SUSTAINABILITY IN FASHION

THE FACTBOOK

Hakan Karaosman
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This publication aims to display environmental and social impact generated by the fashion and textile industry. The overall goal is to provide a foundation for a rigorous discussion in order to reach a successful fashion industry through sustainability.

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Foreword

The world population pushes a significant number of 7.5 billion. Correspondingly, consumer goods industries such as food and clothing grow to meet the growing needs of individuals. To this end, the global fashion and textile industry reached a total revenue of €1,169 billion in 2014 with an annual growth rate of 3.8% between 2010 and 2014 (Research and Markets 2015). According to the European Apparel and Textile Confederation, the overall size of the industry in the EU-28 represented a turnover of €165 billion in 2014 and with investments of €4 billion (EURATEX 2015). The fashion and textile industry has become the world’s third-biggest industrial industry, following automotive and electronics manufacturing, and it directly employs over 60 million people (Ditty 2015). Nonetheless, in spite of the growth and high profit margins, the global fashion market is influenced by many macroeconomic and socio-political events. Supply network complexity, social sustainability issues, fragmentation of production, demand unpredictability, geographical dispersion, rising labour costs in emerging countries, and time-driven competition challenge the overall value proposition within the industry.

Boiling water could be a depiction to address the urgent need of sustainability. The boiling water generates steam and pressure inside a pot. However, after a certain point steam produced has no place to go within the pot. When more steam is generated faster than its velocity to escape, the steam rushes so fast, makes vibrations and overflows. We have overused natural resources and the pressure on social assets has dramatically increased. Therefore, the world has almost reached its limit. Unaddressed environmental and social needs come bubbling up like the pot of boiling-hot water that overflows. In this challenging environment, fashion companies must change their institutional logics to interrogate to what extent the fashion industry could integrate sustainability when the world matters the most. The implementation of sustainability principles into business practices is often difficult in global fashion supply chains where there appear to be multi tier suppliers. However, it is the time to act in a responsible manner and look beyond traditional roots. Hence, revisiting business models and restructuring fashion operations through innovation are needed.

‘You cannot wear something with love that has been made without love’ – Gandhi
The Need for Sustainability in Fashion
Overview

Limited production and limited division of workforce constituted the main attributes of the fashion and textile industry prior to industrial revolution. However, the advent of sewing machine on 1790 broke the connection between production and consumption down into numerous processes. The textile and apparel was the first industry operating modern manufacturing processes and one of the most dominant industries with regard to employment, capital access and value added activities. The fashion and textile industry is still one of the few remaining craft-based industries (Black 2012) in which manually operated sewing machines are the principal means to produce garments. With the arrival of fast-fashion, mass production has taken over the industry by making customization technically feasible. Following the supply chain revolution of the 1990’s and the removal of the Multifibre Arrangement in 2005, the global fashion industry has become a global force with constant production and global distribution. To this end, international Labour Office recognizes fashion as one of the most labour-intensive industries (ILO 2016).

The clothing life cycle is associated with major environmental and social impacts. Producing 60 million tonnes of textile requires 132 million metric tonnes of coal (Ecotextiles 2011). One kg of fibre production consumes 125 mega joules energy input and more than two-thirds (70%) of the total emissions associated with polyester products is generated in the production phase (Balch 2016).

