

# **Integrating sustainability into the Textile Supply Chain-comparing the case of H & M and Patagonia**

**Author:** Prisha Poddar

**Date:** August 2021

**Professor:** Professor Michael Michaelides

**About the Student:** Prisha Poddar is a student at Neerja Modi School, Jaipur, India. This paper was prepared by Prisha as a part of her course work for LS190 - Introduction to College Level Research course at Allegheny College during summer 2021.

## **Summary**

This paper recognises that the Textile Industry is one of the most environmentally, socially and economically unsustainable industries in the world. Through the study of literature and industrial practises, it suggests sustainable practises to stakeholders that can be integrated in the design, dyeing, sourcing, production and consumption stages of the fashion supply chain. It also analyses the implementation of these policies and insights through the case studies of two leading fashion brands- H&M and Patagonia. It is discovered that profitability-driven fast fashion brands like H&M are less trusted by consumers and undertake the bare minimum CSR efforts mostly as a marketing gimmick, as compared to slow fashion brands like Patagonia, who are innovators in the field of developing sustainable business models. However, though these brands may have made strides to reduce their environmental impact, they are still a long way from achieving socio-economic sustainability because apparel manufacturing factories mistreat workers and often pay them salaries below the living wage.

## **Introduction**

According to the World Economic Forum, the fashion industry accounts for 10% of all global carbon emissions and is the world's second-largest water consumer.

Fast fashion depletes large amounts of natural resources to generate inexpensive clothing, made by low-wage workers, that is used for a short time and then discarded. ([Brydges 2021](#))The fashion industry faces various such sustainability challenges. Producers take advantage of low labour prices and bad working conditions in developing nations like Bangladesh, and the Rana Plaza factory accident exemplifies this issue. Also, the fashion industry pollutes the environment by consuming a vast amount of resources, water and energy. Dyestuffs release toxic chemicals that if not properly handled can be damaging for rivers and other water bodies. According to World Bank figures, the

dyeing and treatment process in the fashion industry contributes to 17% to 20% of water pollution from industrial consumption. Furthermore, rapidly shifting fashion trends have resulted in increased consumer purchasing frequency, a shorter garment lifespan, and a substantial amount of post-consumer clothes waste ([Dissanayake & Sinha 2015](#)). Thus, the integration of sustainable practises in the fashion supply chain should be prioritised.

We can take inspiration from some international fashion enterprises that have effectively responded to such challenges. For example, according to H & M's sustainability reports, it uses 64.5% of materials from recycled or sustainable sources and 100% organic cotton as of 2020. Levi's new collection Waterless uses 96% less water to manufacture denims, a form of apparel that is known for requiring large amounts of water in its production. It also recycles old jeans into home insulation. To protect animal's rights, the luxury brands Gucci and Stella McCartney announced to stop using genuine leather and fur in 2017. ([Cai & Choi 2020](#))

Because clothing and fashion are integral aspects of society, the textile business is a good choice for developing a sustainable and environmentally conscious mindset. Integrating ethical practises into the supply chain can also hugely benefit firms by improving their reputation, controlling risks and developing new products. ([Azapagic 2003](#)). Furthermore, sustainable activities can improve companies' performance in areas such as product quality, market share, and profitability ([Chung and Tsai, 2007](#)).

For the purpose of this research, we define sustainable fashion as apparel that maximises positive environmental, social, and economic consequences while minimising negative effects along the supply and value chain. ([Moon et al 2013](#)).

This paper discusses the steps that can be taken by stakeholders and policy makers to make the fashion supply chain more sustainable by examining past literature and building upon it. These insights will reduce the industry's impact on the environment leading to sustainable economic development. Through the case studies of a profit driven fast fashion brand that has implemented sustainability in its supply chain, and a slow fashion sustainability driven brand, the paper will discuss the real-world implications of the suggestions given in this paper.

## **Literature Review**

During the last two decades, forward supply chain management activities, such as designing, dyeing, and production, have gotten increased attention in the literature. Meanwhile, reverse activities including reuse and recycling, as well as a closed loop supply chain are newer and more emerging areas in the sustainable fashion SCM. ([Cai & Choi 2020](#))

This paper conducts a systematic literature review to present suggestions for stakeholders to implement sustainable practises in the forward supply chain management activities -designing, dying, production, retailing and consumption stages of the fashion supply chain.

### **Sustainable design**

When compared to traditional textile designing, sustainable design involves using more environmentally friendly materials, designs, and procedures.

([Moon et al 2013](#)) investigate the factors that make the design process more energy efficient and sustainable. They discover the energy saving factors to be material selection, style design, and operations management. In the manufacturing stage, recycled, naturally coloured, and organic materials are regarded to be less energy consuming. Simple designs, such as less detailing and fewer accessories also reduce energy usage. The use of a careful colour specification such as deeper shades is an effective way of decreasing the effort for the after care of the product, saving electricity. The development of long-lasting styles, such as classics, also helps extend the useful life of a garment and results in slower fashion buying cycles, thus aiding sustainability.

When analysing multiple eco-friendly materials -organic cotton, lyocell, and soybean protein fibre- for sustainable fashion design, the study found out that soybean protein fibre fabrics are most sustainable and may be the greatest fit for buyers in terms of the aesthetic aspect, protection offered, ease of maintenance, comfort and durability. ([Sanches, et al. 2015](#))

[Clancy et al. \(2015\)](#) highlights that it is important to provide such guidelines for fashion designers who want to design sustainable apparel and to improve the skills and knowledge of designers to facilitate sustainability.

