sources such as rivers, tidal estuaries, and beaches provides most of the cooling capacity. Water abstraction is the term used to describe this process. Water abstractions for electricity production can account for up to 40% of total water abstraction from fresh water sources in developed countries [60]. Because of growing populations, changing socioeconomic situations, and climate change, water is becoming a scarce natural resource, and freshwater and marine environments are under increasing strain. Furthermore, water demand is predicted to climb further in some areas because of electrification with new-build thermal power plants, and much more so if electricity generation is decarbonized with a large contribution of carbon capture and storage technology in fossil-fuel-fired plants.

5.1.5 Material Efficiency

Materials manufacturing consumes a lot of energy and produces a lot of greenhouse gas (GHG) emissions, accounting for around a quarter of all human CO_2 emissions. It generates significant amounts of waste both during manufacture and at the end of its useful life [61]. More efficient material use could help to achieve a variety of environmental and economic benefits. Material efficiency comprises the development of technical methods, economic models, consumer preferences, and legislative instruments that would result in a significant reduction in the number of new materials needed to supply well-being.

Even though many opportunities exist, material efficiency is not utilized to its full potential in practice.

5.1.6 Optimizing Material Fow and Usage

The material flow analysis (MFA) depicts the entire movement of trash and the techniques for managing it. MFA, for example, provides transfer factors for all residue processes in various entities that can be used in LCA calculations. MFA can be utilized as the foundation for creating an input-dependent waste management model utilizing LCAs. Knowing the transfer coefficients for all treatments allows for the creation of process inventories for arranging and reusing in accordance with the MFA and guarantees that the mass balance in the framework is maintained. MFA entails a thorough examination of the content input and output flows into space over a set period [62].

5.1.7 Manage Inventory and Procurement

Sustainable inventory management (SIM) refers to inventory, warehousing, and material handling decisions that are made with the goal of decreasing environmental and social impacts while maintaining profitability. Modeling location and transportation concerns could result in more sustainable supply chains (SCs) [63]. Recent research has highlighted the necessity to consider elements other than standard inventory models when designing sustainable inventory systems, such as including environmental factors into the traditional economic order quantity (EOQ) model. It is critical to create a SIM model that considers income growth, waste prevention, and energy cost reduction. Emissions and costs are influenced by decisions on lead periods, replenishment quantities, and storage facilities.

5.2 Emissions Reduction

The following efforts must be taken to reduce emissions.

- Control and reduce the flow of the environment.
- Establish a recycling system and put it into action.
- Items should be managed, maintained, processed, and dealt with properly.
- Minimize wastewater and land degradation.
- It is necessary to account for carbon dioxide emissions.
- Reduce your carbon footprint.

5.3 Increasing Managerial Effectiveness

Establishing an effective environmental management system, improving accounting and environmentally monitoring performance, and compliance with environmental rules are all critical steps in improving management practices. On the other side, the followings are required for improved sustainability: Taking environmental decisions, implement resource pooling and industrial clustering, performing risk analysis (environmental and business) and Improve sustainability through identifying, developing, and implementing business cases [64].

5.4 Bangladesh's RMG Business Has Adopted Environmental Sustainability as a Goal

The owners of Bangladesh's RMG industry are particularly concerned about the industry's long-term viability. To increase their efficiency and sustainability, compliance factories are employing several best practices. The followings are some best practices: Harvesting rainwater, Cogeneration reduces, reuses, and recycles water, Boiler with condensate recovery, Chemicals and colors that use less water Renewable energy (solar panel), T5 prismatic skylight with LED illumination, and sustainability reporting. While solar energy provides consumers with a renewable and long-term source of energy, inclement weather can prevent solar panels from producing as much energy as they could under normal conditions, lowering their efficiency. During severe weather, the system's stored energy can be used first, but if there isn't enough solar power available, additional energy may be drawn from the local utility. Solar panels produce 10% to 25% less energy on gloomy days than on bright, sunny days, according to estimates. Given the variable performance of solar panels in bad weather, as well as the growing depletion of traditional energy sources and the environmental damage caused by their extraction, new resources must be found. Renewable energy blends can only be cost-effective and cheap if they are used in high-performance buildings [65].

6. Textile Industry Production Practices: A Source of Environmental Concern

Textiles are made from natural fibers like cotton, animal fibers like wool and silk, and synthetic materials like nylon, polyester, and acrylics (see in Figure 1). The production of natural fibers is nearly equal to the production of synthetic materials (of which polyester accounts for about half). The phases of textile production are fibre production, fibre processing and spinning, yarn preparation, fabric creation, bleaching, dyeing, and printing, and finishing (see in Figure 2). Because the process of changing raw fibers into completed apparel and non-apparel textile items is complex, most textile mills specialize. Knitting and weaving are used alternately in the production of man-made cotton and wool materials.

Textiles go through several stages of manufacture, including yarn production, fabric development, wet processing, and textile fabrication [66]. This textile manufacturing process comprises "wet methods", which result in the generation of volatile organic compounds (VOCs). VOCs are measured in milligrams of carbon per cubic metre (mg/m^3) and vary from 10 mg/m^3 to 350 mg/m^3. In the industrial sector, process wastewater is a major cause of pollution. Per tonne of wool produced, 544 m^3 of effluent is produced, which is contaminated with bacteria, chemicals, dyes, and bleaches. The effluent is usually alkaline (high pH), includes particles, oil, and potentially toxic organics such phenols from dyeing and halogenated organics from whitening, as well as a high BOD/COD load. Heavy metals like copper and chromium may be present in dye wastewaters, which are frequently brilliantly colored. During the manufacture of wool, bacteria and other diseases may be released [67]. Wool is the most reusable and recyclable fiber among the major garment fibers. Wool's environmental credentials are bolstered by its extended service life and ability to be recycled into new textiles for garments, durable upholstery, or goods that rely on its natural fire and temperature resistance [68]. Wool can be utilized in industrial applications such as thermal and acoustic insulation, as well as pads to absorb oil spills, in addition to premium next-to-skin garments. Natural fibers, such as wool, lessen the textile industry's pollution and landfill build-up at the disposal stage. Wool biodegrades rapidly in warm, wet environments, such as soil, through the activity of fungi and bacteria to necessary elements (i.e. Nitrogen and Sulphur). Innovative cost-competitive processes for new soft handle contact, no shrinking, and washable woollen textiles are needed in the textile and garment industries. The most effective methods for fiber modification are oxidative or reductive procedures, as well as the application of polymer resins to the wool surface. However, such methods produce hazardous chemicals that can be retained in fabrics and industrial effluents. Proteolytic enzymes have been employed to generate environmentally friendly alternative procedures for fabric manufacture [69]. Because the enzymes employed are created from bacterial or fungal species cultivated via bioengineering fermentation methods and then extracted, the economics of enzyme production and extraction are cost-effective. However, using pure enzymes during processing is difficult to manage and may result in enzyme penetration into the body. Synergistic effects, which occur when two or more substances work together to produce effects that are greater than the sum of their parts, are the most significant environmental impact of rapid pH variation in the large body of water. This process is particularly important in surface waters, where an increase in pH increases the toxicity of chemicals such as ammonia and iron, posing serious risks to fish stocks and children washing and playing in the water.

