

Historiography of Sustainable Fashion Practices: From its Inception till Present

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ABSTRACT:

In today's design world sustainable fashion is the most trending and a developing design philosophy. It's not only about reducing the carbon footprints but also to decrease the environmental impact of fashion manufacturing. Today, sustainability is engrained in every facet of creative industries, including the everchanging textiles and fashion domain. In past era Fast fashion used to be the major influence on fashion trends, which resulted in overconsumption, labour exploitation, and environmental hazard. Material heavily utilized includes synthetic fibres, ordinary cotton, hazardous chemicals which leads environmental pollution and started a vicious cycle of overconsumption of water and energy. The adverse impact of fast fashion practices in supply chain created a need for a discernible trend towards sustainable fashion. The above concerns ring the bells for the urgency to incorporate sustainability in fashion supply chain management practices.

Hence, the paper establishes the four primary dimensions to categorically evaluate the various aspects of sustainability in fashion supply chain. Firstly, to mindfully choose the materials which are sustainable in nature. Secondly, to attain supply chain transparency at its maximum potential. Thirdly, ethical labour standards for social sustainability. Last but not the least responsible retailing and consumer habits.

Going forward, sustainable fashion has become need of the day. Therefore it is reasonable to anticipate a continuous focus on the four primary dimensions as mentioned above. These dimensions can be achieved through, material innovation which includes the creation of novel environment friendly materials and technologies. Also the link between the changing sustainable fashion practices and their impact on consumer preferences in fashion industry is explored in this paper. Research also ventures into the mass production of fashion which disrupted localized production of pre-industrial era. The shift lead to the disruption of viable clothing practices, which eventually generated the need in modern times to implement the sustainable ways in current supply chain. The paper also discuss effect on the sustainability initiatives over the time by delving into the case studies.

The goal of this research is to analyse the most prominent fashion supply chain practices and their overall impact on environmental aspects and carbon footprints. The paper focuses on four dimensions 'the pillars' towards fashion sustainability and their study over the time, from pre-industrial era to the contemporary times. This put forward the necessity of sustainable practices to derive a better understanding of appropriate future solutions.

Keywords: Fashion, sustainability, fashion supply chain, carbon footprint, environmental impact, fast fashion, fashion manufacturing, fashion trends.

INTRODUCTION:

Fashion as a basic need has always been crucial parameter for social, psychological, financial physiological and geographical state of mankind. It has been very decorously quoted by Coco Chanel that "Fashion is not something that exists in dresses only. Fashion is in the sky, in the street; fashion has to do with ideas, the way

we live, what is happening.” From the day mankind started wearing cloths it has become an essential part of the society. Fashion evolved through the course of history to adapt and to fulfill the necessities of human. Simultaneously fashion have always furnished a responsibility to be a social mirror.

As we all know with changing times one should evaluate the balance of positive and negative aspects behind every action and activity and drive towards the balanced righteous approaches and solutions. The same has been seen with the fashion supply chain, during and after the era of industrialization. Fashion manufacturing, retail and allied practices had been bend towards unethical, unsafe and environmentally hazardous practices, heavy water consumption, uncontrolled and over consumption of fashion etc.

This triggered a response from the unpretentious nature of fashion and over the time associated reforms has been called up, and this overall created the need for fashion to specifically focus and develop sustainable practices. Further the ideas of reuse, recycle, up-cycle and responsible production and consumption practices etc. has been chart out and put into action to lead the world towards a better future or in other words to save the world form the already transpired damage and forthcoming detriment.

This research is focused to trace out the know-how about the changes in fashion before during and after industrial era from where the need and idea of redirecting the practices in fashion towards natural and sustainable ways originated. The idea behind doing this research is not only to project the pathways fashion travelled over the time but also to look into the reasoning behind why-what and when went wrong for fashion in terms of material, supply chain transparency, ethical labour practices and responsible fashion retailing and consumption practices.

The inspiration behind this research is to gather more and more knowledge towards what had happened in the past in the chronological order to equip us better in terms of understanding and solution-oriented approach for fashion practices. So, to keep the intentions of the research it has been divided into three main sections namely Industrial revolution and Fashion, Fashion during and after world wars, Evolution of idea of fashion sustainability and concurrent approaches. This study will approach the chronological portions under following four dimensions; Materials, Supply chain, Ethical labour standards and retailing and consumer habits.

The key idea of the research is to highlight the progression of fashion through the era of industrialization where the seeds of mass production had been sown towards the need of sustainable practices we are cultivating in today’s world. It becomes very evident to look for the sources and events which led the fashion such that we can guide our ideas of change towards a more practical and solution-oriented direction.

METHODOLOGY

The paper focus on qualitative historiographical research design. Establishing the four key pillars of sustainable fashion practices and their chronological evolution in the fashion industry. Every aspect of sustainable fashion practices is thoroughly addressed from the inception of industrialization till recent times. The research adopts analytical and descriptive approaches to investigate historical events, industrial alterations, and socio-cultural shifts that eventually shaped today’s ideas of sustainability in fashion.

The research is focused on establishing the fact that the fashion practices before industrialization were inclined towards sustainable ways of development and the idea of retaining and establishing sustainability idea in fashion had actually originated from industrial era itself.

The methodology for this research is exploratory in nature, keeping key focus on uncovering patterns and establishing connections between fashion supply chain practices and sustainability.

Data sources

The research is mainly dependent on investigating historical events, industrial alterations, and socio-cultural shifts that eventually shaped today’s sustainability ideas in fashion through the lenses of four key pillars. To validate the idea this research is mainly dependent on the following data sources

Secondary Sources:

1. Books, Academic journals, and published research in the area of fashion history, industrialization, and sustainability.
2. Archival records, government reports, and trade documents related to textile and apparel industries.
3. Fashion timelines and material usage trends published by institutions such as the Fashion Institute of Technology.

Primary Sources (where applicable):

Interviews and discussions with fashion academics and practitioners and Case studies of fashion brands that transitioned from fast fashion to sustainable practices.

Key pillars of Analysis

The research is constructed on the bases of four primary pillars of sustainable fashion practices, (as shown in the figure) which serve as main analytical categories:



Fig.1: Sustainable Fashion Practices

Materials: Evolution from all natural fibres to synthetic fibres then from conventional cotton to organic, recycled, and innovative eco-friendly fabrics.

Supply Chain Transparency: Shifts from unknown to impervious industrial practices to modern days traceable, ethical sourcing and production.

Ethical Labour Standards: The labour exploitation during industrialization and wars versus modern practices towards fair wages and safe working conditions.

Responsible Retailing & Consumer Habits: This deals with transition from localized manufacturing to mass consumption and fast fashion to conscious consumerism and circular economy models.