### **Sustainable dyeing**

In the TA supply chain, the dyeing process causes major pollution issues-like water pollution. If harmful chemicals are not properly handled, they can harm workers as well as the surrounding population. The dying process entails activities such as dye selection, method selection, operations control, and so on. The dyeing stage's sustainability will be influenced by several decisions. ([Cai & Choi 2020](#))

([Ellams et al. 2014](#)) discover that sustainable colouring by screenprinting eucalyptus leaf and bark extracts onto lyocell fabrics can substantially reduce the environmental effect of the dyeing process.([Budeanu et al. 2014](#))also look at eco-dyeing with natural hemp fibre. Three types of organic

dye pigments produced from black tea, red beets, and onion leaves are tested. The authors show that natural dyes have good colouring properties and recommend that these approaches be widely used in the TA sector. ([Parisi et al. 2015](#)) show that techniques like "enzymatic synthesis" and "plasma pre-treatment" make colours more sustainable while using less raw materials, energy, and water. The suggested dyeing protocol has been evaluated for economic feasibility, indicating that the production costs of dyed woollen fabrics are 50% lower than the conventional dyeing procedure, making it a good sustainable alternative for the textile industry.

([Terinte et al. 2014](#)) studies the environmental impact of two dyeing processes :spin-dyeing and conventional dyeing. The authors conclude that spin-dyeing uses less energy, water, and emits less carbon emissions, and that its adoption in the textile industry would have a positive influence on the environment. Value chain actors can also save a lot of money by using spin-dyeing.

### **Sustainable sourcing**

Ensuring that raw material and finished products are sourced and procured sustainably is very critical to maintaining the sustainability of the fashion supply chain.

Quick response (QR) system and shorter lead times are common characteristics of the sourcing process in the fashion industry and have both positive and negative influences on the supply chain's long-term sustainability. By minimising lead times, QR improves inventory management and flexibility, leading to lesser wastage and improved sustainability. Choosing a local supplier also minimises lead times, with the additional benefits of reduced logistical costs, risks, and carbon emissions due to shorter transportation times, boosting the efficiency of logistical activities and leading to higher profitability and sustainability. However, lead time reduction can also mean the fabric provider has less time to adequately oversee the production process, resulting in environmental issues such as a higher per unit pollutant and a lower fabric production yield. ([Choi and Cai 2018](#))

The current status quo of greater auditing and financial incentives for being ecologically responsible has also been thought to enhance sustainability. However, it may be counterproductive as it leads to suppliers hiding information rather than changing their unethical practises. Instead, buyers can do fewer audits, encourage the government to raise pay for workers at the supplier's site, and enforce fines for environmental violations to aid sustainability. ([Plambeck and Taylor 2016](#)) For sustainability enhancement, a government can also intervene to punish or subsidize the retailer for ordering more than the optimal quantity. Imposing a penalty for extra orders will merely lower order size, but subsidising may persuade the retailer to switch from control strategy, where the retailer sources directly from the manufacturer, to agency, where the Logistics Service Provider (LSP) handles procurement, which is a more sustainable procurement approach as it leads to lower wastage and

optimal order quantities. ([Niu et al. 2017](#)) Also, the buyer should adopt a peer-to-peer governance of cooperation rather than a threatening governance style of buyer-to-supplier, because it is likely to make the supplier under the Supplier Codes of Conduct (SCC) perform more sustainably. ([Jiang 2009](#))

Upon investigating how organisations evaluate suppliers based on environmental and social compliance by conducting interviews with purchasing specialists, the findings show that social and economic aspects like no child labour and fair working conditions, as well as environmental factors like wastewater treatment systems and using environmentally friendly materials, are utilised to evaluate a supplier's sustainability. Environmental and social criteria are used as pre-qualifications in supplier selection, as well as verification of purchasing requirements compliance, but they are not crucial in the final selection of a supplier for an order. ([Winter and Lasch 2016](#))

([Jia et al. 2015](#)) propose the "Technique for Order of Preference by Similarity to Ideal Solution" (TOPIS) for optimal supplier selection based on the buyer's preference and importance they place on the three different dimensions of sustainability -the social, economic, and environmental aspects.

### **Sustainable production**

Perhaps the most economically and environmentally unsustainable part of the fashion supply chain is the stage of production, which faces challenges such as human rights violations, toxic waste disposal and dramatic price fluctuations for materials like cotton that are in high demand. These issues are more prevalent in countries with lower labour costs, lax human rights norms, and weak environmental regulations ([Allwood et al., 2006](#)). In comparison to other industries, ([Ghazinoory 2005](#)) thinks that the TA industry has the most potential for greener production.

([Subic et al. 2013](#)) use the Capability Assessment Tool to identify the root causes of unsustainable production and four factors are revealed including the inability to identify -resource and emission intensive processes in the supply chain, why these processes are polluting, the costs and benefits of environmental improvement options and the best sustainable option. The management styles of the participating suppliers are also shown to be closely linked to their resource and emissions management performance.

A major energy-saving suggestion is the proper control of plant facilities such as lighting, air conditioning, ventilation, and floor design. Using energy-saving light bulbs or positioning them at certain heights and angles can provide the same lighting intensity while consuming less energy.