According to the International Union for the Conservation of Nature (2016), the dyeing and treatment of textiles creates about 17-20% of all industrial water pollutions. Moreover, 22.5% of global insecticides is utilized in the fashion and textile industry (Balch 2016). Today, 400% more clothing is purchased than it used to be done 20 years ago. Greenpeace reports that around 80 billion garments are produced worldwide, equivalent to over 11 garments per person each year. Correspondingly, the average European buys around 30 kg of fibres while China and Turkey account for 6 kg/person and around 10 kg/person respectively (Scheffer 2008). Yet, it is important to note that almost half of the emissions of the entire clothing life cycle come from consumer use phase. WRAP (2012) shows that global footprint per household in the UK generates about 1.5 tonnes of CO2-e emissions each year that equals to driving a car almost 6.000 miles. Similarly, 200.000 litres is the annual global water footprint per household in the UK, equivalent to filling over 1.000 bathtubs to capacity. Waste, on the other hand, is a growing concern. Extending the average life of clothes by just three months of active use per item could result in about 5-10% reduction in carbon, water and waste footprints.
A 40% global shortfall in water supply is expected by 2030 (CDP 2015a) and therefore a constant good quality fresh water supply might not be guaranteed in many regions. Global oil consumption, on the other hand, ballooned by 0.8% in 2014, compared to 2013 (Olivier et al. 2015). Carbon emission growth slowed down in 2014 with an increase of 0.5% to 35.7 Gt CO₂ after a decade of high annual growth rates of 4% on average. Collectively, the USA and the EU-28 account for a quarter of global CO₂ emissions. Yet, in the European Union (EU-28), CO₂ emissions dropped by 5.4% to 3.4 Gt CO₂ as a consequence of a decrease in fossil-fuel consumption in manufacturing industries (Olivier et al. 2015).

The global annual temperature boosted at an average rate of 0.07°C per decade since 1880 and at an average rate of 0.17°C per decade since 1970 (NOAA, 2015). Furthermore, 2014 was recorded as the warmest year since the beginning of the records in 1880 and the annually averaged temperature was 0.7 °C above the 20th century average of 13.9 °C (Olivier et al. 2015). Aforementioned numbers justify that natural resources are finite. The short-term doubling in cotton prices in February 2011 similarly showed the significant risk of volatile commodity prices. Fashion companies are thus required to transform the economy by acknowledging resource scarcity and by taking collective actions for an authentic shift.

**FACT**

An average party top is worn only 1.7 times before getting thrown away. Yet, this type of mass produced garments out of synthetic fabrics cannot be recycled, and often end up at landfill.

**THE MYTH**

Sustainability in fashion is not a new trend. Eco trend became very popular for the first time in the early 1990’s. A great enthusiasm was shown to change fashion on a permanent basis by making it everlasting. The ecological collections developed in the mid-nineties mostly focused on materials such as unbleached cotton. Further, collections were associated with minimalist designs. However, aesthetic should also be considered and therefore longevity must meet the beauty. Embedding sustainability in fashion is not easy, as change is vital in fashion. So, fashion ought to become an expression of a conscious way of life and of a responsible personality listening to not only his own desires but also the needs of others.
The Current Context:

- Planet
- People
Planet
Material sourcing is an important stage in textile production. What products are made of and how they are processed must be fully understood. However, sourcing is already complicated without sustainability because price, quality, time, vendor relations and geographical issues are complex to execute. Sustainable sourcing seeks ways to link sustainability with corporate governance by taking nature inspired designs across all levels of fashion supply chains. Fabric has many environmental aspects and therefore choosing what to use has deeper meanings attached. A shift to replacing non-organically grown fibres with organically grown fibres could mitigate environmental impact. Unfortunately, most fashion designers have little understanding of the environmental impacts of fabrics and current information about eco-fibres is limited. Rather than choosing one fibre over another, advancements in synthetic as well as natural fibre production must be sought.

Cotton

Cotton is the most widespread profitable non-food crop in the world. Cotton production employs around 7% of all labour in developing countries and provides income for more than 250 million people worldwide (WWF 2014). The largest cotton producing countries are The United States, China, India, Uzbekistan and the West and Central African Region. The USA and India are the world’s largest cotton exporters while China is the world’s largest cotton importer. Cotton price has dropped during the last 30 years; conversely, production costs increase. Consequently, wages are getting lower for farmers in countries such as India, Kyrgyzstan and West Africa. Cotton is also associated with a significant environmental impact. One kg of cotton production requires 20,000 litres of water (WWF 2014). The Aral Sea reduced 10% of its former volume due in part to conventional cotton farming. Additionally, cotton is a very pesticide-intensive crop. Cotton consumes 16% of all the insecticides and 6,8% of all herbicides used worldwide (Organic Cotton 2015). Besides, approximately 4% of the world’s nitrogen-based fertilizers for cotton production (Carbon Trust 2011a). Furthermore, 220 MtCO₂-e of carbon emissions is produced by cotton production, which is almost 0.8% of global CO₂ emissions. Around 30% of CO₂-e emissions associated with cotton production are embodied in the international trade of cotton as raw cotton (Carbon Trust 2011a) before the cotton is transformed into textiles, clothing and other final products. Carbon Trust (2011) further estimates that global emissions from cotton production might reach 300MtCO₂-e in 2020 (around 2.7% above today’s level) if the business as usual scenario is pursued with no reduction in emissions. Nevertheless, around 15% of cotton is wasted every year during the manufacturing process. To this end, the demand to procure lower carbon cotton must be improved in global fashion supply chains.
focus on bottom-up consumer demand combined with behavioural change of cotton farmers could reduce negative impact significantly.