6.1 The Cost of the Environment in the Garment Supply Chain

The garment sector has several environmental consequences. It pollutes the environment in a variety of ways. Environmental pollution includes wastewater discharge, pollution and waste discharge, air pollutants, and troublemakers [70]. Figure 3 denotes the impact of green supply chain management. The supply chain expenditures have an impact on the environment since delivering products more efficiently reduces your carbon footprint. Companies are now establishing sustainability initiatives to aid the environment by reducing miles travelled, production expenses, product waste, and unscheduled activities [71]. Importers and exporters work together with their suppliers to express their sustainability ideals and expectations. Many businesses, such as retailers and large brands in the United States, have begun to assess their suppliers' environmental performance. They assess their greenhouse gas emissions, energy and water use, and trash generation through surveys and questionnaires [72]. This information is used to determine what changes a corporation should undertake to reduce environmental

Figure 1. The diagram of textiles raw materials

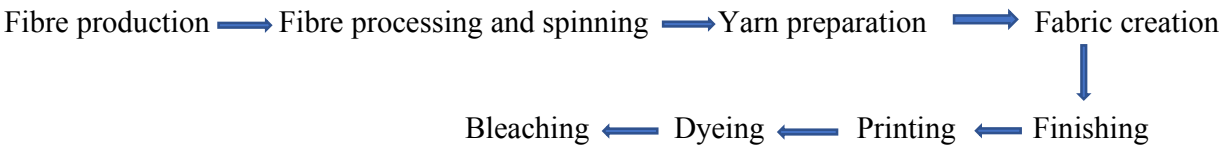


Figure 2. The diagram of production process

damage. Companies who are committed to sustainability will collaborate with their suppliers to identify pollution and waste sources and devise preventative solutions. To avoid pollution, they would also urge suppliers to employ cleaner and more cost-effective methods of production. The idea is to broaden the scope of accountability throughout the supply chain. Being environmentally conscious has other benefits besides making the world a greener place. Companies that strive for sustainability have a few benefits, including a better public image, a lower risk of noncompliance, the attraction of more environmentally conscious customers (a group that is rising), increased productivity and quality, and an increase in more sustainable products. According to Mohammad Momower Hossain, the environmental impact of textiles and the garment supply chain is as follows [73].

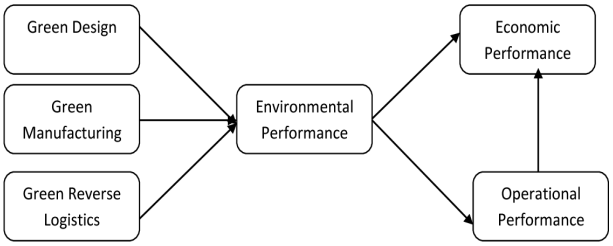


Figure 3. Impact of green supply chain management [74]

6.2 The Importance of Sustainability in Supply Chain Management

The concept of incorporating sustainable environmental operations into the traditional supply chain is referred to as "green supply chain management" (GSCM). Product design, material sourcing and selection, manufacturing and production, operation, and end-of-life management are all examples of this. GSCM emphasizes promoting value creation throughout the supply chain organizations to lower total environmental effect, rather than simply aiming to mitigate the supply chain's environmental impact [75]. Understanding the green supply chain management, social, and economic impact, as well as making appropriate changes to reduce it, is the foundation of sustainable supply chain management. Everything from the electricity system in a warehouse to product delivery and beyond can be included in the operation [76]. If your warehouse produces goods, your sustainability strategy will entail a study of the full manufacturing process, including the sustainability practices of all raw material suppliers, product assembly in the plant, and waste disposal and recycling. In a supply chain, sustainability is more than just becoming green. Because environmental responsibility is such a hot topic in today's business world, a supply chain built on a sustainable platform opens additional partnership opportunities. Practicing environmental in all facets of your business increases your credibility and reputation. A long-term supply chain can also help you boost production while lowering costs. By utilizing sustainable approaches and resources, organizations may enhance the efficiency of buildings, transportation, and machines while saving money. Tsunamis, devastating hurricanes, out-of-control wildfires, and other natural disasters are becoming more common because of global warming and climate change. CO_2 emissions from vehicles, ships, and factories play a significant role in this. Now that governments are taking aggressive measures to prevent climate change, freight businesses must adhere to new criteria that establish permissible emission levels from their fleet. By improving the effectiveness of your logistics management system and strengthening your supply chain, you not only minimize your carbon footprint, but you also boost your profitability [77]. As you demonstrate your green credentials, a sustainable supply chain might help you land more business. Internationally recognized standards, such as ISO 14001, can help you out even more. ISO 14001 is a management system that helps you find holes in your organization where you may achieve green efficiency savings. It's frequently a requirement in commercial tenders. With an accreditation to back up your environmental efforts, you can demonstrate to potential clients that you're making important steps to lessen your environmental effect. If the company examines its supply chain and can adjust, the benefits are numerous. Positive action can result in significant cost savings and improved margins, as well as a reduction in the environmental damage [78].

7. A New Business Model for Environmentally Sustainable Development

Sustainable development was once thought to mean social and economic progress that was also environmentally friendly. Since the introduction of the "three pillars" idea, it has increasingly become recognized that economic and social sustainability have benefits of their own, as well as specific and definite meaning as a component of human, social, political, and economic growth. In light of this knowledge, it is vital to examine the third pillar attentively in order to focus on the notion of environmental sustainability [79]. Environmental sustainability is important in the global textile industry during the retailing phase. Fashion retailers must develop a new innovative business model that includes the employee and the company, as well as measurement standards for measuring and tracking the company's environmental sustainability practices such as:

Clinton N.D., Amazon, Apple, Nike, Samsung, Dell, Lenovo etc. As a firm's future growth and success strategy, a creative business model aiming at environmental, social, economic, and technological challenges is gaining popularity (Clinton N.D.) [80]. Greentailing, also known as ecotailing, is one of the most prominent business concepts dedicated to environmental sustainability.