Furthermore, minimum or effective packaging saves energy because less energy is required to manufacture packaging materials, as well as reducing logistical effort. ([Moon et al 2013](#)). ([Jin Gam et al. 2009](#)) suggests a “cradle to cradle apparel design” (C2CAD) model for sustainable fashion production. Collaborations with other industries, like companies that produce renewable energy or use solid waste from the garment industry as biological fertilisers or raw materials, are suggested as a way to lessen or eliminate harmful effects of production.

White biotechnology can also be used in creating clothes with eco-friendly materials to make them more sustainable. Increased funding for white biotechnology and eco-innovation, favourable government loan terms for technology R&D and consistent government policies to encourage SME access to EU funds for the implementation of innovative green products, can all help to promote the use of white biotechnology. ([Druica 2015](#))

([Hirscher et al. 2018](#)) Investigate social manufacturing as a technique of boosting sustainability through increased user participation. Prompting various levels of consumer participation in the manufacturing process can result in system-level changes by activating and empowering end users to become value creators, as well as making them more invested and curious about the manufacturing process, resulting in environmentally friendly manufacturing.

It is also important to deal with post production waste properly to aid sustainability. The majority of textile wastes generated during manufacturing are disposed of in landfills. Woven materials, primarily cotton, cotton blends, and lycra, make up majority of the waste stream. Insulation materials in the construction sector are the most appropriate end use for the waste created. Because the industry is made up of small and medium-sized businesses with limited resources who focus solely on profitability, individual investments in recycling equipment are unlikely, necessitating government intervention in the form of recycling infrastructure. ([Jordeva et al. 2015](#))

### **Consumer attitudes toward slow fashion**

Consumers are growing more supportive of sustainable fashion as they become more ecologically conscious and responsible. However, sustainable clothing's market share continues to lag far behind. This attitude-behaviour gap is a phenomenon in which consumers' attitudes do not translate into purchasing decisions. ([Moser 2015](#))

The Nice Consumer Report by [Sisco and Morris \(2012\)](#) explains why this gap exists, listing four key challenges that consumers experience when purchasing sustainable fashion: 1.information barriers-

due to the lack of awareness about the environmental effects of sustainable fashion; 2. Availability barriers- difficulty in finding sustainable apparel in the market; 3. price barriers—sustainable clothing is often more expensive because it follows environmental rules and regulations and uses more expensive raw material and 4. style barriers—Sustainable clothes are considered to be less stylish and fashionable .

Sustainable clothing purchasing is also hampered by egoistic and hedonistic attitudes, as well as a preference for durable apparel. ([Jacobs et al. 2018](#)) Consumers also demand continuous and rapid product updates, which has been made easier by the lower costs of fashion items. Having the most recent versions of things, in particular, is significantly linked to personal identity and feelings of success in life. In our "throwaway society," there is no sign of concern about the environmental effects of fashion. ([Cox et al. 2013](#)) Consumers are therefore ready to spend no more than 10% more for a textile product that has an ecological label. ([Žurga and Forte 2014](#)) Another research concludes that this figure is no more than 20%. (Ciasullo et al. 2017) If the target consumers are very green sensitive, superior green items can generate higher revenues to a firm only if the product greenness gap between those products and inferior green products is significantly large. ([Guo et al. 2020](#))

Nonetheless, there are numerous steps that sustainable businesses can take to influence such consumer attitudes. For example ,sustainability-conscious consumers who prioritise self-enhancement appear to have a big market potential ([Davies and Gutsche, 2016](#) )These customers are more concerned with the personal benefits of sustainable clothes, such as skin tolerance of organic textiles and increased self-esteem from contributing to society ([Jägel et al. 2012](#)). ( [Visser et al. 2015](#)) backs this need of mainstream consumers to prioritise personal benefits before environmental gain. The double benefit theory, which combines personal and environmental benefits, has been proven to be a successful green marketing strategy that leads to the highest buying intention, and advertisers should use it in their communications.

Popularization of eco-labels, more transparent and consistent labelling systems, and the regulation of words like "green" and "bio" may enhance consumer willingness to choose more sustainable alternatives and, as a result, pay more for sustainable products by reducing consumer scepticism. It is also vital to raise the level of environmental awareness among consumers. ([Žurga and Forte 2014](#)) Customers may be more motivated to try out collaborative fashion, which refers to renting items rather than buying them, if their attitudes and opinions regarding second hand clothing are changed. ([Iran et al., 2019](#)).

Sustainable clothing purchases are also boosted by a positive attitude toward social-ecological clothing and bio spheric and altruistic values. ([Jacobs et al. 2018](#)) Expectations and societal pressures appear to have a substantial impact on consumers' willingness to purchase sustainable apparel. (

[Ciasullo et al. 2017](#)) Consumers in China, for example, are pressured to meet societal expectations and standards, and their need to save face influences and stimulates purchases of sustainable fashion products. Marketing managers should make an effort to comprehend how face-saving might be applied to their promotion strategy and marketing communications. For example, through advertising appeals, marketers might emphasise face-saving benefits, suggesting that the product can improve consumers' decent image and convey their good intents in public. ([Wei and Jung 2017](#))

### **Comparing the case of H & M and Patagonia**

To see the real-world application of the sustainability practises discussed in the literature review above, a thorough case study of two companies-H&M and Patagonia was conducted.

H&M is traditional fast fashion retailer that has incorporated sustainable fashion practises into its business model in order to reduce its environmental impact. Patagonia, on the other hand, is a slow fashion brand that solely sells environmentally responsible clothing. This paper will analyse and contrast these two organisations' sustainable practises and highlight the significant sustainability challenges they experience through a case study.