**Fibre**

Fibre is the initial source for textile products. Composition of an average garment could comprise wool, cotton, linen, silk, polyamide, polyurethane, polyester, acrylic or viscose. The amount of fibre used differs depending on the garment type. For instance, cotton is the main fibre used for underwear production, while polyamide is the main component of swimwear. The most frequently used natural fibres found in nature are cotton, flax, silk, and wool and they are classified either as protein or as cellulosic. Manufactured fibres, on the other hand, are chemically produced and they are mostly synthetic or formed through a modification of a natural resource. The most frequently used fibres in fabric production are cotton and polyester. Taking together cotton and polyester supply more than 85% of all fibres used in clothing (Carbon Trust 2011b). Cotton is the most dominant source for natural fibres used in clothing, e.g. 77% of natural fibre production comes from cotton (Carbon Trust 2011b). Polyester, on the other hand, makes up 77% of synthetic fibre production. Approximately 11 million tons of polyester is produced each year. Yet, each fibre type has an impact on the environment, as significant amounts of water, energy and chemical use are needed. Cotton is a profoundly sprayed yield for which 11 percent of pesticides and 24 percent of insecticides, and 2.6 percent of global water are utilized (Rissanen 2008). Similarly, polyester comes from finite resources and a considerable amount of energy is consumed. Antimony is often used as a catalyst in polyester production. But antimony trioxide leaking during high-temperature dying processes could emerge in wastewater and cause health issues such as chronic bronchitis. Furthermore, a significant amount of waste is generated, e.g. approximately 20 percent of the fabric is swept off the floor of cutting room (Rissanen 2008). When fabric waste ends up at landfill, natural fibres decompose but chemicals and methane are released in the process. Synthetic fibres, on the other hand, take longer times to decompose. Innovation is needed to mitigate the negative impacts of fibre production. Recycling PET bottles into fibres could lead to carbon savings. Alternatively, switching 10% of cotton fabric to a 50:50 polycotton-blended fabric could reduce waste footprint around 1.7%, water footprint by 3% and carbon emissions by 0.4% (WRAP 2012).

**Water**

Fashion is a thirsty business. The actual volume of water required to wash clothing equals to about 10% of the global water footprint (WRAP 2012). Nonetheless, a 40% global shortfall in water supply is expected by 2030 (CDP 2015a). Relatedly, wastewater emerges as another critical aspect that requires a deeper attention. Around 8.000 synthetic chemicals are utilized to turn raw materials into textile, and many of such chemicals are released into freshwater sources (Aiama et al. 2016). Water remediation thus plays a vital role to purify wastewater subsequent to fashion operations. The mining operations, on the other hand, must ensure that projects are not located in protected areas or high conversation or ecological value, and mine waste is no way dumped into oceans, rivers or lakes.
Biodiversity is a widely discussed since animals are used for many reasons in the fashion industry. Fur extensively used for fashion products is not a by-product of the meat industry. The European Union is the world’s largest producer of factory-farmed fur. Approximately 30 million mink, 2 million fox and 100,000 raccoon dogs are killed each year in the European Union only for their fur. 60% of worldwide mink-fur production (30 million pelts) and 56% of worldwide fox-fur production (2.1 million pelts) come from European farms (EFBA 2010). Angora rabbit fibre production is the largest animal fibre industry after wool and mohair with an estimate output of 10,000 tonnes per year according to Rural Industries Research and Development Corporation (2012) and China is responsible for 90% of the world’s angora trade. Nonetheless, 110 retailers have recently stopped using angora. There are many alternative solutions to deliver fashion with respect for biodiversity. Animal skins and feathers could be sourced and supplied from the meat industry. Furthermore, fish skin could be utilized to make leather instead of dumping it back into the sea. This could be a great alternative to exotic skins of crocodile and snake.