7.1 The Retail Industry's Key Market Trends

In today's retail industry, several significant market trends are influencing retailers' performance and long-term growth: (a) greentailing, (b) demographic shifts, (c) experiential marketing growth, (d) thinking outside the box, and (e) offering services rather than goods [81]. To begin, greentailing is a business strategy that emphasizes environmentally conscious, socially responsible, and economically successful retailing in all aspects of the business [82]. The impact on retailers' environmental and societal commitments, consumer understanding and behavior, employees and the supply chain, and shareholder profits are all considered. Greentailing satisfies the growing demand among customers for organic, environmentally, and socially sustainable, and well-being products [83]. To meet these needs, greentailing requires the supply chain and retailers to be able to accept new ideas and generate money while adhering to ecologically friendly standards across the board. Greentailers with a main focus on greentailing increase faster than competitors with increased product innovation capabilities regarding environmental sustainability [84]. For example, two of the biggest greentailers, Walmart and Whole Foods, continue to grow at a far quicker rate than their non-greentailer competitors, thanks to constant green evolutions. Second, market dynamics have changed greatly from five years ago due to the significant changes in consumer demography [85]. Third, regarding product pricing, the in-store experience and consumer engagement with the brand are now important sales and profit drivers). Fourth, companies must think outside the box to come up with fresh and unique ways to connect with customers, especially non-traditional customers (such as online shoppers). Finally, rather than merely buying items, today's buyers demand service throughout their shopping trips. Today's retail sector depends heavily on the ability to manipulate customers. As a result, in today's retail climate, retailers must be aware of any factors that may impact customers' decisions in light of these major market trend alterations. Retailers should make ongoing attempts to link to their target customers' demands through innovative product merchandising, marketing, and packaging approaches in order to create a lasting impression on them. As a result, greentailing initiatives are critical current store growth drivers.

7.2 Greentailing

Greentailing is a movement toward more conscious retailing that is achieved by environmentally friendly activities and processes, as well as the sale of environmentally friendly products and services, that become ingrained in a company's corporate fiber [86]. In essence, companies who practice "green retailing", the two terms that make up the mash-up of "greentailing", are concerned with how their actions affect not just their customers, but also their employees, vendors, community, and environment**.** The retail industry is thriving in a familiar, demanding, and competitive environment. Green retailing can acquire a competitive advantage, according to Ferraro and Sands, because green enterprises have the potential to provide large returns on investment and cost reductions. Sinha discovered that sustainable practices are defined as "the business of selling environmentally friendly items to the general public and/or the practice of running a business that sells products to the general public using environmentally friendly ways [87]." Customer communication in greentailing, which spans stores, products, and people, is strongly influenced by corporate social responsibility (CSR). Greentailers must accordingly sell products that are organic and natural, free of dangerous ingredients, domestically grown and legally obtained through fair trade, and, most significantly, ecologically responsible [88]. Meanwhile, greentailers must give economic returns to their customers through environmentally and socially responsible business operations (e.g., supply chain, retailers, and staff). Academy Sports + Outdoors and Samsung C&T are two textile merchants who have dedicated to environmentally-responsible business practices. Both firms show how greentailing can promote an image of a company while also rewarding its shareholders economically [89]. Due to its commitment to complying with California's Proposition 65 and the California Transparency in Supply Chains Act (SB 657), Academy Sports + Outdoors, a Texas-based sports brand specialty retailer, is one of the leading greentailers. California's Proposition 65 has produced a list of over 850 toxic chemicals that are detrimental to people and the environment, and it prohibits their utilization in product manufacturing (Academy Sports + Outdoors N.D.). Samsung C&T, established in 1954, is a large global clothing design and retail firm with yearly sales over two billion dollars (USD). The company is a member of the Samsung Group and currently owns 50 44 K.E. Lee fashion brands (including imported, licensed, and private labels) [90]. In 2013, to mark Samsung C&T's 60th anni-

versary, the company opened the HEARTIST HOUSE, a CSR store based on the company's strong commitment to CSR. The name HEARTIST is a combination of the terms "heart" and "artist", and it represents the store's symbolic principles of environmental sensitivity, sharing, and donating.). The HEARTIST is designed for a purchase experience that is similar to giving, with five principles: reduce, reuse, recycle, refine, and recover. The HEARTIST is committed to environmental sustainability in five ways. To begin, the products in the store can be separated into three groups: The HEARTIST store of Samsung C&T in Seoul, South Korea. Textile Industry Environmental Sustainability (a) organic and natural-materials items, (b) donated clothing items from the company's leading luxury fashion brands (e.g., Bean Pole, Galaxy, Rogatis, Kuho, LeBeige), and (c) upcycled clothing items designed by young modern fashion designers who have offered their abilities. Second, the store's shopping bags are made of biodegradable, recycled plastic and are meant to be shared, allowing the customer to return to the store after filling them with items for donation [91]. Third, a warehouse built in the 1940s was converted into the main store using minimal synthetic materials. Fourth, recycled materials make up more than half of the store's fixtures. Fifth, the cooling water from the store's air conditioning system is recycled to irrigate the flower garden. Furthermore, personnel of the company, including fashion designers and merchandisers, volunteer to work as retail staff. Samsung C&T donates half of the proceeds from the HEARTIST store to charities and organizations that promote environmental sustainability through donations, campaigns, and events [92].

8. Make Use of Phases

Consumption of fashion products is influenced by the need for self-expression and identity creation. Because of a strong concern for the distinct personality created by fashion styles, as well as a lack of information about clothing's negative environmental effects, consumers are often less concerned about ethical or sustainable clothing use [93]. Rapid fashion and slow fashion are two separate trends that affect customer apparel purchasing behaviors in today's clothing market.