Data for this study was gathered from a variety of sources, including the companies' websites, yearly sustainability reports, news media, government statistics, and prior case studies on these companies.

### **The case of H&M**

H&M is a Swedish multinational apparel retailer with stores in 74 countries. It is recognised for its fast-fashion clothes for men, women, teenagers, and children.

### **Environmental Impact**

H&M has made strides toward reducing its environmental effect. It currently sources 64.5% of raw material from recycled or sustainable sources. (H&M, 2020). In addition, all of H&M's cotton is 100 percent organic. H&M has utilised organic cotton for many years and has spent a lot of money on sustainable cotton production, according to Henrik Lampa, corporate social responsibility manager of raw material at H&M. (H & M Conscious Action Sustainability Report 2012.) Furthermore, in order to ensure that cotton farms produce genuine organic cotton, H&M is actively involved in the Better Cotton Initiative (BCII), which teaches cotton farmers better farming techniques. H&M also collaborates with the World Wide Fund for Nature (WWF) on a water-saving plan that aims to improve water resource management throughout the apparel production cycle.

The company also uses 90% renewable energy for its supply chain, which, as discussed earlier in this paper and by ([Jin Gam et al. 2009](#)), is a key method to aid sustainability in the production stage. According to the H&M Group's 2020 Sustainability Report, by 2040, it wants to be climate positive.

H&M's yearly sustainability reports have also shown that transportation from factories to stores account for more than half of the company's carbon emissions in previous years. ([Shen 2014](#)) However, in 2020, their overall transportation emissions fell by 12% to 442 kilo tonnes CO<sub>2</sub>e, a significant reduction. This may be partially because H&M decreased its total packing volume by -14 percent in 2020, including a -24 percent reduction in plastic packaging, as compared to 2019 ,thereby reducing logistical weight and efforts, which aided sustainability as noted by ([Moon et al 2013](#)).

The Garment Collecting programme is another one of H&M's current and popular environmental CSR efforts. It is a global initiative that aims to keep customers' unwanted clothes and textiles out of landfills by allowing them to exchange them for store vouchers. This innovative waste management method encourages consumers to be more sustainable and eliminates the problems of having to set up expensive infrastructure for textile waste disposal which was described by ([Jordeva et al. 2015](#))

However, because the voucher may nudge the consumers into buying more than is necessary, this technique may further promote the consumer model, resulting in faster buying cycles and, as a result, unsustainability. Also, the supply chain's CO<sub>2</sub> emissions have increased dramatically over the last three years, from 61462 tonnes in 2019 to 72580 tonnes in 2020(H&M sustainability report 2020), despite a net decrease in sales and production. The increase in Co<sub>2</sub> emissions was mainly due to the brand's wasteful use of energy.

### **Socio-economic impact**

This demonstrates that despite these environmental initiatives, at its foundation, H&M is still a fast fashion brand, with rapidly shifting buying cycles and low-cost clothing produced by people who are not paid the minimum wage. According to prior years' annual salary data from H&M's suppliers, the average wage in H&M's supply chain is still well below a living wage in Bangladesh and numerous other countries.

This may be changing in recent years as H&M is realising the importance of fair working conditions, however it has long been critiqued of being economically and socially unsustainable. Even though H&M was given a score of 73% on the Fashion Transparency Index, after going through their sustainability reports it is evident that the report heavily focuses on H&M's environmental sustainability initiatives backed by data, but its labour practises seem to lack substantial evidence.

In terms of supplier location, Bangladesh and China are the main manufacturing countries for H&M. On the one hand this is sustainable because local sourcing to Asia reduces lead times, resulting in less waste, greater flexibility and lower carbon emissions in the distribution process, These benefits have already been discussed in this paper and by([Choi and Cai 2018](#) )

However, the workers in such factory locations are often exploited due to being underpaid and having to work in poor working conditions. For example, H & M is notorious for selecting majority of its suppliers from countries that have lower levels of human wellbeing. ([Shen 2014](#)) Fire safety is also a huge potential hazard in factories in such countries, such as the Bangladesh garment factories. This problem was exemplified by the Rana Plaza accident in 2013 ([Taplin 2013](#)). To limit the negative social impact of manufacturing, H&M takes many initiatives with Bangladeshi suppliers, including monitoring factory compliance and providing training to its workers. (H & M sustainability report 2020) One front on which H & M is ahead of its competitors socially is including more women in the workforce and promoting gender equality; the company employs 63 percent women. However, in 2018, [Global Labour Justice](#) published findings revealing exploitation of female garment workers at factories that supply to H&M.

On another bad note, most of H&M's supply chains aren't certified by labour standards which ensure worker health and safety, adequate living wages, and other labour rights and only 18% of its facilities have collective bargaining or the right for workers to make a complaint. ([Robertson 2020](#))

### **The case of Patagonia**

Patagonia is a slow fashion American sports brand that primarily offers sustainable outdoor clothing. It was started in 1973. It has always emphasized sustainability and social responsibility as its competitive advantage.

### **Environmental Impact**

#### **Innovative initiatives**

Patagonia is involved in three major environmental projects. The "1% for the Planet" project donates 1% of total annual revenue to environmental groups. To date, they have donated over \$140 million to domestic and worldwide grassroots environmental organisations (Patagonia 2020)

The organization's second effort, "Footprint Chronicles," aims to decrease negative social and environmental effects in the supply chain by documenting supplier information and ethical sourcing decisions. Customers can examine how the design, production, and distribution of Patagonia items influence the environment and society via this online feature. Patagonia is far more transparent than H&M as a result of this feature.

