Climate Crisis in Our Closets: Sustainability Transition of Fast Fashion Using MLP Analysis

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Abstract

Innovations in production and retail methods have propelled the fashion industry's explosive growth, with complex global supply chains that pose serious environmental and social issues. Despite increased awareness and multiple attempts toward sustainability, the industry is still trapped in an unsustainable paradigm. Therefore, this dissertation aims to examine the barriers of transition toward a sustainable fashion model. Given the highly globalized nature of the fashion supply chain, and manufacturing spread across different nations, it is essential to examine the barriers to sustainability from the perspective of actors within the supply chain. Examining these issues through the perspectives of manufacturers and other key stakeholders offers valuable insight into the intricate dynamics at work and helps in locating regional barriers that could prevent a smooth transition. Hence, this study focuses on conducting interviews with manufacturers and industry experts in Indian fashion supply chain to get the perspective of a manufacturing country.

The findings reveal a disconnect between sustainability standards and their local implementation, often exacerbated by the lack of brand accountability and disregard for local realities. The research highlights how certifications, largely shaped by Western ideals, fail to account for the socio-economic and infrastructural constraints of manufacturing regions like India. This study argues for a pivot away from a one-size-fits-all approach to sustainability, advocating for strategies tailored to local contexts that better align with the needs and challenges faced by actors in developing economies.

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General Audience Abstract

Innovation in production and sales methods has propelled the fashion industry's notable expansion in recent decades. But along with major social repercussions like low salaries, excessive working hours, and workplace exploitation, this expansion has serious environmental impacts like carbon emissions, water pollution, and wastewater management problems. Considering the growing number of strategies to promote sustainability, the industry is still confronting significant challenges in attaining true sustainability. Thus, this study aims to investigate the challenges of implementing sustainable practices, particularly from the viewpoints of Indian manufacturers and experts. India is a key hub in the garment manufacturing, which is why it was selected as the study location.

The analysis reveals a significant discrepancy between the sustainability standards and their actual implementation. A key finding is that organizations based in the West mostly set guidelines for sustainable production, frequently ignoring the particular social, economic, political, and infrastructure difficulties that developing countries like India confront. The study argues that it is imperative that sustainability certifications and standards in this industry be reevaluated. This study advocates for tailored sustainability strategies that consider regional circumstances and difficulties rather than enforcing identical sustainability standards globally. Customizing sustainability initiatives to fit local contexts can lead to more effective and equitable solutions that are both practical and attainable.

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Introduction

The fashion industry is considered one of the most polluting industries in the world contributing 10% of global emissions and 20% of the global wastewaters (World Bank, 2019). In addition to its environmental impact, the fashion industry is also notorious for its severe social consequences, including child labor, unsafe working conditions in manufacturing factories, underpaid workers, health hazards, and violence against laborers (Blanchard, 2019; Fashion Revolution, 2023a). This dissertation aims to understand the barriers to pivoting toward a sustainable fashion system from the perspective of actors in the garment-making process.

Previous research locates the cause of these unsustainable impacts of this industry in the structure of the fast fashion model (Appelbaum, 2006; Ellen MacArthur Foundation, 2017; A. Ross, 1997). Fast fashion refers to the rapid and inexpensive production of trendy clothing items (Sull & Turconi, 2008). To keep costs low, fast fashion retailers often outsource production to developing economies where labor is cheap and utilize low-cost materials for their garments (Gereffi, 1994). This business model not only emphasizes affordability but also accelerates production cycles, leading to significant environmental and social consequences (Anguelov, 2020; Niinimäki et al., 2020).

The clothing industry is substantial in scale, generating an estimated global revenue of over USD 1.7 trillion and employing more than 300 million people across the value chain (BoF-McKinsey, 2022; Ellen MacArthur Foundation, 2017; Fashion United, 2021a). Reports indicate that the fast fashion sector is also rapidly growing and has

significantly exacerbated environmental issues, such as water pollution and emissions, as well as social problems, including underpaid workers and unsafe working conditions (GFA & BCG, 2019; Remy et al., 2016). The urgency to transition towards a sustainable fashion system has been recognized by policymakers, researchers, advocacy groups, and international organizations (Fashion Revolution, 2019; UNEP, 2019). With many countries reaching their population peaks, the demand for apparel is set to increase, leading to a corresponding growth in the sector's impacts (Dobbs et al., 2016). It is therefore imperative to address the issues associated with this industry more efficiently to achieve long-term sustainability.

In response to the footprint of the fast fashion industry, alternative business models such as renting, thrifting, upcycling, and swapping have begun to gain momentum (Hur, 2020; Niinimäki, 2013). The sector is also increasingly being held responsible through the implementation of various accountability mechanisms, such as certifications, annual report disclosures, and ranking systems (Fashion Revolution, 2019; Fashion United, 2021b; Future Learn, 2019). Despite these efforts, the industry's impacts have continued to outweigh the sustainability initiatives (Ellen MacArthur Foundation, 2017). The current sustainability measures are not progressing quickly enough to keep pace with the escalating impacts (ibid).

Research has highlighted that the fashion industry remains entrenched in outdated, unsustainable patterns, exhibiting strong resistance to change (Ashraf, 2017b; Buchel et al., 2022). The fashion system remains primarily growth-oriented, locked in a model of extraction and disposability (Buchel et al., 2022). This dissertation therefore

aims to thoroughly explore and understand the barriers within the fashion system that impede the transition to sustainable practices.

Additionally, an ethnographic study by Ashraf (2017a) highlights the complexity of operations, subcontracting, and worker safety within manufacturing factories, emphasizing the need for these factors to be included in sustainability and safety discussions rather than merely imposing standardized measures within the system. Another ethnographic work by Ashraf (2017b) stresses the importance of gaining an insider perspective into manufacturing factories to understand the global nature of garment production. The literature also highlights the necessity for in-depth, interdisciplinary investigations involving actors outside Europe and North America (Buchel et al., 2022). Thus, this dissertation seeks to address these gaps by conducting ethnographic interviews with manufacturers for fast fashion companies and experts working within the garment supply chain, primarily based in India. The goal is to gain their perspectives on sustainability and the barriers to adopting a sustainable system. India was chosen as the field site because it is a leading apparel manufacturer (IBEF, 2024), and to emphasize the view of the global south in sustainability discussions.

This dissertation employs the Multi-Level Perspective (MLP) as a theoretical framework to explore various components of the fast fashion system. The study focuses primarily on the main supply chain as the core of the socio-technical regime. It emphasizes the perspectives of manufacturers, who occupy a strategic position within the regime due to their interactions with brands, labor, and suppliers. By incorporating the voices of manufacturers, the study aims to provide valuable insights into the operational challenges of transitioning toward a sustainable model.

The interviews conducted with manufacturers and experts in India offer an in-depth examination of the obstacles to transitioning toward sustainable practices from the perspective of key actors within the fashion system. By incorporating the viewpoints of manufacturers within the supply chain, this dissertation ensures that sustainability dialogs are inclusive and do not disproportionately favor large corporations, but also address the needs of those directly involved in garment production. The combination of sustainability transition perspectives and ethnographic data enhances the understanding of the factors impeding the shift to sustainability.

Chapter 1 provides a comprehensive overview of the fast fashion industry. It begins with an introduction to the concept of fast fashion, followed by a review of the literature on its emergence and development. The chapter then thoroughly examines the environmental and social impacts of the industry, highlighting significant issues such as resource depletion, pollution, labor exploitation, and poor working conditions. Additionally, this chapter summarizes current sustainability practices within the fashion industry and discusses the various tools and strategies employed to achieve sustainability. Finally, the chapter outlines the scope of the study, detailing the objectives that guide this dissertation's inquiry into the barriers to sustainable practices in the fast fashion system.

Chapter 2 delves into the theoretical framework of the Multi-Level Perspective (MLP), exploring how its three levels correspond to different aspects of the fashion system. The chapter provides a detailed characterization of various components within the fashion industry, illustrating how they can be understood through the lens of MLP. Following this theoretical exploration, the chapter transitions into the methodology of the research. It comprehensively covers the aspects of research design, detailing the approach

taken in this investigation. The chapter outlines the data collection methods, including ethnographic interviews with manufacturers and experts, and describes the analytical techniques used to interpret the data. Additionally, it addresses the limitations and strengths of the research design, providing a balanced view of the study's methodological framework.

Chapter 3 is dedicated to presenting the findings from the interviews conducted with key actors in the fashion supply chain. This chapter details high-level findings, enriched with direct quotes from interviewees to illustrate the depth of the analysis. It explores key themes such as manufacturing challenges, risk management, cultural elements in operations, and the networks and social relationships within the supply chain. A significant focus is placed on the nuances associated with sustainability certifications and the prevalent data manipulation practices within the supply chain. The findings reveal the complexity of transitioning to sustainable systems from the perspective of the Global South, highlighting unique challenges faced by manufacturers in these regions. This chapter underscores the intricate dynamics and barriers that impede the adoption of sustainable practices, offering a comprehensive view of the realities on the ground.

Chapter 4 is dedicated to highlighting the inferences derived from the findings presented in the previous chapter. It reveals the underlying structural and systemic problems within the supply chain that act as barriers and impede the implementation of sustainability measures. These broader issues are analyzed through the lens of the Multi-Level Perspective (MLP) to understand transition dynamics at different levels. The chapter discusses significant issues such as conflicting regime pressures, asymmetrical power dynamics, and systematic data manipulation resulting from the industry's current

structure. The chapter concludes by offering recommendations informed by the analysis. These recommendations aim to facilitate a more effective transition toward sustainable practices within the fashion industry.

Chapter 1: Fast-fashion Havoc

Fashion is one of the largest global industries. Since garments and textiles are a fundamental part of our everyday lives, this industry is also essential in the global economy. Over the past few decades, the fashion industry's expansion has led to an increase in the number of collections available to consumers within a short period. Modified operational structures, streamlined production, and innovative retail strategies have led to significant fashion growth (Bhardwaj & Fairhurst, 2010; Bruce et al., 2004; Choi & Sethi, 2010). By shortening production cycles and increasing the number of collections, fashion retailers have democratized couture by bringing trendy and affordable pieces to the consumer. The use of innovative technology, lowered trade barriers, and structural changes in the supply chain have led to the shift toward fast fashion, one of the most sophisticated business models in the industry (Caro & Martínez-de-Albéniz, 2015; Chi & Lu, 2020; Sull & Turconi, 2008). However, this system has a significant environmental and social impact, burdening global public agendas.

The fast fashion industry commodity chains encompass different actors like manufacturers, contractors, sub-contractors, designers, logistic companies, and consumers, which are aligned within the system in an orderly manner (Muthu, 2014). These factors pose a systematic set of problems like wastewater, carbon emissions, wage gaps, unsafe working conditions, and health risks at different levels of the industry. This chapter mainly focuses on understanding the emergence of fast fashion, its structural characteristics, impact, and current sustainability practices that are taking place in the industry.

1.1 What is Fast fashion?

Fast fashion refers to a business model prioritizing the rapid production of low-cost clothing inspired by the latest fashion trends. Sull & Turconi (2008) define fast fashion as a "retail strategy of adapting merchandise assortments to current and emerging trends as quickly and effectively as possible." Fast fashion revolutionized the fashion industry by providing trendy and affordable clothing for the masses. Some key characteristics of fast fashion are low prices, short time frames for production, responsive production cycles, and frequently updated trends made possible by using inexpensive materials and low labor costs.

The fast fashion model can be described using three key elements, i) quick response, ii) frequent trend updates, and iii) affordability (Caro & Martínez-de-Albéniz, 2015). Quick response (QR) refers to the ability of fast fashion companies to produce and deliver new collections in response to changing fashion trends by managing the inventory, information exchange, and supply chain more efficiently (Caro & Martínez-de-Albéniz, 2015; Choi & Sethi, 2010). Frequently updated trends mean that these product ranges are designed to reflect the latest fashion trends, which are updated weekly or sometimes even on days (Barnes & Lea-Greenwood, 2010; Sull & Turconi, 2008). Affordability refers to the low prices of fast fashion garments compared to traditional retailers, making it an affordable option for the masses (Bhardwaj & Fairhurst, 2010; Sull & Turconi, 2008).

Fast fashion mainly runs on the "pull" approach, where retailers respond to consumer demand and trends in the market within a few weeks, as opposed to the traditional model where designers/manufacturers decide the styles for the season and

"push" forward products to the consumers (Barnes & Lea-Greenwood, 2010; Sull & Turconi, 2008). The ability to quickly respond to the changing market demand provides fast fashion retailers with a higher profit margin and a competitive edge because of their product variability and speedy response to consumer demand (Bhardwaj & Fairhurst, 2010). This pull-based approach of fast fashion companies is consumer-centric as they manufacture products based on what consumers actually want. In this approach, companies collect data from multiple sources to understand consumer preferences for fashion clothing and their purchasing behavior and then create products based on that information (Gupta & Gentry, 2018; Sull & Turconi, 2008). Monitoring consumer data and adjusting production accordingly helps retailers to reduce waste, excess inventory, and inefficiency in the manufacturing process (Caro & Martínez-de-Albéniz, 2015; Hines & Bruce, 2007).

Providing consumers with trend-led products every week at an affordable price was driven by changes in many different areas. Some of the factors that help retailers to achieve lower prices are international trade policies, technological innovations in fabrics, vertical integration in manufacturing, and outsourcing manufacturing to countries with cheap labor costs (Anguelov, 2020). With frequently changing styles available at affordable prices, fast fashion relies on recurring consumption and impulse buying, leading to overconsumption and throwaway culture (Anguelov, 2020; Ellen MacArthur Foundation, 2017; Niinimäki et al., 2020).

Fast fashion can be viewed as a socio-technical system. This industry is an interconnected network of designers, manufacturers, retailers, logistic companies, garment workers, and advanced production routines that ensure clothes hit the market

shelves every season. Additionally, legislative regulations like free trade policies, etc. make the global exchanges within this industry more effortless. The integration of these components, along with technological advancements, drives the industry's ability to produce and distribute clothing at unprecedented speed, making fast fashion a complex, interdependent system focused on efficiency and consumer demand.

This system includes a vast network of retailers who rely on advanced communication technologies for the real time acquisition and analysis of sales data, enabling them to respond quickly to changing consumer demands (Choi, 2006). It also involves complex sourcing networks that procure materials from various regions. Outsourcing manufacturing to developing nations, where labor is cheaper, is another critical aspect of this system (Chi & Lu, 2020). This outsourcing is supported by robust logistics networks that ensure the swift movement of raw materials and finished products across borders (Arrigo, 2020; Niinimäki et al., 2020). Non-technological components, such as trade laws and export quotas, further facilitate these global exchanges, ensuring the smooth functioning of the fast fashion cycle (Appelbaum, et al., 1994; Gereffi, 1999). In essence, fast fashion as a socio-technical system is a complex web of technology, global networks, and regulatory frameworks that all work together to maintain the industry's capacity for rapid production and consumption.

1.1.1 The Emergence of Fast Fashion: Historical Overview

The history of fashion and the transition towards fast fashion is grounded in many different domains of cultural studies, economics, consumer behavior, and technology histories. Literature shows that there were multiple factors that contributed to the emergence of fast fashion. Changes in technological innovations, management systems,

trade policies, and social structures led to a shift towards fast fashion production and consumption.

The 19th century marked a period of shift in fashion, economy, and social perception of consumption. The rise of the middle class, their increased purchasing power, and the distribution of wealth allowed them to afford luxury dresses (English, 2013). In other words, the changing society was signaling changes in the production of fashion. According to English (2013), this also gave rise to prêt-à-porter and readymade garments. Sewing machines and the use of standardized patterns reinforced the reproduction of clothing on a mass scale. Additionally, department stores became the sites for offering fashion products. The use of technological tools like advertising media like television promotion, newspapers, magazines, and marketing strategies contributed to the mass consumption of clothing (English, 2013). Brands started effectively utilizing marketing techniques that made consumption a symbol of status and encouraging purchasing based on desires rather than needs (p.26). This strategic use of marketing and media to drive unnecessary consumption can be seen as a foundational element of the consumer culture that fuels fast fashion.

In the late 1900s, technological innovations in garment manufacturing, fabrics, and operations played an important role in making the shift from standardized mass production to fast fashion. The introduction of Computer-Aided Manufacturing (CAM) and Computer-Aided Design made data management, operations, and designing processes more efficient (Mitter, 1991). The introduction of computer-integrated manufacturing systems provided more flexibility in fashion production (p. 7). In the 1980s, Benetton was one the initial companies that automated and innovated processes

within the organization by incorporating CAD, information network, and IBM, which helped them reduce costs, improve speed and shorten production time (p.85). In the late 1990s, many manufacturers adopted quick response (QR) systems- an inventory management and responsive strategy with the central principle of manufacturing goods based on market demand (Choi & Sethi, 2010; Mitter, 1991; Taplin, 2014). Vertically integrating the fashion supply chain and adopting lean approaches to supply facilitated outsourcing and faster turnaround time for fashion companies (Anguelov, 2020; Doyle et al., 2006). Christopher et al., (2004) argued that agile supply chains are driven by market data and information sharing between businesses. The market responsiveness that fashion retailers achieved through these methods helped them reduce lead times and rapidly incorporate consumer preferences into the design process (Christopher et al., 2004; Doyle et al., 2006).

While technological innovation was an important factor in simplifying the manufacturing process, it also simplified outsourcing for producing garments in developing countries (Anguelov, 2020). The innovation of high-quality, inexpensive fabrics also contributed greatly to making fast fashion more affordable (ibid). Moreover, the advancements in communication and transportation technologies resulted in the international division of labor, wherein labor-intensive stages of production were relocated to developing nations, while the knowledge-intensive stages were retained in the originating country (Appelbaum, et al., 1994; Gereffi, 1994; Mitter, 1991). With the rising production costs, companies started shifting manufacturing to countries in the far east with low labor costs to keep the prices affordable (Bruce & Daly, 2006; Gereffi, 1994).

During the 1990s, policy changes in free trade agreements, as well as the movement towards globalization, led to an increase in production costs that compelled fashion retailers to reassess their supply chain strategies (Allwood et al., 2006; Chi & Lu, 2020). To keep the prices competitive, fashion retailers started sourcing their products overseas and subcontracted their production to locations that were more economically viable (Marcketti & Karpova, 2020). Lowered trade barriers and the removal of import quotas from textile and garment products all enabled a faster growth rate in the fashion industry (Hines & Bruce, 2007). With these changes, developing countries became the new site for clothing exports in the world.

The innovations discussed above shows how technology played a critical role accelerating the development of the fashion industry by enabling rapid design, production and distribution process. The trajectory of technological developments not only streamlined the operations and increased efficiency, but also contributed to the development garment production that was more responsive and faster than traditional methods of manufacturing. Enhanced management techniques and efficient manufacturing processes made the industry more adaptable to consumer demands and significantly reduced production times. The integration of various elements such as efficient production, a responsive supply chain, and streamlined transportation created the foundation for fast fashion. Each component in garment manufacturing was aligned and interconnected, working cohesively to enhance the overall efficiency of the supply chain. These synergies allowed the fast-fashion model to thrive, enabling quick responses to market demands while maintaining high levels of production efficiency.

While technology played a crucial role in the emergence of fast fashion, policy changes such as the removal of import quotas for textiles and garments, along with the promotion of free trade, significantly supported the ability of developing nations to produce goods at lower costs (Hines & Bruce, 2007). This shift provided retailers with a vast array of options to source the cheapest deals with factories in developing nations, often through subcontracting (Gereffi, 1994). The involvement of developing nations in mass production, driven by low-cost manufacturing, shortened production cycles drastically, leading to overproduction and frequent markdowns (Chi & Lu, 2020). This accelerated the pace of fashion, transforming it into a fast and disposable industry.

Socio-cultural shifts, changes in lifestyle, and widespread access to information about the latest styles through mass media also led to an upsurge in the desire for novelty in fashion among consumers (Hines & Bruce, 2007). The continuous transformation of consumer demand for fashion, influenced by popular culture and mass media, prompted retailers to reassess their established supply chains in order to cater to the changing desires of consumers for new fashion trends (Barnes & Lea-Greenwood, 2006; Bhardwaj & Fairhurst, 2010). This shows that changes in social behaviors also influenced the shift towards fast fashion business model.

1.1.2 Fast Fashion Supply Chain

The fashion supply chain comprises all aspects of production and movement of goods and services, right from the initial design stage, through the raw materials stage, and finally to the end consumer (Muthu, 2014). Moreover, the flow of information and cash flows are also an essential part of the fashion supply chain.

After the Multi-Fiber Agreement (MFA) was phased out by World Trade Organization (WTO) between 1995 to 2005, it resulted in the removal of tariffs and trade quotas on the textiles and clothing trade (Hines & Bruce, 2007). This facilitated retailers in the US and the EU to access low-wage labor in developing countries for apparel production (Duke, 2017). In addition to the availability of low-wage labor, garment retailers favored the organizational flexibility offered by these countries (Gereffi & Korzeniewicz, 1994. p102). With globalization, technological advancement, and trade policy changes, fashion retailers started offshoring their production activities and only maintained control over design, marketing, and retailing (Ashby, 2016; Marcketti & Karpova, 2020; Mitter, 1991). This pattern of shifting production networks overseas is what Gereffi & Korzeniwicz (1994) call a buyer-driven commodity chain.

Buyer-driven commodity chains can be defined as "industries in which large retailers, brand-named merchandisers, and trading companies play the pivotal role in setting up decentralized production networks in a variety of exporting countries, typically located in the Third World" (Gereffi & Korzeniewicz, 1994). According to Grereffi and Korzeniewicz (1994), fashion companies in a buyer-driven model do not own their manufacturing factories, but rather they outsource their production activities to factories in their network based on factors like risk, response time, quality, and investment. The firms have a multi-tiered complex network of contractors who carry out specialized tasks. Fashion firms contract different agents across the world to carry out activities ranging from packaging, manufacturing, shipping, and product development based on their needs. The main role that core companies play here is that of managing activities across their network, designing, marketing, and retailing (Appelbaum, et al., 1994; Gereffi &

Korzeniewicz, 1994). Core companies make sure that all the pieces of their network are working together. In the low-cost production of fashion, the main profit-yielding activities are retained by the fashion retailers in the core countries, while other activities are outsourced.

The merchandisers and retailers in the fashion supply chain act as strategic brokers by linking overseas factories and traders to their consumer markets. They do so by managing activities like R&D, sales, marketing, distribution, and financial services that drive the commodity chain (Rabach & Kim, 1994). The shift toward a buyer-drive supply chain helps fashion retailers focus their strategies on addressing the constantly changing consumer demand for novel styles and variety (Gupta & Gentry, 2018).

The market push-pull dichotomy can also explain the internationalization of fashion retailers. Kacker (1985) explains that retailers are pulled towards a foreign market and are pushed out of their home country to further their growth and expansion. Alexander & Doherty (2009) provide an extensive list of push-pull variables like political, social, economic, cultural, and structural aspects that contribute to the internationalization of retailers. Some pull factors included low operation costs, relaxed environmental regulations, high growth potential, developing market, positive social environment, favorable operating environment, etc. And the push factors constituted restrictive regulations, poor economic conditions, low growth potential, small domestic market, etc, that limited the growth potential of companies (Alexander & Doherty, 2009; Hines & Bruce, 2007). Considering that this is not an exhaustive list, other factors like consumer demand, specialization, foreign market demand, etc. motivated foreign expansion for fashion retailers (Hines & Bruce, 2007).

While there are multiple advantages that clothing retailers can access in the foreign market, innovations in the supply chain also simplified the process of operating and managing the globally dispersed commodity chain. Transportation and telecommunication advancements were critical to transnational flows and globalized production. Moreover, upgrades like computer-aided design & manufacturing (CAD/CAM), quick response, and vertical integration in the supply chain also enabled fashion companies to manage suppliers and volume shifts more efficiently (Hines & Bruce, 2007; Rabach & Kim, 1994).

One of the core purposes of fashion companies is to balance cost, lead time, and volume. And to do so, fashion retailers offshore their production to economically viable locations, mainly in East Asia. Manufacturers who produce garments for fashion companies may further subdivide their work with other subcontractors in the chain of production for activities like cutting, sewing, embroidery, etc. (R. J. S. Ross, 2004). With clothing being one of the most unpredictable commodities, retailers face the risk of being caught with inventory or a shortage of products in high demand. And retailers have dealt with this by pushing the risk down in the production chain to manufacturers, contractors, subcontractors, and eventually, the worker (A. Ross, 1997). According to Ross (1997), risks trickle down to the bottom of the industrial pyramid resulting in further exploitation of the workers. It thus creates sweatshops with low standards that any other sweatshop in another country can replace.

The increasing globalization and subcontracting have created new obstacles for the garment industry. Environmental deterioration and human rights infringement are among the top challenges of the fashion industry caused by their manufacturing and

sourcing practices (Chi & Lu, 2020; Ellen MacArthur Foundation, 2017). The following section will discuss the impact and challenges of the garment industry and its commodity chain.

1.2 Impacts of Fast Fashion

The globalized supply chain with multiple actors involved at every stage has created new challenges for the fast fashion industry. The fashion supply chain spans multiple countries and regions, making it a truly complex production and distribution channel. This chain links the source of components, the factories that produce the products, and the distribution channels that deliver these products to the consumers. Despite the benefits of the offshoring production system, fashion brands and retailers are finding it difficult to manage the environmental and social compliance risks in their complex commodity chains. There is an impact on part of the production, distribution, and consumption cycle in the journey of fashion products. This section provides a brief overview of the fashion industry's impact on society.