Deforestation and forest degradation cause approximately 10-15% of the world’s greenhouse gas emissions. It has become known that up to 33% of the carbon mitigation required to keep temperature rises in control can be achieved by addressing forest degradation and deforestation (CDP 2015b). Addressing deforestation in a serious manner is thus vital to meet international goals to fight against climate change.

Carbon emissions reached 35.7 billion tonnes (Gt) with an increase of 0.5% in 2014. The annually averaged temperature, on the other hand, was measured 0.7 °C above the 20th century average of 13.9 °C (Olivier et al. 2015). Purchase and use phases of clothing life cycle account for over 850 million tonnes CO2 per year, which is equivalent to 3% of global CO2 generation (Carbon Trust 2011b). In particular, the use phase emissions comprise about 50% of a typical t-shirt’s life cycle emissions (Carbon Trust 2011b). According to The United Nations Environment Program, collaborative emissions reduction initiatives including companies, cities and regions could deliver an equivalent of 3 billion tonnes of CO2 reductions by 2020 (CDP 2015c). Reducing carbon-emissions entails the efforts of both retailers and consumers, from day-to-day actions to design, manufacturing, distribution, use and dispose processes. China is conceived as the largest producer of emissions in the global clothing sector and one of the
largest emission exporters. Besides, the USA is the world’s largest importer of emissions embodied in the global clothing, while Hong Kong, Japan, France and the UK are top four importers of emissions embodied in clothing relative to domestic production (Carbon Trust 2011b). The global average of per-person emissions from the consumption of clothing is around 51 kg CO2 per year.

Per-person emissions of clothing consumption in Japan is five times more than the global average, which is 270 kg CO2 per year–consumption. Europeans generate around 150 kg CO2 per year–consumption while those from North America are responsible for 170 kg CO2 per year–consumption (Carbon Trust 2011b).

TRANSPORTATION

Different modes of transport have different impacts on the environment. Ship and train transport have less negative impacts than truck transport. Freight transport, on the other hand, causes significant amounts of greenhouse gases emissions. Distribution activities must be designed through a series of environmental and ethical considerations. For example, shipping fashion products unassembled could reduce transportation volume. Moreover, the use of reusable bulk packaging could be increased while packaging volume and weight are getting minimized.

Waste

Approximately 65% of the initial input is delivered to end-consumers as new clothing. Reports show that an estimated 1.14 million tonnes of clothes are supplied onto the UK market each year and in order to produce these clothes, some 1.76 million tonnes of raw materials are utilized while around one-third of this becomes waste in the supply chain. Furthermore, during in-use stage, an estimated 10,000 tons of waste is generated (WRAP 2012). The majority of clothing waste is generated as post-consumer waste. An estimated 350,000 tonnes of used clothing goes to landfill in the UK every year (WRAP 2012). Only in Turkey, 287,000 tonnes of textile waste end up at landfill and it constitutes 2.62 percent of the municipal solid waste (Buyukaslan et al. 2015). American consumers, on the other hand, send 10.5 million tons of clothing to landfills every year (Cline 2014). Considering that an average active lifetime of clothing is approximately 2 years, more post-consumer clothing waste must be collected to re-use and recycle. Nevertheless, only 20% of textiles are recycled each year (Ditty 2015). As reported by the Fashion Revolution (2015), every tone of discarded textiles reused could save 20 tons of CO2 from entering the atmosphere. If 5% more clothing at the end of its first life is reused the global waste footprint could be reduced by 0.7% (WRAP 2012).
Research shows that use phase of a pair of jeans contributes more than 60% of primary energy consumption, human toxicity and household waste generation (Bain et al. 2009). Additionally, the use phase accounts for around 35 and 59% of carbon emissions and water eutrophication, and between 10 and 34% of ozone layer depletion and water consumption (Bain et al. 2009). Behavioural patterns of washing, ironing and dry cleaning play vital roles for environmental impact. Prior studies show that the consumer-use phase of an average T-shirt almost equalled the carbon footprint of its entire production process (Black 2012). Consequently, the way products are consumed could be unsustainable even if the products are produced in a sustainable way. An object cannot be sustainable unless the behaviour to use it is. Avoiding weak links reducing the product lifespan, designing products that could be repaired and upgraded, increasing the functionality, and improving product quality could be listed as some ways to optimize the product life cycle. Products that do not require long washing cycles could be promoted. For example, cotton has lower washing efficiency than synthetic fibres and linen needs more energy for drying and ironing purposes.
People
Social Impact