Patagonia's third initiative, "Worn Wear," rejects fast-fashion in favour of selling high-quality, long-lasting goods that can be readily mended, slowing down purchase cycles and prolonging the life of a garment. ([Esposito et al 2016](#)) In 2012, Patagonia launched the Buy Less campaign, which aimed to persuade people to buy less of Patagonia's new gear in order to reduce the environmental impact of ever-increasing consumption habits. Buyers should consider buying used products rather than brand

new ones, according to the campaign's message. ([Lowitt 2011](#)) Buying second hand clothing increases the life of a garment by roughly two years, reducing its carbon, waste, and water footprint by 73% (Patagonia 2020)

Despite Patagonia's efforts to reduce consumer buying through this unconventional marketing strategy however, the company's sales increased by approximately 30 percent ([Stock, 2013](#)). Patagonia believes that such initiatives can help businesses help improve brand identity and garner support of green sensitive consumers who value commitment to the environment, driving profitability.

### **Sustainable design and raw material**

Patagonia has also switched to organic cotton from conventional cotton, despite the fact that it costs 50 percent to 100 percent more. Organic farming takes longer and needs more knowledge and ability. However, as noted by ([Sanches, et al. 2015](#)), this can significantly increase a company's long-term sustainability. The most intriguing part of this choice is how a such a simple, yet risky financial move had such a significant influence on the firm. As a result of this change, Patagonia saw a 25% boost in sales. Patagonia opted to collaborate with TAL Group, a big clothing manufacturer, to save cotton waste from factory floors in order to further recycle cotton. By weaving the recovered cotton with virgin cotton, the cutting room waste is reused and spun into fabric for apparel.

Patagonia also sources 100% traceable down feathers for its goods, demonstrating the company's commitment towards animal welfare.

### **Sustainable dyeing**

Patagonia recognises the devastating impact of the dyeing process on the world's rapidly decreasing freshwater supplies. As a result, the business mandates that all of its textile mills clean wastewater to certain levels before releasing it to natural sources.

Patagonia has collaborated with Swisstex California, which operates a plant that employs novel dyeing methods like those described by ([Parisi et al. 2015](#))) to minimise the amount of water required to colour garments while also successfully treating the wastewater. Swisstex utilises half the amount of water as the average dyehouse in the United States and has a lower overall cost than its less creative and inefficient competitors. Because of Swisstex's focus on sustainability to get the dying process right the first time, Patagonia doesn't have to discard or re-dye any badly dyed textiles, and so finds that its partnership with Swisstex gives them greater margins and more profitability.

### **Sustainable production**

Patagonia's headquarters are built with recycled materials, and sensors to decrease energy consumption that have really benefited sustainability in the production process and improved brand image, as concluded by ([Moon et al 2013](#)). Patagonia was also the first major firm in California to get

100% of its energy from renewable sources in 1998, a strategy proposed by [\(Jin Gam et al. 2009\)](#) in their C2CAD model for reducing energy usage in the supply chain.

Patagonia also encourages sustainable production with symbolic eco-labels, non-chemical print technologies, and detachable designs, among other things. Patagonia develops their product lines using eco-labels such as Blue-sign and Fair Trade-certified. When the Blue-sign label is applied to new items, for example, the product is made with consumer safety, water emissions, and occupational health and safety in mind. Eco-labels teach consumers about sustainability and demonstrate a company's commitment to sustainable product development. [\(Nemon,Beghin 1999\)](#)

### **Socio-economic impact**

Workers at Patagonia's supplier factories are frequently underpaid since Patagonia has minimal control over their salaries , because it does not own most of the factories where its garments are made. Only 35% of its suppliers provide a living wage to their employees. [.\(Rattalino 2018\)](#) In addition, compared to Mammut, Patagonia's primary sustainable outerwear competitor which has 96 suppliers, Patagonia only has 79 (Patagonia, 2017). In supplier management, a lower number of suppliers is viewed as a negative. Suppliers have more bargaining power than buyers, and buyers have less options to avoid them, making it easier for suppliers to abuse their workforce. Sri Lanka, Vietnam, and China account for more than half of these employers (Patagonia, 2017). Inhumane working conditions are frequently linked with these countries. [\(Schillmann, Christian 2020\)](#)On the other hand however, having fewer suppliers has the advantage of maintaining audit quality and encouraging suppliers to improve their compliance to labour laws.

On the other hand, Patagonia guarantees that all the workers that it employs directly receive the minimal living wage and work in great working conditions, resulting in highly engaged staff. This can be backed by the fact that Patagonia was voted one of the top employers by Fortune magazine in 2016. Employees also enjoy flexible work hours, and the company's "Let my people go surfing" policy allows them to participate in their favourite activities, such as skiing or surfing, during working hours. Patagonia has also encouraged employees to take a break from work for a few months to volunteer with an environmental group of their choice. The firm compensates employees who participate in these internships. Internships like this can help Patagonia incorporate even more sustainable practises into its value chain by allowing staff to return with fresh ideas.

### **Key Findings**

Upon comparing the two companies using the triple bottom line approach of analysing the environmental, social and economic sustainability dimensions, the results are in line with previous research carried out on the sustainability of slow fashion brands versus fast fashion brands that are trying to be sustainable.