1.2.1 Environmental Degradation

The cradle-to-grave journey of a garment is truly global. From production to consumption to disposal, numerous processes occur across various locations and regions. The global garment manufacturing system can be divided into five main parts: i) Raw material preparation- this includes sourcing natural fibers like cotton and wool from farms and synthetic fibers from chemical manufacturers; ii) Fiber production- Fibers go to manufacturers who prepare yarns, and to textile manufacturers for weaving and knitting; iii) Clothing production- this stage includes dyeing, finishing, cutting, sewing,

and eventually apparel manufacturing. This stage can involve multiple subcontractors working at different stages of production; iv) Usage- After production, garments go through the distribution channels of brands and retailers to the consumer. This is the stage where the garments are used by the consumers. v) End-of-Life - After being used by consumers, the garments are either recycled, reused, or end up in landfills/incineration (Muthu, 2014; Niinimäki et al., 2020; Quantis, 2018)

At every stage of the production process, a certain level of environmental degradation occurs. The environmental impact spans from chemical and water pollution in the fiber production and preparation phase to CO2 emissions in the garment manufacturing, distribution, and consumption phase. The sections below discuss the environmental impact at every stage from production to end-of-life of a garment.

Fiber and Clothing Production Stage

A large amount of water in the fashion industry is used in cotton production and in wet processing (bleaching, dyeing, finishing) of textiles. Textile production, including cotton farming, uses around 93 billion cubic meters of water every year (Ellen MacArthur Foundation, 2017; World Bank, 2019). A study on the fiber production life cycle calculated that yarn preparation and fiber production constituted 54% of freshwater withdrawals (Quantis, 2018). Due to the high demand for water associated with irrigation and production needs is causing stress in manufacturing regions like China and India (Niinimäki et al., 2020; Sandin et al., 2019).

In addition to water usage, 20% of global industrial wastewater also originates from the garment industry (Drew & Yehounme, 2017; Ellen MacArthur Foundation, 2017). Wet processes like dyeing, bleaching, and finishing have a high impact on the

environment mainly due to their water and energy-intensive processes. Dyeing processes are known to have a significant energy demand due to the wet processes used, which require heating large amounts of water. According to a report by Quantis (2018), wet processes account for 27% of freshwater withdrawals, along with high coal and natural gas consumption for heat-based processing. Furthermore, the production of fibers and wet processing are also major contributors to chemical pollution in water bodies. Studies suggest that there are approximately 72 chemicals reach the water supply from textile dyeing, out of which 30 cannot be removed (Kant, 2012; The World Bank, 2014). The pollutants from dyeing damage the natural waterways because of their high temperature and pH levels. It also affects the oxygen transfer mechanism in the water bodies, negatively impacting marine life present (Kant, 2012). The chemicals pose a threat to biodiversity and the health of garment workers who sometimes don't have access to adequate protection and may inhale toxic fumes (Regan, 2020).

Regarding carbon emissions, a report by Quantis (2018) and Mistra Future Fashion (2019) estimated that the fashion industry emitted 4 gigatonnes of CO2 equivalent. The climate impact of cotton fibers is estimated to be 0.5 to 4 kg CO2 equivalents per kg of fiber. Synthetic fibers like polyester are estimated to have a climate impact of 1.7 to 4.5kg CO2 equivalents per kg of fiber produced. The carbon footprint is also influenced by the high energy use and the source of energy. In countries like China, textile manufacturing depends significantly on coal-based energy and has a 40% larger carbon footprint compared to textiles produced in Europe (Niinimäki et al., 2020; Sandin et al., 2019). The carbon footprint also depends on the type of fiber being processed. For example, the climate impact can range from 1.94 kg CO2 equivalents per kg granulate

(PE) to 324 kg CO2 equivalents per kg granulate (PTFE) (All CO2 equivalents data from, Sandin et al., 2019).

Pre-consumer Waste and Consumption phase

Pre-consumer waste mainly refers to the production waste generated during manufacturing, including extra fabric, fibers, and yarns. With the significant growth of the fashion industry, production waste has also been increasing, which ultimately is the waste of resources. Another type of pre-consumer waste is deadstock. Deadstock refers to unused and unsold clothing items, sometimes returned after purchase, which are then considered waste (Niinimäki et al., 2020). According to a New York Times report, H&M, a major fast-fashion brand from Sweden, was found to have $4.5 billion worth of unsold inventory in stock (Paton, 2018). Reports also showed that deadstock from H&M was being burned in power plants in Sweden as a replacement for coal, which was approximately 12 tones of unsold garments per year (Hendriksz, 2017; Starn, 2017). As of June 2018, it was reported that Burberry, a luxury brand from the UK, had burned unsold inventory worth £90 million over the course of five years (BBC News, 2018). Even though some energy is recovered by incinerating clothes for energy, it still generates large volumes of emissions and air pollutants. Considering the sizable amount of resources that go into producing these garments that end up in deadstock, it is ultimately the waste of those resources.

The consumption phase comprises of the impacts during the usage of garments by consumers. In this phase, the product is being used, washed, repaired, and possibly passed on. There is very limited research on the exact proportion of resources and impact that takes place in this process. However, it has been reported that the impact of the

consumption phase is mainly attributed to high energy usage and chemical pollution. The Pulse of Fashion 2017 report suggested that the high energy use in the consumption phase is due to washing, drying, and ironing. Toxins from detergents also cause chemical pollution in this phase (GFA & BCG, 2017).

Laundry cycles for plastic-based textiles also contribute release of microfibers which ultimately pollute the oceans. It has been estimated that 0.5 tonnes of microfibers end up in the ocean every year during the washing of plastic-based textiles like nylon, polyester, acrylic, etc. (Ellen Mccarther Foundation, 2017). A report by McKinsey revealed that the washing and drying cycle of 1kg of clothes over its entire life cycle can create up to 11 kg of greenhouse gases (Remy et al., 2016).

End-of-Life Stage

The consumption phase eventually leads to the end-of-life stage. This stage entails either direct disposal of clothes, recycling, or reuse. Despite the fact that recycling and reusing garments are excellent ways to optimize the resources used in clothing production, it is concerning that approximately 80% of clothing from the end-of-use stage ultimately ends up in landfills or is incinerated (GFA & BCG, 2017). It has been estimated that the U.S. throws away 2150 pieces of clothing each year, accounting for up to 11.3 million tons of textile waste annually (Dottle & Gu, 2022). With fast fashion being available to the consumer at an affordable price, clothing is considered a disposable commodity. A study estimated that half of the fast fashion produced is disposed of in under a year (Ellen McArthur Foundation, 2017).

The Western world has developed a culture of disposability, characterized by relatively high rates of underutilization of garments. Recycling technologies need to

improve efficiency to capture the value of the material lost yearly. The current recycling technologies need to improve their output quality and align with the industry's production processes (Ellen MacArthur Foundation, 2017). With the high volume of textile disposal, only 15% of the post-consumer waste was recycled in 2015 (Ellen MacArthur Foundation, 2017; Niinimäki et al., 2020). To close the loop, it will be important to focus on improving technology and implementing policies to promote sustainable practices. The overall environmental impact of garments from farm to the end prompts us to slow down our current production and consumption practices.

1.2.2 Social Impact

Beyond the environmental consequences associated with the garment supply chain, the fashion industry is also connected to noteworthy social concerns, such as labor rights, wage gaps, poverty, and transparency issues throughout the entire supply chain. Offshoring manufacturing activities to developing nations with a large reservoir of unemployed workers, a race to the bottom started driving wages and labor standards down (R. J. S. Ross, 2004). The fashion industry has dealt with the volatility of the apparel market by pushing the risk to the manufacturers, which ultimately trickles down to the workers at the bottom of the chain (A. Ross, 1997).

The current state of workers in the garment industry is a product of various social, political, and economic factors that have converged to maintain these conditions. With developing nations of South Asia looking for ways to increase employment and reduce poverty, the shift to export-oriented apparel production turned out to be a good way to boost the living standards of those nations (Lopez-Acevedo & Robertson, 2016). These nations were not just a site of production that offered affordable labor, but they also had

less stringent labor policies to safeguard the welfare of their workers (R. J. S. Ross, 2004).

Garwood (2011) in her study found that garment workers, at the bottom of the supply chain frequently face issues such as extended working hours, insufficient pay, and instances of mistreatment in the workplace. Garwood shows that in many regions, garment workers face restrictions when it comes to forming independent unions. Even the existing unions often struggle to negotiate with manufacturers who frequently relocate for cheaper labor. Additionally, the formation of Export Processing Zones (EPZ) to promote export-oriented production across the global South exempted foreign companies operating within EPZs from certain labor laws. For example, EPZs in Bangladesh do not allow the formation of unions.

Workers are forced to work long hours in factories with unsafe conditions to meet the high order volumes and short deadlines enforced by retailers. Many factories pay workers a meager wage based on the number of items they make, which in turn compels workers to produce more, increasing their total working hours (Fashion Revolution, 2022). Numerous reports have been published documenting the ongoing infringement of garment workers' rights. In a report by Human Rights Watch, they interviewed more than 160 workers from 44 garment factories in Bangladesh and found that worker rights were being violated almost everywhere. The practices were not in alignment with Bangladeshi laws as well as the codes of conduct Western retailers require their production units to follow (Human Rights Watch, 2015).

Violations occur in every part of the garment supply chain. A study was conducted in the yarn and fabric mills of Tamil Nadu (India), part of the supply chain for

many European and US-based fashion retailers that source from apparel manufacturers in China and Bangladesh. The study interviewed over 150 girls and young women working in these mills and found that there were violations of their basic rights, local laws, and international laws (Theuws & Overeem, 2014). The report suggested that the workers were not given enough time to read their employment contracts, they worked more than 60 hours on average and were restricted from going home. The conditions of the young women working in these mills accounted for forced labor according to the standards laid out by International Labor Organization (ILO). Analysis in the reports across many organizations also stated that the majority of the commitments from fashion retailers to pay workers a living wage, improve human rights, and disclose social practices in the supply chain are not backed by concrete action (BoF-McKinsey, 2022; Fashion Revolution, 2019; Kent, 2021).

The garment industry also has significant implications for health and safety within its production chain. The processing and manufacturing stages have the highest impact on worker health and safety in the garment supply chain (GFA & BCG, 2017). The garment supply chain has several health and safety concerns, including accidents, injuries, and regular violations of workers' health rights (Prentice & De Neve, 2017). Workers face dangerous working environments because of the hazardous chemicals and unsafe processes involved in production (Ellen MacArthur Foundation, 2017). Regular exposure to cotton dust, dyes, and processing chemicals can have a long-term effect on workers' health, especially because many of these units do not have adequate protective gear for workers (Regan, 2020; Theuws & Overeem, 2014).

Limited disclosure and transparency about practices in the supply chain have been the major issues in the fashion industry. According to the Fashion Transparency Index (2019), brands are still not providing detailed information about the outcomes and impacts of the supply chain. Even though many brands are disclosing information about their policies and commitments, they do not completely disclose the outcomes and impacts of their social and environmental practices (Fashion Revolution, 2019).

1.3 Sustainability Overview of the Industry

One of the major wake-up calls for the fashion industry to pivot towards better environmental and social practices was the Rana Plaza incident. The Rana Plaza disaster occurred in 2013 when an eight-story building collapsed, trapping and killing over 1,100 workers in Bangladesh's garment factories (Thapa, 2018). This incident drew a lot of international attention to the factory fires, factory conditions, and worker exploitation in fast fashion manufacturing units worldwide. This became one of the turning points for the fashion industry because it not only made retailers rethink their way of working, but advocacy groups also started getting more involved in raising awareness about the environmental and social issues in fashion (Ellen MacArthur Foundation, 2017).

Because most fashion retailers do not own their manufacturing factories, it can be challenging to control and monitor impacts across the supply chain (Fashion Revolution, 2019). However, practices in the fashion industry are slowly changing because of the increasing awareness of these issues and pressure from regulatory agencies to combat global climate change. In the past few years, references to sustainability in the annual reports of the top 15 fashion retailers in the world have almost doubled (Kent, 2021). Brands are aware that Millennial and Gen-Z consumers in the US tend to spend more on

less harmful products and, therefore, acknowledge the significance of transitioning to value-based communication (ibid).

Fashion companies would need to take various actions across different areas of the industry to implement sustainable practices throughout the value chain. Transitioning towards sustainability would require policy interventions, changes in consumption patterns, investment in technology, and new business models, and better regulatory standards in the industry (Ellen MacArthur Foundation, 2017; Kent, 2021; Niinimäki et al., 2020). Below are some of the sustainability approaches that the fashion industry is adopting:

Coalitions and Commitments

Many apparel companies are joining coalitions to address their environmental and social challenges. Coalitions help fashion companies tackle these issues systematically by assisting brands in developing standards and practices that mitigate the industry's negative impacts (Remy et al., 2016). Pledges run by coalitions also help companies to align their activities with sustainability agendas (Fashion Revolution, 2019). Campaigns like the Transparency Pledge run by Human Rights Watch, Clean Clothes Campaign, International Labor Rights Forum, and other nonprofits help fashion brands demonstrate their commitment to supply chain transparency (Fashion Revolution, 2023a). Similarly, initiatives like Zero Discharge of Chemical Hazards, the Better Cotton Initiative, and other strategic partnerships with nonprofits also assist brands in removing some of the environmental and social risks in the value chain (Remy et al., 2016).

Public commitments to sustainability and circularity are also increasingly being incorporated into brands' business models. Despite these commitments, reports indicate

that only a few brands are actively recording performance metrics and measuring their impacts in relation to a circular fashion model (Whieldon et al., 2023). Transparency and accountability are significant issues in the fast fashion industry because companies often fail to fully disclose their environmental and social impacts and do not take responsibility for them. Annual reports have become a key avenue for brands to demonstrate transparency about their practices. Fashion Revolution's annual transparency index (2019) showed that many brands have now started to publicly disclose their social and environmental initiatives, impacts, and practices. However, this does not guarantee that they meet all their goals or fully report their ethical and environmental performance. This simply is a step towards a more transparent supply chain that ensures accountability.

Circularity in the System

Circularity in the fashion mainly refers to an approach aiming to develop a closed loop system that minimizes waste and maximizes the lifecycle of clothes (The Sustainable Fashion Forum, 2024). Key aspects of this approach include a focus on the longevity of garments, the use of materials that reduce waste, and practices that promote extended use, such as upcycling, renting, and repair (ibid). Additionally, it emphasizes circulating products to regenerate resources and minimize waste (Ellen MacArthur Foundation, 2017). In a circular fashion system, materials are reused, recycled and repurposed, in turn reducing the reliance on virgin resources and lessening the environmental impact of production processes (Rathinamoorthy, 2019). Circularity in fashion necessitates a thorough examination of design principles, the lifecycle of processes involved, material recovery, technology, innovation, and resource management (ibid).

Researchers have argued that limiting the fashion industry's growth by keeping materials in the system for a longer time can facilitate a closed-loop system (Niinimäki et al., 2020). Some of these approaches towards circularity can now be seen in the industry through Product-Service systems (PSS). Clothing PSS schemes include services like renting, redesigning, swapping, and upgrading that increase the longevity of garments (Armstrong, 2013). Thrifting services like ThredUp, and renting services like Rent The Runway have started to emerge and are shifting the paradigm of fashion toward sustainability (Pucker, 2022). Fashion brands like Patagonia and Levi's are offering garment repair services to their customers by helping them maintain a sustainable wardrobe (Vogue, 2023).

In addition to adopting new consumption models, studies have suggested that fashion brands must move beyond hollow commitments and exaggerated sustainability claims. To rebuild consumer trust, brands should establish transparent information exchanges about their sustainability practices (Whieldon et al., 2023). Moreover, studies suggest that brands need to enhance their efforts toward renewable and energy-efficient manufacturing to embrace circularity and minimize their environmental impact (BoF-McKinsey, 2022; McKinsey & Co., 2023).

Certifications

Certifications can be considered as sustainability labels that offer consumers external cues about a brand's product attributes or practices, aiming to bridge consumer knowledge gaps (E. Lee et al., 2020). Certifications serve as a tool for communicating a brand's sustainability, providing consumers with credible, third-party verification of the brand's sustainable practices and capabilities (D. Cook & Luo, 2003; E. Lee et al., 2020).

Certifications in the fashion industry enhance transparency between brands and consumers by verifying that brands meet sustainability standards, effectively communicating their commitment to ethical practices (Brydges et al., 2022).

According to Fashion United (2021), sustainability certifications in fashion roughly fall under seven categories: holistic, environmental, organic, animal, social, recycling, and others. Some of the most prominent third-party certifications in the fashion industry are Global Organic Textile Standard (GOTS), SA8000 Accountability International, Worldwide Responsible Accredited Production (WRAP), Fairtrade, and B Corp by B Lab (Bartholomew, 2020; Future Learn, 2019). In addition to this, certifications like SEDEX are also being increasingly valued to tackle the problems of occupational safety and health hazards in the fashion supply chain (Fashion Revolution, n.d.). SEDEX collaborates with both buyers and manufacturers in the clothing industry to promote supply chain transparency and foster responsible business practices (SEDEX, 2021). This collaboration involves sharing supply chain and audit data to aid businesses in improving working conditions including labor standards, health, safety, environmental practices, and business ethics (SEDEX, n.d., 2021).

While third-party certifications are considered more credible, brands have also started coming up with their own sustainability cues and standards. The rise of pseudo-certifications by brands themselves, such as H&M's Conscious Collection, is increasing (George, 2021). Brand-owned sustainability labels aim to signal sustainability to consumers, but reports claim they often serve as greenwashing tactics, with products not actually living up to these claims (Trunk et al., 2021). Due to pseudo-sustainability labeling by brands, communicating sustainability to consumers is increasingly becoming

a marketing tactic for retailers, leading to ambiguous and misleading environmental claims (Baker & McNeill, 2023; George, 2021). Thus transparency and accountability in the fashion industry remains significant concern, despite the sustainability initiatives.

1.4 Scope of the study

The literature above provides an overview on the fast fashion industry, its impacts and the ongoing sustainability initiatives aimed at mitigating these effects. It is evident that despite these efforts, the impacts of the industry outweigh the current sustainability measures. Research indicates that the fashion industry has profound impacts and is entrenched in unsustainable practices, exhibiting strong resistance to change (Buchel et al., 2022; Dzhengiz et al., 2023; Niinimäki et al., 2020). Literature also suggests that fashion transition studies would be greatly enhanced by including in-depth investigations involving actors outside of North America and Europe (Buchel et al., 2022). To address this discrepancy, the scope of the study is defined to explore the systemic barriers to achieving sustainability transitions within the fast fashion supply chain, with a particular focus on the perspectives of actors in developing nations, specifically India.

This study will delve into the local realities of fast fashion supply chain, examining implementation of sustainability measures and the resulting challenges faced by the actors. By employing ethnographic interview methods with industry experts and fast fashion manufacturers, this research aims to uncover the systemic issues and practical constraints that reinforce unsustainable practices. The geographical focus on India allows for a detailed investigation of the local realities and contextual factors that influence the effectiveness of sustainability initiatives. This study is centered on the

fashion supply chains in India, exploring how local manufacturing practices intersect with global sustainability standards.

This study uses Multi-Level Perspective (MLP) as the main theoretical framework to examine the fast fashion supply chain as the core component of the socio-technical regime. The perspectives of manufacturers are central to this study as they are strategically positioned in supply chain as they work with laborers, suppliers, and retailers at the same time. Conducting interviews with manufacturers and industry experts not only sheds light on the barriers to sustainability but also provides insights into how supply chain actors perceive the industry's overall challenges and dynamics. The interviews with manufacturers and experts in India offer a comprehensive understanding of the obstacles to adopting sustainable practices from the perspective of key actors within the fashion system. Including manufacturers' viewpoints within the supply chain ensures that sustainability measures are equitable and do not solely advantage large corporations, but also address the interests of those directly involved in garment production.

Utilizing the Multi-Level Perspective (MLP) in this study helps to categorize the primary supply chain and dominant practices from broader contextual factors and innovations. Focusing on fast fashion as a dominant regime enables a thorough analysis of the systemic issues that obstruct the transition to sustainability. It allows for an in-depth examination of established patterns, norms, and structures within the fast fashion industry, revealing the complex interactions that sustain unsustainable practices. Additionally, this method provides insights into how these systemic issues interconnect

and reinforce one another, highlighting potential leverage points for promoting meaningful change towards sustainability.

Chapter 2: Transitions Theory, Fashion and Methodology

The fashion industry comprises fast fashion brands, luxury brands, renting and thrifting organizations, and so on. This study specifically focuses on exploring the complexities of social impact, environmental damage, and overall sustainability issues in the fast fashion industry. Fast fashion in this study is defined as a business model that prioritizes the quick production of cheap clothing, and retail strategies that adapt their assortments frequently to emerging trends (Sull & Turconi, 2008). Because a significant portion of the social and environmental footprint stems from the production segment of fast fashion, this dissertation focuses on understanding sustainability from the perspective of the fast fashion supply chain.

The fast fashion model has a significant social and environmental impact within a complex supply chain spanning across multiple regions, specifically of the Global South (Ellen MacArthur Foundation, 2017). The supply chains have multiple stakeholders performing different functions that are strategically connected to fulfill the production of garments within a short period. To understand how this industry can shift towards a more sustainable model, it is important to incorporate the perspective of those who are producing them. Therefore, this study incorporates ethnographic interviews with manufacturers and experts in the supply chain to ensure that stakeholders in the production process are part of the sustainability dialog.

The literature engaging with systemic challenges in the fast fashion industry reports that implementing sustainable solutions lags behind the industry's rapid expansion, failing to counter its adverse issues effectively (GFA & BCG, 2019). The fashion industry is locked into unsustainable practices and is resistant to change (Buchel et al., 2022). The dependency of the current fashion system on speedy production is not only related to the economic success of many stakeholders, but the outcomes of quick production are also a barrier to a sustainable system (Ozdamar-Ertekin, 2016). Additionally, employment density is geared toward the poor in developing countries, there are significant issues of exploitation and inequality in garment manufacturing nations (Anguelov, 2020).

Studies have consistently pointed out the need to incorporate the point of view of different actors within the supply chain specifically from regions outside of Europe and North America to understand the barriers and challenges to move toward a sustainable system (Buchel et al., 2022; Ozdamar-Ertekin, 2016). Therefore, this study attempts to i) understand the systematic barriers to moving toward sustainability from the perspective of actors of a developing economy, and ii) highlight the viewpoint of actors like manufacturers, and nonprofit industry experts from the Global South.

This dissertation attempts to fill this gap in the literature by incorporating interviews with fast fashion manufacturers and experts from India. India was chosen as a case study because it is one of the leading manufacturers of fast fashion and can highlight some of the problems associated with garment production in the Global South. Due to the diverse array of stakeholders involved in the fashion industry, including brands, manufacturers, subcontractors, labor, advocacy groups, policymakers, and researchers,

the Multi-Level Perspective is selected as the theoretical framework. This perspective facilitates the organization and delineation of roles for more effective analysis and understanding. Additionally, focusing on dominating practices through regimes allows for a more comprehensive analysis of systemic components preventing the transition to sustainability.

This chapter aims to elucidate the theoretical framework of Multi-Level Perspective (MLP) applied to delineate the dynamics of the fashion industry. Additionally, it delineates the methodology employed, including data collection procedures and ethical considerations, central to this dissertation's investigation.

2.1 Sustainability Transitions Approach: Multi-Level Perspective

Solving larger environmental problems like climate change, food security, pollution, etc. requires changes in multiple systems involving technologies, consumers, user practices, policies, scientific knowledge, infrastructure, and supply networks (F. W. Geels, 2011). These deep structural changes are called “socio-technical transitions”. These elements like technology, policies, user practices, cultural meaning, etc. are recreated, sustained, and evolved by multiple actors like industries, policymakers, researchers, consumers, engineers, and civil society (F. W. Geels, 2004, 2011). Thus, the transition of systems becomes a more complicated and prolonged process.

Sustainability transitions are more complex because of certain characteristics. Sustainability transitions are goal-oriented, do not always offer obvious user benefits, require changes in policies, and entail empirical domains characterized by large firms (F. W. Geels, 2011). Consequently, the process of transitioning systems is further

complicated by the need for incumbents to strategically realign themselves, alongside entrenched practices in the current system. The Multi-Level Perspective (MLP) acts as an analytical tool to understand the complexity of sociotechnical change and sustainability transitions of systems. MLP has a background in Social Construction of Technology (SCOT), Institutional Theory, and evolutionary economics (F. Geels, 2020). As a result, this framework integrates institutional structures, social networks, societal embeddedness, co-construction, innovations, and learning processes.

MLP mainly has three levels: socio-technical landscapes, socio-technical regimes, and niche innovations. Socio-technical landscapes mainly represent the external environment which mainly comprises micro-economic trends, political developments, cultural norms, societal values, demographic trends, and technological trends that influence niche and regime dynamics (F. W. Geels & Schot, 2007; Rip & Kemp, 1998). Diverse factors under landscapes have an external context because regimes and niches have limited ability to influence them in the short term. Socio-technical niches on the other hand are incubated or protected spaces for fostering innovation and new technologies (F. W. Geels, 2002). Niches are protected from the mainstream markets where niche actors work on radical innovations that can potentially become part of the existing regime or even replace it (F. W. Geels, 2011). Niches are an important component for transitions as they lay the groundwork for initiating systemic change.