Justification for selection of Four Pillars-

Dimension	Reference	Justification
Materials	Daukantienė, V. (2023). Analysis of the sustainability aspects of fashion: A literature review. Textile Research Journal, 93(3–4), 991–1002.	Sustainable fashion starts with the materials. Think organic cotton, hemp and recycled fabrics. These choices mean less water consumption, fewer chemicals, and lower carbon emissions. It's all about finding innovative materials that are kind to the planet. Hence

		Materials become an essential component while discussing sustainability in fashion.
Supply Chain Transparency	Garcia-Torres, S., Rey-Garcia, M., Sáenz, J., & Seuring, S. (2022). Traceability and transparency for sustainable fashion-apparel supply chains. <i>Journal of Fashion Marketing and Management</i> , 26(2), 344–364.	Transparency means we can see where everything comes from, how it is made, and who is involved. It helps us avoid fake claims and make sure things are done ethically. Apart from this supply chain transparency also provides the information related to the legal business practices by disclosing the country of origin. This makes supply chain transparency an unavoidable component towards sustainable fashion.
Ethical Labour Standards	Vidushi & Dawar, P. (2024). Ethical Issues in Sustainable Fashion Industry. In <i>Illustrating Digital Innovations Towards Intelligent Fashion</i> (pp. 459–481). Springer.	Social sustainability means making sure everyone is treated fairly with good wages, safe workplaces and respect for their rights. We have seen the repercussions and adverse impact on businesses, whenever ethical standards are ignored, so ethical standards are a must. Labour exploitation (e.g., sweatshops, Rana Plaza collapse) highlights the need for ethical standards. That makes ethical labour practices a must to have component towards sustainable fashion.
Retailing & Consumer Habits	Faludi, J. (2025). Sustainable Fashion, Circularity and Consumer Behavior – Systematic Review and a Social Marketing Research and Policy Agenda. <i>Social Marketing Quarterly</i> , 31(1), 35–59.	As we all know that consumer behavior drives fast fashion trends and demand. Our choices as customer really push the fast fashion industry to make changes and cater to sustainable practices. We need to be smart about what we buy – like reusing, fixing, and up cycling our clothes to cut down on waste. This approach of consumers is playing the pivotal role in shaping and structuring the fashion businesses. Responsible retailing (eco-labels, slow fashion) and conscious consumer habits are critical for reducing waste and overproduction hence it is a key driver for sustainable fashion.

Chronological Framework

The research is critically evaluating the fashion practices in the following chronological order

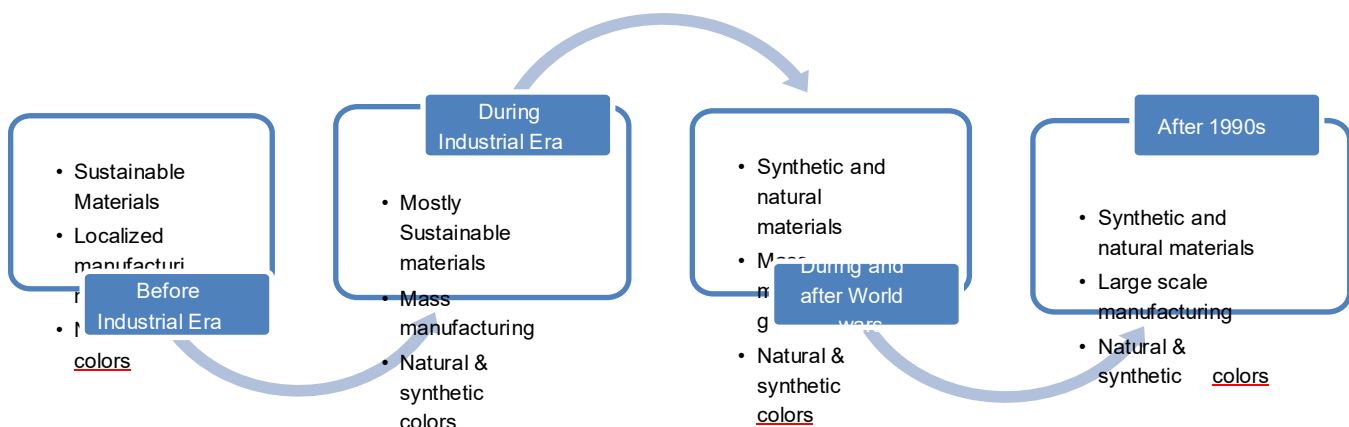


Fig.2: Chronological Framework Limitations of research

Over Reliance on secondary sources may limit access to unpublished or region-specific data.

The historiography emphasizes on interpretation, which may introduce subjectivity and carry biases of past publications.

Contemporary sustainability practices are evolving rapidly, so findings represent a snapshot of current practices rather than a definitive conclusion.

Ethical Considerations during research

The following considerations were duly acknowledged while doing research

1. Acknowledgment of all sources and maximum avoidance of plagiarism.
2. Respect towards intellectual property in archival and institutional data.
3. Keeping impartial perspective in analysing fashion brands and practices, focusing on evidence rather than promotional bias.

1. Industrial Revolution & Fashion (Pre & During Industrial Era)

In the Pre-Industrial Era, 1700s-1800s, clothes were all handmade. People used materials they found nearby. Production was small-scale, like in local tailor shops, handloom weaving places, and women's self-help groups. It's also happening with home-based sustainable fashion startups. The focus is usually on limited production, custom designs, and community involvement. Think of it as introducing new ways of making things in a limited area, like a town with just a few businesses. It was about making things better and faster. They used materials like wool, cotton, and linen, which breaks down naturally and are good for the environment. Clothes could be fixed and passed down, which helped cut down on waste even more.

Imagine a time before machines, where people, animals, wind, and water did all the work. That's how clothes were made before 1750. The methods of production were centered on handmade garments, a testament to the skill and artistry of individuals.

Proto-industrialisation is a link between the old days and the full-on industrial revolution. It's a change, a new way of making and using goods. It is all about change. Even though people mostly worked from home, things started to shift. It wasn't just about making stuff for the local area anymore; they started selling to bigger markets.

The industrial revolution really changed the fashion world. Before that, fashion was more community centric and eco-friendly. However, the introduction of mass production and machinery during the industrial revolution shifted towards fast fashion, making clothing more affordable and accessible to the masses.

The Industrial Revolution marked the beginning of mass production and the creation of synthetic fibres like nylon and polyester. This meant cheaper, faster, and durable fashion product. Now the fashion products were less affected by the environmental conditions. Fast fashion, which means trendy clothes are made fast and cheaply, causes people to throw things away more and create more waste. On the other hand the products were not biodegradable and started causing harm to the environment.