According to [\(Park and Kim 2016\)](#) ,fast fashion businesses' environmental sustainability initiatives, such as H&M's, are primarily reactive in nature, as they seek to only appease a portion of environmentally concerned consumers by promoting their sustainable alternatives in limited quantities. Such brands mainly rely on sustainability as a marketing gimmick to attract green sensitive consumers and increase profits. This is evident in the fact that H&M launched a separate sustainable fashion line called 'conscious,' instead of integrating sustainability in its entire supply chain, and didn't go over and beyond to come up with innovative initiatives and techniques to increase sustainability.

This reactive approach contrasts with slow sustainable fashion brands' proactive approach to environmental sustainability, such as Patagonia's, to transform the entire industry by taking a leadership role in sustainable development, such as developing a tool to measure its sustainability impact across the supply chain.

Consumer have begun to realise these differences. As opposed to fast fashion businesses like H&M, customers are more likely to regard slow fashion brands like Patagonia as being more sustainable and authentic in their efforts and goals. Participants ([Asif,Asif,2020](#)) were asked if they thought environment-related CSR activities by "sustainability-driven" businesses like Patagonia, who solely sell items that are advertised as ecologically sustainable, were more trustworthy than CSR actions by "conventional corporations" like H&M. A majority of 60.1 % indicated they feel “sustainability-driven” businesses' CSR efforts to be more authentic than typical brands' CSR actions. These findings are consistent with previous research ([Arli & Lasmono, 2010](#) and [Koech & Coldwell, 2019](#)). Furthermore, it was found that poll respondents thought that major, well-known fashion brands like H&M engaged in more greenwashing than smaller, ecologically sustainable-focused niche companies like Patagonia.

However, while Patagonia may be more environmentally conscious in terms of the environment, both companies appear to fall short in terms of economic and social sustainability, as their suppliers often belong to countries with lower levels of human wellbeing, where workers are frequently mistreated and may not get paid a living wage.

## **Conclusion**

The fashion industry faces several sustainability challenges such as the exploitation of labour, pollution of rivers due to toxic dyes, overexploitation of natural resources, unsustainable consumption patterns and post production waste.

The main objective of this research was to suggest ways to make the fashion supply chain more eco-efficient. In the designing stage, designers should be trained to ensure the sustainability of the final product. They can use more environmentally friendly materials such as recycled polyester, organic

cotton and soyabean protein fibre. The development of long-lasting styles can also slow consumption patterns, facilitating sustainability. It is also integral to select sustainable dyes in the dyeing stage and opt for spin dyeing instead of conventional dyeing.

The key findings for making the sourcing process more sustainable reveals that sourcing from local manufacturers can aid sustainability as it reduces logistical effort and lead times. Conducting less audits can also prevent suppliers from hiding information about their unethical practises, leading to higher transparency in the supply chain .

The production stage is mostly unsustainable due to information failure about more eco-friendly options and awareness should be raised about this. Proper control of plant facilities and collaboration with renewable energy companies can also lead to drastic energy savings.

Studying the consumer attitudes towards ethical fashion reveal some interesting insights. The main reason that sustainable textile brands are still lagging behind is the attitude-behaviour gap of consumers where their high regard for sustainability does not translate into buying decisions due to price, style, information and availability barriers. Also, consumers are more concerned about personal benefits such as increased self-esteem and image in society rather than altruistic concerns when consuming sustainable apparel and marketers should incorporate this in their advertisements.

The proposed suggestions create managerial guidelines for stakeholders in the TA industry such as fashion designers, suppliers, company owners etc.

The case studies of the two brands reveal that there is a discrepancy in the focus that brands give to the environmental sustainability and socio-economic sustainability, and the former garners much more attention. Therefore more attention should be given to the issue of socio-economic sustainability within the fashion supply chain, especially the mistreatment of workers, and actions should be taken to reduce the gap between the average wages earned by those working in the textile factories and the living wage.

### **Limitations**

While the research paper summarizes around 56 key sources, it is by no means an exhaustive list of all the sustainability practices that can be implemented by a fashion firm and the practises that a firm could adopt would depend on multiple key factors such as its size, profits, location etc.

Also, the data for the case study was taken mostly from corporate websites or statements made by the brands themselves and these statistics are often not verified by third party organisations, which might lead to the introduction of slight inaccuracies in the conclusions reached.

### **Recommendations for future research**

This study could be extended to develop a quantitative tool or index to judge the environmental and socio-economic sustainability of a fashion brand at each step of its supply chain so that it would become easier to compare the sustainability of different fashion brands and identify key areas for improvement. Some empirical data or a mathematical model could corroborate the theoretical findings of this paper. However, this might not be entirely possible because the topic at hand is quite qualitative in nature.

