

# “Green Merchandising”- A Sustainable Approach for Apparel Business: A Review Paper

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**Abstract:** Green is becoming more economically contingent and exoteric in apparel retail business nowadays. Eco-friendly policies have penetrated stages of the fashion industry through apparel manufacturing, material sourcing, and apparel supply chain. By applying sustainable practices in the apparel business, a company does not only make a profit but also benefit the environment, create a positive image in the market and uplift the society as well. The consumers are ready to pay more for an eco-friendly product. However, practicing sustainable apparel business is not being popular all over the world. Merchandisers are called the heart of the apparel business. Thus, if they are aware of this fact, it will become more convenient for them to practice sustainability. In this paper, a probable solution being proposed is named green merchandising. This paper is based on how this solution will create an impact on the environmental, social and economic condition of the apparel business. By applying green merchandising, the unsustainable impact will be reduced and also this solution will reduce the usage of natural resources like water, gas, electricity and reduce the carbon emission as well. Some aspects of unsustainable practice in apparel business have been presented in the paper. Moreover, probable solutions have been proposed and if these are implemented in textile and apparel business then what would be the benefits are mentioned in this paper.

**Keywords:** *Eco-friendly, sustainable, Merchandiser, supply chain, apparel business*

## 1. INTRODUCTION

Sustainability is an eidolon that has been affected by many sectors. It is related to the different societal dimension which directly or indirectly affects environmental degradation, social and economic dimension [1]. Sustainability has become a common concern for all industrial sectors. Government and the industrial sector should come forward with different suitable strategies to minimize the risk at all levels and make a project for sustainable development. Sustainable development is a complex multi-dimensional concept which has environmental, economic, social and health issue [2]. Over the past few years, environmental and social concerns around fashion apparel retail business and consumers have become

aware to rise the implementation of sustainable initiatives in the global apparel business. For this reason, the global apparel brands are concerned in reducing environmental degradation and improve social values throughout the production chains [3] For instance according to a study, to produce 0.25lb cotton t-shirts it requires 875 gallons of water, 0.25 lb of fertilizers, 0.12lb pesticides which emit 6.5lb of CO<sub>2</sub>, 1.3lb of fossil fuels and 0.1lb hazardous gases. Additionally, 50 times washing and dyeing of 0.5lb of a t-shirt in the US on an average 18.3lb CO<sub>2</sub> emits to the environment [4]. Nowadays, consumers have become more conscious of the unsustainable impact on the environment and are showing their preferences for an eco-friendly product, and therefore insist the producer prosecute modern and pure technologies along the sustainable supply chain to produce eco-sustainable products [5]. That means without upsetting the earth's ecological balance, the ability of something to continue is known as environmental sustainability. Sustainable apparel products mean a part of design characteristics and aptitude towards maintaining ecological balance and social responsibility prevails [6]. How natural resources are consumed and replenished in their production life cycle alludes to longevity, the overall impact on the environment, where the products are disposed after their usage is termed as environmental sustainability in business. In the apparel business, sustainable apparel products create positive impact at every point from manufacturing to product lifecycle [7]. Unsustainable practice can pose impact every stage of apparel business from raw materials to disposal stage. As merchandisers are called the heart of apparel business, it is their responsibility to create a sustainable environment where all the unsustainable impact will be reduced to a great extent. Therefore, they have to maintain the green merchandising strategy where the apparel products sustainability could have prevailed. The erudition tries to show the green merchandising activities and the positive impact of these activities on the environment and society in order to create a sustainable apparel business environment. However, there are some negative perceptions related to green products due to

poor knowledge of consumers related to green products, lower adoption intentions and quality issues [8].

## 2. LITERATURE REVIEW

The person who deals with the trade is a merchandiser. A person who deals with apparel trade is an apparel merchandiser. Merchandising is the department which intercedes manufacturing and marketing departments and needs to do costing and pricing also. That is why the importance of this department cannot be described in a word. [9]. Sustainability refers to the model of ecological and manufacturing systems for ensuring the quality of life for mankind and animal being so that they can use the natural resources in a certain limit which do not affect the future economic adverse opportunities or any adverse impacts on living being, society and surrounding environment [10]. The textile products which are considered sustainable are produced from raw materials, various resources which are collected from various renewable sources that cannot be emaciated and do not cause any adverse effect on future generation [11]. Merchandiser plays a significant role in this aspect. Merchandising departments play a critical role for the company and apparel business, determining the sales of the products while reducing the costs and minimize the supply chain risks. Sustainability plays a lever for merchandising to reduce risks and costs by increasing visibility and efficiencies in the business. Merchandising can be benefited most by focusing on product category before applying the acquired knowledge across product categories and setting an ambitious and time-bound target, for example, 100% sustainable sourcing or zero discharge is an effective way to bring suppliers to the table, exhort meaningful collaboration, and provide transferrable knowledge [12]. Apparel has lofty and perplexing production cycle consists of several stages such as raw material extraction and preparation, fibre and yarn manufacturing, fabric manufacturing, garments manufacturing, gathering, finishing, packaging and delivery, consumer end-use, recycle and demise [13].