Around 1750, industrialisation changed things; factories became common, using steam and electricity. They began using synthetic dyes and fibres, which made mass production take off. The environment began to suffer as factories spewed pollutants, and workers endured long hours in dangerous conditions. People started to embrace the idea of a throwaway culture.

1.1 Embracing The Materials

Before Industrilisation the lack of machines meant that mass pollution was non-existent, which stands in stark contrast to the environmental issues. Production was slow and intentional, naturally minimising waste, while a

slower pace of consumption reduced the need for constant replacements. All clothing materials came from nature. The main fibres were cotton, wool, silk, and linen. Cotton was great for being soft and comfy in the heat, wool for warmth and lasting, silk for luxury, and linen for being cool and airy. Everything about making clothes—spinning, weaving, and sewing—was done at home by people and families. Skills were passed down in families, showing how important textiles were for making money and as part of culture.

Proto-industries needed the same things as modern ones: raw materials, workers, money, and sometimes land. The technical requirements of each industry dictated the input needs and their influence on the final cost and selling price. Regions with lower input costs became ideal locations for proto-industrial growth.

This change had big effects. Big-time cloth production started, getting ready for factories later on. Merchants started putting money into raw materials and workers in the countryside, starting early capitalism. Even though they used old methods, this system set the stage for full industrialization.

Western Europe saw new textile ideas, first in Flanders, Italy, and Picardy, then in Holland, England, and parts of France, during the sixteenth and seventeenth centuries. With more trade by sea, Europe changed how things were spread around, getting new dyes, decorations, raw materials from China, India, and the Americas, and seeing new markets and competitors.

From a sustainability perspective, Cheaper, trendy stuff like lace, socks, ribbons, and worsted textiles became popular, leading to people buying more. Women, who were spinning and making textile products at home more and more, were a big part of this growing textile economy.

The mid-1700s marked the start of industrialization, with automated machine weaving being invented in Great Britain. From the 1750s to the early 1800s, this time changed textile production completely, moving it from homes to factories run by machines. This was the mechanization of labour, and a surge in output, which many historians consider the start of a new industrial age.

By the late nineteenth century, the dominance of industrial methods sparked a cultural backlash against the dehumanisation of labour and the decline in quality of machine-made goods. In response, artists and designers in London founded the Arts & Crafts Movement in the 1880s. This movement championed craftsmanship as more than just technical skill; they saw it as a powerful form of creative expression that fostered beauty, individuality, and emotional satisfaction. They rejected industrial uniformity, aiming to restore value to handmade production.

1.2 Supply Chain Transparency

In the pre-industrial period, supply chains were short, local, and highly transparent. Clothing production was carried out by small craftspeople who wove, stitched, and finished garments by hand within their own communities. Since each region depended only on its local natural resources, certain fabrics remained exclusive to specific areas. Every stage of production—from raw fibre to finished garment—was visible and well known to both the producer and the consumer. Because garments were handcrafted, they took longer to produce and were not widely available. As a result, clothing was custom-made, unique, and highly valued, with repair and long-term use being common practices.

During proto-industrialisation, production remained largely home-based, but it began to serve non-local markets. Merchants supplied raw materials to rural workers and collected the finished goods for wider distribution. Although manufacturing was still mostly manual, the distance between producer and consumer started to increase, reducing full transparency. Regional specialisation developed as certain areas focused on specific textile products based on available resources. While production volumes increased, handcrafted uniqueness was still preserved, and supply chains remained partially visible but no longer fully direct.

With the advent of industrialisation, machines gradually replaced hand production and multiple technologies were introduced at different stages of garment manufacturing. This mechanised system proved much faster than manual labour, allowing the mass production of clothing. As automation and streamlining increased, the number

of manufactured goods grew rapidly. Clothing that was once woven by small craftspeople for their local communities was now produced in factories and sold across wider markets, reaching a much larger population. At this stage, supply chains became longer, more complex, and less transparent, as production moved away from homes and into industrial units.

1.3 Ethical Labour Practices

Before industrialisation, all physical work of garment and textile was performed by human hands, beginning with the cultivation of cotton and sheep rearing, followed by spinning, weaving, and stitching. Production was home-based and family-cantered, where labour was distributed among household members.

According to Jan de Vries, the household functioned as the primary economic unit in this period. Family members divided their time between domestic responsibilities, farming, and craft-based textile production. As new consumer desires slowly emerged, women and daughters increasingly devoted their time to paid textile work, marking the early stages of labour intensification driven by consumption needs.

Ethically, labour during this phase was deeply personal and socially embedded. Workers knew the purpose of their labour, and exploitation remained limited by the small scale of production and strong community ties.

With proto-industrialisation, textile production expanded beyond subsistence needs and began serving regional and international markets. Families continued to work from their homes, but increasingly under merchant control through the putting-out system. More household members entered paid labour, and the number of working hours and days increased significantly.

De Vries's industrious revolution theory explains how households willingly intensified their labour in order to purchase new goods that they could not produce themselves. The desire for fashionable and imported commodities encouraged women and children to participate more actively in wage labour.

The key components of De Vries's industrious revolution theory are presented in the following figure 3. It clearly indicate overall household strategy has been shifted towards wage labour to maximize the household income and guided the market towards product innovation. This further increased the competition among businesses and forced the fashion trends towards frequent changes. It has also cultivated a vicious cycle of using children as a cheaper labour option.