Working Conditions

Fashion supply chains are globally dispersed and tremendously labor-intensive, but many enhancements are still needed to prevent systematic exploitation, to deploy health and safety measures and to improve working conditions in the production countries. The Human Right Risk Atlas (HRRA) (2014) ranked 198 countries based on their performance across 38 violation categories. The Forced Labor Index identifies 49 countries as ‘extreme risk’, including many of the world’s emerging economies. The list comprises China, India, Mexico, Thailand, Indonesia, Colombia, Vietnam, Bangladesh and the Philippines, where companies remain highly exposed to labour related violations despite the economic growth.

In September 2015, Mulberry was reported to fail in protection of the worker rights in its supplier located in Izmir, Turkey. Although Mulberry set a series of global sourcing principles, workers in Mulberry’s Turkish supplier were fired shortly after they had joined an union (Clean Clothes Campaign 2015a).

However, Article 23 of The Universal Declaration of Human Rights (UDHR) addresses that everyone has the right to form and to join trade unions for the protection of his interests. A similar problem occurred in Cambodia. Cambodian unions are joining forces to demand that the brands ensure a minimum wage of US $177 to be paid in their Cambodian suppliers (Clean Clothes Campaign 2015b). Despite actions taken by some global fashion retailers, such as H&M and adidas, excessive overtime still occurs and workers cannot meet the basic needs of their families. In early January 2014, wage struggles increased when police and military cracked down on wage protests during which five people were killed, 23 were arrested, and many others were injured (Clean Clothes Campaign 2015b).

Business and Human Rights Resource Centre conducted another research in Turkey. The Turkish clothing industry was the third largest exporter to the European Union and the sixth largest globally in 2013 (Fibre2Fashion 2016). Reportedly, 2.2 million refugees are living in Turkey, however 250.000-400.000 refugees are estimated to be working illegally (McMullan 2016). 28 major global fashion retailers were approached on how they deal with Syrian refugees in their Turkish garment supply chains. Responses obtained from major fashion retailers, including C&A, H&M, NEXT, and Primark reveal that Syrian refugees were identified in supplier factories in 2015. NEXT, having 22 first tier suppliers operating in 40 factories identified Syrian refugees in 10 factories and Syrian child labour in 2 factories. Allegedly, the refugees receive payment of their social security fees as part of their wages. H&M also acknowledged Syrian refugees in 4 factories and Syrian child labour in 1 factory out of its 210 factories at first tier.
Occupational health and safety in the fashion and textile industry has been a big problem since the mid-nineteenth century. The Triangle Shirtwaist Factory fire in New York on March 1911 was the deadliest disaster of its time, causing the deaths of 146 garment workers. The disaster led to a regulation requiring improved health and safety working conditions. A century later, another important progress was marked in the fashion history. The Accord on Fire and Building Safety in Bangladesh was signed on May 15th 2013 after the collapse of Rana Plaza. The accord is a five-year independent, legally binding agreement between global brands, retailers and trade unions, which aims to build a safe and healthy Bangladeshi Ready Made Garment (RMG) Industry. Nevertheless, it is reported that Rana Plaza disaster was less of a turning point than was expected. A backlash against unions was reported, increasing violence against unionized workers was informed and unions were reportedly banned in Bangladesh’s special export processing zones. However, as stated in Article 23 of The Universal Declaration of Human Rights (United Nations 1948), everyone has the right to form and to join trade unions for the protection of his interests.