8.1 Rapid Fashion

Rapid fashion refers to an apparel company's business approach of successfully managing the supply chain in order to produce the most up-to-date trendy products in a timely manner in response to consumer demand. As a result, fast fashion's time-to-market (the amount of time it takes to produce a product from concept to final product) is only a few weeks, compared to the garment industry's standard six-month time-to-market [94]. For example, Topshop's time-to-market has been shortened to six to nine weeks, whereas H&M's has been shortened to three weeks. Aside from a time-to-market, another distinguishing quality of fast fashion shopping is the capacity to generate a wide range of clothing styles. Zara, the world's biggest fashion retailer, produces 12,000 styles per year from 40,000 different types made by 200 in-house designers. Fast fashion's features of providing the latest fashion styles at low prices in short turnaround times have resulted in a disposable clothing culture, in which consumers discard clothing after only a few uses; this utilization culture increases waste material amounts to be landfilled due to a shorter product life cycle. Fast fashion refers to low-cost, low-quality, mass-produced, and machine-made items that end up in landfills quickly. Slow fashion garments, on the other hand, are manufactured by hand, take time to produce, employ artistic skill, are of higher quality, and are more expensive. Over time, slow fashion clothing becomes naturally warm and pleasant. Years, if not a lifetime, can be spent on these. The utilization of organic, recycled, repurposed, and upcycled fibers is important to sustainable fashion. The materials used are those that use fewer chemicals, dyes, energy, resources, waste, and have a low environmental impact [95].

8.2 Slow Fashion

Consumers' environmental consciousness is expanding because of the increasing environmental repercussions of clothing use (particularly fast fashion), creating a need for sustainable clothes consumption through slow fashion goods. Eco-friendly apparel products enable consumers to make ethical and consumption decisions while also establishing an ecologically conscientious identity [96]. Slow fashion was first coined in 2008 by Kate Fletcher, is an alternative to fast fashion, according to, a sustainable design expert [97]. Slow fashion is clothing that is ageless, untouched by rapidly changing fashion trends, and lasts a long period. Slow fashion extends outside the use of organic compounds to include environmentally sustainable fashion methods based on customers' environmental awareness of textile items' effects across their whole life cycle [98]. Slow clothing brands prioritize product durability and reusability while designing clothing in an environmentally conscious manner. Slow fashion trends enable consumers to purchase timeless designs that will last a long time while retaining good product quality, and designers to develop seasonless sellable products on the market [99]. As these new slow fashion products

appeal to consumers seeking distinctive designs with a willingness to pay a premium, slow fashion can reduce the textile industry's carbon footprint in subtle alternative ways without overloading environmental pressures solely on textile companies; thus, slow fashion can reduce the textile industry's carbon footprint in delicate alternative ways without overloading environmental pressures solely on textile companies. In the textile industry, Eileen Fisher is a famous example of a slow fashion brand, delivering timeless and ageless patterns by reproducing chosen icon styles through seasons while adapting to new trends for a broad consumer base.

8.3 Clothing Consumption in the Future

As the fashion industry grows in size, a large volume of clothing waste causes major environmental problems by needing more and more landfill space each year throughout the world. As a result, promoting environmental sustainability will necessitate a more holistic approach to influencing customers' apparel purchasing behavior to include concerns or obligations to the environment and society. To safeguard the environment, garment companies, like consumers, must rethink their green business practices in terms of how clothing is designed, manufactured, consumed, and disposed of. Consumers are increasingly conducting research on a product and the firm that manufactures it before making a final purchase [100]. Consumers are better educated than ever before, so they buy less but better. "Conscious consumerism" is the future's trend!

For a variety of reasons, impulse purchases have decreased during this pandemic. People are visiting physical stores in lower numbers than in the past. When we go to the mall to buy a pair of shoes, we wind up purchasing a dress and a pair of fashionable earrings as well.

8.4 Disposal Procedures

After consumers use textile products, used textile waste is commonly dumped (e.g., clothes, footwear, and accessories). More textile waste is produced every year around the world, especially in fashion centers like the United States and the United Kingdom. Textile production in the United States has gradually increased (for example, clothing, footwear, and accessories). In 1999, 8.25-billion-kilograms worth of textiles were manufactured. By 2009, this sum had increased by 11.55 billion kilograms, and it is expected to increase by 16.07 billion kilograms by 2019. (Council for Textile Recycling N.D.). According to 2009 textile output numbers of 11.55 billion kilogram, each US resident purchased around 37 kilograms of textile items per year, meaning that Americans now buy five times as much clothing as they did in 1980 [101]. After these textiles were used, only 3.8 billion pounds of textile garbage were given or recycled, accounting for 15% of total global landfill garbage; the other 9.53 billion kilogram of textile waste (85%) was landfilled (Cline 2014; Council for Textile Recycling N.D.). In the United Kingdom, like in the United States, 10% of the 1.4 million tons of old textile waste is estimated to be landfilled each year. Due to the massive amount of textile waste created each year, the UK's recycling and waste management sectors are experiencing concerns with future landfilling. Because of the growing interest in green clothing consumer movements, discarded used textile goods are now recognized as an economic value regenerator through reuse and recycling. When textile waste is recycled, for example, 45 percent of it can be worn as second-hand clothing, 30 percent can be cut up and made into industrial waste, 20 percent biodegrades after dumping, and only 5% is worthless. In general, municipal governments and trash management companies have a lot of money to make from these discarded products [102]. Customers benefit from recycling because it reduces the demand for new garment production, reduces manufacturing, which saves a lot of energy and raw materials, and reduces energy and raw materials, which results in fewer pollutants in the environment (Second Hand 4 Business Ltd. N.D.). As a result, consumers should be urged to recycle and donate their clothes to help the environment.

9. Conclusions

The textile manufacturing process requires a lot of resources, including water, fuel, and a variety of chemicals, over the course of a long production schedule that generates a lot of waste. Pollutants generated by the worldwide textile industry are wreaking havoc on the environment in unimaginable ways. It pollutes land, air, and water, rendering them ineffective and unproductive in the long term. Reducing the toxins released by the textile sector has become vital. Textile companies and their raw material processing units have contaminated the air, water, and land, posing a major threat to the environment. It has put the lives of humans and other animals on the planet in jeopardy. Environmentally friendly agricultural and manufacturing processes should be used. There is an immediate need to take action in this direction. Textile manufacturing has a negative impact on the environment due to frequent and relatively large GHG emissions, water withdrawal, the release of toxins into our ecosystem from pesticides and herbicides used in cotton production, and a variety of other factors. An eco-friendly product is one that is created, utilized, or disposed of in a way that greatly lessens

the harm it would otherwise cause to the environment. In addition to reducing the environmental impact of textile manufacturing and making our world a better place to live, the use of such materials will help to minimize the harmful effects of toxic chemicals (pesticides, herbicides, and so on) on human health.

Author Contributions

Conceptualization and writing, M.T.I; supervising, R.J; reviewing, M.J; reviewing, M.S,H; editing R.I; formatting figures and manuscript editing; M.M.I; editing and reviewing; M.S.H; manuscript redesign, A.K; final reviewing and editing, A.H.R.

Conflict of Interest

All authors checked this work and declared no conflict of interest.