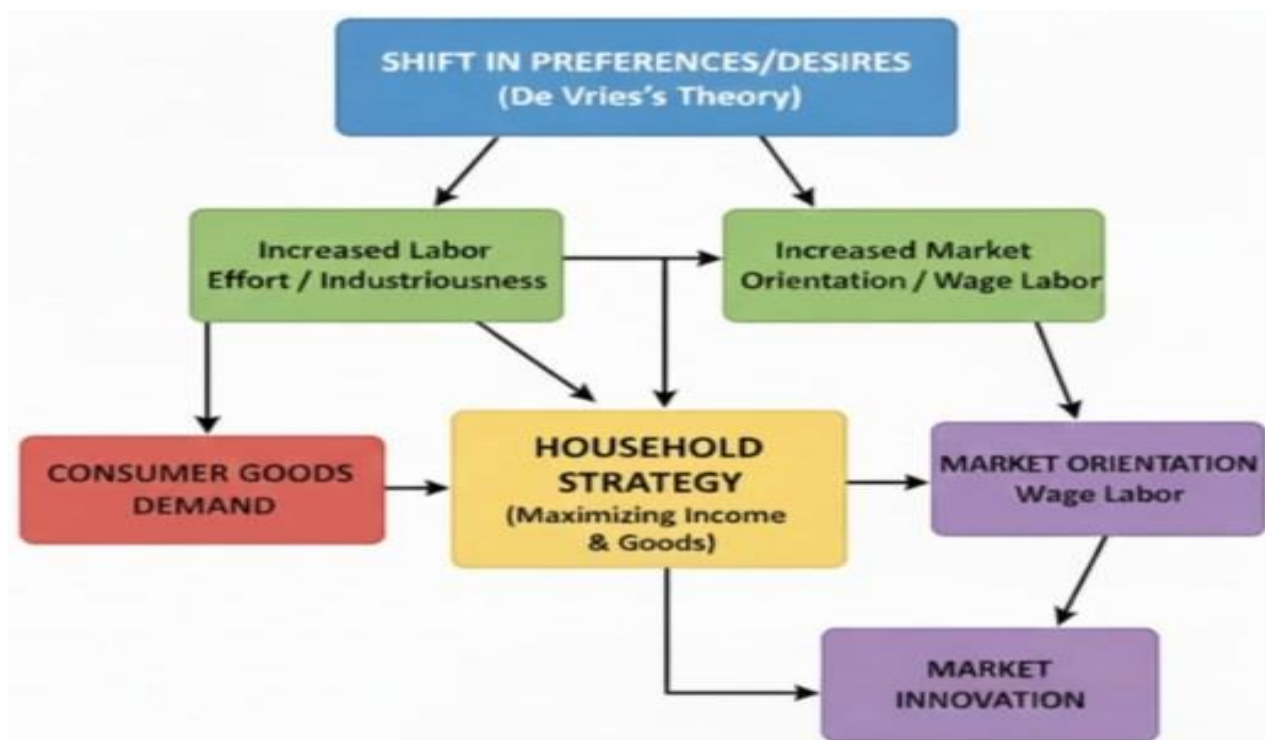


Fig.3: Key components of De Vries's industrious revolution theory

At the same time, Franklin Mendels explained that population pressure on rural resources pushed agricultural workers into proto-industrial labour. This shift increased capital accumulation and demographic expansion, gradually preparing the ground for factory industrialisation.

Although work was still home-based, ethical challenges began to emerge. Labour became increasingly driven by profit rather than subsistence, and workers became dependent on merchants for income. This marked the first weakening of labour autonomy.

By the mid-eighteenth century, the introduction of labour-saving machines transformed textile work. In 1733, John Kay's "flying shuttle" accelerated weaving. This was followed by James Hargreaves' "spinning jenny" in 1764, which allowed multiple spools of thread to be spun simultaneously. These inventions made production faster but reduced the need for traditional skilled labour.

Alongside these developments, steam engines and improved agricultural machinery provided new sources of power and raw materials for factories. As mechanisation advanced, workers lost control over the pace and conditions of their labour. Work slowly shifted away from households toward industrial settings.

Ethically, this transition weakened traditional labour protections. Human labour was no longer central but was reduced to machine supervision, leading to declining wages, deskilling, and longer working hours.

During the full Industrial Revolution, textile production became concentrated in large factories. Workers, including women and children, were employed for long hours in unsafe and unhealthy environments. The personal relationship between worker and product disappeared. Labor became impersonal, repetitive, and controlled by factory owners.

Mendels' model explains how proto-industrial labour ultimately led to full factory industrialisation through capital accumulation and population expansion. What had once been a household-based economy now became a rigid wage-labour system marked by inequality, urban crowding, and widespread exploitation.

1.4 Responsible Retailing And Consumption Habits

Before the Industrial Revolution, European families—whether labourers, farmers, or artisans—were dressed in a very limited range of rough, durable fabrics. Clothing was typically handwoven, produced slowly, and changed very little over time. Fashion cycles were rare, and garments were worn for long periods, repaired repeatedly, and often passed down within families. This created a culture of responsible consumption based on necessity rather than desire.

Retailing during this phase was minimal and highly localised. Clothes were made within the community and exchanged through small markets, barter systems, or direct orders from artisans. Since production was slow and resources were limited, people consumed cautiously and with restraint. This challenges the earlier belief that pre-industrial consumers were entirely passive or static; instead, their choices were shaped by access, scarcity, and practicality.

With proto-industrialisation, two major economic shifts occurred in Western Europe. First, there was an expansion of the division of labour along regional lines, separating towns, commercial agriculture, and commercial manufacturing. Second, far-off markets became increasingly accessible for the sale of commercial handicrafts.

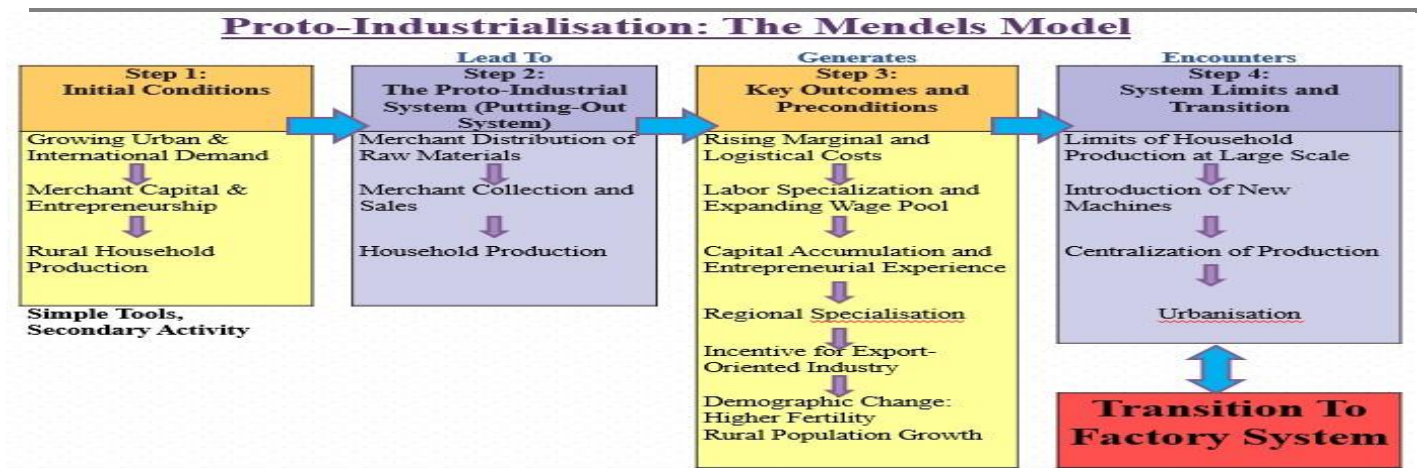


Fig.4: Franklin Mendel's model for proto-industrialisation

During industrialisation, improvements in transportation systems made it easier to move raw materials, components, and finished garments across long distances. Vehicles and transport networks allowed goods to be loaded, transported, and distributed more efficiently and in larger quantities than ever before.