There is more evidence showing that occupational health and safety still remains a critical issue in the fashion industry. The Clean Clothes Campaign, the International Labor Rights Forum, the Maquila Solidarity Network and the Worker Rights Consortium published an update to an initial report into delays in safety repairs at 32 of H&M’s most strategic Bangladesh suppliers. The update, based on a review of publicly available documentation carried out in January 2016, reveals that all but one of the H&M’s strategic suppliers remain behind schedule in making repairs, and furthermore it shows that over 50% of them are still lacking adequate fire exits (Clean Clothes Campaign 2016a). Report unveils that lockable doors are yet to be removed in 13% of the factories, sliding doors and collapsible gates have not yet been removed in 38% of the factories, and fire-rated doors and enclosed stairwells were not installed in 55% of the factories. Any of these threats could possibly result in garment workers being trapped in a burning building, as has happened in Bangladesh where 21 workers died on February 2010.

In August 2015, nearly 400 workers fainted in four factories across Cambodia. On July 2, 38 workers lost consciousness in a factory located in Phnom Penh. In 2014, more than 1.800 workers collapsed in 24 countries (Clean Clothes Campaign 2015b). Mass fainting was linked to long working hours and starvation. A fire broke out at the Matrix Sweaters factory in Gazipur on February 2016. The fire had broken out on the 7th floor of the factory around 7.30am before thousands of workers began their shifts. Had the fire started even one hour later, more than 6.000 workers would have faced the risk of a fatal incident. The factory was originally inspected by the US-based Alliance for Bangladesh Worker Safety nearly two years ago. The fire safety inspection report, carried out in May 2014, reveals that a wide range of life-threatening safety hazards were found at the factory, such as a lack of adequate fire exits, no fire doors, no sprinklers, insufficient smoke alarms, non-enclosed stairwells and a number of electrical safety risks. The Accord on Fire and Building Safety in Bangladesh that carried out follow-up inspections introduced an up-to-date Corrective Action Plan (CAP) for the factory. According to the CAP, none of the hazards were fully fixed (Clean Clothes Campaign 2016b). In total, around 60% of the mandatory safety renovations are yet to be completed at
Matrix Sweaters. The factory is supplier to many retailers from H&M to JC Penney, and H&M disclosed the factory on its website with a silver score.

Wages

A living wage is a human right as proclaimed in the Universal Declaration of Human Rights by the United Nations. Everybody without any discrimination has the right to be equally paid for equal work. Nonetheless, the legal minimum wage is not enough for a decent life in most textile and garment producing countries. It is estimated that the current minimum wage in Bangladesh only covers 60% of the cost living in a slum. Besides, the minimum wage in China and Cambodia would need to be almost doubled to cover just basic costs. Living wage is a challenging issue not only in Asia but also in Europe. Garment workers in the Ukraine, Romania, Bulgaria and Turkey face low wages that are even below those in China (Clean Clothes Campaign 2015c). In Italy, immigrant workers are reportedly working in clandestine workshops to produce items for high-end fashion brands. A recent research conducted by the Clean Clothes Campaign into working conditions reveals that the net minimum wage in Poland and in the Czech Republic was € 312 and € 390 respectively (Clean Clothes Campaign 2016c). Another study conducted into Italian shoe and garment industry in 2013 shows that the competition with Eastern Europe and Asia drives wages down in Italy. Factory workers’ wages at the entry level do not exceed 1200 euro per month. In the Veneto region, trainees are reportedly paid 730 euros a month, while home-based workers got only 850 euros – far below the amount needed to survive with dignity (Clean Clothes Campaign 2015d). The illegal industry is thus found to be growing as a response to price competition. Investigations show that some subcontracting firms hire workers at low prices on contracts where the workers are subject to work excessive hours to stay employed.