## 3. APPAREL BUSINESS UNSUSTAINABILITY

It is very much important to re-think the overall excitement of sustainability issues and depreciation hostile throughout the supply chain of textile and apparel business. It is high time to reconsider the sustainable issues of apparel business in order to ensure that no further problems are created while

alleviating other problems. Thus, the opportunities propagate from fibre production, textile manufacturing, garments manufacturing, transporting, and retailing through the end of life cycle disposal of the products.

### A. Raw materials impact:

The most commonly used textile fibres are cotton and polyester which dominates more than 75% of the world market. Cotton accounts for almost 40% of the world textile demand [14]. For producing cotton about 3% of the globe's farmland is accountable to cultivate cotton fibre. Cotton is responsible for more than 15% usage of pesticide. It takes 5.44g pesticide and almost 13.5 cubic meters of water to produce 1 kilogram of cotton lint [15]. On the contrary, it requires less water and farmland to produce polyester fibre but has much higher rates of CO<sub>2</sub> emissions, natural resource inanition, and usage of non-renewable energy. On an average to produce 1 kg cotton 3.3 kg of CO<sub>2</sub> and for 1 kg of polyester 20 kg of CO<sub>2</sub> emits to the environment [16].

### B. Processing Impact:

There are many issues in the production stages accounting from fibre to fabric then garment production. The processing impacts are toxic chemicals, excessive energy use, unethical labor, fast fashion, carbon footprint. Firstly, the dyeing process required a large amount of water and chemicals. It takes approximately more than 80 liters of water for dyeing to prepare 1 kilogram of fibre. Different types of chemicals are discharged from dyeing factory and if the discharged water is not properly treated then it can endanger eco-logical balance and could alter the animal food chain. [17]. Several issues arise such as unethical labor practice and high amount of non-renewable energy usage. The apparel manufacturing process needs a huge amount of non-renewable energy like nuclear power or fossil fuel. The apparel manufacturing process is very much labor-intensive for third world country which requires a good number of laborers and sometimes it creates unethical labor sourcing [18].

### C. Usage Impact:

Some research shows that more than 80% of the energy used in the usage phase of the clothing life cycle [19]. If a wearer will wear a t-shirt of 250gm and worn 50 times a year in his life cycle then production contributes 40% of CO<sub>2</sub> emissions, 50% in usage distribution, disposal of the garment's accounts for 10%. CO<sub>2</sub>emissions. However, if a person wears

is t-shirt frequently rather than changing different types of styles then it will contribute lower CO<sub>2</sub>emissions [20].

#### 4. GREEN MERCHANDISING

Among various industries the textile industry is the second most polluting industry which creates billions of garbage every year, there needs to do something to regulate the situation. So merchandisers play a vital role in this aspect. Here some probable solutions have been introduced to make the apparel sustainable business.

##### *A. Creating sustainable apparel business model:*

It is high time for manufacturers, stakeholders, academician to re-think and adoption of a sustainable business model. Changes have already been hit by the new era of economic sustainability towards innovation. For creating a sustainable value chain and sustainable value network it is necessary for manufacturers and stakeholders to come up with new solutions. This will hit the triple bottom line of sustainability like environmental, social and economic benefits [21].

##### *B. Sustainable Value generation:*

Sustainable value generation is mainly focused on idea generation, understanding the complex systems, design the system, system innovation, and sustainable business model. Values can become out of multiple forms but following mapping best value will be found out. There are several value analysis tools which will identify an opportunity. It consists of posters and cards. This is helpful for making business decisions and creates sustainable opportunities for customers, employees, environment, and society [22].

##### *C. Following Circular Economy:*

The circular economy is aimed at low waste generation and low usage of resources. In this system, waste is minimized by a minimum amount of energy usage, re-use, re-make, re-design the whole manufacturing process leading towards a clean future generation. The aim is not to drop the quality of life but to but to create long term profit for both consumer and manufacturer [23].

##### *D. Reducing raw materials impact:*

Hazardous chemicals are harmful to animal, plant and human being. In the textile and apparel production

process, various chemicals are used for process fibre, yarn and fabric. In order to save the ecological environment merchandisers, make sure that the chemicals they used for raw materials processing have the least impact on environmental and social life.

##### *E. Alternative Technologies:*

Most of the resources and water are used in fibre processing and end usage of the consumers. Traditionally cotton, polyester and many other natural and manmade fibres are used for apparel manufacturing. In the new era of technological nanotechnology has been a potential alternative. One of the important applications of this textile is "self-cleaning textiles". This textile can be easily washed and maintained. This technology improved the process performance of the textiles which reduce the energy and resource consumption to a great extent. This technology reduces water and chemical consumption [24].