During the Industrial Revolution, clothing production became standardised and highly systematised. Large quantities of similar garments entered the market, and mass retailing began to dominate. For the first time, ordinary consumers could purchase factory-made clothing in large volumes and at relatively low prices.

This period marked a decisive shift from responsible, long-term use of garments to faster cycles of buying and replacing clothes. Consumption increasingly became driven by availability, affordability, and uniform fashion trends rather than durability and personal need.

2. Fashion During And After World Wars

World War I and World War II necessitated national mobilization on ideological and societal fronts, extending to all aspects of life, including fashion. The wartime economies, demographic shifts, increased domestic workforce participation, and women entering the workforce profoundly influenced fashion. Styles have always been shaped by the practical needs of clothing, economic conditions, availability of materials, social expression and aspirations, popular culture, and military attire. These influences continuously impact and are reflected in fashion, which in turn mirrors and shapes culture and society.

Industrial revolution was in its full swing during 19th century and had transformed the way world saw and practiced fashion. With the advent of 20th century, major changes in the consumption and production of the clothing and Fashion industry had happened. The two world wars had changed the face of the world and brought out the major invention and innovation in each field as the need of the time. War has affected each domain of the human world, so it was inevitable for the clothing and fashion industry to not get affected. Fashion and clothing industry has undergone the major changes the way they have perceived the male and female clothing. The pomp and extravaganza of previous eras had been replaced by the more practical and sustainable clothing choices.

2.1 Embracing The Materials

Pre war era - before war clothing practices were the markers of social status in europe and america, where the rich and aristocrats wore layers of clothes made from fine and expensive materials. upper class women usually dress up in layers of cloth and the corset underneath. wearing a corset requires the help of additional person for tightening and lacing it up. they wore customized dresses stitched by the seamstress and tailored to fit their individual figure. their dresses are usually the imitation of the paris fashion houses.

Whereas elites have their outfits customized, middle class were buying readymade clothes from department stores in pre-war times. Some of these clothes were mass produced in sweat industry by the immigrant seamstresses. Middle class women clothing made with lesser fabrics and by the machines at departmental stores. Their clothes imitated the custom-made versions worn by the aristocratic class. The clothes manufactured in industry or department stores were lower in price because of cheaper labor and material cost. For lower class and working-class women who could not afford this ready to wear clothing from department store have sewing patterns available. They can buy this sewing material and stitch their own clothes.

The first world war brought about significant transformations in women's societal roles, impacting their attire as well. With men away at war, women took on a mastery of various professions, working in construction, factories, military plants, and even taking on roles as conductors, bus drivers, and managers of enterprises — a departure from the norms of the time. Women's luxurious clothing adorned with lace, embroidery, and jewellery became less

prominent as the textile industry shifted its focus to supporting the war effort. The emphasis on practicality and convenience became paramount in women's fashion during this period. Fashion became a means of expressing patriotism and solidarity with the troops. Colors like khaki and olive green became popular, reflecting military uniforms. Women's accessories also incorporated patriotic symbols like flags and military insignia.

In the initial years during post war time there was an extreme shortage of clothing. The military uniforms and equipment's were used by the civilians. Military uniforms and altered, resized and sometimes redesigned were worn by both men and women. This had created the prototype of the future military style that has come into existence like khaki color, rigid straight line of shoulders with linings, metal buttons. Some elements of military clothing remained unaltered and became the part of everyday clothing like a trench coat model with a wide collar, an additional fabric insert in the upper back, shoulder straps, and a belt.

Supply Chain Transparency

From the period of U.S. industrialization through World War II, American apparel supply chains underwent a significant transformation. This evolution began with the decline of general stores, ubiquitous across the country, which were replaced by emerging mass retailers. Originally, general stores served as independent, all-encompassing shopping hubs within communities. By the late 1800s, these stores gave way to department stores, mail-order catalogues, and chain outlets.

The new apparel supply chain structure comprised small craft shops, manufacturers, and contractors capable of swiftly producing garments for mass retail. These retailers operated on a seasonal schedule, typically introducing new merchandise to the sales floor two to four times annually. Their primary focus lay in efficient order placement to manufacturers, thereby optimizing production costs, rather than responding directly to consumer preferences.

During World War II, the established apparel supply chain faced a drastic reduction in product variety. This shift was accelerated by the introduction of a more efficient manufacturing method known as the progressive bundle system (PBS), characterized by specialized production processes. This system, coupled with the expansion of mass retailing, favored large manufacturers capable of producing garments in high volumes at lower costs compared to smaller, independent counterparts.

However, this era of dominance for large manufacturers was short-lived as large retailers gradually wrested control of the market from them. By the mid-1970s, major retailers had developed their own in-house brands and design capabilities to compete directly with manufacturers. Concurrently, these retailers began outsourcing labor and production overseas to capitalize on lower costs than those offered by domestic manufacturers.

The retailers that successfully outsourced production to developing countries experienced growth and increased market share, while those maintaining ties with domestic manufacturers saw declines in market share and profitability. This period also witnessed the emergence of low-cost stores like Wal-Mart (founded in 1962) and specialty chains such as Gap and The Limited, which further reshaped the market landscape. The liberalization

of trade policies further facilitated American retailers' access to manufacturing capabilities in developing nations

2.3 Ethical Labour Practices

During the early stages of the war, most fighting nations attempted to retain skilled male industrial workers in production, but this became increasingly challenging as casualties mounted and the focus shifted towards warrelated industries. Consequently, there was a growing demand for workers in these sectors while other industries, such as garment and textile manufacturing, saw a decline in employment.

The German government responded by enacting laws in 1915 and 1916 that reduced production and hours in the textile industry and provided aid to unemployed workers in textiles and garments. This shift disproportionately affected women, who constituted the majority of the workforce in these industries. Thus, one of the initial impacts of the war on labor distribution was a decrease in women's employment and an increase in men's employment.

In the immediate post-war years, economic reconstruction created urgent demand for labor, leading to campaigns that encouraged women and migrant workers to join the workforce. While women were initially demobilized to make way for returning servicemen, the expansion of welfare states opened new opportunities in education, healthcare, and social services, often seen as “women’s work” at the same time, unionism gained strength globally, particularly in Japan, where American occupation policies promoted democratization through labor rights. Strikes such as the Mitsui Miike coal mine protest in 1959 highlighted workers’ insistence on safety and ethical treatment, even against strong management resistance.

These developments laid the groundwork for modern labor ethics, including the push for equal pay, non-discrimination, and corporate responsibility, which remain key pillars of ethical labor today.