Regimes comprise the deep structures that stabilize an already existing socio-technical system. The regime as a concept integrates different social groups of a system and alignment of their activities (F. W. Geels & Schot, 2007). Within a regime, there are rules and cognitive routines that are embedded in engineering practices, production

processes, technologies, product characteristics, skills, and procedures that are practiced by social groups (Rip & Kemp, 1998). Regime rules include cognitive routines, capabilities, shared beliefs, user practices, favorable regulations, and contracts that stabilize the regimes (F. W. Geels, 2011). The rules offer orientation and alignment for the activities of various actor groups, leading to incremental changes as interconnected elements collaborate to maintain regime stability. Progress along the technological trajectory occurs gradually due to the involvement of numerous actors. Regimes are therefore characterized by locked-in processes that not only stabilize the socio-technical system but also make it resistant to change.

The systemic transition toward sustainability requires reconfiguration of different elements that are aligned with each other. This heterogeneous set of interlinked elements that work to fulfill a function is called "sociotechnical configurations" (F. W. Geels, 2004). It is similar to the metaphor of the "seamless web" in which different components like organizations, artifacts, natural resources, legislation, and scientific elements are combined to achieve functionalities (F. W. Geels, 2004). To achieve the transition, sociotechnical configurations substitute technology and other elements linked to it. Because elements are linked and aligned with each other to perform a function, the reconfiguration process does not occur easily. It is challenging for radicle innovations to break through due to elements like regulations, user practices, and infrastructure, that are aligned with the existing technologies (Geels, 2002).

MLP proposes that systems, where transitions take place through regime shifts, take place through interactions between all three levels. Landscape developments put pressures on regimes and niches, destabilizing the regime to create a window of

opportunity for niche innovations to fill the gap. Novelties after breaking through the mainstream market compete with the existing regime. It is important to note that there are seven key dimensions in the socio-technical regime: technology, user practices and markets, infrastructure, industry structure, policy, techno-scientific knowledge, and symbolic meaning of technology (Geels, 2002; p.1262). As niches endeavor to introduce potential replacements within the existing regime, the conflict between these two levels unfolds across the dimensions outlined above. The struggles between niches and regimes are driven by interpretive actors who engage in activities like negotiating, research, learning, and forming alliances as they navigate through the transitions (F. W. Geels, 2010).

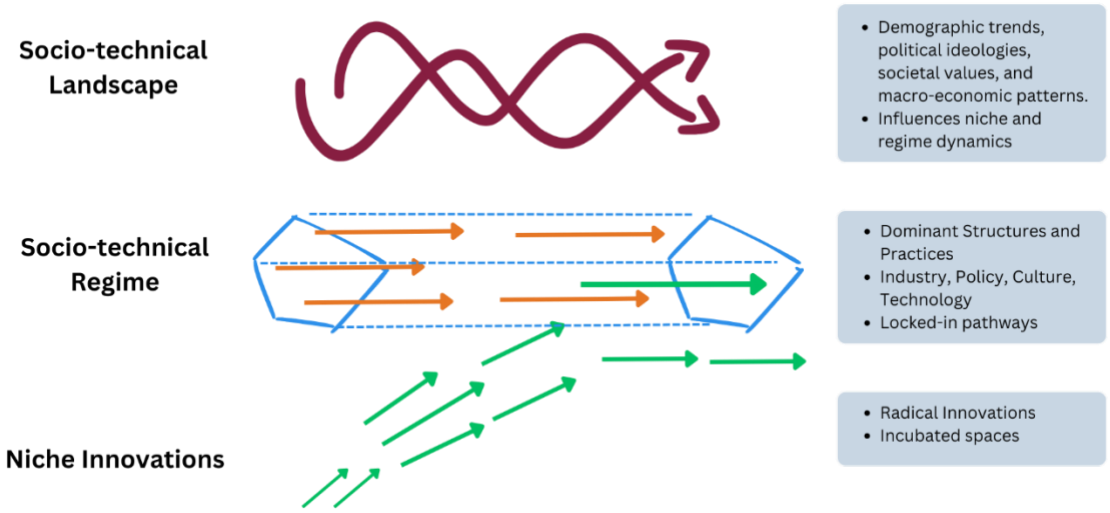

Figure 1 Multi-Level Perspective on Transitions (Adapted from Geels & Schot, 2007)

2.1.1 MLP Analysis of Fast-Fashion System

Integrating MLP with the study of the fashion industry offers a comprehensive framework to understand the complex dynamics of sustainability transition in this sector.

The structure of the fashion industry is characterized by its rapid production cycles, intricate supply chains, and loyal consumer base, presenting a unique set of challenges for embracing sustainability practices. Applying the MLP framework can help in simplifying the existing structure of the industry from an analytical standpoint and delineating systematic components of the fashion industry. The MLP can be used to characterize different parts of the fashion industry into three main categories: Landscape influences on the fashion system; Dominant Fashion Regime; and Fashion Niches.

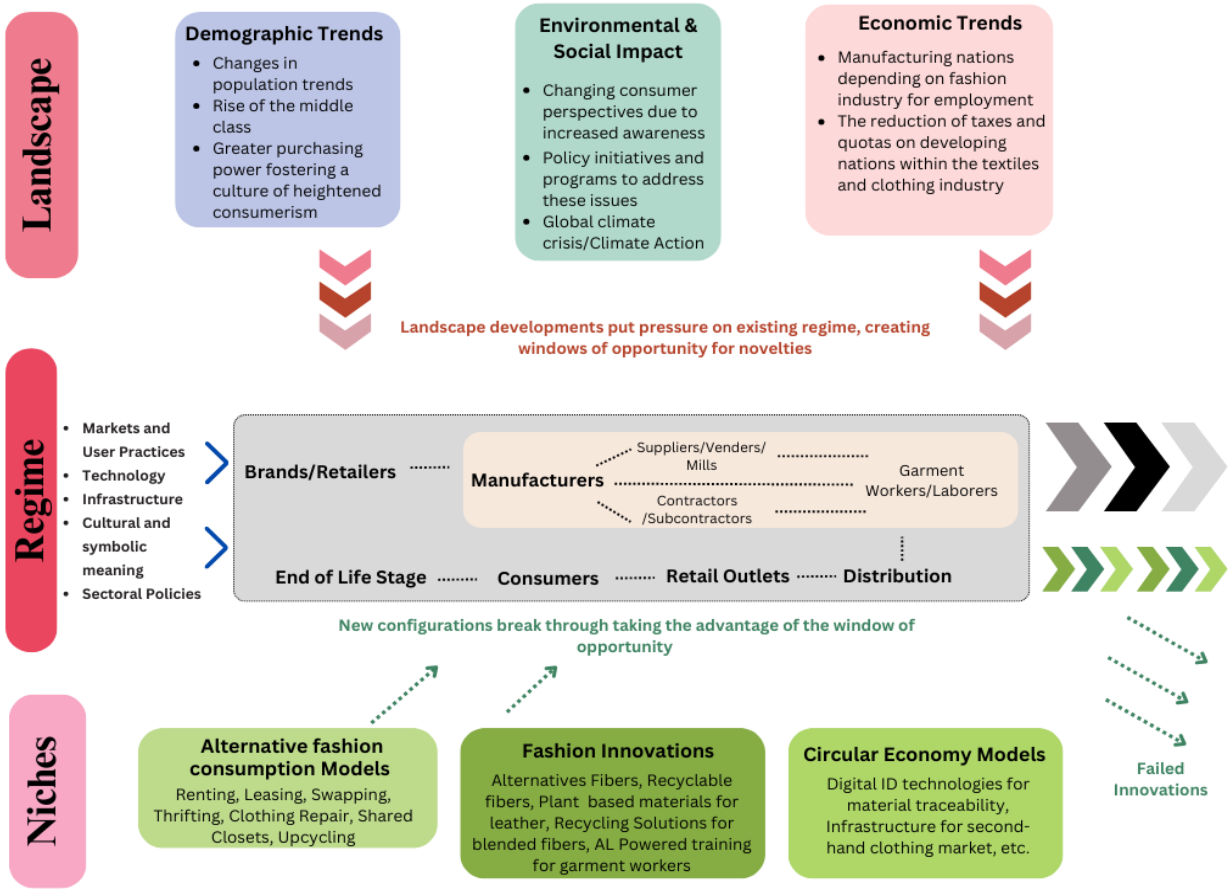

Figure 2 Relationship between three levels of MLP in the context of Fast Fashion

Landscape Influences on the Fashion System

The landscape includes wider technology-external factors that may put pressure on the regime and create openings for new technologies (F. W. Geels, 2002). At the

landscape level, certain elements can induce stabilizing and destabilizing forces that can accelerate the transition or reinforce unsustainable pathways. Landscapes include heterogeneous factors of economic growth, environmental problems, political coalitions, cultural and normative values, and so on. External pressures impacting the fashion industry may originate beyond its boundaries, such as economic crises. In certain instances, these pressures can extend to global events, such as the Rana Plaza incident, exerting influence over the entire system. How some factors like demographic trends, climate action, consumer demand, and social justice issues will influence the regime and niches are discussed in this section.

i) Demographic Trends: The evolving demographic trends worldwide can reshape the consumer landscape significantly. With the increasing population and the growth of the affluent middle class, consumption has also expanded across the globe (Dobbs et al., 2016). Expansion of the middle-class population not only increases the purchasing power of people but also drives up demand-driven growth in developing and emerging markets (Kochhar, 2015). As several Asian nations, including China and India, approach their population peaks, a significant portion of their populations is rising into the middle class, driving a surge in global consumption across various goods and sectors (Caballero & Fengler, 2023; United Nations, 2023). However, it is important to note that as of 2022 in the global clothing market, North America and Europe continue to dominate as the largest importers of apparel (World Trade Organization, 2023).

As billions of individuals enter the middle class with greater purchasing power, the demand for clothing is expected to surge, fostering a culture of heightened

consumerism (Reichart & Drew, 2019; Tanoto, 2019). The values and behavior ingrained within consumerist culture fuel the dominant business model of the regime, where there is a demand for vast quantities of new products available at affordable prices (Niinimäki, 2010). This dynamic significantly influences market dynamics and shapes production strategies within the fashion industry. This can reinforce the existing regime of fashion and can lead to elevated levels of environmental pollution and resource depletion resulting from production and overconsumption of clothes (Niinimäki et al., 2020).

Greater social mobility of the growing middle class, specifically in India and China is underpinning demand for premium goods and a promising market for fashion (Ahmed et al., 2024). This indicates that the growing demand for fashion in the future will likely exert pressure on the current regime to strengthen and potentially extend the existing fashion production system.

ii) Climate Action and Environmental Impacts: The need for enhancing environmental sustainability is gaining prominence as the world is struggling to address the urgent problems associated with climate change. The global communities are working on initiatives aimed at reducing carbon emissions, increasing renewable energy, minimizing waste, and alleviating the social conditions of communities. Climate action initiatives have broad-reaching implications and goals and are an essential component of landscape-level in the MLP. Within the MLP context, climate actions at national and international levels can act as transformative forces that influence technological trajectories, economic structure, social norms, and policy environments.

At the macro level, organizations like the United Nations (UN) have declared the urgency for tackling the challenges linked to the fashion sector to achieve the Sustainable Development Goals (SDGs) (UNECE, 2018a). Organizations like UN Environment are working in the areas of Sustainable Consumption and Production to improve chemical management and circular economy goals in fashion (UNECE, 2018). The UN has convened various stakeholders from its organizations, industry, and civil society to underscore the potential of the fashion industry in advancing the SDGs. These goals encompass responsible consumption and production (SDG 12), gender equality (SDG 5), clean water and sanitation (SDG 6), decent work and economic growth (SDG 8), climate action (SDG 13), and life on land (SDG 15) (UNECE, 2018b).

By aligning themselves with SDG initiatives, policymakers and stakeholders can influence the fashion regime. The alignment can exert pressure on the regime to prioritize sustainable practices. Broader-level initiatives can also intensify the scrutiny of the existing fashion regime to transform its practices to meet sustainability objectives. Some initiatives are already emerging in the fashion landscape that are prioritizing the sustainability of the garment industry at a policy level. The European Union (EU) Strategy for Sustainability and Circular Textiles under the European Green Deal attempts to reduce the impact of fast fashion by incentivizing circular business models, tackling greenwashing, setting design parameters for long-lasting clothes, and reversing overproduction (European Commission, 2024). Additionally, under this program, the EU has proposed multiple regulations and programs to foster cooperation between industry, stakeholders, public authorities, and social groups. There have also been joint declarations between the EU and India to promote resource efficiency and a Circular

economy where they can support and strengthen sustainability goals (Government of India, 2020).

The implementation of initiatives like the European Green Deal has the potential to exert landscape pressures, particularly as multiple European countries together strive to transition towards circular economies. Collective initiatives will not only influence regime actors to reconfigure their activities but also create opportunities for niches to break through. Furthermore, policy-level initiatives can exert significant pressure on the regimes and niches of a socio-technical system because they set regulatory frameworks and standards that directly impact the practices and behaviors within these systems. Environmental regulations may require industries to adopt sustainable standards, pressuring regimes to adapt or face legal consequences. Similarly, policies can promote funding for alternative green technologies by providing support for niche innovation.

iii) Social Justice Issues: Similar to climate actions, social justice issues can become part of the landscape level and exert pressure on the regime to alter dominant practices. One such incident is that of the Rana Plaza factory disaster in Bangladesh. On 24th April 2013, the Rana Plaza factory in Bangladesh collapsed with more than 1,100 people dead and over 2,500 injured (Fashion Revolution, 2023b). The social justice issues of the fashion industry were elevated by activists and labor organizations to drive changes in the regime and niches (Fashion Revolution, 2019). This incident drove significant changes in workplace safety, factory standards, and health guidelines for the garment industry beyond just Bangladesh (International Labor Organization, 2023).

At the regime level, this incident spurred over 220 global brands to sign the Accord on Fire and Building Safety in Bangladesh with labor unions to enhance working conditions, ensure worker safety, uphold labor rights, and eradicate gender-based violence within the factories (T. Lee, 2023). Multiple policy initiatives in EU countries also emerged in response to Rana Plaza that attempt to hold international companies accountable and improve transparency in the supply chain (Korn & Leifker, 2022).

The Rana Plaza disaster exposed the deep-rooted challenges and harsh realities faced by garment manufacturing nations daily. While the allure of cheap labor draws many brands to shift production to the East, the social impacts run far deeper than they appear. Beneath the labels lie serious issues, including underpaid workers, long working hours, hazardous conditions, and violence that many factory workers endure (International Labor Organization, 2023; T. Lee, 2023). Reports have also revealed instances of child labor and numerous violations concerning working conditions, wages, and fundamental human rights (Bureau Of International Labor Affairs, 2020; Kara, 2019).

As these social issues have come to light, numerous advocacy groups have stepped in to address the risks faced by workers and improve conditions in factories. Initiatives such as "Who Made My Clothes," "Garment Me Too," and the UN Alliance on Sustainable Fashion have been launched to promote industry-wide improvements, establish higher standards, and reduce the social impacts of garment production (Blanchard, 2019; Global Labor Justice, n.d.; Omotoso, 2018; U.N Environment, 2018).

Social disasters and advocacy campaigns highlight the significant issues of labor exploitation, human rights violations, and the lack of supply chain transparency in the

fashion system. This not only creates awareness among the consumers but also points out the flaws and injustices in the existing system. When factory disasters like this occur, they often attract attention to these issues, both domestically and internationally. Ultimately, regimes may face reputational risks and economic consequences if they fail to respond effectively to social disasters, incentivizing them to implement reforms and adopt more sustainable practices.

iv) Consumption Culture: One of the other factors that influences the landscape is the culture around fast fashion consumption. The consumer culture of fast fashion is mainly driven by access to cheap and trendy clothes (Ellen MacArthur Foundation, 2017; Niinimäki, 2018). Social media trends and digital marketing strategies have amplified the consumption of trendy clothes, encouraging consumers to constantly update their wardrobes (Ajibola, 2023; Ciornea, 2020; Gurmen, 2022). Fast fashion thrives of the desire of consumers to attain novelty and try out new styles, in turn increasing impulsive purchases that are driven my social status and sense of identity (Niinimäki, 2018). Despite consumers being aware of the short life cycles of fast fashion garments, which contribute to waste, social media continues to fuel impulsive purchasing behaviors, encouraging the quick acquisition of fast fashion items (Ajibola, 2023; Rosely & Ali, 2023) . This digital influence plays a significant role in maintaining the cycle of overconsumption within the industry.

Overconsumption has emerged as a major challenge for the fashion industry, because it complicates efforts to reduce the industry's overall environmental impacts that extend beyond short term solutions (Ellen MacArthur Foundation, 2017). Despite growing awareness of the environmental and social issues linked to fast fashion, many

consumers continue to prioritize cheap prices, further burdening the system (KPMG, 2019).

Overproduction in the fashion industry, driven by overconsumption, has been linked to various environmental issues like carbon emissions, resource depletion, and land and water pollution (Ellen MacArthur Foundation, 2017; Vasquez Jr, 2022). A study projected that global consumption of clothing and footwear is set to rise by 63 percent by 2030, increasing from 62 million tons to 102 million tons (Manshoven et al., 2019). This significant growth underscores the pressing need for sustainable approaches in the fashion industry to mitigate its environmental impact associated with it.

The consumption patterns and culture surrounding fast fashion place two significant pressures on the regime. Firstly, there is an increasing demand for more production to meet consumer expectations. Secondly, this heightened production contributes to environmental degradation, creating a need to address the industry's ecological impact and push towards more sustainable practices.

v) Economic Trends: In the context of fast fashion, two primary economic factors are influencing the industry at the landscape level. First, the significant employment generation within Asia, where majority of the garment production takes place. Countries like India, Bangladesh, and Vietnam serve as major manufacturing hubs, providing millions of jobs in the textile and garment sector, which in turn supports economic growth in these regions (World Bank, 2024). The International Labor Organization reported that this industry provides employment to 60 million workers in Asia, considerably driving their economic growth. According to the World Bank, the apparel manufacturing industry offers significant opportunities for female employment, which

plays a crucial role in improving living standards and contributing to population control efforts (Lopez-Acevedo & Robertson, 2016). This large-scale employment significantly contributes to the livelihoods of millions, while reinforcing the industry's critical position in the global economy.

Second, the policies promoting free trade and reduced tariffs have enabled fast fashion brands to outsource production to low-wage countries. The Regional Comprehensive Economic Partnership (RCEP) reduces tariffs and strengthens the Asia-Pacific region's integration, further supporting fast fashion's rapid production cycles and global supply chain efficiency (Biondi, 2020). Similarly, the expiration of the Agreement on Textiles and Clothing (ATC) in 2005 removed trade quotas, allowing for textile and clothing products to be governed by general WTO/GATT rules, further enhancing global trade liberalization for the fashion industry (World Trade Organization, n.d.). These trade policies create favorable conditions for mass production at lower costs, ensuring that brands can maintain their model of affordability and rapid production cycles while increasing their global reach.

Fashion Regime

In a sociotechnical system, multiple interconnected elements contribute to its functioning. Within a regime, there are dominant practices, established norms, and institutional structures that govern the production, distribution, user practices, and consumption of goods in the system (F. Geels, 2020). In the fashion regime, key actors like brands, manufacturers, retailers, and suppliers operate within rules and routines that dictate the industry’s trajectory. The fashion supply chain also has systemic processes

and routines right from raw material preparation, fiber production, and yarn development to apparel manufacturing (Muthu, 2014).

Even though the supply chain is organized systematically, the system itself is very fragmented with many different types of organizations involved spanning across the world (Berg et al., 2017; Niinimäki et al., 2020). The fashion system mainly has a buyer-driven commodity chain where retailers set up decentralized production networks in a variety of exporting nations typically in developing economies (Gereffi, 1994). According to Gereffi (1994), this shift was mainly to seek low-wage labor and organizational flexibility in manufacturing. Additionally, due to globalization, socioeconomic shifts, and technological progress in synthetic fibers, blended fibers, etc., the fashion industry grew (Kunz et al., 2016). The expansion occurred due to advancements in manufacturing technology and the development of synthetic fibers, which lowered costs and increased the affordability of fashion (Anguelov, 2020). This accelerated the transition from traditional fashion to the era of "fast fashion".

The current fashion domain is characterized by short life cycles of clothes, high impulse purchases, high volatility markets, and responsive supply chain management systems (Čiarnienė & Vienažindienė, 2014). This production of inexpensive clothes within a short period creates immense environmental impact in terms of chemical toxins, global emissions, and wastewater (Niinimäki et al., 2020). The shift of production to developing economies to avail cheap labor has also led to the exploitation of manufacturing workers resulting in low wages, health and safety issues, and worker oppression (Taplin, 2014). The impact is not limited to fast fashion companies; luxury brands also outsource to low-income countries, thus reinforcing the prevailing framework

of the regime (Buchel et al., 2022). The availability of inexpensive clothes also highlights the problem of overproduction and overconsumption, which is central to the fashion system, leading to a rising volume of textile waste (Ellen MacArthur Foundation, 2017). Moreover, fast fashion brands are notorious for discarding or incinerating their unsold inventory, exacerbating the pollution linked to the fashion regime (Hendriksz, 2017).

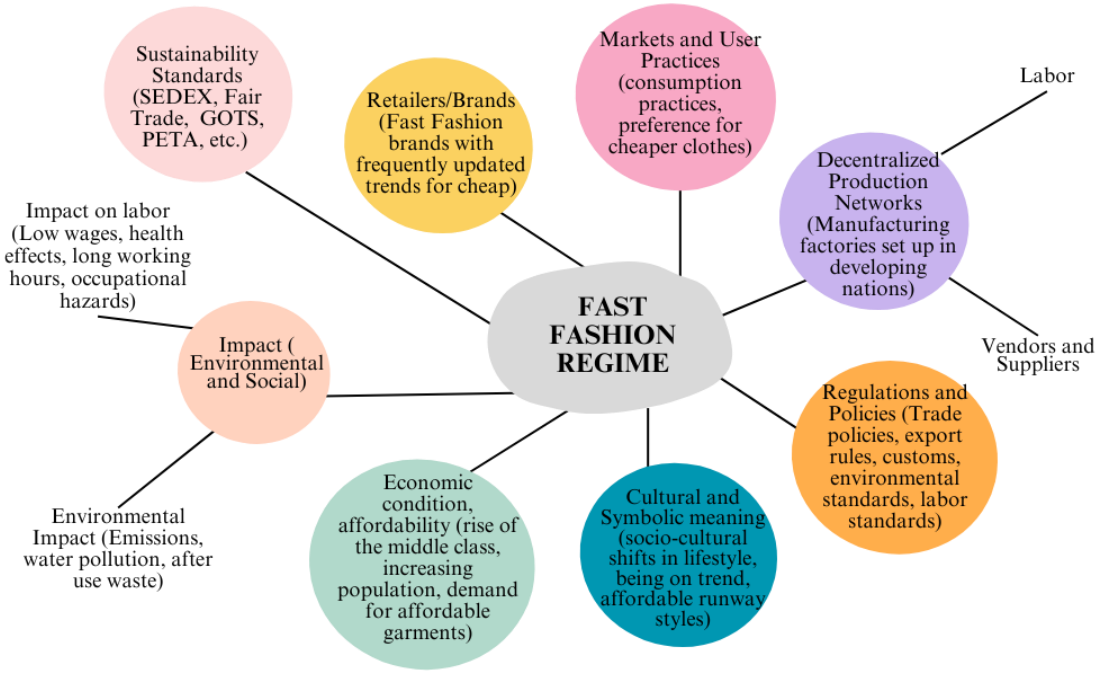

Figure 3 Elements of the Fast Fashion Regime

Fast fashion, as a socio-technical regime, is shaped by established practices supported by a network of stakeholders, including brands, manufacturers, logistics companies, technology, consumer behavior, and laws. Each element of the regime fulfills specific roles that support the rapid production and distribution of inexpensive clothing. Brands focus on marketing, trend forecasting, and building fast, cost-effective production networks. Manufacturers handle garment production through supply chains and labor,

while logistics networks ensure swift transport to retail shelves. Consumers, in turn, access affordable, trendy clothing on a frequent basis.

While each element in the fast fashion system has a distinct role, certain factors intensify the interdependence between these components, reinforcing the existing regime. For example western retailers making the switch to Asian countries for manufacturing because of the cheap labor available compared to the west (Appelbaum, et al., 1994; Chi & Lu, 2020; Gereffi, 1994). Meanwhile, developing countries in Asia rely on these industries for employment opportunities (Lopez-Acevedo & Robertson, 2016). Additionally, population growth and the rise of the middle class fuel demand for cheap and affordable clothing (Dobbs et al., 2016; Kharas, 2010). Other factors such as favorable regulations, also contribute to sustaining the current system. These elements collectively enhance the strength of the regime and reinforce established practices, ensuring the continuity of fast fashion's production and consumption patterns.

The dominance of fast fashion is evident in the significant expansion of this sector. In 2022, the global fast fashion market was valued at over 106 billion U.S. dollars, with projections indicating substantial growth in the coming years (Statista, 2023). By 2027, the market value is expected to reach approximately 185 billion U.S. dollars, underscoring the continued rise of fast fashion despite growing concerns over sustainability (ibid.). The fast fashion market has seen rapid expansion, driven by consumer demand for affordable and trendy clothing. In November 2022, Shein dominated the fast fashion market, capturing 50 percent of sales among its competitors (Perri, 2023). In contrast, H&M held 16 percent of U.S. fast fashion sales, followed by Zara at 13 percent, Fashion Nova at 11 percent, and Forever 21 at 6 percent. ASOS

accounted for the smallest share, with just 4 percent (ibid). This rapid market expansion illustrates the strong consumer pull toward fast fashion, with companies like Shein and H&M consistently outperforming their competitors in global sales.