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References

[1] Toprak, T., Anis, P., 2017. Textile industry's environmental effects and approaching cleaner production and sustainability, an overview. Journal of Textile Engineering & Fashion Technology. 2(4). DOI: https://doi.org/10.15406/JTEFT.2017.02.00066

[2] Zhang, Y., Liu, X., Xiao, R., et al., 2015. Life cycle assessment of cotton T-shirts in China. International Journal of Life Cycle Assessment. 20(7), 994–1004. DOI: https://doi.org/10.1007/S11367-015-0889-4

[3] Adams, C.A., Frost, G.R., 2008. Integrating sustainability reporting into management practices. Accounting Forum. 32(4), 288–302. DOI: https://doi.org/10.1016/J.ACCFOR.2008.05.002

[4] Adidas, H&M Among the World's Most Sustainable Corporations - Fashionista. https://fashionista.com/2016/01/most-sustainable-fashion-companies (Accessed Mar. 04, 2022).

[5] Structural Evaluation of Lightweight Concrete Produced Using Waste Newspaper and Office Paper - Covenant University Repository. http://eprints.covenantuniversity.edu.ng/2727/#.YiJLLehBxPY (Accessed Mar. 04, 2022).

[6] Roy Choudhury, A.K., 2014. Environmental Impacts of the Textile Industry and Its Assessment Through Life Cycle Assessment. pp. 1–39. DOI: https://doi.org/10.1007/978-981-287-110-7_1

[7] Bilgin, A., 2015. Analysis of the Environmental Impact Assessment (EIA) Directive and the EIA decision in Turkey. Environmental Impact Assessment Review. 53, 40–51. DOI: https://doi.org/10.1016/J.EIAR.2015.04.001

[8] Lee, K.E., 2017. Environmental Sustainability in the Textile Industry. pp. 17–55. DOI: https://doi.org/10.1007/978-981-10-2639-3_3

[9] Bangladesh returns to second position in RMG exports in 2021. https://www.textiletoday.com.bd/bangladesh-returns-second-position-rmg-exports-2021/ (Accessed Jun. 13, 2022).

[10] Gardetti, M.A., Muthu, S.S., 2015. Sustainable apparel? Is the innovation in the business model? - The case of IOU Project. Textiles & Clothing Sustainability. 1(1), 1–9. DOI: https://doi.org/10.1186/S40689-015-0003-0

[11] Khan, M.M.R., Islam, M.M., 2015. Materials and manufacturing environmental sustainability evaluation of apparel product: knitted T-shirt case study. Textiles & Clothing Sustainability. 1(1), 1–12. DOI: https://doi.org/10.1186/S40689-015-0008-8

[12] Choudhury, A.K.R., 2017. Sustainable chemical technologies for textile production. Sustainable Fibres and Textiles. pp. 267–322. DOI: https://doi.org/10.1016/B978-0-08-102041-8.00010-X

[13] Global fashion e-com market to reach $668.1 bn in 2021: Report - Fibre2Fashion. https://www.fibre2fashion.com/news/e-commerce-industry/global-fashion-e-com-market-to-reach-668-1-bn-in-2021-report-273633-newsdetails.htm (Accessed Jun. 13, 2022).

[14] Moore, S.B., Wentz, M., 2009. Eco-labeling for textiles and apparel. Sustainable Textiles. pp. 214–230. DOI: https://doi.org/10.1533/9781845696948.2.214

[15] Mashiur, M., Khan, R., Islam, M., 2011. Materials and manufacturing environmental sustainability evaluation of apparel product: knitted T-shirt case study. DOI: https://doi.org/10.1186/s40689-015-0008-8

[16] de Abreu, M.C.S., 2015. Perspectives, Drivers, and a Roadmap for Corporate Social Responsibility in the Textile and Clothing Industry. pp. 1–21. DOI: https://doi.org/10.1007/978-981-287-164-0_1

[17] Samanta, K., Basak, S., Chattopadhyay, S., 2015. Sustainable UV-Protective Apparel Textile. Handbook of Sustainable Apparel Production. pp. 128–155. DOI: https://doi.org/10.1201/B18428-10

[18] https://www.forbes.com/sites/jamesconca/2015/12/03/

making-climate-change-fashionable-the-garment-industry-takes-on-global-warming/%232af0bac778a2/?sh=4d881740893b (Accessed Mar. 11, 2022).

[19] The influence of CSR (Corporate Social Responsibility) communication on brand perceived value and trust: the case of SME in the food industry. https://www.researchgate.net/publication/297731947_The_influence_of_CSR_Corporate_Social_Responsibility_communication_on_brand_perceived_value_and_trust_the_case_of_SME_in_the_food_industry (Accessed Jun. 13, 2022).

[20] Lee, K.E., 2017. Environmental Sustainability in the Textile Industry. pp. 17–55.
DOI: https://doi.org/10.1007/978-981-10-2639-3_3

[21] Chapple, W., Moon, J., 2005. Corporate social responsibility (CSR) in Asia a seven-country study of CSR Web site reporting. Business & Society. 44(4), 415–441.
DOI: https://doi.org/10.1177/0007650305281658

[22] Ahmed, S., Akter, T., Ma, Y., 2018. Green Supply Chain Management (GSCM) Performance Implemented by the Textile Industry of Gazipur District, Dhaka. Logistics. 2(4), 21.
DOI: https://doi.org/10.3390/LOGISTICS2040021

[23] Why consumers buy green. https://www.researchgate.net/publication/230753628_Why_consumers_buy_green (Accessed Jun. 13, 2022).

[24] Van Hoek, R.I., 1999. From reversed logistics to green supply chains. Supply Chain Management. 4(3), 129–134.
DOI: https://doi.org/10.1108/13598549910279576/FULL/XML

[25] Zhu, Q., Cote, R.P., 2004. Integrating green supply chain management into an embryonic eco-industrial development: a case study of the Guitang Group. Journal of Cleaner Production. 12(8–10), 1025–1035.
DOI: https://doi.org/10.1016/J.JCLEPRO.2004.02.030

[26] Zhu, Q., Sarkis, J., hung Lai, K., 2007. Initiatives and outcomes of green supply chain management implementation by Chinese manufacturers. Journal of Environmental Management. 85(1), 179–189.
DOI: https://doi.org/10.1016/J.JENVMAN.2006.09.003

[27] Khan, M.M.R., Islam, M.M., 2015. Materials and manufacturing environmental sustainability evaluation of apparel product: knitted T-shirt case study. Textiles & Clothing Sustainability. 1(1), 1–12.
DOI: https://doi.org/10.1186/S40689-015-0008-8