## Citations

1. Brydges, Taylor. "Closing the Loop on Take, Make, Waste: Investigating Circular Economy Practices in the Swedish Fashion Industry." *Journal of Cleaner Production*, vol. 293, 2021, p. 126245., doi:10.1016/j.jclepro.2021.126245.
2. Dissanayake, Geetha, and Pammi Sinha. "An Examination of the Product Development Process for Fashion Remanufacturing." *Resources, Conservation and Recycling*, vol. 104, 2015, pp. 94–102., doi:10.1016/j.resconrec.2015.09.008.
3. Cai, Ya-Jun, and Tsan-Ming Choi. "A United Nations' Sustainable Development Goals Perspective for Sustainable Textile and Apparel Supply Chain Management." *Transportation Research Part E: Logistics and Transportation Review*, vol. 141, 2020, p. 102010., doi:10.1016/j.tre.2020.102010.
4. Azapagic, A. "Systems Approach to Corporate Sustainability." *Process Safety and Environmental Protection*, vol. 81, no. 5, 2003, pp. 303–316., doi:10.1205/095758203770224342.
5. Yi-Chan, Chung, and Chih-Hung Tsai. "The effect of green design activities on new product strategies and performance: an empirical study among high-tech companies." *International Journal of Management* 24.2 (2007): 276.
6. Moon, Karen Ka-Leung, et al. "Product Design Scenarios for Energy Saving: A Case Study of Fashion Apparel." *International Journal of Production Economics*, vol. 146, no. 2, 2013, pp. 392–401., doi:10.1016/j.ijpe.2013.02.024.
7. Sanches, Regina A., et al. "Organic cotton, lyocell and SPF: a comparative study." *International Journal of Clothing Science and Technology* (2015).
8. Clancy, Gunilla, Morgan Fröling, and Gregory Peters. "Ecolabels as drivers of clothing design." *Journal of Cleaner Production* 99 (2015): 345-353.
9. Ellams, Dawn L., Robert M. Christie, and Sara Robertson. "An approach to sustainable coloration of lyocell fabrics by screen printing using extracts of leaves and bark from eucalyptus." *Coloration Technology* 130.1 (2014): 48-53.
10. Ramona, Budeanu, Curteza Antonela, and Radu Cezar Doru. "Experimental researches regarding the ecological dyeing with natural extracts." *Technical University Gheotge Asachi of Iasi Faculty of Textiles-Leather and Industrial Management. Iasi Romania. Dimitre Mangeron, Bvl N* (2014): 67.
11. Parisi, Maria Laura, et al. "Environmental impact assessment of an eco-efficient production for coloured textiles." *Journal of Cleaner Production* 108 (2015): 514-524.
12. Terinte, N., et al. "Environmental assessment of coloured fabrics and opportunities for value creation: spin-dyeing versus conventional dyeing of modal fabrics." *Journal of cleaner production* 72 (2014): 127-138.

13. Choi, Tsan-Ming, and Ya-Jun Cai. "Impacts of lead time reduction on fabric sourcing in apparel production with yield and environmental considerations." *Annals of Operations Research* 290.1 (2020): 521-542.
14. Plambeck, Erica L., and Terry A. Taylor. "Supplier evasion of a buyer's audit: Implications for motivating supplier social and environmental responsibility." *Manufacturing & Service Operations Management* 18.2 (2016): 184-197.
15. Jiang, Bin. "The effects of interorganizational governance on supplier's compliance with SCC: An empirical examination of compliant and non-compliant suppliers." *Journal of Operations Management* 27.4 (2009): 267-280.
16. Winter, Stefan, and Rainer Lasch. "Environmental and social criteria in supplier evaluation—Lessons from the fashion and apparel industry." *Journal of Cleaner Production* 139 (2016): 175-190.
17. Jia, Peng, et al. "Supplier selection problems in fashion business operations with sustainability considerations." *Sustainability* 7.2 (2015): 1603-1619.
18. Niu, Baozhuang, Lei Chen, and Jie Zhang. "Punishing or subsidizing? Regulation analysis of sustainable fashion procurement strategies." *Transportation Research Part E: Logistics and Transportation Review* 107 (2017): 81-96.
19. Ghazinoory, S. "Cleaner production in Iran: necessities and priorities." *Journal of Cleaner Production* 13.8 (2005): 755-762.
20. Allwood, Julian M., et al. "Well dressed." *The present and future sustainability of clothing and textiles in the United Kingdom* 1 (2006).
21. Subic, Aleksandar, et al. "Performance analysis of the capability assessment tool for sustainable manufacturing." *Sustainability* 5.8 (2013): 3543-3561.
22. Gam, Hae Jin, et al. "C2CAD: A sustainable apparel design and production model." *International Journal of Clothing Science and Technology* (2009).
23. DRUICA, FLORIN VADUVA. "White biotechnology—a fundamental factor for a sustainable development in Romanian SMEs." *Romanian Biotechnological Letters* 20.1 (2015): 10070.
24. van der Velden, Natascha M., and Joost G. Vogtländer. "Monetisation of external socio-economic costs of industrial production: A social-LCA-based case of clothing production." *Journal of Cleaner Production* 153 (2017): 320-330.
25. Hirscher, Anja-Lisa, Kirsi Niinimäki, and Cosette M. Joyner Armstrong. "Social manufacturing in the fashion sector: New value creation through alternative design strategies?." *Journal of cleaner production* 172 (2018): 4544-4554.
26. Jordeva, Sonja, et al. "Current state of pre-consumer apparel waste management in Macedonia." *Fibres & Textiles in Eastern Europe* (2015).