Some of the dominant practices of fast fashion brands within the regime are characterized by a brand philosophy that prioritizes affordability, trend-driven designs, rapid and large-scale production, and an aggressive marketing approach that emphasizes constant novelty and accessibility (Igini, 2023). Brands like H&M, Zara, Urban Outfitters, and Shein all adhere to a business model centered around affordability, rapid production cycles, and trend-focused clothing (Igini, 2023; D. Williams, 2022). In addition to this, these brands are also known for overproduction. Reports have highlighted how fast fashion brands, such as H&M, and Shein, routinely overproduce, resulting in significant amounts of unsold inventory (Paton, 2018; Segran, 2021). Shein, categorized under the "ultra-fast fashion" model, distinguishes itself by releasing new products daily, promoting a culture of disposable fashion (D. Williams, 2022). This model thrives on extremely low prices and a constant stream of new offerings, encouraging consumers to frequently purchase and quickly discard clothing, further fueling the industry's unsustainable practices. This excess stock further exacerbates the environmental challenges associated with the industry, as it contributes to waste and highlights the unsustainable nature of mass production in fast fashion.

Another aspect that reinforces and strengthens the current fashion regime is the consumer culture around fashion. The demand for fast fashion is increasing (GFA & BCG, 2019), with fashion serving as a pivotal aspect of consumers' identities and cultural expression (Niinimäki, 2010). Consumers have a positive attitude toward fast fashion,

largely due to its affordability, prompting them to engage in impulsive purchasing behavior (S. C. Cook & Yurchisin, 2017). Studies have also indicated that the fashion business model capitalizes on the impulsive purchasing behavior of consumers (Anguelov, 2020; Niinimäki, 2018). Because of fast fashion, consumers have access to increasing fashion choices at a reasonable price (ibid.). Consequently, there is also a significant attitude-behavior gap in fashion consumption. Although consumers are environmentally aware, this concern often does not influence their consumption choices to favor ethical companies and penalize unethical ones (Carrigan & Attalla, 2001). For the consumers, price, quality, and value overshadowed ethical factors in consumer purchasing behavior (ibid.). These practices illustrate the resilience of the business model centered around rapid and inexpensive production, largely due to consumer preferences. Additionally, they underscore how these established routines have become entrenched within the broader regime.

The dominance of the current fashion regime is also evident considering the resistance it offers to sustainability measures. After the Rana Plaza incident, policies were introduced that aimed at improving worker safety, factory standards, reducing health hazards, and increasing transparency in the supply chain (Fashion Revolution, 2023b). However, despite companies being signatories of these accords, transparency regarding their manufacturing practices is still limited (ibid.). Moreover, the relentless pursuit of low prices by brands is exacerbating the issue, resulting in workers being deprived of fair wages, and many facing the same problems as before (Butler & Begum, 2023; Fashion Revolution, 2018).

This indicates that the structure of the current fashion regime, which prioritizes the low cost and quick production of garments is also resisting the shift to a transparent and sustainable model. The regime is stabilized because of strong drivers like consumption culture, consumer behavior favoring low quality and cheap fast fashion clothing items, and demand for more clothing (Binet et al., 2019). The fast fashion regime attains inertia by relying on this growing demand for affordable clothes and the latest trends.

Fashion Niches

MLP emphasizes that niches emerge in the context of problems within the existing landscape and regimes (F. W. Geels, 2006). And niches in the fashion system are in response to the problems of emissions, pollution, and unfair labor conditions that exist in the regime. Over the years, multiple niches have emerged in the form of technological innovations, business models, and consumer awareness campaigns to increase sustainability awareness.

Circularity in fashion is slowly gaining momentum highlighting the need for recycling, reuse, and overall extending the life of garments. Considering that production processes make up most of the carbon emissions, one of the niche innovations supporting circularity is advancements in fiber technology. Innovations in alternative leathers, recycled textiles, and carbon-negative materials have started emerging and some brands have started using these in their collections (Chan, 2022). Brands like Ralph Lauren, Zara, and Lululemon have started experimenting with innovative fabrics in their collections (ibid.).

In addition to this, models like renting, swapping, and thrifting models have also started to emerge as alternative business models to the dominant regime. In Europe, the sharing economy platforms including renting and swapping was an estimated worth of $28 billion in facilitated transactions (ONS, 2017). Renting and leasing models allow users to develop a sustainable consumption mindset by reducing materialism and extending the wear of clothes (Niinimäki, 2021). Companies have also begun exploring models aimed at prolonging the lifespan of garments. These models incorporate repair and redesigning as integral components of the product service system, to extend the garment's lifecycle and encourage longer-term usage by consumers (Niinimäki, 2013).

Another evolution in the fashion system has been the rise of ethical brands. With increasing awareness of problems in the fashion production process, many consumers demand transparency. In response to this, many ethical brands have also started emerging where they disclose the product pricing and manufacturing processes of their clothes (Kim et al., 2020). The growing interest of consumers in socially responsible products has also led mainstream brands like H&M, and Zara to launch sustainable collections (Khandual & Pradhan, 2019; Rauturier, 2021). However, fast fashion brands have often been accused of greenwashing and false advertising sustainability commitments to their customers (Wicker, 2022). Niinimäki (2015) argues that while fast fashion brands may employ eco-labels on their products, within the fashion system, this practice has minimal impact, as the environmental footprint remains significant due to the high impact production cycles for a majority of their products.

Sustainability campaigns like #WhoMadeMyClothes and #WhoMadeMyFabrics have also played a significant role in increasing consumer awareness of transparency in

the fashion industry, highlighting consumer awareness as a key niche development (Buchel et al., 2022; Fashion Revolution, 2019). Advocacy around the problems of the fashion system not only creates awareness but also puts pressure on brands to adopt ethical practices. In conclusion, there is diversity in the types of niches and innovations that are there, with shared economy models and ethical brands gaining more momentum than others. However, these practices have not been able to successfully able to penetrate the regime in the fashion system.

For niches to drive meaningful changes within a regime, a complete reconfiguration of elements and a substitution of technology are required (F. W. Geels, 2002). However, this process is challenging because all elements including technologies, user practices, regulations, and infrastructure are interconnected and aligned with the existing system (ibid). In the context of the fashion industry, sustainable fashion solutions have struggled to penetrate the regime, as the current system is deeply rooted in practices, technologies, and networks that predominantly support the fast fashion model.

For the fast fashion industry to fully embrace sustainability, multiple elements within the regime such as user practices, infrastructure, policies, regulations, manufacturing methods, and contracting practices must evolve incrementally. This comprehensive shift is essential not only to integrate niche innovations but also to enable a broader transition toward sustainable practices throughout the industry.

2.2 Methodology

2.2.1 Research Design and Participants

In this study, an ethnographic interview approach was incorporated to explore the dynamics of sustainability issues in the fashion industry. The research design

incorporated a combination of literature reviews and firsthand insights obtained from interviews with multiple stakeholders working within the fast fashion supply chain. The literature review helps in capturing broad industry trends, and the in-depth qualitative interviews provide detailed insights into the systemic barriers to transition toward sustainability. This multifaceted approach allows for a holistic understanding of environmental and socio-economic challenges shaping the contemporary landscape of the fashion industry.

Qualitative approach of interviews was chosen as the main method for data collection in this study because it not only allows for an in-depth exploration of the complex dynamics of the fashion supply chain, but also helps in capturing nuanced experiences of various stakeholders. As the goal of the study mainly focused on understanding the systemic barriers of fast fashion to pivot towards sustainability, qualitative interviews help in capturing perceptions and practices of stakeholders providing a rich understanding of challenges they face. Additionally, interviews also highlight deeply embedded local practices and beliefs that influence decision making processes. The qualitative nature of the ethnographic work facilitates the identification of themes and patterns that may not be evident in quantitative or survey based research.

With MLP being the main theoretical framework, this study considers the supply chain a part of the socio-technical regime. Regimes are characterized by cognitive routines, favorable institutional arrangements, regulations, user practices, and shared beliefs. These interlinked elements and social groups work toward regime stability and tend to maintain established rules and routines. With the fast fashion industry being characterized by its standardized processes and responsive supply chains, examining

these dominant practices as a regime provides detailed insight into systemic challenges hindering sustainability efforts. Therefore, interviews with experts who are working within the fashion regime were chosen as a mode to understand different types of barriers and pressures to adopt a sustainable model.

The participants in this study were carefully selected to represent diverse perspectives of garment manufacturing realities from the Global South, specifically, India. The participants included manufacturers, industry experts, and advocacy groups operating in the fashion sector of India. Participant recruitment was based on purposive sampling techniques to ensure a well-rounded representation of voices within the fast-fashion regime. Selection criteria for participants were established to target individuals with direct experience or expertise in garment manufacturing, fashion sustainability practices, and related policy advocacy.

The interviews were conducted in the summer and fall of 2022. Initial interviews were conducted on Zoom, while the Fall interviews transitioned to in-person meetings. The geographical scope encompassed key garment hubs of the industry, including Mumbai, Jaipur, and Delhi. A diverse cohort of 16 participants contributed to the study, representing various facets of the industry. This included 2 individuals from prominent nonprofit organizations, 11 manufacturers involved in fast fashion production for both export and domestic markets, and 3 industry experts with extensive experience exceeding a decade within garment manufacturing and fashion exports.

Participant No.	**Role in the Company**	**Location**	**Clients**	**Interview Language**
1	Exports Manager of a Manufacturing Factory	Jaipur	Domestic and Global	Hindi

2	Manager/Owner of a Manufacturing Factory	Jaipur	Domestic and Global	Hindi
3	Manager/Owner of a Manufacturing Factory	Jaipur	Domestic and Global	Hindi
4	Manager/Owner of a Manufacturing Factory	Jaipur	Domestic and Global	Hindi
5	Manager of a Manufacturing Factory	Jaipur	Domestic Global: Zara, Zara Home	Hindi
6	Manager of a Manufacturing Factory	Jaipur	Domestic	Hindi
7	Manager of a Manufacturing Factory	Mumbai	Domestic	English/Hindi
8	Manager/Owner of Manufacturing Factory	Mumbai	Domestic: Myntra, and other small brands Global: Walmart	English
9	Manager/Owner of a Manufacturing Factory	Mumbai	Domestic: Shoppers Stop, Reliance	English
10	Industry expert/ Owner of a Manufacturing Factory	Mumbai	Domestic and Global	English/Hindi
11	CEO of a Manufacturing Factory	Mumbai	Global: J Crew, H&M, Jockey, Zara, Primark	English
12	Industry expert/ Manager of a Manufacturing Company	Mumbai	Domestic and Global	English
13	Industry expert/ Manager of Textile Manufacturing Campus	Mumbai	Domestic and Global	English
14	Manager/Owner of a Fabric Manufacturing Factory	Mumbai	Domestic and Global	English

15	Industry Expert/ Nonprofit Organization	Mumbai		English
16	Industry Expert/ Nonprofit Organization	Delhi		English

Table 1 Participant Information

2.2.2 Data Collection Procedure and Ethical Considerations

A multi-faceted approach was adopted, encompassing an extensive literature review and in-depth interviews tailored to the research objectives. The literature review was conducted to gain insights into the prevailing practices, market dynamics, supply chain configurations, and sustainability initiatives across the fast fashion sector. An extensive examination of the literature also offered an understanding of regional trends within India's fashion landscape and elucidating the country's current sustainability endeavors. Additionally, the review also aimed to identify gaps in the literature, thus informing the research's overarching objectives.

Furthermore, semi-structured interviews were conducted with industry experts, manufacturers, and nonprofit organizations to delve deeper into the challenges, and sustainability considerations within the fashion supply chain. For the semi-structured interviews, a specific set of questions were the same for all the participants. These included questions covered aspects like their organization's operations, their respective role, responsibilities, years of experience, and their expertise. These interviews were designed to initiate open-ended discussions in order to enable the participants to voice their experiences and perspectives candidly. Informed consent and confidentiality protocols were rigorously followed throughout the data collection process to ensure the safety of the participants and uphold the integrity of the research. In addition to this, to

enhance the security and credibility of the study, interview recordings were stored in password-protected digital files.

In terms of participant identification, manufacturers were initially sourced through desk research and factory lists provided by brands like H&M. Contact was established through the phone numbers provided on the company websites. Manufacturers who agreed to participate in the study were asked to suggest any other potential manufacturers in their network involved in fast fashion production. Thus, the study employed snowball sampling techniques to identify prospective participants.

During the initial interviews on Zoom, many manufacturers were not completely comfortable being recorded as it was challenging for many of them to develop that trust with the researcher. Moreover, due to the fast-paced nature of the manufacturing environment and the multitude of ongoing processes, none of the manufacturers could allocate sufficient time for the interviews. Manufacturers were provided with the consent material before the interviews and verbal consent was obtained before each session was conducted. However, after making the pivot to in-person interviews, all the participants were comfortable being recorded and were more forthcoming in sharing details about their experiences, and perspectives.

Interviews on Zoom would not exceed twenty minutes as many manufacturers needed to attend their factory operations. However, during the in-person sessions, all the experts from different backgrounds were able to engage in discussions lasting over an hour. In-person discussions fostered an environment of comfort among the participants that encouraged them to share their stories more freely.

A total of sixteen interviews were conducted. After completion of first ten interviews, themes and patterns started recurring. Each subsequent interview provided less new information and reinforced the findings from previous discussions. This repetition highlighted key issues related to challenges in manufacturing, local practices, communication networks and barriers to sustainability were being consistently articulated by participants. As a result, it was concluded that data saturation had been reached and a total of sixteen interviews were conducted.

It is vital to recognize that the sample might not be entirely representative of the larger population inside the fashion supply chain, even though the saturation of data showed a depth of information regarding the major issues. The 16 participants were chosen according to certain standards, such as their positions and work histories, which would have limited the range of viewpoints that were recorded. The insights offered by participants may be influenced by variables like organization size, geography, and different operational procedures, indicating that more voices and experiences might still be required to create a complete picture.

2.2.3 Data Analysis

The first step of data analysis was transcribing the interviews. Certain interviews were conducted in Hindi to accommodate participants who were comfortable speaking in their native language. Following the interviews, transcripts were prepared, involving transcription and translation in English. This process was carried out by the researcher to maintain the confidentiality and accuracy of the data.

Interviews were a critical component of understanding the challenges within the fast fashion supply chain. Through thematic analysis, the responses from the interviews

were analyzed to understand the underlying patterns, emerging themes, and main insights relevant to the objectives of the study. The thematic analysis involves systematically breaking down and organizing qualitative data by tagging observations and quotations from participants into appropriate codes (Rosala, 2022). NVivo was used as a tool for coding and organizing the transcripts.

Main ideas and recurring patterns were coded systematically from the transcripts. These codes were then organized into themes reflecting the underlying meanings expressed by the participants. Through this iterative process of coding and theme development, the relationship between different ideas was explored. The analysis was then further improved based on the multiple coding iterations to ensure the depth of the interpretations. The analysis did not include any personal or demographic identifiable information. The analysis was conducted to highlight the aggregated results. Only the areas of their expertise like manufacturing, labor policy, and so on were included in the analysis.

2.2.4 Limitations and Strengths

One of the potential limitations is that the sample size may not fully capture the entire spectrum of perspectives within the fashion industry. Additionally, with the primary focus of the study on manufacturers and industry experts, first-hand insights from other stakeholders like workers and policymakers might get overlooked. However, the perspectives of workers and other stakeholders have been incorporated into the study through secondary literature. Furthermore, the dependence on self-reported data from participants also imposes the possibility of bias.

The geographical location of the study focuses on a specific region and therefore might limit the generalizability of the findings across other manufacturing countries. Future studies can expand on this and incorporate the views of more experts into the analysis.

One of the key strengths of this study is that it highlights the viewpoints of multiple stakeholders working within the fast fashion supply chain, specifically manufacturers. It fills the gap in the existing literature by not only incorporating the voices of those involved in the production process of fashion but also portrays the significant challenges actors from developing manufacturing economies face. Employing interviews in this study offers an insightful perspective on the obstacles preventing the transition to sustainability, obtained directly from stakeholders involved in the fast fashion production process. This method sheds light on the operational, practical, and economic challenges that perpetuate the prevailing practices within the regime.

The use of in-depth interviews facilitated rich data collection, that included testimonies of the participant's experiences, insights, and concerns firsthand. Additionally, thematic analysis provided a systematic approach to analyzing the interview data, ensuring rigorous interpretation and identification of recurring themes and patterns. This methodological rigor enhances the reliability and validity of the study findings, as it offers a transparent and systematic process for deriving insights from the collected data.

Chapter 3 Unboxing the Socio-technical Regime of the Fast-fashion Industry

This study attempts to highlight the structural inequalities and burdens that have been imposed on the manufacturing nations of the Global South. To ensure that this movement towards sustainability does not disproportionately benefit only large retailers and corporations, it is imperative to understand the challenges confronting the manufacturers and other actors operating in these garment-producing countries. Therefore, this analysis relies on primary ethnographic interviews conducted by the author with manufacturers, industry experts, and nonprofit organizations working in the Indian garment production industry. This investigation advocates that the sustainability agendas should incorporate the interests of those directly involved in garment production.

The following sections in this chapter lay out the main findings from the interviews with actors within the garment supply chain.

3.1 Manufacturing Challenges: Navigating Production, Operations, and Economic Growth

A review of the literature and the interviews with manufacturers point towards some of the most essential characteristics of the fast fashion industry, i.e. speedy production, quick circulation of products, and the need to keep up with new trends at an affordable price. While this is the core basis of the fast fashion business model, the impact of these requirements raises operational issues for the manufacturers in the supply chain. Fast fashion companies have a very specific retail strategy of making cheap clothes available in the market within short periods (Sull & Turconi, 2008). Frequent circulation

of garment assortments means short production cycles. And this puts pressure on manufacturers to produce garments within smaller timeframes (Taplin, 2014). Literature suggests that short lead time is not the only difficulty that manufacturers face. Manufacturers are also under pressure to provide low prices, good quality, timely delivery, and enhanced design capabilities to respond to the changing needs of the market (Christopher et al., 2004; Doyle et al., 2006; Ozdamar-Ertekin, 2016; Taplin, 2014).

As the fashion industry attempts to move towards sustainability and reduce its environmental and social footprint, its production units must also adapt to these changes. To facilitate this transformation, it is essential to gain a deeper understanding of the barriers manufacturers currently encounter within the ongoing system, while also responding to the evolving sustainability-related demands imposed by fashion retailers and brands. The major manufacturing hubs for fast-fashion production are situated within the developing economies of Southeast Asia. Incorporating the perspective of those directly involved in garment production can help us in developing fair and equitable solutions to approach sustainability in fashion.

The challenges discussed below portray some of the pressing concerns that manufacturers face in the entire process of production for fashion retailers. It also indicates the unequal power dynamics that exist within the supply chain that mainly benefit retailers. The sections below describe the key findings from the ethnographic interviews conducted in India with various manufacturers and industry experts.

3.1.1 Shortened Lead Times, Logistics, and Delivery Expectations

All the manufacturers interviewed in the study indicated the importance of high-speed garment production as an important factor in acquiring and maintaining orders

from retailers. Providing short lead times translates to higher pressure of meeting tight deadlines for order fulfillment. To meet these demands and to adhere to tight deadlines, they must extend the working hours of the factory workers. Some of them indicated that there have been instances where their workers had to prolong their shifts to meet the deadlines. In certain cases, factory laborers had to work as long as 16 hours a day to process the orders on time. Some manufacturers stated that there is a demand for agile manufacturing and quick turnaround times from both international buyers as well as from domestic retailers.

The manufacturers stated that rapid production is the key to their economic advancement. Interviews revealed that specifically for exports, a combination of low prices, reasonable quality, and quick production are the main factors that retailers consider when they place orders with manufacturers. Many manufacturers feel the pressure to commit to a lower price and short delivery times so that they don't lose out on business. But there are also times when retailers demand products with an unrealistic delivery time and manufacturers are unable to take up the order because it is not possible for them to efficiently fulfill the order. Multiple times the manufacturing companies have to let go of the opportunity to work with some retailers because the delivery times demanded are too short. One of the Mumbai-based manufacturers, participant P7 said,

" Just last month there was an order placed in September and they wanted the delivery in November. So it is just eight weeks or two months. So that is not practically possible. From developing fabric to the garment stage we need a minimum of 120 days. And they were expecting that in half the time which is 60 days. This is not practically

possible which is why I did not take the order. There is no point in taking up an order based on false commitment. "

In the course of the interview, the manufacturers revealed that large-scale retailers mainly care about delivery time and quality. Due to the changing external factors (e.g.; logistical delays, situations like COVID) striking a balance between on-time delivery and quality is an ongoing concern. While retailers primarily only care about receiving products within their specified timeframes, manufacturers struggle with ongoing issues within the supply chain. Challenges such as delays in raw material deliveries, unexpected trade route closures, and labor strikes, can disrupt the production timeline. Manufacturers often find themselves absorbing additional costs associated with order fulfillment delays, even when most of these factors are beyond their control.

Retailers routinely include clauses in their order contracts, requiring manufacturers to provide late discount fees in case of delivery delays. Essentially, manufacturers are obligated to offer discounts based on the extent of the delay. This introduces an additional layer of risk and pressure for manufacturers throughout the process. One of the manufacturers, participant P14 said,

" There is a pressure of lead time not just internationally but also domestically. Buyers are very specific nowadays. There are clause. Each and every order has a late delivery clause. So we need to give discounts if our shipment is late. What the buyers are doing here is that they are charging you a late discount fee."

There is an overwhelming burden on manufacturers to meet the tight deadlines set by retailers. However, these pressures eventually trickle down to the laborers in these factories, resulting in longer working hours. As mentioned earlier, some factories had to

increase the working hours of their laborers from 8 hrs days to 16 hrs days to finish production on time. This particularly is concerning because a significant section of the garment sector workforce is female. Because they are sometimes the primary caregivers for their children, extended working hours can potentially have an impact on their families. According to the interviews, it was a common practice among all the factories to require their workers to put in at least three hours of overtime due to the high order volumes with short lead times. All the factories asserted that they compensated their workers for overtime hours and offered provisions for meals and accommodation when extended nighttime shifts were necessary.

Another problem highlighted in the interviews is that international retailers often lack an understanding of local conditions in India. Manufacturers find it challenging to explain the actual order timeline to them. For instance, one manufacturer mentioned that clients don't grasp the three-month monsoon season in India, making it difficult to dry fabrics outdoors. Delays occur when printed and dyed fabrics are affected by untimely rains. While this is just one example, other factors like changes in the cost of raw materials, changes in oil prices, and interstate trade policies also impact the delivery of the final product.

Sometimes external factors can lead to significant fluctuations in logistics and delivery prices. Retailers often expect their manufacturers to identify the most cost-effective and fastest delivery solutions, despite this not being a standard part of their responsibilities. Manufacturers, nonetheless, strive to meet these expectations in order to maintain strong relationships and ensure timely payments from retailers. Any increase in

logistics expenses, which ultimately fall on the retailers, heightens the risk of delayed or incomplete payments.

Manufacturers revealed that adapting to market fluctuations and communicating with retailers about everything is an essential aspect of their business. Manufacturers express a consistent sense of anxiety surrounding order fulfillment, particularly when there are unforeseen events. Manufacturers perceived a lack of control over the production process in the event of unanticipated delays that leave them to deal with the resulting financial burden.

3.1.2 Managing Risks: Pricing, Payments, and Stocks

The interviews shed light on the multifaceted risk management responsibilities manufacturers face when engaging with fashion retailers. These encompass a spectrum of concerns spanning payments, investments, deadstock, and pricing strategies.

Pricing

Setting competitive yet profitable prices is a delicate balancing act. Manufacturers must factor in various variables, including production costs, market competition, and retailer demands. Deviations from optimal pricing strategies can lead to smaller margins or missed sales opportunities.

Manufacturers emphasize the pivotal role of competitive pricing in securing production orders from their clients. Retailers are driven by the pursuit of cost-efficiency and optimal quality and typically enter negotiations with predetermined budgetary constraints for specific products. Conversely, manufacturers grapple with the assessment of raw material costs, labor expenses, and capital outlays integral to production, all while aiming to align with the client's budgetary parameters. According to the manufacturer,

there is a risk of losing business if the pricing agreements with retailers don't align. Retailers, consistently seeking to extract the most favorable terms, engage in negotiations aimed at securing the lowest possible prices. This, however, elevates the risk profile for manufacturers, primarily manifesting as narrow profit margins, particularly for those operating on a smaller scale. In some cases, manufacturers have fulfilled orders where they were at a loss in anticipation of getting more orders in the future where they can finally start recovering and earning profits. There is always a risk in such cases.

During the study, manufacturers collaborating with brands such as H&M, J. Crew, Zara, and Jockey disclosed that some of these retailers establish the product's selling price during its design and sampling phase. Consequently, when selecting manufacturers, they follow a reverse approach, aligning negotiations with factories to match the predetermined selling price. This involves considering factors like the sourcing country, import duties, and tax structures. Interviews also highlighted that large retailers usually negotiate with factories in multiple countries simultaneously. And because of this, brands have access to a lot more information when they haggle on pricing and other order terms. Furthermore, this data also aids retailers in determining the appropriate sourcing country for each product.