[28] Wang, W., Bessède, J.L., 2015. Life cycle assessment of equipment for electricity transmission and distribution networks. Eco-Friendly Innovation in Electricity. pp. 123–133.
DOI: https://doi.org/10.1016/B978-1-78242-010-1.00006-9

[29] Macdonald, E.F., She, J., 2015. Seven cognitive concepts for successful eco-design. Journal of Cleaner Production. 92, 23–36.
DOI: https://doi.org/10.1016/J.JCLEPRO.2014.12.096

[30] Jackson, S.A., Gopalakrishna-Remani, V., Mishra, R., et al., 2016. Examining the impact of design for environment and the mediating effect of quality management innovation on firm performance. International Journal of Production Economics. 173, 142–152.
DOI: https://doi.org/10.1016/J.IJPE.2015.12.009

[31] What is ecodesign? https://www.nibusinessinfo.co.uk/content/what-ecodesign (Accessed Mar. 11, 2022).

[32] Cimatti, B., Campana, G., Carluccio, L., 2017. Eco Design and Sustainable Manufacturing in Fashion: A Case Study in the Luxury Personal Accessories Industry. Procedia Manufacturing. 8, 393–400.
DOI: https://doi.org/10.1016/J.PROMFG.2017.02.050

[33] H&M pledges to become 100% circular and renewable. https://www.textiletoday.com.bd/hm-pledges-become-100-circular-renewable/ (Accessed Jun. 13, 2022).

[34] Roadmap to Sustainable Textiles and Clothing: Regulatory Aspects and ... - Google Books. https://books.google.com.bd/books?hl=en&lr=&id=j5LFBAAAQBAJ&oi=fnd&pg=PA137&dq=Roy+Choudhury+AK+(2015)+Development+of+eco-labels+-for+sustainable+textiles,+Roadmap+to+Sustainable+-Textiles+and+Clothing,+Text+Sci+Clothing+Technol+137–173&ots=7w5IJaqbmD&sig=jXnZK_g_pRG4tFu2GLjoAlLJ-go&redir_esc=y#v=onepage&q&f=false (Accessed Mar. 12, 2022).

[35] UNEP : United Nations Environment Programme – Office of the Secretary-General's Envoy on Youth. https://www.un.org/youthenvoy/2013/08/unep-united-nations-environment-programme/ (Accessed Jun. 13, 2022).

[36] Choi, J.I., Chung, Y.J., Kang, D.I., et al., 2012. Effect of radiation on disinfection and mechanical properties of Korean traditional paper, Hanji. Radiation Physics & Chemistry. 81(8), 1051–1054.
DOI: https://doi.org/10.1016/J.RADPHYSCHEM.2011.11.019

[37] van der Velden, N.M., Kuusk, K., Köhler, A.R., 2015. Life cycle assessment and eco-design of smart textiles: The importance of material selection demonstrated through e-textile product redesign. Materials & Design. 84, 313–324.
DOI: https://doi.org/10.1016/J.MATDES.2015.06.129

[38] Jang, Y.S., Amna, T., Hassan, M.S., et al., 2015. Nanotitania/mulberry fibers as novel textile with anti-yellowing and intrinsic antimicrobial properties. Ceramics International. 41(5), 6274–6280.

DOI: https://doi.org/10.1016/J.CERAMINT.2015.01.050

[39] Martinopoulos, G., Tsilingiridis, G., Kyriakis, N., 2007. Three eco-tool comparison with the example of the environmental performance of domestic solar flat plate hot water systems. Globalnest International Journal. 9(2), 174–181.

[40] Vallet, F., Eynard, B., Millet, D., et al., 2013. Using eco-design tools: An overview of experts' practices. Design Studies. 34(3), 345–377.
DOI: https://doi.org/10.1016/J.DESTUD.2012.10.001

[41] Rajemi, M.F., Mativenga, P.T., Aramcharoen, A., 2010. Sustainable machining: Selection of optimum turning conditions based on minimum energy considerations. Journal of Cleaner Production. 18(10–11), 1059–1065.
DOI: https://doi.org/10.1016/J.JCLEPRO.2010.01.025

[42] 5 ways textile manufacturers can reduce their environmental impact. https://www.textiletoday.com.bd/5-ways-textile-manufacturers-can-reduce-environmental-impact/ (Accessed Mar. 14, 2022).

[43] 5 ways textile manufacturers can reduce their environmental impact. https://www.textiletoday.com.bd/5-ways-textile-manufacturers-can-reduce-environmental-impact/ (Accessed Jun. 13, 2022).

[44] Environmental impacts of textile industries. https://www.researchgate.net/publication/284578601_Environmental_impacts_of_textile_industries (Accessed Jun. 13, 2022).

[45] How companies can source nylon more sustainably. https://www.greenbiz.com/article/how-companies-can-source-nylon-more-sustainably (Accessed Jun. 14, 2022).

[46] Water efficiency in textile processes - Fibre2Fashion. https://www.fibre2fashion.com/industry-article/3406/water-efficiency-in-textile-processe (Accessed Jun. 14, 2022).

[47] Fast Fashion Definition. https://www.investopedia.com/terms/f/fast-fashion.asp (Accessed Jun. 14, 2022).

[48] Caro, F., Martìnez-De-Albèniz, V., 2015. Fast fashion: Business model overview and research opportunities. International Series in Operations Research & Managemant Science. 223, 237–264.
DOI: https://doi.org/10.1007/978-1-4899-7562-1_9/COVER/

[49] Byun, S.E., Sternquist, B., 2011. Fast fashion and in-store hoarding: The drivers, moderator, and consequences. Clothing and Textiles Research Journal. 29(3), 187–201.
DOI: https://doi.org/10.1177/0887302X11411709

[50] Kant, R., 2011. Textile dyeing industry an environmental hazard. Natural Science. (1), 22–26.
DOI: https://doi.org/10.4236/NS.2012.41004

[51] Ali, I., Kim, S.R., Kim, S.P., et al., 2016. Recycling of textile wastewater with a membrane bioreactor and reverse osmosis plant for sustainable and cleaner production. Desalination and Water Treatment. 57(57), 27441–27449.
DOI: https://doi.org/10.1080/19443994.2016.1172513

[52] 5 ways textile manufacturers can reduce their environmental impact. https://www.textiletoday.com.bd/5-ways-textile-manufacturers-can-reduce-environmental-impact/ (Accessed Jun. 14, 2022).