2.4 Responsible Retailing and Consumption Habits

The war led to shortages of materials like fabric and leather. Governments imposed rationing measures, limiting the amount of fabric that could be used in clothing, which required manufacturers to be more efficient in the cuts of clothing and type of fabric. Wool became a precious commodity saved for soldiers’ uniforms and for knitting socks and sweaters to send abroad. The entry of the US into the war, changed not only the materials and styles of women's dress but the fashion colors as well. Dark, dull colors such as khaki and black, which mimicked military uniforms, became very popular.

During the Second World War the government had continued to put restrictions on fabrics as well as strict norms for the tailoring of the civilian clothes. In First World War restrictions on fabrics were put at the end of the war, but in Second World War the authorities started to impose limit them from the very beginning. Where in America they have introduced L-85 law for clothing, Britain introduced rationing cards for buying clothes. Men's clothes had to adhere to some of the tightest austerity rules: no lapels on pants, no more than two pockets, single-breasted suits instead of double-breasted ones, and adjustable-length shirts without double cuffs. Not even zippers were exempt from restrictions. Just two essential components of civilian attire—men's suspenders and women's underwear—were exempt from this rule.

Britain began selling civilian clothes under the Utility brand in 1942. Because there was a restricted selection of fabrics, specific regulatory standards were followed during manufacturing. Such clothing should have been produced faster, but quality control was upheld.

Renowned fashion designers contributed to the brand's design development so that people wearing such universal clothing wouldn't seem like soldiers. They were tasked with making affordable clothing that was also fashionable, varied, and appealing. And they performed admirably on this. The Utility developed simple-lined, minimally embroidered dresses, coats, jackets, pants, and shirts that swiftly gained popularity outside of Britain.

Although the United States allocated fewer cloth and clothing rations compared to Europe, availability remained constrained, particularly for essential items required by the military. These included wool for uniforms, nylon crucial for parachutes, aircraft, nets, and tents, as well as various metals, leather, and rubber. Silk, originating from Japan, was prohibited. Consequently, fashion trends worldwide adjusted to minimize fabric usage. Fabrics such as cotton denim, jersey, striped mattress ticking, gingham, and calico grew in popularity, while rayon, a synthetic material developed in the 1930s, became a favored substitute for nylon and silk blends.

3. Evolution Of Idea of Fashion Sustainability and Concurrent Approaches (1990-Till Date)

This is the time of world awakening, the era of globalization, lifting up the trade quotas has been seen by the globe. Open trade and competition has started crushing the cost but simultaneously the awareness towards use of natural materials in fashion was spreading all across the globe. Although the usual uncontrolled consumption and retail practices have seen little or no alteration. The dimensional approach will help us clarify the near past in detail.

3.1 Embracing the Materials

As per fashion history timeline published by Fashion Institute of Technology, New York the following trend can be traced out for most popular usage of materials from 1990s till date.

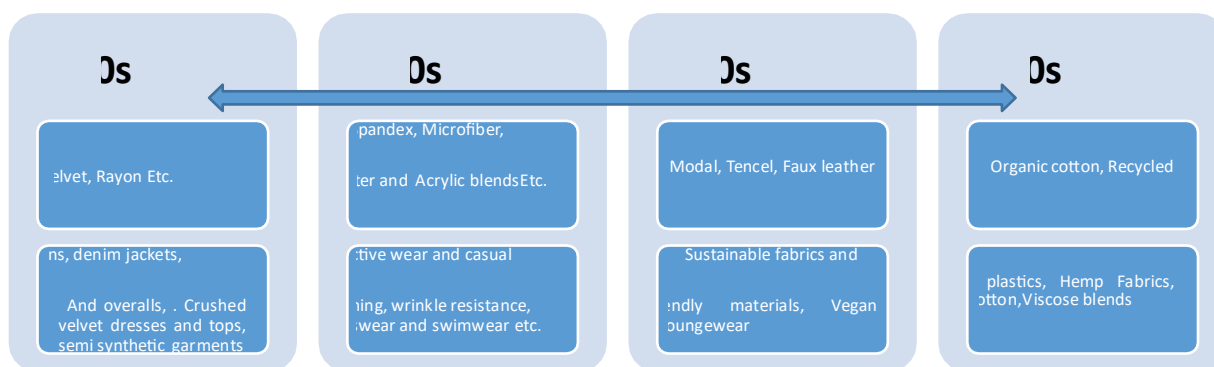


Fig.5: Popular usage of materials and its trends curtesy F.I.T, New York

3.2 Materials and Trends During 1990s:

Denim, Velvet and rayon were the most famous staple materials in 1990s. Brands like Levi's and Guess dominated the fashion world with Baggy jeans, denim jackets, and overalls. Crushed velvet dresses, velvet evening wear gowns and tops was famous. On the other hand Semi synthetic and rayon blends gained popularity for its durability, adequate breathability and lightweight

Materials And Trends During 2000S:

The significant rise of active wear and casual clothing had taken place during this time, Yoga pants, stretchy tops and jeans are some examples of it. Polyester blends again gained fame during this time. Brands like H&M and forever 21 heavily used polyester during this time for its durability and wrinkle resistance. Simultaneously microfiber fabrics were used in sportswear and swimwear in this duration due to their moisture wicking properties.

Materials And Trends During 2010S:

During this time most of eco-friendly and sustainable materials like Modal, Tencel (Lyocell) and Faux Leather were gained popularity. Modal is soft fabric obtained from beech trees, Tencel. is derived from wood pulp and it possess a silky feel on the other hand Vegan Leather (Faux Leather) is made out of polyurethane or polyvinyl chloride

Materials And Trends During 2020S

The fashion material trends in 2020s are going towards organic cotton, recycled plastics, recycled textile waste and hemp fabrics are on top of the list. The brands like Levi's, H&M focusing more on organic cotton and recycled materials whereas Hemp fabric is used as an alternative to leather.

3.3 Supply Chain Transparency

The fashion supply chain during early 1990s was mostly hazy and there were not much information available on where-how's of most of the fashion products be it fast fashion, designer labels etc. whereas supply chain transparency is important in terms of knowing the business insights towards the working conditions and conversion of commitments towards ethical practices about supply chain practices, including sourcing, manufacturing, labour conditions and its environmental impact.

The verification and authentication of such conditions for fashion is a farfetched thing, even awareness and sensitivity towards it needs to be developed and an inside out change is required. The overall status of supply chain transparency in fashion after 1990 can be analysed in three sections 1990s, 2000s and 2010s and later.

Let's explore them one by one.