Manufacturers highlighted that due to retailers possessing this informational edge, they engage in more effective negotiations. This dynamic occasionally even results in the redistribution of orders between Indian and Bangladeshi factories. Nevertheless, prominent manufacturers contend that maintaining competitive pricing relative to low prices in Bangladesh can pose a hurdle, given that Indian labor costs significantly exceed those of Bangladesh. One of the manufacturers, participant P13 mentioned,

“ I always say the customer is always smarter than you are because a customer is dealing with all the countries of the world to get their product out. So they have all the information and they are updated at any given point of time. When they sit for negotiation in front of you they have some requirements in mind. So when they sit with India, every customer has their limitations, they have their requirement from which country, what product they're going to order, and at what price. There is always a pulling of orders between India and Bangladesh on certain basic products. Otherwise, all countries have their specialization for which product they're good at. And brands are good negotiators.”

While it is evident that it is a competitive market, retailers always have an edge over the production factories because they have access to more information compared to the manufacturers themselves. However, market competition among different production countries also exists. Many manufacturers and experts consider Bangladesh as a competition because they can provide lower prices for certain products. Some manufacturers mentioned that currency fluctuations, the skillset of labor, and the heavy reliance of the Bangladeshi economy on the garment industry are factors that exert an influence on the overall production costs.

Another frustrating challenge that affects pricing strategies for manufacturers is that retailers demand compliance certifications and factory infrastructure upfront, without considering the capital costs involved. Manufacturers feel there's an unrealistic expectation to maintain compliant factories while offering competitive prices. Investing in better machines and compliant facilities requires capital, but it doesn't guarantee future orders. This creates increased risk for manufacturers because even a slight price increase

can lead to losing an order. It's a challenging situation with no clear solution. One of the Mumbai-based manufacturers, participant P7 commented,

"Buyers are not giving you the charges incurred to get the factory certified. It has always been like this and I think this is how it will be. The buyer is expecting 10 things out of you but he is not ready to pay for those. So that fight is always going to be there. For example, my office is certified, and the problem is that I have all the certifications and I have all the systems in place. So that is an added cost. For somebody or my competitor who does not have all certifications, their product cost will be 10 to 15 rupees cheaper. So sometimes he is able to crack that buyer. I am not able to crack that here because I have all these extra costs, overheads, etc. And the buyer is not ready to understand that. And again the buyer will go to that person who will give him 15 rupees cheaper."

Manufacturers often face unrealistic expectations from retailers who demand compliance certifications and factory infrastructure without considering the substantial capital costs involved in the process. This places financial strain on manufacturers, who must then raise their prices to recoup their investments, but this doesn't guarantee future orders. The constant pressure to lower prices during negotiations narrows down a manufacturer's profit margins and adds to their financial vulnerability. In an industry where price is a priority, these situations put a manufacturing company at a competitive disadvantage. In essence, manufacturers are caught in a difficult balancing act between compliance and competitiveness, with no clear solution.

Payment and Investments

In the landscape of fashion manufacturing, there are multiple risks and challenges that manufacturers must skillfully navigate. These challenges are multifaceted, touching upon the core elements of unequal power relationships and economic viability within the fashion supply chain. Manufacturers grapple with issues where managing the risk of delayed payments from brands can exert considerable financial pressure. Additionally, the volatility of raw material prices presents a constant hurdle in maintaining profit margins amidst fluctuating costs. Furthermore, the industry itself poses its own set of hurdles, encompassing competition and market positioning.

Effectively managing and mitigating the risks tied to payment delays emerges as a substantial problem that manufacturers routinely confront when dealing with retailers. These observations highlight the prevailing power dynamics within the industry, wherein retailers possess greater information advantages, operate within secure manufacturing chains, and accrue heightened profits.

Once the retailers finalize the manufacturing factory, advance payments, and post-delivery order payment terms are discussed. It is a common practice for retailers to make an advance payment or a deposit before the factory starts production. The remaining payments are done during the time of order delivery and in many cases after the retailers have received the order. Some manufacturers complained about delayed payments from retailers. Despite all the payment terms being in the contract, retailers do not consistently adhere to these terms. This becomes particularly challenging for small and medium-sized manufacturers, as they lack the resources necessary to initiate legal action against such entities. Consequently, these manufacturers are left with limited alternatives to ensure

timely payment. This situation is particularly daunting for numerous manufacturers, given that they have already invested significant resources in materials, wages, and workforce. Conversely, several larger manufacturers who are frequent suppliers for H&M and Zara reported timely payment reception. Their consistent production, driven by multiple fashion seasons, enables them to establish open accounts with these corporations.

Manufacturers have started opting for remedies like credit insurance, background checks, and letters of credit with banks to ensure some level of financial recovery in case of delayed payments or no payment. For many manufacturers, a letter of credit (LC) with a regional bank works the best. Because, as per their perspective, obtaining an LC from the bank guarantees punctual payment from the bank, regardless of whether the buyer has taken possession of the goods. When a manufacturer secures an LC from the bank, it is the bank that initiates the final payment, not the brand. Consequently, in accordance with the terms and conditions outlined in the LC, manufacturers receive their payment within the specified timeframe. Additionally, many manufacturers have chosen to participate in the Export Credit Guarantee Corporation (ECGC) program, which is a credit insurance initiative by the Government of India. Within this program, if the buyer is registered with ECGC, the manufacturers will receive compensation directly from ECGC in the event that the buyer backs out on the payment.

While the interviews highlight the risk of delayed payments that manufacturers must deal with, there is also another risk: the uncertainty of whether a new retailer they do business with in the market will ultimately fulfill the payment terms of their contract or not. This demonstrates that whether it's a new buyer or a returning one, there's

consistently the potential risk of the retailer failing to make the payment. In addition to formal procedures, manufacturers also engage in informal background inquiries within their production network. This is mainly to determine whether other manufacturing facilities have previously collaborated with potential buyers and evaluate their reputation for reliability. This practice involves inquiring about the buyer's track record and assessing whether they are considered trustworthy business partners by others in the industry.

The interviews highlight three primary scenarios exposing manufacturers to heightened financial risk: i) Retailers failing to make payments after taking possession of the goods ii) Retailers making incomplete payments despite receiving the goods. iii) Retailers neither pay for nor accept the goods for an extended period, disregarding the terms of the order agreement. Fashion companies not paying the manufacturers on time also leads to delayed payments for garment workers in many cases. Some manufacturers expressed difficulties with making complete payments to their workers if there were no orders lined up for the future and the current orders were unpaid. The interviewed manufacturers found it challenging to maintain consistent employee payments throughout the year.

Retailers not paying the manufacturers on time has a trickle-down effect in the supply chain where workers are eventually not able to receive their wages on time. This points to the preexisting issue within the industry where major brands endorse fair pay initiatives while simultaneously failing to fulfill their own payment obligations for the orders placed (Kelly, 2021; Kent, 2019; Neale & Bienias, 2021). Manufacturers claimed that there is no solution to this problem because they do not always have the resources to

file a lawsuit against these major corporations. Manufacturers who did initiate complaints against these companies reported that it's a prolonged and time-consuming process that can take years before the larger companies actually settle and make payments.

One of the manufacturers, participant P7 shared,

"There's this company called Raymond which owns this brand called Park Avenue. So this is a big brand and we used to supply fabric to this company. So this is pre-pandemic. We supplied them fabric before the pandemic and the pandemic is over now, we have still not got any money from them. It's been approximately 3 years. And now, the brand has closed. Park Avenue as a brand has closed. So we have now got into legal battle. We have filed a case against Raymond saying that we have supplied you fabric, please pay up….."

"....Raymond is one of the biggest company in textiles. They have a big legal team. Every time I speak to somebody it is someone new I am talking to. So you need to have that kind of patience and bravery to go against a big guy. So the Raymond guy told me, "File a case against us". He told me upfront, "You did not get the money right, so go file a case". So what other option does anybody have in that case? So a small guy will forget that money, he will close down the business and start doing something else. Somebody like me who pursues it, what I have been told that it takes two to three years to settle something like this. If you relentlessly follow up"

The power imbalance between large fashion retailers and their manufacturers is evident. These brands, by not owning the manufacturing facilities, have effectively shifted the risks down the supply chain while reaping substantial profits. Fashion retailers possess significantly greater financial resources and extensive legal teams that support

them. Unfortunately, there is no regulatory entity effectively holding these corporations responsible for their actions.

Unclaimed Stocks

Another pressing issue faced by manufacturers pertains to unclaimed stocks. This term refers to orders that companies have initiated but have neither taken possession of nor fulfilled payment for. These situations not only highlight the problem of delayed payments, but manufacturers complain that unclaimed stocks also block their capital and space in the factories. Especially in a country like India where there is limited space, unclaimed stocks impact a production unit's storage capacity and operational efficiency. In some cases, manufacturers are expected to find the most cost-effective logistics solution for shipping products, and sometimes companies arrange transportation for their products. It is not always part of a manufacturer's job description to arrange deliveries for brands, they are still expected to do it, which also imposes an additional risk on them.

Some Mumbai-based manufacturers mentioned that their capital was blocked for 8 to 9 months, along with the physical space occupied by the unclaimed goods. In some cases, companies have not claimed the goods for over a year. This also translates to significant delays in payments for those goods. This shows how unclaimed stocks can tie up both financial resources and physical storage capacity. This not only leads to considerable payment delays but also entails financial risk. Additionally, storing these goods safely until they are claimed poses a challenge, especially over extended durations. Nonetheless, when manufacturers share longstanding relationships with buyers, they make efforts to retain these unclaimed goods until they are eventually picked up by the brands.

For certain manufacturers, unclaimed stocks and delayed payments represent the most challenging scenario. They find themselves in a situation where both their physical storage space and financial resources are tied up. Due to brands not adhering to their agreed-upon terms, manufacturers experience delays in receiving payments critical for sustaining their day-to-day operations. This situation further compounds as it restricts their operational capacity and hinders their ability to maneuver efficiently. One of the manufacturers, participant P12 said,

"And you know big companies like Nike, they place the order and they don't lift the goods for a long time. So goods stuck is same as the money lost. It is in fact worse because your space is also getting occupied. More than your money, your space is getting occupied. This problem has been there for a long time and it is not something new."

Manufacturers employ a particular strategy to address this issue, which involves taking unclaimed goods, rebranding them, and then selling them to wholesalers. However, this process of relabeling can be costly and demands additional manpower. Furthermore, it's often a complex task to locate buyers or wholesalers willing to acquire goods originally designed for a different brand's specifications. Thus, finding purchasers for unclaimed stocks becomes an additional hurdle for manufacturers, which might also impose a risk of intellectual property litigation. Importantly, the burden of resolving unclaimed stocks falls on manufacturers, despite the issue arising through no fault of their own, demanding both financial resources and significant effort.

It is evident that brands violate their contract terms on a regular basis with little to no consequences for their actions. There are also no entities that can hold them accountable for their actions. This situation is further exacerbated by the fact that many

manufacturers in developing economies, such as India, often lack the necessary resources to pursue legal remedies. Consequently, brands exploit this power imbalance to their advantage.

3.2 The Regulatory Roadmap: Certifications, Compliance, and Beyond

The analysis of interviews with industry experts offers a nuanced understanding of the intricate web of certifications, labor dynamics, sustainability efforts, and non-compliance adjustments in fashion. As businesses strive to meet international standards, certification requirements shape their operations, but also prompt non-compliance adjustments to balance financial viability and other local factors. The complexity of labor considerations is evident, as manufacturers navigate compliance demands, factory audits, and worker conditions, while also accommodating individual buyer requirements. The industry's evolution towards responsible practices is clear, although challenges persist, particularly concerning labor and aligning compliance with business feasibility.

3.2.1 Navigating Certifications and Compliance

In relation to certifications and requirements with the industry standards, interview findings highlight India's garment export sector as socially compliant. Here social compliance primarily refers to fair wages, worker welfare, and optimal working conditions. An ongoing trend observed during the study was that most export-oriented buyers place significant emphasis on the social compliance status of their manufacturing partners. To uphold their stringent criteria, the export domain routinely conducts comprehensive audits of production facilities. The domestic sector of India has not yet attained the same level of rigorous compliance. Prominent domestic buyers such as

Reliance Industries, Lifestyle, and Shoppers Stop do exhibit a preference for factories with established compliance protocols. However, smaller retailers and brands operating within the domestic market tend to forgo the requirement for social compliance measures.

According to the interviews, prominent brands and Western retailers conduct annual audits across the factories within their network. This is because a substantial portion of their orders operate with these factories on a rolling basis. These audits serve multiple purposes, including verifying compliance with certification terms, ensuring alignment with the brand's own compliance benchmarks, and evaluating the machinery necessary for order fulfillment. The audit process typically involves an informal visual inspection of machinery, equipment, workspace, and labor resources required for fulfilling orders.

For all manufacturers, the certifications and compliance obligations primarily were related to social compliance within their factories and operational prerequisites necessary to fulfill specific brand orders. None of the manufacturers reported any mandatory environmental compliance requirements that were imposed by the brands. Occasionally, manufacturers were only expected to source organic-certified fabrics, or they had to provide lab test reports to verify the purity of the fabrics if the brand demanded. Larger manufacturers who produced their own fabrics obtained the Global Organic Textile Standard (GOTS) certification independently. It is worth noting that environmental certifications were never a strict mandate imposed by the brands.

The compliance requirements were also seen as unrealistic by many industry experts and manufacturers because these standards did not take into account the local conditions and laws of India. Many times, manufacturers lose out on orders because they

don’t meet the compliance requirements of the brands. These requirements sometimes entail demands that are not feasible considering the local conditions and resources available in India. There is a certain level of frustration specifically from medium to small-size manufacturers as they are unable to fulfill all the compliance requirements. This leads them to lose out on the business as they do not meet the benchmarks set by the brands. Because these standards are set by brands in the West, it is mainly based on the way their country operates which is different than the manufacturing country. Participant P6 said,

“ *Now in a city like Mumbai so constrained for space and where space is so expensive, I don’t know if you have seen the gala systems of manufacturing, where you have one industrial estate which has small units of 1000, 1200, 1500 square feet and each of those floors will have two blocks of toilet. If you are asking a person for 1000 sq. ft space to move 200 square feet and build toilet blocks because that is required for compliance, he may not be able to or willing to do that. But it doesn't mean that the worker has no place to go and relieve themselves….*”

“ *….You know, our Factory gates are not locked. We have Escape Routes we have fire escapes, we have everything. Now when I say they might not be legally compliant, there might be a standard of 8 toilets per 10 workers, here you might have 8 for every 15 workers or 20 workers. Nobody has a factory of 400 workers and provides 1 urinal for all of them. Those things are not done.*”

Manufacturers and industry experts claim that all the factories are compliant under the Factory Act of India which regulates the working conditions, health, and safety welfare of workers. Any factory established in India must adhere to this law. In light of

this, it's essential to recognize that although manufacturers assert compliance with Indian laws, there is minimal to no direct incentive for them to exceed the required standards, such as those established by third-party certifications.

The benchmarks presented by brands and the compliance certifications tend to overlook the local circumstances of the manufacturing country. Additionally, there is no advantage for the manufacturing companies to invest their own capital and resources into making their factories compliant because brands do not guarantee future orders. However, manufacturers who see the value in export-oriented production embrace the compliance requirements for their factories if they have the resources to do so.

Manufacturers asserted that attaining certifications and meeting brand-specific benchmarks requires effort and can be challenging at times. There are also instances of audit fatigue for many of them because of the regular inspections. In most export deals, it is a necessity to attain certifications and meet complying standards to secure orders and maintain client relationships. However, it is always a challenge for many to balance compliance with profitability and client satisfaction.

Overall, the interviews suggest that the garment industry primarily prioritizes social compliance for their manufacturing factories. Nonetheless, these compliances are not always in alignment with the regional factors of the manufacturing country. This highlights one of the problems within the industry where international certifications overlook the unique local condition of a country, failing to recognize whether they will be effective in a given implementation context.

3.2.1 Non-Compliance Adjustments

As discussed above, brands put significant emphasis on social compliance certifications in addition to their own benchmarks. There is pressure from brands to ensure that these standards are met by the manufacturers they engage with. However, many of these standards and certification requirements are difficult to adopt because they ignore the local conditions of the manufacturing regions. This is where we see actors within the supply chain making adjustments to fit the benchmarks set by brands and nonprofit organizations. Non-compliance adjustments refer to modifications made by actors within the supply chain to align with certifications without strictly adhering to them. These adjustments are typically slight alterations to the standards to better suit the local conditions.

Manufacturers mentioned that sometimes they have to make some adjustments in certain aspects of the compliance standards because it is not feasible in the Indian context to always incorporate them as it is. For certifications like SEDEX, the audits are conducted by a third-party organization to see if a factory can be SEDEX-approved or not. These third-party organizations are usually local. So there are instances when these third-party organizations approve the factories even if the factories do not meet all the standards laid out by SEDEX. Manufacturers argue that it is impractical for them to fully implement every standard laid out, as it is not feasible given the local conditions of India. Many of these adjustments are related to space, infrastructural facilities, and wage requirements in the factory. However, everyone claimed that their factories were compliant with Indian standards.

Manufacturers find themselves in a position where they have to deal with brands, workers, and suppliers all at the same time. And for this, they have to take into account what works for them, their workers, and their suppliers, rather than the certification requirements. One of the common examples shared by a few manufacturers regarding the non-compliance adjustments was about deductions from paychecks for employees. The compliance and government policies require the manufacturers to deduct provident funds (PF) from their worker's paychecks. However, the workers are always against it because they need the money and many of them do not see any value in a PF. Workers always need the entire amount in hand. As a result, the manufacturers pay the workers in full instead of deducting the PF and then manipulate the numbers in the accounting records to meet the compliance requirements. There were also instances where the compliance standards required a certain level of infrastructure for childcare. Even though many manufacturers are unable to meet the exact requirements listed, they still provide childcare facilities based on their operational capacity. It is important to note that non-compliance adjustments can take place even after the certification has been received. Participant P7 said,

"So all the factories, they have to follow a minimum wage requirement that the government releases. And all laborers are supposed to get that minimum wage, but that does not happen here in India. Because again we have very tight costing. So, for example, the laborer are supposed to deduct something called The Provident fund from their paycheck. They are supposed to get the salary after those deductions and the professional tax. But the laborers are such that they say that they will not take any

deductions. So if the salary is 20 grand or twenty thousand rupees, they want that twenty thousand in hand. They will not agree to any of those deductions……"

"....And it is a very labor-intensive industry. I would say it is one of the most labor-intensive Industries. And it is very difficult to manage labor. So one of the technical barriers would be labor in all these certifications. So if I have 100 tailors, some of them will agree to these deductions because they understand that it is for their own good. But the majority of them don't see the long-term impact. They see the short-term. So we do salaries after every 15 days and the majority of the workers do not accept these deductions. So because of that, we have to manipulate the data when we get the certification. Because for the certifications they need the data to be proper. They need the data as per the norms."

Sometimes the manufacturers especially those based in Mumbai get approved by the third-party auditing organization even if their factory space dimensions do not meet the compliance standards. In a city like Mumbai, the land is expensive, the population is high and space is limited. Manufacturers and third-party auditors understand this and know that meeting the compliance standards set by SEDEX or other certification organizations does not fit the local circumstances. Therefore, they sometimes alter the numbers to approve certain factories. However, the manufacturers claim that they have to meet the majority of the requirements regardless in order to get certified even if they falsify some information. Participant P12 shared,

" Everyone cannot fulfill all the civic compliances. They cannot. There is a space constraint. SEDEX have their requirements saying that there needs to be an employee canteen. Mumbai will have an employee canteen?... So if you see as part the government

books, the working hours should be eight. Cannot be, if you go by the eight, you can never ever meet the cost of the buyer. So if SEDEX people come, they say show me their attendance. If I show them that they're working at 10 hours, out of the 10 hours, one hour is their lunch, then that means it's getting nine hours. This is not fulfilling the norms. These are the places where you need to tweak the data a bit. ”

The interviews point toward a disconnect where brands expect cheaper prices, but the manufacturers find it difficult to meet those expectations without extending their laborers' workday beyond 8 hours. And this is where manufacturers find themselves manipulating the data to meet client requirements, compliances, and local circumstances. Manufacturers must work with these constraints while aiming for compliance. The findings suggest that this is a recurring problem where brands want the compliances in place but are not willing to pay for it.

3.3 Cultural Disconnect and Cross-Culture Dynamics

The interviews indicate a cultural disconnect between Western standards and their implementation context in India. The cultural rift spans issues of infrastructural requirements, standards of compliance (wages, worker welfare), and the relativity of rules within the Indian context. In most cases, this issue stems from Western brands and sustainability certification organizations neglecting the local circumstances of the production country, in this case, India. Manufacturers and experts interviewed also highlighted that it is an ongoing challenge for them to explain to brands and organizations the feasibility of implementing certain demands within the Indian market.

Infrastructural requirements by the brands and certifications portrayed a significant cultural divide. All the compliance benchmarks list down certain

infrastructural requirements for the garment production factories. These guidelines include requirements for factory facilities, equipment, compliance with safety standards, and more. Interviews suggested that these requirements are not always feasible to incorporate within the Indian context. Because space is expensive and limited specifically in cities like Mumbai, it can be difficult for small-medium manufacturers to adhere to these rules. Manufacturers claim that they still provide all the facilities required by these compliances, however, it might not always be completely based on the standards. A manufacturer provided an example sharing that if the standard requires 8 toilets per 10 workers, then in the factories it might be 8 toilets per 15 workers.

Manufacturers claim that it is not always possible for them to set up factories that accommodate these requirements especially because brands are not willing to share the capital costs associated with this. Additionally, brands do not guarantee any future orders even if they set up a factory that is compliant with all the standards. However, all the manufacturers claim to adhere to the standards set up by the Indian government because it is designed by keeping the implementation context at the center.

Manufacturers and experts stated that sustainability certification standards lack alignment with practical realities on the ground, especially in the Indian context. They claim that these standards do not consider the socio-economic conditions of India. Some industry experts asserted that fashion brands and even certifying organizations develop benchmarks based on the lifestyle and living standards of the West. Some of the interviews show that there is a certain level of ignorance in the way these standards and benchmarks are imposed in these developing economies. One manufacturer shared an incident where a U.S. retailer auditing his factory failed the factory due to the absence of

toilet paper in the bathrooms. In India, it's customary to use bidets for personal hygiene, and bidets were indeed available in the factory's restrooms. However, because the brand compliance specifically called for toilet paper, the factory did not meet this requirement and failed the audit. This shows how cultural differences are not often understood by Western organizations when establishing their standards. Also, it highlights the Western tendency to impose its regulations globally without considering that the solutions must be tailored to the implementing countries based on their unique needs, cultures, and socio-economic conditions.

Furthermore, industry experts and manufacturers suggested that there was a significant disconnect in the conceptual definition of fair wages or living wages. There is a need for brands and certification agencies to consider the local laws that specify the minimum wage in every state of India. Many felt that some brands, advocacy groups, and certifying organizations consider the Western standards of living to set up benchmarks for fair wages. Because the standards of living and lifestyle of people are so different in Western countries compared to India, their fair wage definitions can be unattainable sometimes. What the West considers a necessity might be a luxury in a developing country. Participant P6 said,

" Where I do have a difference of opinion with the Western world's concept of fair wages is that they tend to compare it with their own lifestyle without looking at the environment and the situation on the ground. They started by saying that you must have minimum declared wages, as per the law you are supposed to pay that. But if asked for the law the minimum wage is 10,000 rupees and the factory owner is giving that then I personally think that the Western world has no business saying that 10,000 is not

sufficient for a person to live. How can you raise a family of four people etc. in 10,000 Rupees? The fair wage is 20,000 rupees. Now that is ridiculous. Now what is a fair wage, it is that you can get your daily necessities and have a lifestyle. In the Western World, an air conditioner or a refrigerator could be the bare necessity. Here it's a luxury. In Europe having an attached bathroom is not a luxury but in Bangladesh having a bathroom in the house itself is a big deal. I am not just talking from India's point of view but from any developing country's point of view. Every country has its own standards of living and its own comparative levels of living. I think the Western world or the buyers should not go beyond saying whatever is the minimum law that is stated to adhere to."

These interviews highlight that there is a significant gap between how social compliance benchmarks are set in the West, and the ground reality of its implementation in India. It is an ongoing challenge for the manufacturers to explain these differences to their export clients.

In addition to this, some interviews pointed towards the need to consider the consumer aspect of the industry as well. The fact that manufacturers and brands are producing fast-fashion products because there is a need for them in the Western market is an important fact to address. Some industry experts felt that the cultural divergence also comes from advocacy groups sometimes not addressing the excessive fast-fashion consumption in the West but policing India and other manufacturing economies about the pollution and labor issues of fashion. Participant P6 said,

" You know we are polluters because we produced fast fashion, but it is also important to ask who created fast fashion? It is a hypocritical world we live in. You know the population is very high in India so there will be certain things that the West will see

which they have overcome in the past. The West has a certain level of wealth so they can afford to think about certain things which we cannot. It is like they have eaten a full plate meal which contains proteins, full of fat, and then they go and tell others to diet because it's not good for their health. It doesn't make sense…."

"..... See, when you talk to an Indian you don't need to tell her not to buy more clothes than she needs because he or she does not have enough money to buy extra clothes. It is the Western woman or the lady in New York or the lady in London who is buying beyond her needs. Beyond her capacity. West is where all the bank disasters happen all the crashes happen."

These interviews put a spotlight on the importance of tackling the problem of overconsumption and demand for fast fashion. It shows that responding to the impacts of fast fashion is a collective responsibility that demands meaningful action in the consumption and production spheres. Overall, this analysis shows the need to acknowledge that solutions and compliance standards must be designed with the local and cultural attributes of the manufacturing countries at the center.