[53] 4 Examples of New Wastewater Treatment Technology. https://aosts.com/4-exciting-new-technologies-associated-wastewater-treatment/ (Accessed Jun. 14, 2022).

[54] Kelly, M.R., Lant, N.J., Kurr, M., et al., 2019. Importance of Water-Volume on the Release of Microplastic Fibers from Laundry. Environmental Science and Technology. 53(20), 11735–11744.
DOI: https://doi.org/10.1021/ACS.EST.9B03022

[55] Textiles: Environmental issues and sustainability - Textile School. https://www.textileschool.com/4919/textiles-environmental-issues-and-sustainability/ (Accessed Jun. 15, 2022).

[56] Environmental sustainability in Bangladesh RMG industry. https://www.textiletoday.com.bd/environmental-sustainability-bangladesh-rmg-industry/ (Accessed Mar. 14, 2022).

[57] Zaman, K., el Moemen, M.A., 2017. Energy consumption, carbon dioxide emissions and economic development: Evaluating alternative and plausible environmental hypothesis for sustainable growth. Renewable and Sustainable Energy Reviews. 74, 1119–1130.
DOI: https://doi.org/10.1016/J.RSER.2017.02.072

[58] Masoud, A.A., 2020. Renewable energy and water sustainability: lessons learnt from TUISR19.
DOI: https://doi.org/10.1007/s11356-020-08504-x

[59] Herraiz, L., Hogg, D., Cooper, J., et al., 2015. Reducing water usage with rotary regenerative gas/gas heat exchangers in natural gas-fired power plants with post-combustion carbon capture. Energy. 90, 1994–2005.
DOI: https://doi.org/10.1016/J.ENERGY.2015.07.032

[60] Li, J., Zhang, M., Li, J., et al., 2018. RETRACTED: Corn stover pretreatment by metal oxides for improving lignin removal and reducing sugar degradation and water usage. Bioresource Technology. 263, 232–241.
DOI: https://doi.org/10.1016/J.BIORTECH.2018.05.006

[61] Worrell, E., Allwood, J., Gutowski, T., 2016. The

Role of Material Efficiency in Environmental Stewardship. Annual Review of Environment and Resources. 41, 575–598.
DOI: https://doi.org/10.1146/ANNUREV-ENVIRON-110615-085737

[62] Zhang, Y., 2018. Urban metabolism. Encyclopedia of Ecology. pp. 441–451.
DOI: https://doi.org/10.1016/B978-0-12-409548-9.10756-0

[63] Becerra, P., Mula, J., Sanchis, R., 2022. Sustainable Inventory Management in Supply Chains: Trends and Further Research. Sustainability. 14(5).
DOI: https://doi.org/10.3390/su14052613

[64] Daud, S., Yusof, N., Mokhtar, M., 2019. The Effectiveness of the Environmental Management System (EMS) Implementation in Green Supply Chain: A Case Study. KnE Social Sciences.
DOI: https://doi.org/10.18502/KSS.V3I22.5105

[65] Visa, I., 2014. Sustainable Energy in the Built Environment - Steps Towards nZEB.
DOI: https://doi.org/10.1007/978-3-319-09707-7

[66] Hashem, M., Refaie, R., Hebeish, A., 2005. Cross-linking of partially carboxymethylated cotton fabric via cationization. Journal of Cleaner Production. 13(9), 947–954.
DOI: https://doi.org/10.1016/J.JCLEPRO.2004.05.002

[67] Environmental aspects of textile industries in Bangladesh. https://www.textiletoday.com.bd/textile-industries-in-bangladesh-a-rising-environmental-degradation/ (Accessed Mar. 14, 2022).

[68] Wool fiber - Basics, Characteristics, & Properties - Textile School. https://www.textileschool.com/162/wool-fiber-basics-characteristics-properties/ (Accessed Jun. 15, 2022).

[69] Infante, I., Morel, M.A., Ubalde, M.C., et al., 2010. Wool-degrading Bacillus isolates: Extracellular protease production for microbial processing of fabrics. World Journal of Microbiology & Biotechnology. 26(6), 1047–1052.
DOI: https://doi.org/10.1007/S11274-009-0268-Z

[70] Moazzem, S., Crossin, E., Daver, F., et al., 2021. Environmental impact of apparel supply chain and textile products. Environment, Development and Sustainability.
DOI: https://doi.org/10.1007/S10668-021-01873-4

[71] Negrete, J.D.C., López, V.N., 2020. A Sustainability Overview of the Supply Chain Management in Textile Industry. International Journal Trade, Economics and Finance. 11(5), 92–97.
DOI: https://doi.org/10.18178/IJTEF.2020.11.5.673

[72] Supply Chain and its Environmental Impact. https://www.morethanshipping.com/supply-chain-and-its-environmental-impact/ (Accessed Mar. 19, 2022).

[73] Environmental sustainability in Bangladesh RMG industry. https://www.textiletoday.com.bd/environmental-sustainability-bangladesh-rmg-industry/ (Accessed Jun. 15, 2022).

[74] Impact of green supply chain management practices on organizational performance : a review. https://www.semanticscholar.org/paper/IMPACT-OF-GREEN-SUPPLY-CHAIN-MANAGEMENT-PRACTICES-%3A-Sharma-Jain/f2d37f7e1113715ea57f302b1c5ddaab0938ed69 (Accessed Jun. 15, 2022).

[75] Green supply chain management - Designing Buildings. https://www.designingbuildings.co.uk/wiki/Green_supply_chain_management (Accessed Jun. 15, 2022).

[76] The Role of Sustainability in Supply Chain Management. https://www.prologis.com/what-we-do/resources/sustainability-in-supply-chain-management (Accessed Mar. 19, 2022).

[77] Benefits of Sustainable Logistics Solutions. https://blog.ptvgroup.com/en/transport-logistics/sustainable-logistics-solutions/ (Accessed Mar. 19, 2022).

[78] Five benefits of a sustainable supply chain - Supply Management. https://www.cips.org/supply-management/opinion/2019/july/five-benefits-of-a-sustainable-supply-chain/ (Accessed Mar. 19, 2022).

