



**Implementing Environmentally Sustainable Practices in
Multi-Tier Fashion Supply Chains: The Influence of
Institutional Pressures**

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Implementing Environmentally Sustainable Practices in Multi-Tier Fashion Supply Chains: The Influence of Institutional Pressures

Abstract

Purpose: Implementing sustainable practices, particularly those aimed at reducing environmental impact, is challenging across multi-tier fashion supply chains operating within complex institutional contexts. These difficulties are most pronounced at the upstream level, where limited resources, restricted visibility and a lack of strategic control and support can hinder progress. This research explores how institutional pressures influence the implementation of environmentally sustainable practices and strategic responses of upstream suppliers, offering theoretical and practical insights beyond the first tier of the supply chain.

Design/methodology/approach: Bangladesh a key manufacturing hub for global fashion, provides a valuable emerging economy context for examining sustainability challenges. This study uses an exploratory multiple-case approach to investigate institutional pressures in multi-tier fashion supply chains. Data from 43 suppliers and 16 stakeholders were analysed thematically to uncover how such pressures shape sustainable responses across supply chain tiers.

Findings: The findings reveal how institutional pressures shape manufacturing operations and influence the adoption of sustainable practices, reflecting the perspectives of upstream fashion suppliers. These pressures, along with supplier responses, strategies and challenges, vary across different tiers of the supply chain, particularly lower-tier suppliers who often face greater resource constraints and limited visibility. This research offers theoretical and practical insights beyond the first tier and provides six propositions and a conceptual model that highlight the complexity and diversity of sustainability implementation across multi-tier supply chains.

Research implication/limitations: Although the study is empirically situated in the fashion industry, this study offers theoretical insights that are broadly applicable to multi-tier supply chains across diverse sectors. By examining how institutional pressures operate within complex supply chain environments, the research contributes to a wider understanding of sustainability implementation beyond first tier. However, the scope of the study is limited to environmental practices.

Originality/value: This study focuses on multi-tier upstream fashion supply chains, a sector that faces unique regulatory, economic, cultural, and competitive pressures, particularly in developing country contexts. It offers a supplier-centric perspective on how institutional

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3 pressures are interpreted and enacted in these contexts, while also providing practical guidance
4 for organisations seeking to improve environmental practices throughout their supply
5 networks.
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10 **Keywords:** Environmental Sustainability, Fashion Industry, Institutional Theory,
11 Manufacturing Operations, Supply Chain Management
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16 **1. Introduction**