In terms of MLP, the interviews indicate that there are cultural and local norms that are embedded in the socio-technical regime. The implementation of sustainability certifications and policies can face further resistance if these norms are not considered during the implementation phase. This also highlights the complexities of the regime, especially considering the global supply chain of this industry. Cultural norms can lead to further resistance to change in the regime. However, it also emphasizes the importance of considering the cultural framework within which the regime operates when implementing new rules.

3.4 Networks and Communication

All the actors operating within the supply chain have to maintain strong networks of communication to operate efficiently. Manufacturers are strategically positioned within the supply chain as they must maintain a relationship with brands, suppliers, and employees to navigate the industry's complexities. Sustaining these relationships depends on a foundation of strong networks and effective communication. The interviews show that manufacturers rely on their networks for sourcing, client referrals, background checks, employing workers, and maintaining transparency in the supply chain.

The interviews indicated that for manufacturers, building an effective communication network is a key part of their business. Referrals from clients and recommendations from their industry peers are essential in acquiring new clients. Word-of-mouth recommendations are often helpful in forming trusted partnerships to do business with. Many manufacturers believe that their industry peers can help them to become subcontractors for large orders. Maintaining trusted relationships is a key part of their business strategy where maintaining strong networks is a must.

Effective communication and networks are important in gaining new clients, however, maintaining clients is also dependent on that. Manufacturers claim that an efficient communication network is pivotal for negotiating price, quality, and other order specifications with their clients. Manufacturers must consistently communicate with their clients every step of the way. From informing them about developments in the order, to approving materials, designs and coordinating deliveries all rely on a strong communication network. They believe that communicating everything with brands translates efficient production production process and mitigates any risks associated with

changes in prices, raw material availability, and delivery times. All the manufacturers believe that constant communication with the clients helps in maintaining a transparent and honest relationship. Communicating with clients about any problems in the production process also helps the manufacturers build trust and solve any problems collaboratively. Manufacturers use various channels like WhatsApp, tracking softwares, emails, and other digital platforms for communication in the industry. Having access to these tools enables the manufacturers to provide approvals and updates effectively.

A proper communication network also helps manufacturers retain their clients over a long period and helps them secure orders on a rolling basis. Some manufacturers mentioned that maintaining a strong communication network with their competitors and other industry peers is also important to them. Many of them use these informal networks to conduct inquiries and background checks on new brands and clients. It is a common practice in the industry to do so because this helps them mitigate the risks like nonpayment and unclaimed stocks that come with doing business with any new client.

Manufacturers also discussed how brands have their own networks that connect them to multiple factories around the world. Brands engage in extensive research and negotiations within these networks to find the best fit for their order requirements. Several manufacturers noted that because brands have more information and insights about the capabilities of factories across nations, they engage in more effective negotiations with suppliers to fulfill their demands. Overall, even for brands, communication is key to attaining the best prices and delivery times from the manufacturers in their supply chain.

While manufacturers consider effective communication as a foundation for trusted and long-term relationships with brands, it might not be the same case for brands. Brands only give preference to the manufacturers who provide them with the cheapest prices. Manufacturers assert that being in the network of a prominent brand can provide them with a distinct advantage compared to situations where they are simply presented with a take-it-or-leave-it offer. At the end of the day, even if the suppliers within the brand's network do not align with their terms, brands will opt for someone who can meet their desired price point.

Some manufacturers also rely on word-of-mouth networks to find skilled labor and workers for their factories. The workers that are already employed by a manufacturer sometimes help them employ more people with similar backgrounds. This shows that the communication network is crucial in not only negotiations and order tracking but also in the hiring process in the industry.

3.5 Social Relationships and Roles

In this complex landscape of international manufacturing, social roles, relationships, and responsibilities are at the center of bridging the gap between global clients and local production realities. The interviews show the significance of trust and long-term relationships in a global manufacturing setting. For all the manufacturers, building long-term relationships with their clients, and maintaining these partnerships was of paramount importance. Developing good relationships with brands and retailers helps manufacturers not only get continuous orders from existing clients, it also helps them attract new clients in the market.

Manufacturers do not consider this as an impersonal market, as they put in significant efforts to establish and nurture relationships with their clients. However, the interviews show that brands and retailers do not prioritize social relationships in this market. Brands and retailers on the other hand focus on securing cheap prices and short delivery times for their orders.

3.5.1 Building Trust and Responsibilities

According to the manufacturers, building trust with a client is an important part of establishing a relationship with them. Manufacturers need to prove themselves as trusted partners to do business with anyone. One of the foundations of building trust as a manufacturer is showing the brands that they can fulfill the order requirements efficiently. Manufacturers are entrusted with a specific set of responsibilities that must be met, thus establishing a foundation of trust for potential future orders from brands.

In the view of the manufacturers, providing the requested quality consistently, maintaining transparency in every step of the production process, and ensuring timely delivery are some of their most important responsibilities. Meeting these requirements is vital for building a trusting relationship with brands. Some manufacturers claimed that they have taken a hit on their bottom line in certain cases to ensure that they meet the terms of timely delivery and quality. When asked about the factors that help build trust, participant P11 shared,

"Timely delivery and good quality. You know, especially good quality. If we goof up in the quality, that is what creates a very big issue. You know, in an order recently, we had a fabric, which shrunk. So what we did was we downsized the whole lot and the

biggest size we made, we made it again. So we took a small hit where the profit was concerned. But it is the buyer's satisfaction, which is most important."

Failing to meet buyer expectations can not only result in loss of business, but it can prevent them from working with the same brand again. It can create a negative image in the market, potentially deterring future orders from other firms. Trust plays an important role for manufacturers in retaining clients. When the trust is established, manufacturers believe that it becomes easier to get repeat orders from those clients. This is because brands can now rely on them with certainty that the chosen manufacturer will fulfill their order efficiently. Once a relationship has formed, manufacturers believe that it also becomes easier for them to communicate with brands about any unexpected problems that arise in the production process.

While upholding these relationships remains crucial for manufacturers, brands typically do not follow suit. As stated by the manufacturers, larger brands always prefer production units that offer them the lowest price and an optimum delivery time. Smaller brands usually value long-term relationships, attempting to work with the same manufacturer once a partnership is established. However, most larger brands do not follow this approach. Participant P13 said,

" See, all, all relationships are very important, but the fact is the world is moving very fast. There used to be a time where there was something called loyalties, which does not exist anymore. The guy next to door to me, if he's willing to give 10 cents lesser than what I quote, the customer goes there. So there are no loyalty programs anywhere. At the most, if your relationships are good, they would give you the first privilege of getting it at the same price. Or they go to next two guys giving it to them."

The interviews suggested that these relationships are crucial for manufacturers as it helps them evaluate operational aspects of their production activities like schedules, quality, capital costs, and servicing debts. When a reliable partnership is in place, it can make it more feasible for them to make investments in compliance measures. This is due to their confidence that they will continue to receive business from their existing clients.

While manufacturers value their relationship with brands and suppliers, they also consider their relationship with their workers as an important one. According to the manufacturers, their laborers, staff, and artisans are an important part of their business. Some use their relationship with their employees to find potential skilled workers in the region. Many think that having a good relationship with their workers is very important because they ultimately work towards order fulfillment. Some manufacturers also pay their labor more than minimum wage because they value their workers. Participant P8 said,

" So our labor on its own does not come down on minimum wages. There's always more than minimum wages that we are paying them."

Overall, it can be observed that social relationship plays an important role in the regime. These relationships dictate the roles, operations, and problem-solving within the supply chain. These relationships exert constraints on aspects like product schedules, quality, certifications, and investments.

3.5.2 Client Relationships and Financial Dynamics

Manufacturers shared that once they take the orders, they always try to meet the deadlines because they claim that meeting the terms of the order, helps them build trust with their buyers and develop long-term relationships. Building trust and relationships

with their buyers helps them to get more orders in the future from the same clients. Consistently maintaining the quality of the products is also an essential part of retaining clients for a long time. Participant P11 said,

"There is always a deadline to fulfill orders, otherwise it will be very difficult for us to build some trust with the customers. Even when you order online you expect your order to arrive at a certain period or sometimes you can consider canceling the order. The same thing happens with manufacturing as well."

Manufacturers asserted that mainly large-scale retailers both from the export and domestic segments prioritize price, quality, and value. Due to the substantial order quantities that large-scale retailers require, identifying the optimal balance between price and product quality becomes very important. Despite maintaining long-standing relationships with these retailers, manufacturers might still find it difficult to secure orders if their pricing doesn't align with the retailers' specific requirements. Nevertheless, cultivating a long-term partnership provides the manufacturers with a competitive edge, positioning them as the preferred choice over other manufacturers in the market. This advantage allows them to initiate negotiations associated with pricing, discounts, and payment terms. However, if the purchasing criteria of major retail buyers are not fulfilled, they will opt for alternative manufacturers that match their pricing requirements. According to the manufacturers, retailers consistently prioritize price over quality. This indicates that larger brands view the manufacturing segment as a transaction, prioritizing price. Brands consistently select manufacturers who can match their price point even if there is no prior relationship. While manufacturers perceive the market as impersonal, brands tend to view their contracts solely in terms of product prices.

3.6 Conclusion

This chapter lays out the main findings from the analysis of the interviews with the research participants. The analysis highlights multiple challenges associated with order fulfillment, pricing, and untimely payments faced by manufacturers in India. This study also contributes to the existing literature by presenting additional findings emphasizing the payment risks, implementation issues with sustainability compliances, and cultural disconnect in the sustainability standards imposed by brands and organizations of the Global North. This inquiry asserts that collective efforts are needed to design a sustainability agenda in fashion by keeping producers and workers of the manufacturing nations at the center.

Chapter 4 Evaluating the Impact of the Fast-Fashion Regime

The findings from the interviews suggest that manufacturers face multiple challenges associated with short deadlines, pricing, and untimely payments. Pressures related to order fulfillment, price negotiations, and late payments are consistent with the literature. However, these interviews also point toward additional challenges like payment risks, compliance adjustments, and the disconnect of sustainability standards with the local circumstances.

This chapter delves into the broader implications of the findings presented in the preceding chapter, focusing on the fashion regime's overarching themes and systemic dynamics. Building upon the insights gained from the interviews, this chapter explores the complexities of supply chain dynamics and the nuances surrounding sustainability compliance standards. It also seeks to explore the issues through the lens of MLP, delving deeper into aspects of asymmetrical power, regime struggles, and dominant practices. This discussion aims to uncover the underlying factors contributing to the sustainability issues prevalent with the regime and propose avenues for addressing them.

4.1 Exploring Systemic Dynamics: Discussion of Broader Themes in the Fast-Fashion Regime

This study primarily conducted interviews with actors embedded within the fashion regime. These participants provided unique insights and experiences specific to their roles within the globally distributed garment manufacturing supply chain. The findings from the interviews reveal key themes that illuminate the inner workings of the fashion regimes. Understanding these themes offers a comprehensive view of how actors

navigate pressures, manage operations, and negotiate international trade and local regulations. Viewing these dynamics through the lens of MLP not only enriches our understanding of the industry from an STS perspective but also opens up new avenues for exploring sustainability transitions.

The following sections explore the overarching themes identified through interviews and their analysis. These themes shed light on the pressures influencing the regime, factors contributing to resistance within it, and the elements that reinforce unsustainable practices.

4.1.1 Conflicting Regime Pressures: Compliance vs Efficiency

One of the topics that emerged consistently in the analysis of the interviews was the conflict between compliance measures, brand demands, and manufacturing efficiency. The analysis showed that the structure of the fast fashion business model prioritized the quick production of cheap clothes, which was at odds with compliance criteria and demands enforced on the manufacturers within the supply chain. Some of the types of conflicting pressures that appeared during the analysis are discussed below:

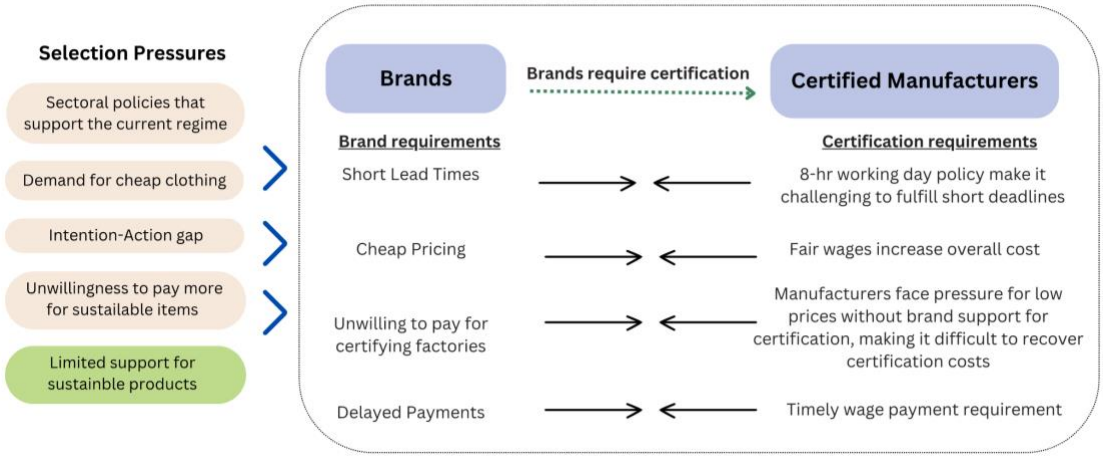

Figure 4 Contrasting Pressures between requirements and certification standards

Short Lead Times, Working Hours, and Compliance

The interviews indicated the importance of high-speed production in garment manufacturing. This characteristic of fashion brands to quickly and effectively bring new trends to the market is the most significant part of the fast fashion business model (Sull & Turconi, 2008). This business model mainly demands responsive supply chains. Producing apparel quickly at an affordable price is an integral part of the ethos of fast fashion brands, compelling brands to urge their manufacturers to operate within tight timeframes. However, within the fashion system, there are pressures on brands to particularly focus on enhancing the social welfare of workers within the supply chain (International Labor Organization, 2023). Because of this many brands pledged to improve the working conditions of garment workers and expand their social-responsibility agendas (T. Lee, 2023).

One of the ways brands achieve ethical production is through certifications. The interviews also indicated that brands either required the manufacturers to get their factories certified through SEDEX or ensured they met the compliance benchmarks set by the specific brand. These benchmarks required the manufacturers to adhere to policies like 8-hour working day in their factories. Many manufacturers argued that if they adhered to this policy, it would not be possible for them to meet the demanding production schedules set by brands. The standard 8-hour workdays simply did not allow for the completion of high-volume orders within such tight time constraints. Many manufacturers claimed that it was customary for their laborers to work 3-hours of overtime daily.

This illustrates the conflict between the fast fashion business model and the compliance requirements imposed on actors. While certifications aim to ensure optimal working hours, brands impose tight deadlines that pressure manufacturers to work overtime.

Pricing, local circumstances, financial risk, and wages

The interviews suggested that competitive pricing was pivotal for manufacturers in securing brands for production orders. Brands regularly came with a predetermined price for specific products and required the manufacturers to align with their quoted price. Brands consider factors like tax structures, import duties, and sourcing countries to negotiate with multiple manufacturers. Because brands engage with multiple countries to get the best production deals, they have the informational edge to effectively engage in negotiations.

Manufacturers found it difficult to meet the price demands set by brands, given the considerations of raw material costs, logistics, and labor expenses. They emphasized the constant risk of narrower profit margins or missed sales opportunities if they couldn't achieve a balance between competitiveness and profitability in pricing. If manufacturers fail to align with the criteria presented by the brands, they switch to cheaper factories. Additionally, many brands also required manufacturers to have compliances and certifications in place, without considering the capital cost in the process. This places a financial strain on manufacturers as brands refuse to pay the premium for certified factories, and certifications offer no assurance of future orders. Brands exhibit unreasonable behavior by demanding certifications without guaranteeing future business

and constantly negotiating for lower prices. This lack of incentives for other supply chain actors affects them adversely.

It is important to consider that brands negotiating for cheap prices pushes the risk down the supply chain, ultimately impacting garment workers (Howard, 1997). Interviews and studies have suggested that when retailers set the cost for manufacturers at which the clothing should be produced, the risk trickles down to the supply chain and can result in meager wages for workers (Howard, 1997; Skinner, 2023). According to Howard (1997), these situations create sweatshops with exploitative conditions for the workers and drive down the standards of the factories. This again demonstrates contrasting pressures within the current regime. Interviews suggested that brands prefer factories with compliance, which also includes fair wages for the workers. When brands negotiate for lower prices, manufacturers operate within extremely narrow profit margins to offset the expenses of certifications and investments, often leading to wage cuts for workers.

Even though many manufacturers claimed to pay their workers fairly, they also admitted to manipulation of wage data to uphold their certifications and financial records. This opens the possibility of manufacturers not paying their workers fairly, and yet reporting fair wages. These instances not only show the ineffectiveness of certifications but also how the emphasis of the fashion regime on cheap manufacturing affects the workers at the bottom of the industrial pyramid.

Brands impose these contrasting pressures on the regime where they require certifications and fair pay and yet negotiate for the lowest prices for manufacturing. The structure of the fast fashion regime itself operates on the narrative of cheap clothing.

However, incorporating sustainability ideologies would lead to a shift towards slightly higher price points, reflecting the use of better-quality and long-lasting materials and fair wages within the supply chain. This not only underscores the need to reconsider the cheap production business model in the regime but also points out the gaps for innovative niches to develop technologies that can make sustainable garments more affordable.

Late payments, compliance, and wages

Interviews suggested that delayed payments are a problem manufacturers consistently face when dealing with retailers that induce significant financial pressures on the supply chain. After retailers finalize the manufacturing factories, they sign a contract stating the advance payments and post-delivery payment terms. Retailers usually make an advance payment to kickstart the production, and the remaining payments are done during the time of delivery, in many cases, after the retailers have received the order. Despite all the payment terms being in the contract, manufacturers complained about retailers not making the payments on time or in some cases, not making payments at all.

Retailers failing to make timely payments or missing payments altogether creates a challenging situation for manufacturers, given that they have already invested in wages, raw materials, and workforce. The terms of timely payments are part of the manufacturing contract; however, many retailers do not always adhere to them. Several manufacturers do not have the financial means or the resources to take legal action against the retailers. Retailers themselves do not adhere to any compliances or terms of timely payment. However, they require the manufacturers to follow all the terms.

Interviews indicated that delinquency in payments from retailers leads to delayed salaries for workers in the factories. Multiple reports of retailers consistently neglecting

payment terms leading to underpayment, late payment, or no payment of wages for workers in the supply chain have been a common problem in the supply chain (Kelly, 2021; Neale & Bienias, 2021). The manufacturers are mandated to pay their workers on time as per the compliance and certification benchmarks.

Brands delaying payments creates a domino effect, preventing manufacturers from paying their employees and workers on time. This discrepancy highlights the contradictory demands brands place on manufacturers, expecting punctual salary payments while disregarding their own payment obligations. As a result, manufacturers often lack the capital to meet wage-payment deadlines when brands delay their payments.

Based on the interviews, brands expect the manufacturers to pay workers' salaries on time to maintain compliance. However, there are no mechanisms to hold the brands accountable when they do not make timely payments for production services. Even though the manufacturing contracts require them to remit payments within a specific period, brands do not adhere to those terms. This illustrates a power imbalance within the regime, where manufacturers are expected to comply with all terms while brands do not adhere to the same standards. This creates contrasting pressures, placing an unfair burden on manufacturers.

Analysis

The examples above demonstrate how the fast fashion business model and the realities of garment manufacturing are far from the sustainability ethos imposed by the compliance benchmarks. On one side brands demand compliance with the working hour policy, on the other, they maintain stringent expectations regarding short delivery times for high-volume orders. Brands want compliance with fair wage requirements, yet they

negotiate and pressure the manufacturers to provide the cheapest prices. The contrasting pressures imposed on the manufacturers reflect the tensions and struggles inherent in the regime.

In the context of MLP, there are two important points to focus on:

The first point is inertia, which refers to resistance in the regime. The resistance can be due to the entrenched practices, norms, regulations, consumer habits, and vested interests of dominant actors like businesses, policymakers, and other stakeholders (F. W. Geels, 2011; Smith et al., 2010).

In fast fashion, brands are the dominant actors in the regime that exert this inertia or resistance over the manufacturers, reinforcing the status quo and preventing the emergence of sustainable practices. For example, the pressure on manufacturers to meet 8-hour working day compliance benchmarks while simultaneously meeting the demand for quick production highlights the inertia in the existing regime. The inertia of this industry is also due to the lack of consumer willingness to pay more for sustainable products, and the growing demand for affordable clothing that stabilizes the regime (Buchel et al., 2022; Carrigan & Attalla, 2001; KPMG, 2019; Niinimäki et al., 2020; White et al., 2019). Consumer demand for inexpensive garments, coupled with changing demographics leading to a larger population needing more clothing, solidifies the current framework of the fast fashion regime within the fashion system (Ellen MacArthur Foundation, 2017; KPMG, 2019; White et al., 2019).

For any transition to take place, user preferences and elements like infrastructure, regulations, technologies, and societal values must align in the same direction (F. W. Geels, 2002). In the case of the fashion regime, we see that user preference and societal

values still favor the model of fast fashion. A study Fuenfschilling & Binz, (2018) argued that societal norms and values can influence the adoption of certain practices and can drive changes in standards and behaviors. These societal expectations can drive demand for practices like sustainability standards, suggesting that transitions are not only technologically driven but also deeply influenced by cultural and social dynamics. However, in the fashion system, societal behaviors of clothing consumption support affordability, quality, and value that outweigh the ethical criteria in buying habits (Carrigan & Attalla, 2001).

In addition to user preferences, socio-technical configurations like established corporate networks, mutual dependencies between industry and policymakers, and institutional commitments can also prevent the shift toward sustainable practices (F. W. Geels, 2010, 2011). Established networks, trade agreements, and the dependency of South Asian countries on the fashion industry to generate employment are also factors that resist the transition pathways in the regime (Ellen MacArthur Foundation, 2017; Lopez-Acevedo & Robertson, 2016). This reinforces the current regime practices and stabilizes the dominant structure, preventing the emergence of sustainable fashion practices.

The second point when we look at the fashion system from the lens of MLP is the selection pressures. Selection pressures in the socio-technical system play a crucial role in understanding the trajectory of transition. Changes in the regime take place through selection and retention mechanisms. Selection pressures refer to the factors that influence the emergence, retention, and decline of certain practices or technologies in the socio-technical regime (F. W. Geels & Schot, 2007; Smith et al., 2005). Selection is more than

just adoption because it requires user practices, technologies, routines, consumer culture, policies, and infrastructure to co-evolve.

Selection pressures in the fashion regime have a significant function in determining which practices are maintained or changed over time. As mentioned in the above section, there is a disconnect between consumer demand for cheap clothing and their willingness to invest in sustainable products, despite expressing support for ethical initiatives. Consumers still prefer affordable clothing. This shows that user practices, consumer demand, and culture around fashion are not co-evolving with the sustainability pressures. Sustainable solutions do not always provide obvious benefits to consumers and score lower on price/performance dimensions compared to already-established technologies (F. W. Geels, 2011). Thus, transitions like this require changes in policies that involve political maneuvering and power struggles because of the vested interest of dominant stakeholders (ibid.).

Policies in the form of environmental taxation, negotiation agreements, and regulations attempt to promote sustainability practices through the modification of selection pressures (Smith et al., 2005). Governing bodies have a stronger agency in the regime to intervene and alter the balancing selection pressures to influence the transition process. To make significant changes in the regime, exercising political, institutional, and economic power becomes the key (ibid.). Initiatives such as the EU Green Deal and Strategies for Sustainable and Circular Textiles aim to integrate regulatory aspects into the fashion regime by outlining mandates for enhancing transparency, reducing pollution, and promoting fairness within the fashion system (European Commission, 2024).

Certifications and audits in the manufacturing factories are also key requirements under these programs (CBI, 2022).

The interviews revealed that certification-based requirements placed significant pressure on manufacturers to adopt better policies. However, it is important to note that the fast fashion business model and consumer culture in the fashion industry prioritize the quick production of cheap clothing that does not align with these certification requirements. This underscores the inherent struggles within the regime.

The inertia within the fashion system and the selection pressures complement each other as they support the dominant practices in the regime. This analysis highlights the necessity for policies and regulations to acknowledge this need to alter the fast fashion business model itself to be more sustainable. Currently, certifications are only imposed on the manufacturing segment of fashion, and there are next to no accountability measures implemented on brands that are the dominant actors in the regime. Therefore, regulations should be extended to brands as well, in addition to the manufacturing segment of garment production, urging brands to move away from rapid and inexpensive clothing production practices.