[79] Moldan, B., Janoušková, S., Hák, T., 2012. How to understand and measure environmental sustainability: Indicators and targets. Ecological Indicators. 17, 4–13.
DOI: https://doi.org/10.1016/J.ECOLIND.2011.04.033

[80] Bocken, N., Boons, F., Baldassarre, B., 2019. Sustainable business model experimentation by understanding ecologies of business models. Journal of Cleaner Production. 208, 1498–1512.
DOI: https://doi.org/10.1016/J.JCLEPRO.2018.10.159

[81] Silva, E.S., Hassani, H., Madsen, D.Ø., 2020. Big Data in fashion: transforming the retail sector. Journal of Business Strategy. 41(4), 21–27.
DOI: https://doi.org/10.1108/JBS-04-2019-0062

[82] Lee, K.E., 2017. Environmental Sustainability in the Textile Industry. pp. 17–55.
DOI: https://doi.org/10.1007/978-981-10-2639-3_3

[83] Globalization and its impact on retail industry. https://yangunt2012.wordpress.com/2012/02/03/smhm2350/ (Accessed Jun. 15, 2022).

[84] Greentailing and Other Revolutions in Retail: Hot Ideas That Are Grabbing ... - Neil Z. Stern, Willard N. Ander - Google Books. https://books.google.com.bd/

books?hl=en&lr=&id=8SOWAAAAQBAJ&oi=fnd&pg=PA1885&dq=Stern+N-Z,+Ander+W-N+(2008)+Greentailing+and+other+revolutions+in+retail:+hot+ideas+that+are+grabbing+customer's+attention+and+raising+profits.+Wiley,+Hoboken,+New+Jersey&ots=mO9Ug9jITH&sig=UyRSuSvBFsbpiTeG8k94XuYgM90&redir_esc=y#v=onepage&q&f=false (Accessed Mar. 19, 2022).

[85] Bahuguna, V., 2012. Retail industry overview: future prospects in indian market. International Journal of Management Research and Review. 2(11). (Accessed Jun. 15, 2022). Available: www.ijmrr.com.

[86] Ferraro, C., 2022. Greentailing': A key to thriving in recession?' On-the-go (OTG) View project When and How Consumers are Willing to Exchange Data with Retailers: An Exploratory Segmentation View project. (Accessed: Jun. 15, 2022). Available: https://www.researchgate.net/publication/228461278.

[87] Sharma, N., Campus, D., Kesharwani, S., 2017. Greentailing and Green Consumer.

[88] Greentailing and Other Revolutions in Retail: Hot Ideas That Are Grabbing ... - Neil Z. Stern, Willard N. Ander - Google Books. https://books.google.com.bd/books?hl=en&lr=&id=8SOWAAAAQBAJ&oi=fnd&pg=PA1885&dq=Stern+N-Z,+Ander+W-N+(2008)+Greentailing+and+other+revolutions+in+retail:+hot+ideas+that+are+grabbing+customer's+attention+and+raising+profits.+Wiley,+Hoboken,+New+Jersey&ots=mO9Ug9jMSA&sig=XImzYg3IGPcBDTPR1uAx7q36sXo&redir_esc=y#v=onepage&q&f=false (Accessed Mar. 19, 2022).

[89] Young, C.L., Rotherham, D., Johnson, D.D., et al., 2013. Small-Scale Variation in Reproduction and Abundance of Greentail Prawn, Metapenaeus Bennettae Racek and Dall, 1965. Journal of Crustacean Biology. 33(5), 651–659.
DOI: https://doi.org/10.1163/1937240X-00002172

[90] The awaring of the green: 'greentailing' is retailers' latest marketing strategy. https://agris.fao.org/agris-search/search.do?recordID=US19930001144 (Accessed Jun. 15, 2022).

[91] Renko, S., Stern, N.Z., Ander, W.N., 2015. Prikaz knjige Naslov: 'greentailing and other revolutions in retail: hot ideas that are grabbing customers'' attention and raising profits" Autori: sintetizirani prikaz djela Opseg i raspored grae.'

[92] Sustainability in the Textile Industry - Google Books. https://books.google.com.bd/books?id=s6hDDQAAQBAJ&pg=PA54&dq=Samsung+C%26T+(2016)+Company+press+kit.+Seoul,+Korea:+Shim,+M.+Santoni+(N.D.)+Seamless+technology.+http://www.santoni.com/seamless-technology.asp.+Accessed+11+Feb+2016&hl=en&sa=X&ved=2ahUKEwiyoZ-elNL2AhXOzjgGHZGqACIQ6AF6BAgIEAI#v=onepage&q=Samsung C%26T (2016) Company press kit. Seoul%2C Korea%3A Shim%2C M. Santoni (N.D.) Seamless technology. http%3A%2F%2Fwww.santoni.com%2Fseamless-technology.asp. (Accessed Mar. 19, 2022).

[93] Berger, J., Heath, C., 2007. Where Consumers Diverge from Others: Identity Signaling and Product Domains. Journal of Consumer Research. 34(2), 121–134.
DOI: https://doi.org/10.1086/519142

[94] Tokatli, N., 2008. Global sourcing: insights from the global clothing industry—the case of Zara, a fast fashion retailer. Journal of Economic Geography. 8(1), 21–38.
DOI: https://doi.org/10.1093/JEG/LBM035

[95] Fast vs Slow Fashion - Fibre2Fashion. https://www.fibre2fashion.com/industry-article/8460/fast-vs-slow-fashion (Accessed Jun. 15, 2022).

[96] Joy, A., Sherry, J.F., Venkatesh, A., et al., 2012. Fast fashion, sustainability, and the ethical appeal of luxury brands. Fashion Theory The Journal of Dress Body & Culture. 16(3), 273-295.
DOI: https://doi.org/10.2752/175174112X13340749707123

[97] Fletcher, K., 2010. Slow Fashion: An Invitation for Systems Change.
DOI: https://doi.org/10.2752/175693810X12774625387594

[98] The Slow Fashion Movement: 10 Brands That Are Doing it Right - Fashionista. https://fashionista.com/2012/12/the-slow-fashion-movement-what-it-is-and-the-10-brands-that-are-doing-it-right (Accessed Mar. 19, 2022).

[99] Why Brands and Retailers Are Running With the 'Slow Fashion' Movement. https://www.forbes.com/sites/aliciaadamczyk/2014/11/20/why-brands-and-retailers-are-running-with-the-slow-fashion-movement/?sh=4a8c4bf7c642 (Accessed Mar. 19, 2022).

[100] Conscious consumption is the trend of the future. https://www.thedailystar.net/life-living/news/conscious-consumption-the-trend-the-future-2190701 (Accessed Jun. 15, 2022).

[101] Trash Talking: Textile Recycling. https://waste-management-world.com/artikel/trash-talking-textile-recycling/ (Accessed Mar. 19, 2022).

[102] Where Does Discarded Clothing Go? - The Atlantic. https://www.theatlantic.com/business/archive/2014/07/where-does-discarded-clothing-go/374613/ (Accessed Mar. 19, 2022).