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19 Fashion supply chain operations are causing growing environmental harm (e.g., carbon
20 emissions, material waste, energy use and chemical pollution) especially during processes like
21 fibre production, knitting, weaving, dyeing, sewing, printing, washing, and finishing
22 (Almelhem et al., 2025; Shamsuzzaman et al., 2023; Niinimäki et al., 2020; Resta et al., 2016).
23 The outsourcing of garment and textiles manufacturing has led to complex global supply chains
24 with reduced visibility and control. This has resulted in increased concerns about
25 environmental and social sustainability (Niinimäki et al., 2020), which has attracted media
26 criticism and public scrutiny (Rafi-Ul-Shan et al., 2018). Stakeholders, including suppliers,
27 buyers, industry leaders, and policymakers, have begun to recognise the importance of
28 implementing sustainable practices throughout the supply chain (Islam et al., 2021; Karaosman
29 et al., 2016). Sustainable practices refer to those activities or operations that support triple
30 bottom line principles of sustainability (Cassen, 1987). From a fashion supply chain context,
31 sustainable practices are the specific activities such as eco-design, sustainable materials,
32 processing, clean energy, transportation, green operations, waste minimisation, recycling,
33 resource efficiency etc., that conserve natural and human resources and sustain quality in
34 operations (Islam et al; 2021, Macchion et al., 2018; Caniato et al., 2012). It is widely
35 acknowledged that the implementation of environmentally practices in supply chain operations
36 is a key priority in the mitigation of resource crises (Kalaitzi et al., 2019; Li et al., 2016; Wang
37 et al., 2018) and gaining strategic advantages (e.g., improving reputation, resource-saving, risk
38 minimisation and receiving orders) (Islam et al., 2021; Kwak et al., 2018; Macchion et al.,
39 2020). However, few studies have analysed environmental sustainability beyond focal
40 companies (Jia et al., 2021, Nath et al., 2019, Islam et al., 2021). Some of the most
41 unsustainable practices take place in distant, multi-tier upstream supply chains, which are often
42 situated in opaque and challenging institutional contexts (Karaosman et al., 2016, Karaosman
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3 et al., 2018, Nath and Eweje, 2021, Huq and Stevenson, 2020). Suppliers often encounter
4 challenges in implementing sustainable practices due to resource constraints, supply chain
5 complexity, lack of knowledge, limited collaboration and financial support (Islam et al, 2021;
6 Bostrom and Micheletti, 2016; Oelze, 2017).
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10 Recent global discussions on climate action have increasingly spotlighted the fashion
11 industry's environmental impact, with major international forums calling for urgent reform.
12 The Conference of the Parties (COP) has increasingly spotlighted the fashion industry's
13 contribution to the climate crisis, with its presence becoming more prominent on the agenda in
14 recent years (Chan, 2023). *Alongside these global conversations, industry research has
15 highlighted how internal challenges continue to hinder progress toward sustainability.* A report
16 by McKinsey and Company highlighted how the Covid-19 pandemic disrupted sustainability
17 progress, amplifying existing challenges and exposing the fragility of current efforts. It also
18 underscores the substantial challenges such as economic crises and supply chain disruptions
19 that suppliers in developing countries like Bangladesh face in pursuing sustainability (Monyaki
20 and Cilliers, 2023, Brydges and Hanlon, 2020). As a result, many suppliers have been forced
21 to prioritise immediate survival, safeguarding jobs, maintaining cash flow, and ensuring
22 operational continuity over environmental issues (Habib et al., 2021; Islam et al., 2021).
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32 To date, limited research has explored the environmental impacts of multi-tier upstream
33 suppliers (Islam et al., 2021; Nath and Eweje, 2021), including areas such as energy and waste
34 management (Shirvanimoghaddam et al., 2020, Kalaitzi et al., 2019), effluent treatment
35 (Shamsuzzaman et al., 2023), sustainable materials and processes, carbon emissions, and
36 strategic sustainability planning (Islam et al., 2021, Boström and Micheletti, 2016, Oelze, 2017,
37 Fung et al., 2020). Understanding these environmental impacts requires not only technical and
38 operational insights but also an examination of the institutional pressures that shape supplier
39 behaviour. Gaining insight into how institutional pressures influence suppliers across multiple
40 tiers (from Tier 1 to 4) is therefore essential for advancing the effective implementation of
41 environmentally sustainable practices (DiMaggio and Powell, 1983). While institutional theory
42 has been applied to management strategy and organisational behaviour, its application to
43 environmental sustainability in multi-tier upstream supply chains remains limited and often
44 unclear, particularly due to opaque and complex institutional contexts (Islam et al., 2021; Nath
45 et al, 2019; Wilhelm et al, 2016; Liu et al., 2018). This research addresses that gap by
46 examining the mechanisms through which institutional actors exert pressure on Bangladeshi
47 fashion suppliers and how these pressures affect the implementation of environmental
48 practices. It offers both theoretical and empirical contributions by investigating how
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3 institutional pressures shape sustainability efforts across underexplored upstream
4 manufacturing stages such as, spinning, knitting, weaving, dyeing, finishing, garment
5 production, printing, trimmings, washing, and packaging, within multi-tier fashion supply
6 chains. The study also explores the diversity of environmental sustainability practices adopted
7 and the contextual factors that influence their implementation. To guide this investigation and
8 address the gaps identified in the literature, we propose the following research question:
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15 *How do different forms of institutional pressures influence upstream fashion suppliers in*
16 *implementing a diverse range of environmentally sustainable practices?*
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21 In addressing the research question, this study contributes to environmental sustainability and
22 supply chain management literature on various fronts. First, by offering a distinctive empirical
23 perspective on multi-tier supply chains in the lower middle-income country like Bangladesh,
24 where in contexts marked by institutional voids, power asymmetries and resource constraints,
25 sustainability transitions are particularly complex (Islam et al., 2021, Nath and Eweje, 2021).
26 This perspective remains underrepresented in existing research. While previous research have
27 highlighted the importance of upstream environmental practices to achieve sustainability
28 (Islam et al., 2021, Wang et al., 2019, Jia et al., 2021; Nath et al., 2019), this study provides
29 more nuanced empirical insights by applying institutional theory to multi-tier suppliers in
30 fashion suppliers. It extends institutional theory (DiMaggio & Powell, 1983), by showing how
31 different pressures (coercive, normative, mimetic) interact within fragmented regulatory and
32 economic landscapes. Through multiple case companies across different supply chain tiers, this
33 research highlights how institutional pressures are unevenly distributed and interpreted,
34 shaping suppliers' responses to implementing sustainable practices. The granular analysis
35 uncovers not only the level of adoption but also the underlying institutional pressure
36 mechanisms driving or hindering each practice which are often hidden from wider
37 stakeholders. Finally, it provides actionable insights for practitioners, emphasising the need to
38 set strategic priorities, address challenges in supplier selection and development, and
39 implement sustainability beyond Tier-1. It also aligns these efforts with broader goals such as
40 the Sustainable Development Goals (e.g., SDG 12, 9, 13 and 17).
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55 The remainder of this paper is organised as follows: Section 2 reviews the relevant literature;
56 Section 3 outlines the research methodology for the exploratory case study; Section 4 presents
57 the findings and discussions, and Section 5 concludes with key contributions, implications,
58 limitations and directions for future research.
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2. Literature Review