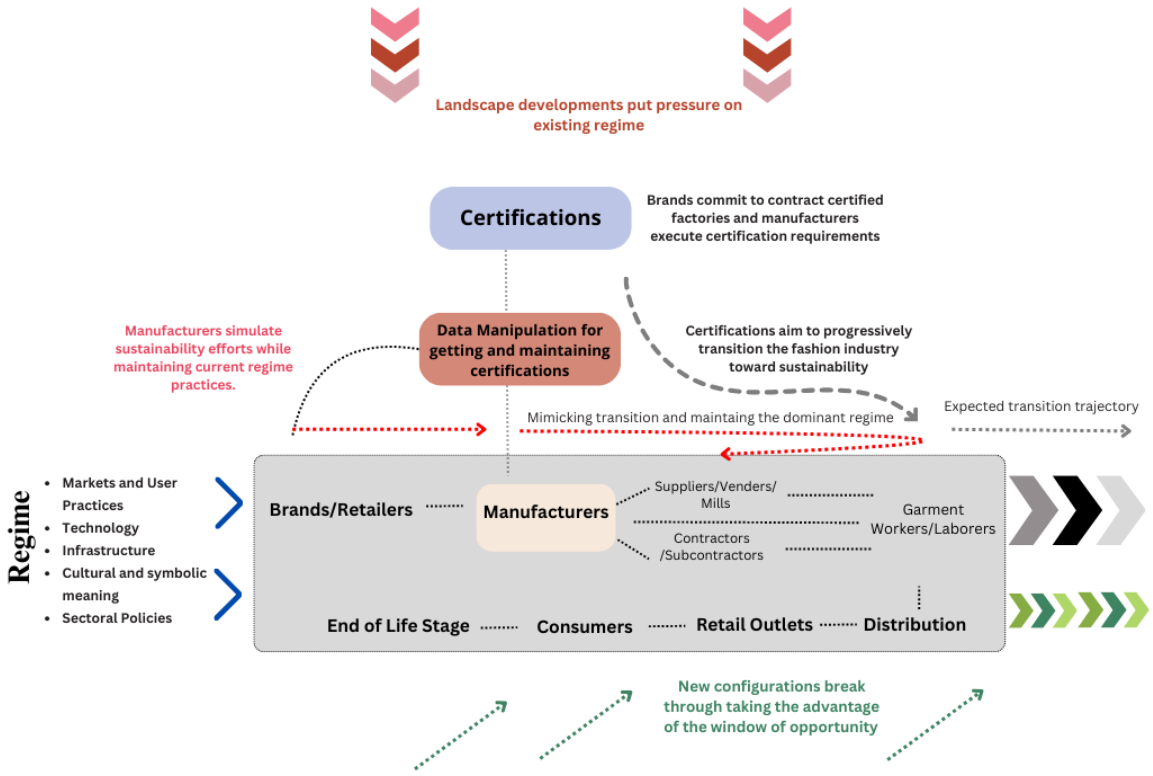

Figure 5 Data manipulation practices upholding the current regime, creating an illusion of progress toward transition.

The interviews revealed that manufacturers were manipulating their factory data to meet certification standards, as brands' demands often makes adherence to these certifications unattainable. Pressures such as demands for lower costs, short production timelines, and high order volumes, make it difficult to comply with sustainability certifications. These conflicting pressures force manufacturers to prioritize short-term survival over long-term sustainability, highlighting the misalignment between market demands and sustainability requirements within the fast fashion regime.

Manufacturers resorted to data manipulation because brands were not held to the same sustainability guidelines, allowing them to maintain their unsustainable production demands. As brands continued to impose fast fashion pressures while manufacturers

attempted to adopt sustainable practices, the contradiction led manufacturers to mimic compliance rather than genuinely adhere to it. The structural characteristics of the industry, such as the emphasis on quick production and cost efficiency, create selection pressures that prioritize short-term economic gains over long-term sustainability and social welfare. This perpetuates the dominance of unsustainable practices despite the existence of certifications aimed at improving conditions. It also shows the lack of scrutiny brands are being subject to in the fashion system.

Many studies have highlighted how the lack of accountability for brands undermines the overall sustainability of the industry and reduces the effectiveness of sustainability measures. A report by Clean Clothes Campaign found that social compliances fail to take into account the brand's purchasing practices, especially because low buying prices and short lead times are the root cause of overtime and low wages in factories (McMullen et al., 2014). Moreover, the issue of brands delaying or entirely withholding payments is also a common challenge encountered by many manufacturers, as corroborated by various other studies (Kelly, 2021; Neale & Bienias, 2021). These examples solidify the need for regulatory pressures to encompass brands in the certification and compliance standards as well.

Therefore, for the regime to move towards a more balanced and equitable state, it may be necessary to reevaluate and strengthen governance structures, ensuring that all entities including brands, regardless of size or power, adhere to the same rules and standards. This could involve the development of stricter regulatory policies, the establishment of multi-stakeholder oversight bodies, or the empowerment of smaller stakeholders to have a greater voice in the operational dynamics of the regime.

This study suggests that brands should also be subject to certifications and compliance policies. This would prevent them from demanding high volumes of orders in a short time and negotiating low purchase price terms that exploit workers, which often contradict the requirements imposed on manufacturers. This will ensure that sustainability criteria align all the actors including brands and manufacturers in one direction. Such measures can foster coordinated endeavors toward sustainability while also influencing market dynamics, consumer expectations, and industry norms, thereby exerting pressure on actors to adapt to the new regulatory environment.

4.1.2 Trickle-Down Effect on Workers Due to the Regime Structure

The findings from the interviews highlighted how the structure of the fast fashion model inhibits better social standards for workers. The certifications that many manufacturers are required to adopt mainly include guidelines for social compliance. These include benchmarks for safety, minimum wages, working conditions, employee benefits, working hours, and other aspects to improve the social welfare of people in fashion manufacturing. While these certifications aim to ensure optimal working conditions for workers, the results from the interviews suggested otherwise.

For example, the social compliance measures limit the working hours of garment labor to eight hours a day. However, the findings demonstrated that manufacturers routinely engaged their workers in overtime because eight-hour working days were not enough to fulfill the orders. This is because brands demanded short lead times for high order volumes. Many manufacturers claimed that three hours of overtime to meet production deadlines was a routine practice in their factories. When brands enforce tight deadlines for completing large orders, manufacturers are compelled to extend working

hours to meet these deadlines. The essence of fast fashion enterprises lies in rapid production and large-scale orders, a practice that directly conflicts with policies advocating for 8-hour workdays aimed at slowing down production.

An important point that this example highlights is how workers are getting exploited despite certifications being there. The doctrines of fast fashion have added systematic barriers to attaining compliance and improving working conditions. Rather than enhancing worker welfare, certifications are proving ineffective in relation to the conflicting demands of fast fashion enterprises. This underscores the persistent challenges in labor conditions and reveals a systemic lack of accountability to hold brands responsible for imposing unsustainable requirements.

Another example of how workers are affected despite social compliance measures is when brands use aggressive pricing strategies to negotiate the lowest possible costs. As numerous brands perceived low prices as a competitive edge, manufacturers felt compelled to match these lower prices, hoping to secure future orders and recoup their expenses. Brands negotiating for cheap prices also leads to low wages for workers. It has been well-documented how cheap prices of fast fashion clothing lead to meager wages for garment workers (Fashion Revolution, 2022; Howard, 1997; McMullen et al., 2014).

This section shows two key points: i) Despite the factories being certified, the fast fashion business model leads to labor exploitation by indirectly enforcing extended working hours and low wages, as it prioritizes producing large volumes of inexpensive clothing quickly. ii) Certifications fail to be effective even when manufacturing units have them, due to the inherent characteristics of fast fashion brands, and lack of accountability for brands to become sustainable.

It is crucial to note that the structure of the fast fashion business model prevents the transition toward better social standards in the industry. This also highlights the need for fast fashion brands to reconsider their business model that prioritizes quick production of cheap clothes and move toward slow manufacturing of high-quality garments. Currently, the business model does not align with the sustainability parameters being incorporated into the manufacturing segment of fast fashion. Therefore, the fast fashion industry must employ mechanisms to align the brand ethos with sustainability benchmarks, rather than just imposing them in factories.

Analysis

One of the reasons that certifications and compliances have proven to be ineffective is the industry's primary focus on speed and volume which continues to undermine the enforcement of ethical standards. Within the socio-technical regime of fast fashion, components like technologies, supply chains, and logistics are placed in a way that enables rapid production and distribution of cheap clothing (Arrigo, 2016; Barnes & Lea-Greenwood, 2006; Gereffi, 1994). The system has been optimized for efficiency and cost-effectiveness at the expense of labor conditions (Anguelov, 2020; Appelbaum, 2006). The current regime supports and sustains fast fashion practices, that undermine efforts for better labor conditions. The regime prioritizes speed, volume, and cost-effectiveness, which is at odds with the slower, more thorough processes required for genuine certification and compliance with ethical benchmarks. Furthermore, multiple interviews conducted in this study with manufacturers revealed that adhering to compliance is often impossible due to the pressure from fast fashion brands to produce large quantities of inexpensive clothing quickly. This pressure conflicts with certification

norms, which support slower production and limit workers to an eight-hour workday, making it difficult to meet tight deadlines.

Although the study's analysis shows that brands favor suppliers who have certifications and compliances in place, the brands themselves have not taken any steps to integrate sustainability because they are still attempting to uphold the paradigm that encourages excessive clothing consumption. This highlights a significant gap in the implementation certifications within the regime. One of the issues is that certifications are being implemented only in the manufacturing segment of the supply chain. Brands, as dominant actors within the regime, continue to uphold the fast fashion ethos, and merely shift ethical standards down the supply chain to weaker actors. This approach leads to systemic ineffectiveness, as all components of the regime are not aligned with the same vision of sustainability and ethical practices. Manufacturers are required to take action to be more sustainable, yet brands continue to demand the same results, which has unsustainable effects on workers and the environment.

This cycle is further fortified when manufacturers manipulate data to meet standards and use deceptive methods to maintain their certifications. Consequently, manufacturers have found ways to mimic sustainable practices without fully adhering to them. Conversely, brands lack accountability measures that would compel them to shift from the current paradigm of high-volume, short lead-time production. This absence of accountability allows them to maintain their focus on rapid, large-scale output rather than transitioning to a more sustainable model that prioritizes high-quality, ethically produced clothing without exerting undue pressure on production networks.

The analysis highlights two crucial points:

The first one is a cycle of ineffectiveness: Firstly, this case study provides evidence that sustainability measures solely applied to the manufacturing segment of the supply chain can lead to a cycle of ineffectiveness because all the components in the regime are not aligned. As we know, for a sustainable transition to be realized, the routines and activities of different actors and organizations have to be coordinated (F. W. Geels & Schot, 2007). The case demonstrates that the activities of actors such as manufacturers, brands, suppliers, and certification auditors, along with existing policies, are highly coordinated but only to maintain the status quo. Manufacturers are merely obtaining certifications on paper, and brands are continuing their business as usual. Together, these actors have constructed a façade of sustainability while perpetuating their conventional practices.

Although manufacturers strive to follow certification guidelines, the pressure from brands to meet short lead times and high-volume demands for cheap clothing negatively impacts workers. This underscores the need for brands to also coordinate their efforts towards slower production and commit to paying fair wages. Additionally, it's important to note that there are many regulatory gaps in the system. There are no guidelines that enforce strict standards or hold brands accountable. As a result, brands can avoid responsibility by pushing sustainability requirements down the supply chain to the manufacturers while still demanding strict deadlines, high volumes, and cheap clothing.

This study reveals that sustainability measures in fashion, such as certifications, are being imposed solely on one segment of the regime i.e. manufacturing. Meanwhile, dominant actors like brands have not made any efforts to align their own activities with

sustainability initiatives. Since brands are the most influential players in the supply chain, achieving improvements toward sustainability would necessitate navigating power disputes, which can be done through policy interventions (F. W. Geels, 2011). Therefore, it can be argued that aligning the activities of dominant actors, such as brands, is crucial for moving towards sustainability in the fast fashion system. Without this alignment, the regime may struggle with conflicting pressures, hindering progress toward sustainable practices.

The second highlight from the analysis is the façade of sustainability. This study highlights the complex tensions between regime activities during the transition phase, demonstrating how actors are still managing to preserve the existing paradigm. This takes us to another important evidence that the interviews with the manufacturers provide; the façade of sustainability that exists in the fast fashion supply chain. The interviews revealed how frequently manufacturers and sustainability auditors manipulate data to obtain and maintain certifications. Manufacturers and auditors found a way to mimic sustainability efforts while maintaining the existing regime paradigms.

This not only exemplifies the ineffectiveness of formulating and administering certifications, but it also shows how some of the key issues of the fast fashion business model are being overlooked. The major problems with fast fashion that have a significant impact include high-volume production resulting in long working hours for workers and promoting overconsumption; cheap pricing leading to low wages; and poor quality that forces people to purchase more frequently. Certifications are not addressing these critical concerns. There is a lack of accountability for brands in this system.

Manufacturers are under conflicting pressures: they must comply with sustainability criteria, but brands, not adhering to sustainability standards themselves, demand lower prices and short lead times for high-volume clothing. This compels manufacturers to uphold the existing regime while merely pretending to meet sustainability standards. Essentially, this creates a paradox: certifications aim to promote slower production and fair wages, but brands are unwilling to slow down. They continue to demand the same high-volume, low-cost products, but now from certified factories.

From the lens of MLP, what we see is that the regime is engaging in symbolic compliance, where actions are taken to appear sustainable, without making any substantial changes. The façade may result from institutional isomorphism, where organizations mimic others in their field to gain legitimacy, often leading to superficial changes that do not address the underlying issues (DiMaggio & Powell, 1983). Because brands prefer manufacturers with certifications, manufacturers strive to obtain certifications without actually making operational changes. Brands, wanting to be perceived as sustainable, choose certified factories to meet external pressures but do not integrate these practices into their core operations. What this façade of sustainability highlights is the systemic barriers within the regime such as lack of accountability for brands, insufficient regulatory frameworks, and misaligned activities of regime actors.

In conclusion, the evidence suggests that applying sustainability measures to only one segment does not lead to a comprehensive transition. For genuine progress, a holistic approach that involves all actors and aligns their practices with sustainability goals is essential.

4.1.3 Local Context-Driven Solutions

The previous section highlighted the ineffectiveness of sustainability certifications in fast fashion manufacturing, stemming from the misalignment between brand demands and manufacturing expectations. However, there is another factor that contributes to the inefficiencies of certifications. The interviews suggested that the incongruency between the practicality of the standards given the local circumstances of the region was a factor that prevented the implementation of certification benchmarks.

The incompatibility of sustainability benchmarks with applicability within the manufacturing region is one of the key findings of this case study. The interviews consistently pointed out the unawareness of local realities embedded in the compliance requirements imposed on manufacturing units in India. The interview findings indicated that certifications and compliance requirements were typically established by brands or organizations in the West. However, implementing these standards in manufacturing regions often proved challenging, as manufacturers struggled to meet all the requirements due to local conditions.

One of the main areas of misalignment between certifications and local practicality was infrastructure standards. Manufacturers often struggle to meet all the certification guidelines due to the stringent infrastructural requirements for factories. According to the manufacturers, the space limitations and high real estate costs in several Indian cities were often overlooked. Many manufacturers included in the study were from Mumbai, a city with high real estate prices and limited space. These manufacturers argued that certifications failed to account for the high costs of developing a factory according to the space requirements specified. However, all the manufacturers asserted

that they built their factories according to the standards set by the Government of India, as these were tailored to fit local circumstances compared to the compliance requirements imposed by the brands. Although manufacturers asserted that they attempted to provide facilities according to the compliance standards, they could not achieve full compliance in some cases. Many admitted to manipulating data, stating that auditors issued certifications despite not meeting all criteria, as incorporating every requirement was often practically impossible.

This study shows that not considering the local constraints of a region while formulating sustainability certifications can not only lead to partial compliance and an ineffective system but can also lead to symbolic compliance with no substantial changes. Incorporating the specific limitations of the manufacturing region into compliance benchmarks can lead to solutions that address the unique challenges of that area, rather than applying a one-size-fits-all approach.

When local context-driven solutions are implemented, it fosters more realistic and achievable compliance, enhances the sustainability of manufacturing practices, and ensures that both manufacturers and brands work towards genuinely sustainable and ethical standards.

Rethinking Certifications and Auditing

Given that garment manufacturing occurs in developing nations, rethinking certification processes from a local perspective is essential. Tailoring certifications to local realities can address the unique challenges faced by the manufacturing regions, leading to more effective and meaningful sustainability practices.

The findings of this study have highlighted significant gaps in sustainability efforts that are being implemented in India. Throughout the study, it has become clear that certification standards are often superficial solutions, comparable to applying a band-aid, rather than addressing the real underlying issues. Whether it is manufacturers manipulating data to maintain certifications or auditors granting certifications despite non-compliance, these solutions have failed to solve the real problems of labor abuse, and other violations in the fast fashion manufacturing sector. These practices illustrate that the current certification system is ineffective in resolving the real problems within the industry.

In the fast fashion industry, rethinking certifications and auditing mechanisms is imperative to address the complex and multi-scalar challenges within the current system. This is especially important because the current system of compliance is turning out to be ineffective. Brands and manufacturers operate under different socio-economic conditions, making it difficult to navigate compliances that are not tailored to local realities. Certifications often overlook manufacturing regions' infrastructural and operational limitations, leading to partial or symbolic compliance rather than meaningful change. To achieve genuine sustainability, it is crucial to develop a more nuanced approach to certifications and auditing, one that considers local contexts and fosters realistic standards.

Implementing sustainability measures that align with local conditions can reduce the inefficiencies associated with one-size-fits-all approaches. Local solutions can be more practical, as they consider local resource availability, cultural practices, and infrastructural limitations (Ansell et al., 2022). This leads to better utilization of resources

and more efficient project execution. Local context-driven solutions can ensure a more holistic approach to sustainable development by addressing ground-level problems effectively. These solutions can integrate local traditions, knowledge systems, and community practices with global sustainability goals, creating strategies that are relevant, practical, and culturally appropriate. Applying these principles, fast fashion certifications should be tailored to local conditions, ensuring they are practical and achievable.

According to studies, translating global sustainability goals into locally relevant solutions can both successfully address local problems and stop local actors from rejecting and opposing mandates (Akbar et al., 2020; Ansell et al., 2022). The findings from the interviews in this dissertation also demonstrated how the local stakeholders like manufacturers and auditors were ignoring the standards because they were inadequate in solving local problems and were impractical. The results also revealed a distinct set of issues that India's manufacturing regions were dealing with, challenges that the existing certifications were unable to address. Thus, it may be claimed that improving compliance and reducing ineffectiveness in the fashion system can be achieved by reconsidering certifications and auditing procedures to suit local demands and realities better.

Analysis

The lack of understanding and awareness of local practicality in certifications has resulted in a system of partial compliance, often leading to symbolic compliance or data manipulation. This is a significant finding in this dissertation, highlighting the importance of local context-driven solutions. Without these, the system may perpetuate symbolic compliance and data manipulation practices, failing to address the underlying sustainability issues.

From the lens of MLP, there is a significant misalignment within the regime. This misalignment arises from the geographic separation of key elements: brands, which are leading the transition efforts, and manufacturers, who are responsible for implementing these changes according to brand requirements (Smith et al., 2010). This incongruency further increases because of the divergent political jurisdictions in which brands and manufacturers operate.

Brands, often based in countries with stringent regulatory environments, impose sustainability requirements that may not align with the political, economic, and social realities faced by Indian manufacturing regions. This divergence creates additional challenges, as manufacturers must navigate local regulations, resource constraints, and economic pressures that are often overlooked by brands. Consequently, this discrepancy hampers the effective implementation of sustainability initiatives and highlights the need for a more cohesive and context-sensitive approach to managing the transition within the fashion system.

The regime comprised of established practices and rules faces internal conflicts due to divergent political jurisdiction (Geels & Schot, 2007; Smith et al., 2010). While we see that brands and manufacturers are operationally aligned in the regime, the geographical separation of the supply chain introduces major constraints like sustainability awareness, local politics, labor dynamics, etc. Spatial distribution highlights a distinct set of challenges in transition efforts, particularly in the fashion industry. The environments imposing pressures differ significantly from those where sustainability efforts must be implemented. Brands and manufacturers operate under distinct social dynamics and socio-economic conditions, making it challenging to

navigate compliance requirements that are not tailored to the implementation region. This lack of coherence within the regime hinders effective coordination and integration of sustainability measures.

To effectively address these issues, it is crucial to consider the multi-scalar challenges across various spatial levels. Recognizing that the conditions in manufacturing hubs differ significantly from those in the countries where brands are based, policies and sustainability standards must be adapted to fit these local contexts. This includes understanding local infrastructural limitations, economic pressures, and regulatory environments. By addressing multi-scalar challenges and re-scaling regimes, sustainability efforts can be more effective.

One of the ways to address these multi-scaler challenges is through co-creation. In the fast fashion regime, there is significant friction and resistance to move away from the established status quo, leading to instances of symbolic compliance. This resistance is largely attributed to the socio-economic disparities, constraints, and practical challenges inherent in the geographic separation of regime components (McMullen et al., 2014). By integrating local perspectives through co-creation, the regime can incorporate new ideas and solutions that reflect the realities and needs of all stakeholders. Local governments in manufacturing regions, for example, may collaborate with brands to create practical compliance requirements that account for local circumstances, and brands could modify their support systems and expectations to guarantee that these standards are fulfilled.

Co-creation allows the regime to adapt global standards to local conditions, essential for practical implementation (Mitić-Radulović & Lalović, 2021). This can ensure that the regime remains effective in different contexts, addressing local

infrastructural, economic, and cultural challenges. Collaboration builds trust among stakeholders by involving them in the decision-making process, which can reduce resistance to new sustainability measures (Ingram, 2022). A collaborative approach within the fast fashion regime can help overcome agenda alignment and practicality barriers, ensuring the smooth implementation of new practices. By fostering cooperation among stakeholders, such as brands, manufacturers, and local authorities, this approach can align diverse interests and address practical challenges effectively.

This study has provided substantial evidence demonstrating that current certifications fail to address the fundamental issues within the fast fashion regime. It also highlights the necessity of incorporating locally driven solutions when managing sustainability transitions in manufacturing regions. Based on the discussion above, it is evident that sustainability mandates should encompass local challenges, resources, capabilities, and socio-economic conditions to make meaningful change and mitigate regime resistance. By doing so, sustainability initiatives can become more practical and effective.

4.1.4 Asymmetrical Power Relationship

The fast fashion literature has demonstrated the dominance of brands and retailers like H&M, Zara, etc. who have substantial control over the supply chain, from design to distribution, enabling them to impose terms on manufacturers (Ahmed et al., 2024; McKinsey & Co., 2023). Their rapid manufacturing and distribution of trendy affordable apparel is what propels them to this domination. The fast fashion supply chain is predominantly characterized by a buyer-driven supply chain, where large brands and retailers are based in developed nations and labor-intensive manufacturing activities are

shifted to exporting countries in developing economies (Gereffi, 1994). Brands take advantage of this economic disparity and cheap labor in developing nations, which creates a power imbalance in the system (Marcketti & Karpova, 2020; E. Williams, 2022). While manufacturers in developing countries endure inadequate margins and tremendous pressure to achieve demanding production schedules, Western brands enjoy bigger profits and greater market control (Ahmed et al., 2024; Appelbaum, 2006).

This disparity and power imbalance were also visible in the interviews conducted for this dissertation. To reduce costs and expedite delivery, brands actively negotiate, putting manufacturers under tremendous pressure and exposing the stark power disparity in the market. Consequently, workers faced the brunt of these pressures, enduring long working hours and receiving reduced compensation. Additionally, brands often delayed payments to manufacturers or, in some cases, failed to make payments altogether. Manufacturers, lacking sufficient resources and support, could not hold brands accountable. The absence of specific regulatory frameworks to expedite these cases further exacerbated the issue. This scenario illustrates the power imbalance and brand dominance within the system, where brands benefit from greater informational advantages, risk-free manufacturing, lack of accountability, and the highest profits.

While this industry drives economic growth and job creation in multiple manufacturing countries, it has also led to significant environmental and social impacts (Lopez-Acevedo & Robertson, 2016; United Nations, 2018). The fast fashion supply chain is designed in a manner that enables the brands to push the risk down the supply chain to the manufacturers, suppliers, and eventually the workers (A. Ross, 1997). Brands operate under a system where they cannot be held accountable for their activities. Brands

operate within a system that shields them from accountability for their actions. Since brands do not own the factories where their products are made, they can evade responsibility for the conditions and environmental impacts within these factories. This structure further skews the balance of power, placing more control in the hands of the brands.

This power imbalance was also very significant in the interviews as brands played a very dominant role in framing the production timelines and pricing. Brands dictated strict timelines and were quick to shift to other manufacturers if deadlines weren't met. Additionally, they imposed predetermined pricing structures, often without accounting for factors such as operational costs, labor wages, taxes, or factory expenses. Manufacturers consistently felt pressured to meet these demands, prioritizing short-term gains over long-term relationships and sustainability standards, including optimal working hours and fair wages. This dynamic reinforces a system where brands dictate terms without accountability, leading to a cycle of dependency and vulnerability for manufacturers. This imbalance limits the ability of manufacturers to invest in improvements, such as better working conditions or sustainable technologies, further strengthening the status quo of the fast fashion regime.

Analysis

The analysis of the interviews aligns with the literature, demonstrating how brands are the most dominant players in the supply chain due to their marketing capabilities and extensive consumer base Bhardwaj & Fairhurst, 2010; Niinimäki et al., 2020; Sull & Turconi, 2008). The interviews revealed that manufacturers are under immense pressure to offer brands low prices and short lead times, without guarantees of

timely payments due to the significant power brands wield within the supply chain. They emphasized that the larger the retailer, the greater the negotiation power they had in transactions with production factories. This was primarily because larger retailers placed higher order volumes, leading manufacturers to attempt to build strong relationships with them in the hopes of securing future orders. Consequently, manufacturers often succumbed to pressure and agreed to the retailers' terms. One of the manufacturers said,

"With every order, there is an anxiety to lose the business because of lead times or the pricing. It also depends on company to company to be honest. If that is your bread and butter, and you have no other option, you take it. Because that is how you are going to earn, and probably feed yourself and your employees."

This quote highlights the band's ability to impose stringent terms, such as tight lead times and aggressive pricing, which creates substantial anxiety for manufacturers who depend on these orders for their survival. This power allows brands to dictate terms, forcing manufacturers to comply with their demands to avoid losing business. Brands leverage their dominant position to control various aspects of the supply chain, including pricing and operational timelines, further highlighting the substantial influence they have over how things are done within the industry.