##### *F. Reducing Processing Impact:*

- **Zero Discharge Concept:** Wastewater which is generated in the dyeing unit affecting the eco-system and the human being by mixing these pollutants into the water and alter the bio-diversity. To solve this devastating problem new term has been emerged known as "zero discharge concept". This method enables the reuse, reduce, recycle principle where wastewater is recycled completely and reuse for further textile processing. This concept minimizes the demand for freshwater [25].
- **3D Seamless Knitting Technology:** 3D seamless knitting technology has taken the apparel production to a whole new level. In this technology no need of intensive labor, heavy machinery and done by a lesser amount of time. This technology produces a garment with no seam and has a very good fitting according to wearer body shape. This is done by one kind of flat-bed-machines with 3D software enables in which design of garments can be input and find produced seamless garments will be found as an output within a short time [26].

##### *G. Reducing Usage Impact:*

In the usage phase, it accounts for more than 60% of CO<sub>2</sub> emission. In order to reduce the consumption of energy in laundering, some innovative measures need

to be taken. There are some eco-detergents which will not affect the environment and have almost zero CO<sub>2</sub> emissions. Avoid tumble drying, because high-temperature drying requires a lot of energy. The garments can be hanged to dry and avoid ironing unless it is necessary. Also, by reusing and recycling the garments one can reduce the impact of CO<sub>2</sub> emissions to a great extent. Some global brands have come forward for creating awareness among the consumer regarding eco-friendly usage of the apparel.

#### ***H. Reducing Disposal Impact:***

There is another business opportunity for used clothing. The used cloth can be resold in which the disposal of the goods will be reduced. The disposal of apparel has an adverse impact on the eco-system. The garments need to be designed in a way that it can be reused and refashioned by altering a few materials.

#### ***I. Sustainable Garments Certification and Standards:***

Merchandisers need to know the standards which are used to define product sustainability. Also, their responsibility is to reach this certification knowledge to the consumer. Here are some of the standards which are used globally for measuring sustainability related to green merchandising. There are various standards which is helpful for measuring textile and apparel sustainability like Sustainable Textile Production (STeP) by OEKO-TEX, Eco-label certification by OEKO-TEX 100, Leadership in energy and environmental design (LEED), Global Recycle Standard, Fair Trade Certification by the World Fair Trade Organization (WFTO), Ethical Trading Initiative (ETI).

### **5. BENEFITS OF GREEN MERCHANDISING**

#### ***A. Increasing supplier reliability:***

The stakeholder demands satisfaction increased using green merchandising. This system increased transparency in the supply chain and also ensures a pro-active design and system in textile and apparel compliance.

#### ***B. Reducing risk:***

Green merchandising will reduce the risk of stakeholders and employees for maintaining ethical labor force.

Ensures a strong supply chain for long-term: This system will simplify the supply chain cycle, enables

long term access to materials and resources to reduce allegiances on volatile goods and maintain leadership status.

And also, some other benefits have reduced the cost of energy, allure new customers and increase sales, tax incentives which will reduce the cost and attract buyer, boost workforce morale and innovations, social impact, environmental impact.

### **6. CONCLUSION**

Among many industries, the textile and apparel industry are the second most polluting industry which contributes 17-20% of the global water pollution, 21 billion of garbage per year and 10% of the global carbon emission. Without following sustainable practice results of unprivileged design, poor raw material selection, processing, manufacturing, distribution, usage, disposal of apparel products are the vital generators to this situation. The aim of the study was to find the probable solution for maintaining sustainability in the apparel business and how green merchandising creates an impact on the eco-friendliness of apparel products. The outcomes of the study could be helpful for textile and apparel organizations, stakeholder and consumers who are trying to produce and dispose of textile and apparel goods. Merchandisers are usually considered the heart of an apparel organization. If they are aware of this important fact then it will be easier for the stakeholders and consumers to understand the adverse impact of Unsustainability. So, by this data can realize how positive impacts have been created by going green in the sustainable apparel business. Therefore, the study is a little approach towards today's global sustainable issues which will make the environmental, social and economic tire a better place and eventually drive the textile and apparel industry owners, designers, manufacturers and merchandisers towards sustainability. Hence the study leads towards know sustainability, be sustainable, practice sustainability for making the world a better place to live.

### **7. FUTURE DIRECTION**

There are several scopes for development in the apparel business sustainability, as the resources are limited for utilization. The future scopes are the development of the natural fibres for better performance, longevity and less impact on eco-system, green fashion, developing eco-consciousness among the consumers, effective sustainable supply chain, categorization of products according to sustainability, policy-making for consumers and manufacturers.

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