Fashion Supply Chain Transparency During 1990S:

The 1990s were the supply chain for fashion can be said very little aware or unaware of the knowledge and facts towards supply chain transparency. Mostly the responsible practices are considered as individual liability rather than a social and cumulative obligation. We can say that the supply chain transparency, sustainability and ethical considerations were not in the central ideas of fashion business strategies. Customers had very limited visibility into the production practices and supply chain for most of the fashion brands and labels.

Fashion Supply Chain Transparency During 2000S:

The 2000s can be considered as waking up time for fashion supply chain transparency and some brands started sharing limited information about their supplier. Although the transparency remained elusive during this time, after the 2007's critical case of "child labour in GAP supply chain" changed the way brands were seeing the customer and started showing intentions towards sharing the fashion supplier information and started labelling their products for the country of origin for better informed customers. Customers were also very responsive and changed their buying habits in accordance to the information. This is clearly reflected when GAP lost a significant portion of its business in Europe after the revelation of a child labour working at their supplier end. It also shows the responsive behaviour of fashion brands as GAP pulled out half of its production from the supplier and made \$200,000 US towards improving the working conditions in India.

Fashion Supply Chain Transparency During 2010s Till Date

In 2010s the fashion brands started publishing their first tier suppliers, almost 35% of major fashion brands have disclosed such information. In 2016 the first Fashion Transparency Index (FTI) has been introduced which evaluates the fashion brands and labels on the bases of their transparency practises. Also during COVID-19 pandemic, accusations of cases like taking advantage from the situation and paying low amounts to the workers and case of Uyghur forced labour has emphasised the need for supply chain transparency. By the positive efforts from civil society, Advocacy groups and aware customers, it has been recorded a significant change towards supply chain transparency.

Brands like Inditex (ZARA), H&M, GAP, Uniqlo etc. has not only disclosed their first tier suppliers but also incorporated sustainability and environmental impact as one of the core aspect for their strategic planning.

As published in fashion transparency index 2016 the status of supply chain transparency amongst the fashion brands and labels is shown in the following figure

0-25% LOW RATING	26-50% LOW-MIDDLE	51-75% HIGH-MIDDLE RATING	76-100% TOP RATING
Chanel Hermes Claire's Accessories Forever 21 Fendi LVMH Monsoon Accessorize Prada Michael Kors Aeropostale Under Armour	Ralph Lauren Polo Ralph Lauren URBN New Look Gucci Victoria's Secret Hugo Boss J Crew ASOS Burberry Coach Lululemon Next Abercrombie & Fitch Arcadia Group Topshop Mango	American Eagle Gildan Activewear Uniqlo Converse Nike PVH Gap Primark Adidas	H&M Inditex Levi Strauss & Co

Fig.6: Fashion transparency index 3.3 ETHICAL LABOUR PRACTICES

The fashion industry has evolved with significant changes in labour practices after 1990. Most of the fashion brands and labels had emphasized on ethical principles and started publishing their Code of conduct through specially cultivated Corporate Social Responsibility divisions. The key events such as **Rana Plaza factory disaster** at Bangladesh in 2013 had shaken the fashion industry and emphasized on the urgent need for ethical reforms throughout the fashion industry. Due to this the concerns of fashion industry has been registered by most of the fashion brands and labels by including the following four factors to their Code of conduct

1. Employment and Workers' Rights
2. Labour health and safety standards
3. Transparency
4. Environmental responsibility

There are many organisation which have been crafted to address the ethical practices in fashion industry like Fair Labour Standards Act (FLSA). There had been special certification like Fair Trade and Global Organic Textile Standard (GOTS) had been brought into the picture during recent times to ensure the ethical practices in fashion supply chain.

There has been a significant improvement seen in terms of following ethical practices and some of the fashion brands like Patagonia, Everlane, People Tree, and Stella McCartney etc. made ethical business practices as their brand value and identity.

3.4 Responsible Retailing and Consumption Habits

Responsible retailing refers to a proper balance economic, social, and environmental aspects. It involves responsible sourcing, ethical production, and conscious consumption. During early 1990s the world was looking towards globalisation and talks of lifting up the fashion trade agreements were very prominent. Simultaneously there were concerns from the consumers towards the working conditions and ethical norms across field of fashion was gaining grounds. The world had raised concerns for supply chain transparency and ethical business practices in fashion.

By the time trade quotas had been lifted up in 2005 for fashion, the customer awareness and social activities had driven the fashion brands and labels towards supply chain transparency and positive efforts were placed towards sustainable and environmental friendly practices. The child labour case with GAP supply chain in 2007 made it very prominent and most of the fashion brands like Inditex (ZARA), H&M, GAP, Forever21 etc. has prominently changed their policies towards ethical business practices in fashion industry. Every brand has

resolved to strictly prohibit any worker under the age of 14 years to work under any factory or facility associated with their supply chain.

After the mishap of RANA Plaza in 2013 at Bangladesh. It became very evident that the efforts put across towards working conditions and sustainable practices were not enough and the brands and labels should open up in terms of their supply chain transparency. After this incident there are many initiative like the concept of slow fashion towards ethical and sustainable practices has been introduced. It is after this time it has been prominently declared across the world that the fast fashion is dumping almost 35% of its total produce on annual basis and the need of reuse, recycle and up cycle gained momentum.

During late 2010s the environmental concerns towards fast fashion, fashion brands and fashion labels had been raised by social organizations and customers. It became very prominent when in 2016 UN announced the 17 SDG goals most of them guided towards sustainable practices. It has been this time when fashion industry started focusing on the carbon footprints of fashion materials, products and processes. Now many fashion brands are looking forward to adapt sustainable practices. Some prominent fashion brands, labels and their initiatives as published by sustainability magazine are definitely needed to be mentioned here such as

1. Vivienne Westwood's plan to go on 100% renewable energy by 2024
2. Gucci's commitment which made it a carbon neutral brand by 2021 and its commitment to reduce the greenhouse gas emission to 50% by tracing out 100% of its materials
3. Chanel's mission to reduce its carbon footprints in operations by 50%, and to shift to 100% renewable energy by 2025.
4. Hermès has placed a commitment to reduce its carbon footprints totally from operations and supply chain as well, so the target is to achieve zero carbon emission by 2050.
5. Burberry has already attained a carbon neutral brand status across all its global operations and set up a target to reduce its supply chain emissions by 90% by 2030.
6. Louis Vuitton had established LVMH Internal Carbon Fund in 2015 and financed more than 65 sustainable initiatives under it.
7. Dior has shown its commitments to reduce the energy consumption emissions by 50% by 2026 and Scope 3 emissions by 55% by 2030.