Hidden Subcontractors

Human rights must be universally protected as stated in the Universal Declaration of Human Rights (UDHR) proclaimed by the United Nations in 1948. In this vein, purchasing practices of global fashion retailers must ensure human and labour rights are met at all stages of their supply chains. Buying firms and manufacturers must agree on more equal and more realistic contractual agreements, which would not unequally penalize any party for delays occurring outside the latter’s responsibility. In some cases, manufacturers might subcontract certain production processes to other factories to meet strict deadlines without informing the buying firm. To this end, the contractual supplier of the buying firm might shift the orders to its ‘hidden’ subcontractors. The Centre for Research on Multinational Corporations (2015) addresses that such subcontractors are not considered in the boundaries of the buying firm’s supply chain, hence appraisals are not performed there. However, there might be many risks associated with hidden subcontractors. Such workplaces could be unregistered, and they could be informal where no taxes are paid. The growing pressure on low prices, fast delivery, and high unpredictability resulted in mounting levels of unauthorized subcontractors in production countries. Without transparency, securing accountability and preventing human right violations cannot be ensured.
'Marking Progress against Child Labour’ (ILO 2013) indicates that 168 million children - making up almost 11% of the child population as a whole - are child labourers. Child labourers are mainly employed by factories manufacturing textile and clothing to meet consumer demands in developed countries (Moulds 2015). Children work at all stages of fashion supply chains including cotton seeds production in Benin, harvesting in Uzbekistan, yarn spinning in India, different phases of garment production in Bangladesh. Furthermore, 85 million children in absolute terms are in hazardous work. Some countries employ children to perform pesticide spraying. Nevertheless, a progress against child labour has been marked over the years. International Labour Organization addresses a decline of 30% between 2000 and 2012 since there were about 78 million fewer child labourers at the end of the 12-year period that began in 2000. Still, despite this decline of 30% between 2000 and 2012, 11% of the world’s children are facing problems, such as being deprived of their rights to go to school. The entire cotton industry in Uzbekistan is built on forced and child labour. The Uzbek Government is reportedly closing the schools each season to send thousands of children to the cotton fields in order to manually pick crops for up to three months. Each child is expected to collect up to 50kg of cotton a day. Those who cannot, or who pick a low quality crop could even be punished by beatings, detention or told that their grades might suffer (Baptist World Aid Australia 2011).
Sustainability in Fashion: Benefits & Challenges
Benefits To Be Achieved

Fashion companies must move beyond the low hanging fruit philosophy, and therefore sustainability must be further integrated into critical operational facets such as supply chain configuration and design principles. Embedding sustainability into every business decision could help reduce risks, act on opportunities and generate more stakeholder value. Effective occupational health and safety policies could help identify workplace risks so that potential negative impacts could be reduced and eliminated. Academic literature often illustrates the positive connection between environmental practices and financial outcomes. Environmental practices are justified to result in positive performance outcomes on operational performance areas of quality, delivery, flexibility and cost performance. Win-win situations could be achieved, including waste reduction for the environment, less pollution problems for the society, and cost savings for the focal company. Sustainability could indeed improve financial return through preventing brand damage, increasing operational efficiency, securing ‘license to operate’, and fostering ethical and environmental niche in the market. Total quality management perspective provides a strong connection between quality and environmental management systems. The processes that improve quality could also improve environmental outcomes (Wu and Pagell 2011) by which multiple stakeholders could be satisfied simultaneously. Relatedly, actions taken to reduce carbon, waste, and water footprints could cut the costs of resources consumed by clothing by around 13% a year (WRAP 2012). It is estimated that an investment of US$2.3 trillion in energy efficiency by G8 countries could avoid new supply investments of US$3 trillion worldwide (2007). Additionally, transparent human resource policies and procedures could enhance communication within the organization and across the supply chain. Upstream suppliers play a vital role in supporting buying fashion firms to advance their inbound logistics processes. Internal sustainability practices are thus considered antecedents for external collaboration and integrating sustainability along the chain.
Challenges Encountered

Fashion is a powerful financial driver and it fosters the global economy by employing millions of people. Global fashion supply chains encompass various processes, including the stages of fibre production, yarn spinning, textile production, apparel manufacturing, retailing and consumption, in which there is a constant material and information move. Yet, the biggest challenge of fashion supply chains is associated with direct interactions among network actors. Fashion brands are required to interact not only with their direct suppliers and retailers, but also with their indirect suppliers. Given that global fashion supply chains are highly complex and time sensitive, managers must create new relational forms, which rely on trust to a greater extent. Fashion items are manufactured by ever changing suppliers in relatively small production cycles and many components as well as subcontractors are involved. Due to the cost restrictions, the complexity and the lengths of supply chains, tracing garments’ ethical and environmental performance, and monitoring the origin of materials are not easy to proceed.