27. Jacobs, Kathleen, et al. "Green thinking but thoughtless buying? An empirical extension of the value-attitude-behaviour hierarchy in sustainable clothing." *Journal of Cleaner Production* 203 (2018): 1155-1169.
28. Moser, Andrea K. "Consumers' purchasing decisions regarding environmentally friendly products: An empirical analysis of German consumers." *Journal of Retailing and Consumer Services* 31 (2016): 389-397.
29. Jägel, Thomas, et al. "Individual values and motivational complexities in ethical clothing consumption: A means-end approach." *Journal of Marketing Management* 28.3-4 (2012): 373-396.
30. Davies, Iain Andrew, and Sabrina Gutsche. "Consumer motivations for mainstream "ethical" consumption." *European Journal of Marketing* (2016).
31. Hassan, Louise M., Edward Shiu, and Deirdre Shaw. "Who says there is an intention-behaviour gap? Assessing the empirical evidence of an intention-behaviour gap in ethical consumption." *Journal of Business Ethics* 136.2 (2016): 219-236.
32. Visser, Mirjam, Valentin Gattol, and Rosan Van der Helm. "Communicating sustainable shoes to mainstream consumers: the impact of advertisement design on buying intention." *Sustainability* 7.7 (2015): 8420-8436.
33. Žurga, Zala, and Tavcer P. Forte. "Apparel purchasing with consideration of eco-labels among Slovenian consumers." *Fibres & Textiles in Eastern Europe* (2014).
34. Ciasullo, Maria Vincenza, et al. "What about sustainability? An empirical analysis of consumers' purchasing behavior in fashion context." *Sustainability* 9.9 (2017): 1617.
35. Wei, Xiaoyong, and Sojin Jung. "Understanding chinese consumers' intention to purchase sustainable fashion products: The moderating role of face-saving orientation." *Sustainability* 9.9 (2017): 1570.
36. Iran, Samira, Sonja M. Geiger, and Ulf Schrader. "Collaborative fashion consumption—A cross-cultural study between Tehran and Berlin." *Journal of Cleaner Production* 212 (2019): 313-323.
37. Sisco, C., and J. Morris. "The nice consumer—toward a framework for sustainable fashion consumption in the EU." *Danish Fashion Institute, Copenhagen* (2012).
38. Batson, C. Daniel, et al. "Influence of self-reported distress and empathy on egoistic versus altruistic motivation to help." *Journal of personality and social psychology* 45.3 (1983): 706.
39. Guo, Shu, Tsan-Ming Choi, and Bin Shen. "Green product development under competition: A study of the fashion apparel industry." *European Journal of Operational Research* 280.2 (2020): 523-538.
40. Asif, Sarah, and Moen Asif. "Impact of Environment-related CSR Activities on Consumer Perception and Purchasing Behaviour in the Global Fashion Industry: A Case Study of "Traditional" and "Sustainability-Driven" Firms-H&M and Tentree." (2020).

41. Taplin, Ian M. "Who is to blame? A re-examination of fast fashion after the 2013 factory disaster in Bangladesh." *Critical perspectives on international business* (2014).
42. Shen, Bin. "Sustainable fashion supply chain: Lessons from H&M." *Sustainability* 6.9 (2014): 6236-6249.
43. "How Ethical Is H&M?" *Good On You*, 21 May 2021, [goodonyou.eco/how-ethical-is-hm/](http://goodonyou.eco/how-ethical-is-hm/).
44. Park, Hyejune, and Youn-Kyung Kim. "Proactive versus reactive apparel brands in sustainability: Influences on brand loyalty." *Journal of Retailing and Consumer Services* 29 (2016): 114-122.
45. "Environmental Activism." Patagonia, [www.patagonia.com/activism/](http://www.patagonia.com/activism/).
46. H&M Group Sustainability Performance Report 2020. [hmgroup.com/news/hm-group-sustainability-performance-report-2020/](http://hmgroup.com/news/hm-group-sustainability-performance-report-2020/).
47. Nimon, Wesley, and John Beghin. "Are eco-labels valuable? Evidence from the apparel industry." *American Journal of Agricultural Economics* 81.4 (1999): 801-811.
48. "Patagonia's 'Buy Less' Campaign May Lead to More Revenue." *Harvard Business Review*, 23 July 2014, [hbr.org/2011/10/patagonias-buy-less-campai](http://hbr.org/2011/10/patagonias-buy-less-campai).
49. Schillmann, Christian. (2020). Patagonia Inc. under a sustainability perspective.
50. Stock, K. (2013, August 28). Patagonia's "buy less" plea spurs more buying. *BloombergBusiness*.
51. Rattalino, Francesco. "Circular advantage anyone? Sustainability-driven innovation and circularity at Patagonia, Inc." *Thunderbird International Business Review* 60.5 (2018): 747-755.
52. Esposito, M.; Tse, T.; Soufani, K. Companies Are Working with Consumers to Reduce Waste. Available. <https://hbr.org/2016/06/companies-are-working-with-consumers-to-reduce-waste>
53. Petrie, Kelsey. Patagonia Inc.'s Sustainable Supply Chain Initiatives and Their Contribution to Company Brand. Diss. 2016.
54. Asif, Sarah, and Moen Asif. "Impact of Environment-related CSR Activities on Consumer Perception and Purchasing Behaviour in the Global Fashion Industry: A Case Study of "Traditional" and "Sustainability-Driven" Firms-H&M and Tentree." (2020).
55. Arli, Denni I., and Hari K. Lasmono. "Consumers' perception of corporate social responsibility in a developing country." *International Journal of Consumer Studies* 34.1 (2010): 46-51.
56. Koech, Roselyne, and David Coldwell. "Effects of perceptions of corporate social performance on individual purchasing behaviour in South African university students: A mixed-method approach." *South African Journal of Business Management* 50.1 (2019): 1-10.