Apart from all of these efforts Jonatan Janmark, Karl-Hendrik Magnus, Ignacio Marcos, and Evan Wiener has mentioned in their sustainability report from McKinsey & Company that "Most fashion brands could reduce their greenhouse gas emissions by more than 60 percent for less than 1 to 2 percent of their revenues." The report had specifically traced the efforts from most of the fashion brands towards reduction per year in scope 3 emissions which has been shown in the given figure

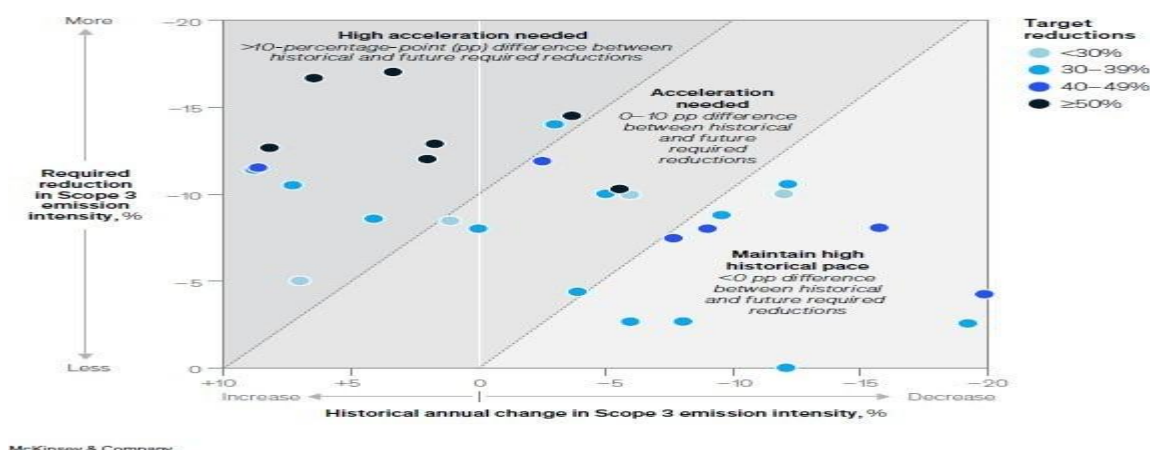


Fig. 6: The fashion brands towards reduction per year

The report is published in March 2024 and it is quite evident that over all efforts towards sustainable practices and reduction in carbon emission are still not up to the mark. Most of the fashion brands still falls under acceleration needed or below improvement category and it raises high concerns.

4. Key Findings

From 1700s till date fashion has evolved from a household and localized approach to today's gigantic retailing and mass production approach. This transformation when evaluated through a sustainability lens produced the following key findings

1. The pre industrialization era mostly holds the sustainable practices towards fashion, mostly governed by localized approach and natural materials with a significant appreciation towards the manpower associated in fashion transformations. 1733 and 1764 could be addressed as game changer for fashion due to invention of "flying shuttle" and "spinning jenny"
2. During industrial era machine took over the key manufacturing efforts enabling the scope of large scale production and fashion groomed itself from a local entity to a professional empire. This resulted in a cost fight between localized craftsmen and large scale industries and started to damage small-scale craftsmen' sales.
3. The next milestone in this context is invention of sewing machine during 1830s. it revolutionized the mass production of garments and became the pivotal point for fashion to become an industry producing cost effective goods on a large scale and putting an end to most of the localized craftsmen associated with fashion and textiles.
4. During late 1800s Colonization gave a huge boost to the fashion industry by providing not only the raw materials and manpower but substantial markets for sales of finished goods. During this time the competition among the traders and manufacturers of fashion has been seen quite evidently.
5. Early 1900s the industrialization of fashion was on full swing. The first world war has brought significant changes towards the role of women in the society and so as the fashion associated with them. The ideological support has been brought into place by prominent designers like Coco Chanel. During the first world war governments started rationing and fashion again become a necessity from the luxuries of beatification and accessory and jewelries it came down to basic dresses mostly constructed using darker shades and colours.
6. The introduction of progressive bundle system during Second World War became a milestone for mass manufacturing and resulted in drastic increase in fashion production.
7. The shortage of the available resources during world wars and need for durable materials in fashion reflected in high consumption of synthetic materials such as polyester and nylon. During 1930s the invention of rayon made it popular towards Second World War.
8. After Second World War restructuring of the world took place and most of the fashion business was taken over by the large scale retailers. Most of the retailers developed their brands with in house design and production capabilities. Further towards 1970s these retailers started outsourcing their manufacturing to third world countries for cost effectiveness and increased profits.
9. 1990s can be considered as the foundation for the todays sustainable fashion practices. During this time buzz of globalization was high on and by the time 2000s arrived the world has decided to open the doors for free global trade. This immersed as a game changer in terms of sustainable fashion practices because more and more customers demanded ethical business practices and better conditions for workers associated with fashion.
10. The child labour case of 2007 and Building collapse case of 2013 made a significant impact on overall fashion industry. Especially these events forced the fast fashion industry to be more responsible.
11. The associations like fashion revolution and ethical consumers are imparting a significant impact on consumers perception of fashion and publishing the transparency index in 2016 for all prominent fashion brands and labels is putting significant pressure towards sustainable fashion practices in fashion.

CONCLUSION

After going through the historiography of sustainable fashion practices, it can be concluded with few significant events and rendered better with some examples, although the practices in fashion can be said more sustainable before the era of industrialization and wars but there are certainly some examples which needs to be highlighted again:

The First Ethical Movements (19th Century): The Arts and Crafts Movement was led by prominent figures such as William Morris which was focused on the handicrafts and ethical ways of business. It outlined the basis for the sustainable fashion concept.

After the World War II (1940s-1950s): The shortage of resources brought by the war facilitated things like “Mend and Mend.” People repaired and reused clothes, which led to sustainability being promoted by the atrocities world has faced.

The birth of Eco-Fashion: during 1980s and 90s people like Vivienne Westwood and Katharine Hamnett made a new way for sustainable fashion through eco-friendly materials, fair trade, and anti-consumerism. Their designs and ideology prominently challenged mainstream fashion norms.

Concept of Slow Fashion: during 1990s brands like Patagonia and Eileen Fisher promoted more durable, timeless pieces, and introduced the concept of slow fashion which emphasized on quality over quantity and encouraged conscious consumption.

Sustainable fashion and Tech Innovations: Technological innovations like lab-grown leather and 3D printing revolutionized sustainable materials in fashion. Designers like Stella McCartney showed a more ecoconsciousness way of making fashion without compromising the style.

In summary, sustainable fashion’s journey has been started from the localized sustainable practices later marked by ethical movements, technological resourcefulness, and visionary designers. As we move forward, a definite direction has been set by these milestones which will help the fashion to be more responsible and compassionate as an industry.

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