From the lens of MLP, this power asymmetry underscores two key points: operational pressures and lack of accountability in the system. Brands' ability to solely dictate the terms of the agreement places operational pressures on the manufacturers within the regime. The pressures that brands impose within the regime develop unsustainable practices and routines within the system. Power here is the ability to get others to do something they might not have otherwise done (Dahl, 1957). This could

include persuading actors in the regime to take any action that can prevent the displacement of a profitable regime into a sustainable one (Smith et al., 2005). Power provides brands with the agency to shift selection pressures for all the other actors in the supply chain.

With no accountability measures imposed on brands, they can induce pressure demands on the regime that are unsustainable. Currently, there are no mechanisms to hold brands accountable or provide oversight to monitor their actions. Unlike manufacturers, brands are not required to comply with certifications. In countries with stringent environmental laws, brands must follow certain regulations, but they often shift the responsibility down the supply chain. They do this by imposing certifications and compliance requirements on manufacturers that are not part of the same regulatory system, thus avoiding direct accountability. Furthermore, the lack of proper oversight allows brands to enforce compliance and maintain fast fashion pressures on manufacturers without changing their own practices.

With brands significantly influencing the industry's course of action, the absence of checks and balances grants them more power, creating a substantial asymmetry. Establishing accountability frameworks would ensure that brands are held responsible for their actions, thereby balancing the power dynamics within the supply chain. Accountability mechanisms ensure that all actors, including dominant brands, are held responsible for their actions, promoting a more equitable distribution of power and resources. By implementing robust accountability frameworks, brands can no longer evade responsibility for unsustainable practices, thereby leveling the playing field for

manufacturers and other stakeholders. It can be argued that implementing accountability mechanisms for brands can reduce power asymmetry and foster a fairer system.

The MLP framework recognizes the importance of power dynamics in socio-technical transitions but does not extensively detail how to manage power imbalances. Introducing robust accountability mechanisms can help mitigate power asymmetry, ensuring that dominant actors, such as brands do not exploit their position. One of the challenges identified in the study is the ineffectiveness of certifications within the regimes. By advocating for accountability, this study also highlights the necessity of integrating local contexts with global standards. This approach ensures that interventions are not only top-down but also consider local realities.

4.2 Policy Implications

The analysis presented in this study reveals several significant challenges within the fashion regime that impede the transition to improved practices. Key issues identified include a lack of transparency in payments, operational difficulties in adhering to certification requirements, and adverse effects on workers' conditions. These challenges are deeply embedded within the current system, highlighting the need for any proposed solutions to address not only the surface-level symptoms but also the structural limitations imposed by the regime itself. Moving forward, it is crucial to acknowledge and navigate these inherent restrictions, ensuring that solutions are both realistic and impactful in fostering sustainable change within the industry. Some policy implications related to this study are discussed below.

Transparency in payments

One of the critical policy solutions in the fast fashion supply chain is to enhance transparency in payments. The findings of this study showed how brands delayed payments to the manufacturers, eventually leading to late payments for workers. Addressing some of these issues related to payments would not only ensure timely payments for actors within the supply chain but it will also add a layer of accountability and transparency in the payment system that can prevent brands from paying below the regulatory wage mandates.

Policymakers within the manufacturing region can mandate that brands establish predefined payment windows in their contracts with manufacturers. These contracts must include strict timelines for payment to ensure timely compensation for services rendered. Regulatory bodies should play a pivotal role in enforcing compliance, preventing brands from exploiting their dominant positions to unjustly delay payments. Furthermore, introducing a framework for accountability, which could involve penalties for non-compliance that will encourage adherence to these financial expectations.

It is essential for policymakers of the manufacturing regions to advocate for the creation of a transparent and accessible payment tracking system. This system can be developed in collaboration with manufacturers, labor representatives, and relevant stakeholders to ensure it effectively meets their needs. By enabling manufacturers and regulators to monitor payment timelines, the system can foster accountability within the industry. Involvement of regional government bodies can not only initiate transparency in the regime through better policies, but it can also ensure that brands do not take undue advantage of their power within the supply chain.

Transparency in Operations and Corporate Accountability

One of the critical issues highlighted in this study is the intense pressure brands place on manufacturers to meet short deadlines and high order volumes while maintaining certifications. This discrepancy often makes it impossible to adhere to the 8-hour working day guidelines and still fulfill the required production volumes. The root of this problem lies in the lack of compliance mandates for brands, that push sustainability requirements onto manufacturers without being subject to similar standards themselves.

To address the pressure placed on manufacturers by brands, policymakers of manufacturing regions can establish a system to monitor order timelines and ensure that delivery dates and order quantities are reasonable. This method would encourage improved working conditions and conformity to labor laws while protecting against irrational output demands.

Implementing provisions to monitor order volumes in relation to working hour requirements will not only ensure compliance with the mandates outlined in certifications but also help prevent data manipulation practices. This approach will safeguard against excessive working hours for employees, promoting their well-being. Additionally, by addressing the conflicting pressures placed on manufacturers within the regime, such measures will enhance accountability and increase the likelihood of achieving sustainability goals.

Worker-Centered Certification and Auditing System

The current auditing system relies heavily on third-party monitoring agencies that audit factories with the factory management to verify compliance with established standards. This is a top-down approach where brands or certifying agencies develop

various standards and has significant limitations. Interviews revealed that manufacturers often manipulate wage data, working hours, and other records to maintain certifications without adhering to the required standards. As a result, actual labor issues remain unaddressed, and there is no reliable way to ensure ethical standards are being practiced.

Including employees in the auditing process provides a crucial chance for local government organizations in the manufacturing regions to interact with workers and gain a deeper understanding of their difficulties. Government organizations can obtain firsthand information that sheds light on the realities encountered by workers by setting up platforms where employees can offer input on important facets of their jobs, such as pay, working hours, and working conditions. Because workers are allowed to express their concerns and report infractions directly to regulatory agencies, this strategy not only improves the accuracy of compliance checks but also reduces the possibility of data manipulation by manufacturers.

Regional government agencies can put in place systems like surveys, frequent interviews, and anonymous reporting routes for garment workers. This can guarantee that labor issues are appropriately recorded and handled by creating a space where employees feel free to share their experiences. In addition to increasing transparency in the auditing process, this direct interaction fosters confidence between workers and regulatory bodies.

Worker-centered auditing also empowers laborers to report violations, leading improved working conditions and compliance. Additionally, worker-centered auditing techniques can enhance connections and foster trust among manufacturers, brands, and workers. Workers are more inclined to participate favorably in the auditing process when

they see that their opinions are being heard and that their rights are being upheld. Consequently, the supply chain might embrace more ethical and sustainable practices.

Chapter 5 Conclusion

The fashion industry has seen substantial growth over the past few decades, driven by innovative production methods and retail strategies (BoF-McKinsey, 2022; Čiarnienė & Vienažindienė, 2014; Fashion United, 2021a). However, its complex global supply chain has led to significant environmental and social impacts. These issues range from water pollution, emissions, and excessive energy consumption to serious occupational hazards, underpaid workers, and health concerns for laborers (Ellen MacArthur Foundation, 2017; Niinimäki et al., 2020). Although alternative business models and technologies are gaining traction within the sector, the fast fashion model continues to dominate (Buchel et al., 2022). Moreover, factors such as a rising middle class, population growth, and increasing demand in developing nations are expected to further drive the demand for fast fashion (Dobbs et al., 2016; Kharas, 2010; KPMG, 2019).

Given the impacts of overproduction and overconsumption in the fashion system, these effects have significantly outweighed the current sustainability efforts being implemented (Fletcher, 2010; Peters et al., 2021). Moreover, the fashion system has struggled to eliminate its entrenched unsustainable practices (ibid). The fashion system remains entrenched in a cycle of unsustainable practices, firmly rooted in a growth-oriented model characterized by the rapid production and disposability of clothing (Buchel et al., 2022).

This dissertation adopts a sustainability transitions perspective to examine the fashion system and identify the barriers that hinder the shift toward sustainable practices. By utilizing the Multi-Level Perspective (MLP) approach, the study aims to explore

patterns and mechanisms that contribute to inertia within the system and identify opportunities that could enable transformative change in this complex industry. The fast fashion system primarily operates on a buyer-driven supply chain model with various components such as processing, manufacturing, and labor situated in developing economies. This study therefore takes an ethnographic approach to gain insider perspectives from supply chain actors on the barriers to achieving sustainability. It primarily engages with manufacturers and industry experts to gain insights into their perspectives and experiences within the fashion industry. The research was conducted in India, one of the leading manufacturing hubs for fast fashion. India was chosen as the research location to incorporate the perspective of developing economies from the Global South into sustainability transitions research.

This chapter focuses on the key findings of the study, their broader implications, and the study's main theoretical contributions. It highlights the unique challenges of manufacturing from an Indian perspective, the barriers to sustainability, and the complexities that arise from implementing sustainability standards in geographically diverse contexts. Additionally, it examines power dynamics between actors and how these factors impact the fashion industry. The chapter also explores how MLP framework aids in understanding the industry's challenges, while the industry's spatial distribution further informs MLP framework.

Key Findings

The interview findings reveal critical insights into the socio-technical regime of the fast fashion system. It highlights the complex dynamics within the fast fashion regime, with a specific focus on manufacturing challenges, contrasting pressures between

manufacturers and brands, power imbalances, challenges of meeting sustainability standards, and the role of local realities in shaping compliance. The findings provide a thorough understanding of the obstacles hindering sustainability transitions, while also offering an insider's perspective on the daily challenges faced by actors within the supply chain. These insights shed light on the difficulties in adopting sustainable practices, revealing how operational realities, power dynamics, and external pressures shape the ability of supply chain participants to embrace sustainability.

One of the most significant challenges highlighted by the participants was intense pressure related to short lead times, tight pricing, and delayed payments from brands. Manufacturers emphasized how brands constantly put them under extreme pressure to deliver high volume orders within a short time frame. Failing to do so damages their reputation and prevents them from being recognized as a reliable partner in the sector. Another difficulty that arises for manufacturers is the tight pricing criteria that brands impose on them. Manufacturers argued that there is always a pressure to meet the predetermined pricing criteria that brands come with. They lose out on sales if their prices fail to meet brand demands. Additionally, because brands do not consider operational considerations like shifting raw material prices, taxes, and logistical challenges in the production nations, manufacturers are at a disadvantage when it comes to matching the pricing criterion. An additional concern that manufacturers navigate is late payments or no payments from brands. Delayed payments from brands not only hinder manufacturers' ability to efficiently fulfill future orders, but also place them in a difficult position where they struggle to pay their vendors and workers on time. This

severely impacts their working capital, disrupting overall operations and leaving them financially strained when preparing for upcoming orders.

These difficulties that manufacturers have brought to light are not limited to problems in the supply chain. Rather, they represent the underlying reason for some of the more significant problems facing this industry, such as extended working hours, low worker wages, and untimely worker payments. These firsthand accounts from manufacturers offer a direct view into how brand practices heavily influence decisions related to adopting sustainability standards, such as maintaining optimal working hours, timely payments, and fair wages. The financial strain imposed by delayed payments complicates manufacturers' ability to genuinely implement and uphold ethical practices, making sustainability efforts difficult to sustain in the long run.

The interviews offer valuable insights into how regional nuances complicate the implementation of sustainability efforts. The interviews revealed that sustainability efforts within the industry are primarily assessed through certifications like SEDEX or through brand-specific compliance standards. Manufacturing factories are often required to obtain certification through standardized systems such as SEDEX or meet the sustainability requirements set by individual brands, ensuring that they adhere to specific ethical and environmental guidelines. Manufacturers reported that meeting certification requirements could be highly demanding and often unfeasible due to regional constraints. Many expressed that adhering to building standards, such as the required number of toilets per worker, canteen sizes, and factory dimensions, was particularly challenging in India where space is expensive. These regional factors made it difficult for manufacturers

to fully comply with the stringent requirements set by sustainability certifications, reflecting the disconnect between global standards and local realities.

Another challenge with adherence to certification standards stems from the fact that brands do not invest in the development of manufacturing facilities to meet these sustainability criteria. Additionally, brands do not guarantee future orders even if factories achieve certification. This lack of support makes it difficult for manufacturers to allocate the necessary capital and time for compliance. Many manufacturers noted a disconnect between Western standards and the realities in India, where fully implementing the requirements is often impractical. However, according to the manufacturers, all factories were built in accordance with Indian government regulations.

Manufacturers also attributed the non-compliance with sustainability standards to contrasting demands imposed by brands. Even though certifications require manufacturers to follow policies such as 8-hour workdays and timely payments, brands do not place orders with these standards in mind. Brands often demand short production timelines for high order volumes and fail to make payments on time, which contradicts certification requirements. This creates a point of contention, as brands insist on sustainability compliance but fail to account for the constraints this place on production activities. Consequently, manufacturers are left to manage conflicting demands without adequate support from brands.

To balance both their profitability and certification requirements, some manufacturers have begun manipulating compliance reporting data. This practice highlights the inherent contradictions in the fast fashion system, where brands demand sustainability compliance while simultaneously imposing operational pressures that make

full adherence to these standards difficult. As a result, manufacturers resort to data manipulation to obtain and maintain their certifications, further complicating efforts to genuinely implement sustainable practices. Participants reported that non-compliance with standards often stemmed from the fact that these standards do not align with the practical realities on the ground. According to several experts interviewed, sustainability certifications are not always applicable in the Indian context because they fail to account for the specific local conditions and realities of the country.

While the previous findings center on manufacturing challenges and the complexities of sustainability compliance, another significant insight emerged from the interviews, emphasizing the role of networks and social relationships in the manufacturing process. Manufacturers emphasized the importance of maintaining strong networks and communication in their industry. A well-established network not only helps in acquiring new clients but also facilitates informal background checks among manufacturers to mitigate nonpayment risks. Good communication is crucial for building trust with clients, suppliers, and workers, fostering long-term relationships. These findings highlight how manufacturers prioritize relationships and networks in what they perceive as an impersonal market, which are vital for navigating the power imbalances they face with brands.

Broader Implications

To explore the broader implications of this study, it is essential to examine how the findings contribute to existing knowledge, inform industry practices, and provide insights into sustainable transitions within the fast fashion system. The findings offer crucial insights into the systemic challenges that impede sustainability transitions within

the fashion system. They provide a nuanced understanding of the underlying issues that must be addressed to foster meaningful change in the industry.

The study revealed how workers continue to be adversely affected despite the presence of certifications intended to improve their conditions. Although certification mandates require factories to implement 8-hour workdays and fair pay, compliance with these standards is often compromised due to the lack of alignment with brand practices. Brands frequently impose high volume and short lead time pressures, forcing workers to endure extended working hours, leading to noncompliance with certification requirements. Additionally, tight pricing and untimely payments from brands result in late or insufficient payments to workers, further undermining the certifications' intended benefits. As a result, despite the presence of certifications, workers continue to suffer because brands prioritize cost-cutting and rapid production over adhering to fair labor standards.

This also highlights the misalignment in brands' own sustainability practices. The findings reveal that brands are not factoring in sustainability practices when placing orders. Although certifications mandate optimal working hours, fair pay, and timely payments, brands persist in demanding rapid production, low prices, and often fail to pay on time. This places significant pressure on manufacturers. This highlights a structural gap in the industry where brands are not held accountable for their own practices. This issue has been highlighted in several reports, urging brands to critically evaluate their own practices and increase transparency by disclosing their actions (Fashion Revolution, 2019, 2023a; McMullen et al., 2014). These reports call for greater accountability in the

system to ensure brands are not merely imposing sustainability requirements on manufacturers without reflecting on their own contributions to the problem.

This study addresses a crucial gap in the literature by using firsthand accounts from manufacturers to highlight the disconnect between brands and sustainability practices. It reveals how dominant actors, such as brands, enforce certifications without recognizing the necessary changes they themselves must make in their operations. This disconnect underscores the need for systemic change, as brands are imposing sustainability demands on manufacturers while neglecting to adjust their own practices to meet the same goals. The findings suggest that achieving genuine sustainability requires brand accountability alongside compliance efforts. Brands themselves need to be regulated or monitored to assess how their orders impact overall compliance in manufacturing factories.

This misalignment highlights the need for a more cohesive approach to sustainability, emphasizing stronger accountability measures for brands. Implementing certification benchmarks for brands that track order volumes, payment timelines, and other key practices would ensure that all actors, including brands, are held responsible for their contributions to the supply chain. This approach would foster a more balanced system, ensuring sustainability goals are met through collective accountability across the industry.

Another key insight to consider from this study is the significant disconnect between local realities and the certification criteria. The research highlights that certifications often fail to account for the practical applicability of standards in manufacturing countries. Countries like India operate within distinct regulatory frameworks, space

constraints, socio-economic conditions, and political factors. This study offers clear evidence of how these constraints limit manufacturers' ability to fully adopt sustainability standards. It demonstrates that sustainability cannot follow a one-size-fits-all approach but must adapt to the local realities where these standards are implemented. The findings urge industry stakeholders to acknowledge these critical issues in sustainability discussions and identify solutions that account for regional challenges, paving the way for a more effective shift toward sustainability in the fashion industry.

Overall, this study challenges the notion of a “one-size fits all” sustainability model, advocating for more specific context-driven solutions. It also reveals the barriers of implementing standardized sustainability certifications within a globally fragmented supply chain that operate under different social, political and economic conditions. Additionally, it highlights the specific challenges faced by the Global South, incorporating ethnographic accounts to address region-specific obstacles within the fashion industry. By bringing in these local perspectives, the research underscores the complexities of implementing sustainability practices in contexts shaped by unique socio-economic, regulatory, and infrastructural conditions.

Theoretical Contributions

In terms of theoretical contribution, this study reveals how actors within a socio-technical regime often create a facade of sustainability while continuing practices that reinforce the dominant practice. For instance, third-party auditors may certify factories that do not fully meet compliance benchmarks, and manufacturers may resort to data manipulation to obtain and maintain these certifications. From a theoretical perspective, the findings of this study expose the everyday practices within the regime that

continuously reinforce the dominant structure, with sustainability often reduced to a mere token. The study provides evidence of how, within the socio-technical regime, sustainability efforts frequently present a façade rather than genuine change. This façade serves as a clear indicator of the inefficacy of current sustainability measures, highlighting the gap between the appearance of progress and the actual implementation of meaningful sustainable practices. These findings provide a nuanced understanding of how these actors work to preserve existing structures. Understanding these dynamics also provides opportunities for policy intervention within the regime.

This study also extends the discussions in MLP by emphasizing the importance of geographical and spatial contexts in transition studies. It demonstrates how having different components of the regime spread across various parts of the world creates additional resistance to change. It also highlights the need to understand the challenges that arise when elements of the regime operate in different geographical regions. For instance, the manufacturing activities in India face distinct socio-technical configurations, which are different from those encountered by dominant actors in other parts of the world. This geographical separation exposes these elements to varying pressures and constraints, complicating efforts toward sustainability. Thus, this study also makes the case for modifying sustainable solutions while taking local considerations into account.

Within the context of sustainability transition literature, this research underscores the critical need for localized solutions to effectively address sustainability challenges, particularly in industries like fashion, where manufacturing is primarily concentrated in developing nations. Tailored approaches that consider the specific context of these regions are essential for achieving meaningful progress toward sustainability.

The complexities of spatial separation within regime elements require more focus in transition studies. This research provides evidence that geographic distance introduces resistance to change due to exposure to distinct socio-technical configurations. Future studies should further explore how geographic factors influence transitions in other industries and contexts. By examining these spatial dynamics, researchers can gain deeper insights into how different locations and their unique socio-technical environments impact overall sustainability transitions.

Building on these findings, this study also sheds light on the power imbalances between manufacturers and brands, contributing to MLP discussions on the influence of dominant actors in socio-technical regimes. The interviews reveal that brands, as dominant actors within the regime, exert significant control over various aspects of production, including delivery timelines, pricing, and certification requirements. Brands also leverage their power to delay payments without facing consequences. This study demonstrates how dominant actors like brands hold disproportionate influence over multiple components of the system, creating an imbalanced structure where manufacturers bear the burden of meeting demands without equitable support or accountability from brands.

The interviews further revealed that brands, as the most powerful actors in the regime, impose sustainability requirements solely on manufacturers while neglecting to implement these standards themselves. This power asymmetry is evident in the fact that accountability tools, such as audits, are applied only to manufacturers, leaving brands unregulated and unaccountable for their own practices. This disparity highlights the unequal distribution of responsibility within the supply chain, with manufacturers bearing

the burden of compliance while brands evade scrutiny. In the context of MLP, these findings show how dominant actors are shaping sustainability practices. It shows how power imbalances can skew accountability of sustainability measures, allowing them to avoid scrutiny themselves. In the context of the theory, it also shows how unequal responsibilities among actors can hinder the effectiveness of sustainability transitions, adding a critical layer to understanding regime resistance.

Lastly, in the domain of fashion literature, this study sheds light on the pervasive practices of data manipulation by manufacturers to maintain certifications, exposing the significant shortcomings in current certification processes and compliance measures within the fast fashion supply chain. These insights point to the need for more robust and context-sensitive mechanisms to ensure that sustainability efforts are genuinely effective.

Limitations

One of the limitations is the geographical focus of the study. The fieldwork was primarily conducted in India, with a focus on the perspectives of manufacturers and experts. While this provides valuable insights into the challenges of incorporating sustainability standards within supply chain processes, it may limit the generalizability of findings with other manufacturing regions due to differences in socio-economic and regulatory environments.

The study primarily incorporates the perspectives of manufacturers and industry experts. While these perspectives address a significant gap in the literature due to the limited representation of these actors, the focus on this particular segment of the supply chain may not fully capture the diverse experiences and challenges faced by other stakeholders, such as workers or consumers.

Additionally, the study captures the experiences and perspective of actors at a specific point in time. However, the industry is dynamic and is constantly evolving in terms of sustainability practices. Therefore, some of the findings may become less relevant in the coming years as the industry continues to change.

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Appendix

Interview Guide

Basic Data for all the groups:

1. What does your firm/organization do?
2. What is your role in the firm/organization?
3. What is your training?
4. How did you obtain your current role?
5. How many people are employed in your firm/organization?

Interview Subject: Manufacturer

Initial Prompts	**Follow-up (if these are not addressed in the subject's response to the initial prompt)**
What are the main processes in your firm, and what are your main products?	
Who are your primary customers? (No need to name them, but please describe them)	Where are they located? How big are they?
Who are your main suppliers?	What inputs do they supply? Where are they located?
What does sustainability mean to you, and how does it enter your business decisions?	Do your customers care about it? Does it influence which suppliers you work with? Has concern for sustainability affected your operations? How?
How many workers do you employ? Can you tell us more about the workers employed at your firm?	How are the paid? Are there any wage policies you follow? Who are these employees and what are their skills?254
Are there any certifications you must get to manufacture garments?	Are there any registration requirements for manufacturing units to follow?

Interview Subject: Advocacy NGO

Initial Prompt	Follow-up
What are the issues or problems you have worked on related to the fashion industry?	[Pick one or two of the issues mentioned for further exploration] OK, let's talk about (Issue A),

	What strategies does your organization use in dealing with this issue? What are you trying to accomplish? What firms are involved? (If you'd rather not name them, please describe them) How would you like them to change their behavior? Let's discuss (Issue B):
What are some of the challenges you have encountered working with_____ issue?	
What are some of the barriers to sustainability in the fashion industry?	
Which areas need the most amount of work in order to transition towards sustainability?	

Code Book

Category	Description
1. Advocacy	Efforts aimed at promoting better practices within the fashion industry.
Initiatives	Various programs and projects aimed at improving sustainability, labor rights, and transparency within the fashion supply chain.
2. Audits and Compliance	Processes and systems used to ensure that manufacturers meet established standards.
Certification	Different certifications available to manufacturers, the criteria required, and implications for labor practices and sustainability.
Non-Compliance	Instances of non-compliance with established standards and regulations, exploring implications for workers and the industry.
Contracting	Relationships and agreements between brands and manufacturers, including how contracts impact production practices and accountability.
3. Client Base	Examination of the relationships between manufacturers and their clients, including the diversity of clients and how these relationships affect business operations.
4.Communication and Networks	Exploration of informal communication channels and networks that manufacturers utilize, including the role of technology in facilitating communications.

5. Cultural Disconnect	Differences in cultural perceptions and practices between brands and manufacturers, and how these disconnects affect labor practices and compliance.
6. Gaps	Shortcomings in current practices, regulations, or standards that hinder progress toward sustainability and ethical labor practices.
7. General Fast-Fashion Practices	Common practices within the fast fashion industry, including production strategies, marketing approaches, and consumer behavior.
8. Problems Manufacturers Face	Various challenges that manufacturers encounter, such as financial pressures, operational hurdles, and issues related to client demands.
Labor	Labor-related issues, including working conditions, wage disparities, and labor rights within the fashion supply chain.
Payments	Examination of payment practices, including issues related to timely payments, wage standards, and the financial stability of manufacturers.
9. Social Relationships-Related	Importance of social relationships within the supply chain, including how these relationships influence collaboration and communication among stakeholders.
10. Supply Chain	Overview of the overall structure and dynamics of the fashion supply chain, including the flow of goods, information, and resources.
Process	Various processes involved in garment production, from design to manufacturing, and how these processes impact efficiency and sustainability.
Transparency	Need for transparency in the fashion industry, including the disclosure of supply chain practices and the importance of accountability.