International unions and non-governmental organizations, such as Care, Clean Air Act, Clean Clothes Campaign, Clean Water Act, Eco Label, Environmental Protection Agency, Fair Wear Foundation, Fairtrade International, Labour Behind the Label, Oeko-Tex Association, Oxfam, Resource Conversation and Recovery Act -among others- work to mitigate the negative environmental and social impact. However, it is still questionable to what extent a real integration is enabled within the industry. The lack of an integrated approach toward sustainability throughout the entire chain could hinder the development of management capabilities, the opportunities to address today’s global issues, and the ability to robustly thrive in the future. Thus, it is essential to focus on the entirety of supply chains from internal processes as well as upstream levels to tackle environmental and social challenges. In such larger systems, companies might feel discouraged to embark sustainability; nevertheless, the meeting point of commerciality with sustainability must be ensured. Encouraging current and potential suppliers to integrate sustainability into their management strategies is as equally important as deciding where to source or to produce garments. Influencing suppliers to create a holistic approach entails commitment from both buyers and sellers. Therefore, a high level of commitment, trust and genuine attention to monitor sustainability management are stipulated. Unfortunately, the fashion and textile industry does not have a good track record of establishing long-term relationships within the supply chains. Prior research shows that suppliers indicate that buying firms might consider low-cost a priority over building long-term and deeper relationships (Quinn 2008). However, when companies establish stronger ties within fashion supply chains, direct suppliers, even the ones located in further tiers, could further develop and deploy sustainability management capabilities. On the contrary, when a relationship is weak only temporal improvements could be partly achieved.
Highlights of 2015
The 2015 Paris Climate Conference (COP 21) was held from 30 November to 12 December 2015 to come up with a response to the mounting problem of climate change that threatens to wipe out the human presence in certain parts of the world. The earth’s atmosphere is growing warmer as a consequence of greenhouse gas emissions created by human activity and the rise in temperature should be kept below 2°C, as a greater increase in temperature will be extremely dangerous. Furthermore, the agreement emphasizes the need to pursue efforts to limit the temperature increase to 1.5 °C above pre-industrial levels (United Nations 2015). By 12 December 2015, 186 countries had published their action plan, which sets out the way through which greenhouse gas emissions will be reduced. United Nations Framework Convention on Climate Change (UNFCC) published an evaluation of these contributions and it shows that, despite the efforts, at this rate global warming would still be between 2.7°C and 3°C, i.e. above the threshold set by scientists. The Paris agreement thus asks all countries to review their contributions every five years from 2020; and countries are even encouraged to raise the targets. The agreement recognizes that $100 billion (donations and in loans) will need to be raised each year from 2020 in order to finance projects enabling countries to adapt to the impacts of climate change (rise in sea level, droughts, etc.) or reduce greenhouse gas emissions. The agreement schedules an initial meeting in 2025, where further quantified commitments will be made with respect to assistance to the poorest countries.
World leaders adopted the 2030 Agenda for Sustainable Development at the United Nations Sustainable Development Summit on 25 September 2015. The agenda includes a set of 17 global Sustainable Development Goals (SDGs) to end poverty, fight inequality and injustice, and tackle climate change by 2030. The goals and targets will stimulate action over the next fifteen years in areas of critical importance for humanity and the planet.

**Sustainable Development Goals (SDGs)**

1. No poverty
2. Zero hunger
3. Good health and wellbeing
4. Quality education
5. Gender equality
6. Clean water and sanitation
7. Affordable and clean energy
8. Decent work and economic growth
9. Industry, production and infrastructure
10. Reduced inequalities
11. Sustainable cities and communities
12. Responsible consumption and production
13. Climate action
14. Life below water
15. Life on land
16. Peace and justice strong institutions
17. Partnerships for the goals

The SDGs consist of 17 goals, reinforced by 169 targets to be met by 2030.

The goals and targets, available via [https://sustainabledevelopment.un.org/sdgs](https://sustainabledevelopment.un.org/sdgs)
SUSTAINABILITY IN FASHION

THE FACTBOOK

Hakan Karaosman
References