2.1 Environmental Sustainability in the Upstream Fashion Supply Chain

The fashion industry is characterised by highly complex supply chain operations with significant environmental impact (Caniato et al., 2012; Moretto et al., 2018; Niinimäki et al., 2020; Shamsuzzaman et al., 2023) and is widely criticized for not addressing sustainability issues (Almelhem et al., 2025; Wren, 2022). Public awareness of climate challenges, media exposure, government policies, resource scarcity and stakeholder expectations generate pressures on companies to be more sustainable (Almelhem et al., 2025; Bostrom and Micheletti, 2016; Kalyar et al., 2019). Notably, brands and suppliers are under increased pressure to improve environmental performance, which is beginning to filter down to multi-level suppliers (Islam et al., 2021; Niinimäki et al., 2020). The complex nature of fashion supply chains with their diverse operational practices, requires suppliers to act responsibly and adhere to codes of conduct to ensure sustainability (Lau et al., 2024; Islam et al., 2021; Karaosman et al., 2016). For example, Jia et al. (2021) and Macchion et al. (2018) emphasise the importance of including stakeholders in the implementation of sustainable practices, highlighting the crucial role that upstream suppliers play in achieving sustainability goals. Addressing the environmental challenges of upstream fashion supply chains requires innovative solutions and business models that integrate digital technologies (Schilling and Seuring, 2024) alongside a systemic rethink of production and waste practices such as, reducing resource consumption and waste, recycling, remanufacturing products, and implementing reverse supply chains (Dissanayake and Sinha, 2015; Islam et al., 2021; Almelhem et al., 2025). Research shows that implementing sustainable practices in fashion supply chains is strategically imperative not only for reducing environmental impact but also for gaining a competitive edge and enhancing long-term business performance (Macchion et al., 2018; Mukendi et al., 2020; Winter and Lasch, 2016; Islam et al., 2025).

The fashion industry (i.e., approximately 4621 firms) is a cornerstone of Bangladesh's socio-economic development, generating over 84% of the country's foreign export income (Akter et al., 2022; Khan and Islam., 2015). *As the world's second largest apparel exporter after China, Bangladesh holds strategic advantages with a growing pool of low-cost skilled workforce, large scale supply capacity, consistent product quality and competitive lead times (Habib et al., 2021; Islam et al., 2025), which collectively enhances its position as a reliable and cost-effective sourcing destination for global fashion brands.* The Rana Plaza disaster in 2013 marked a

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3 turning point in global awareness of labour conditions within fashion supply chains, prompting
4 widespread calls for reform (Wu et al., 2023, Huq and Stevenson, 2020, Nath and Eweje, 2021).
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6 In the aftermath of the tragedy, two buyer consortiums, Accord and Alliance were legally
7 established by institutional actors to improve compliance and promote social sustainability in
8 the Bangladeshi fashion industry (Islam et al., 2021; Nath et al., 2019). While these initiatives
9 primarily focused on improving worker safety and labour standards, there has also been
10 growing attention to environmental sustainability within the sector. From an environmental
11 perspective, the number of factories certified under the Leadership in Energy and
12 Environmental Design (LEED) framework has since increased. However, despite some
13 progress, media reports reveal a lack of wider adoption of sustainable practices within multi-
14 Tier supply chains. Questions remain about the viability of recent initiatives as several
15 companies unable to meet stringent requirements have subsequently closed (Huq and
16 Stevenson, 2020). Researchers claim the complicated nature of supply chain operations with
17 resource and financial scarcity make it challenging for suppliers to implement sustainable
18 practices and simultaneously survive in the competitive market (Berg et al., 2021; Niinimaki
19 et al., 2020; Shirvanimoghaddam et al., 2020; Karaosman et al., 2016).

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21 *Understanding how sustainability practices are implemented and managed beyond Tier-1 is*
22 *critical to addressing environmental challenges across the fashion supply chain.* Researchers
23 have investigated how fashion buying companies manage lower-tier sustainability in their
24 supply networks. For example, Meinschmidt et al., (2018) identified three approaches (direct,
25 indirect, and neglected), along with several contextual factors that influence supplier selection.
26 Fashion suppliers, in turn, adopt varying sustainability practices, that have been categorised
27 into reactive, pro-active, and value-seeking (Macchion et al., 2018). *While reactive strategies*
28 *often stem from compliance pressures, proactive and value-seeking behaviours indicate a shift*
29 *toward integrating sustainability as a source of competitive advantage.* However, existing
30 studies largely focus on the Global North contexts, leaving a gap in understanding how these
31 approaches manifest in emerging economies like Bangladesh, where institutional voids and
32 global stakeholders' expectations intersect (Islam et al., 2021; Mukendi et al., 2020; Nath et
33 al., 2019). Despite the strategic importance of upstream suppliers, environmental sustainability
34 issues in this segment remain under-researched, even though they carry theoretical and
35 practical implications for the entire supply chain (Warasthe et al., 2020; Islam et al., 2021;
36 Macchion et al., 2018; Karaosman et al., 2016). Existing research in this domain tends to focus
37 on buyer perspectives from the Global North (Mukendi et al., 2020), supply chain performance
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(Kwak et al., 2018; Miemczyk and Luzzini, 2019), and social sustainability issues (Huq and Stevenson, 2020; Jia et al., 2021). However, the literature often overlooks the diverse perspectives of stakeholders operating at different levels within the supply chain (Warasthe et al., 2020; Karaosman et al., 2016; Beske and Seuring., 2014; Gimenez and Tachizawa, 2012), as well as the complex interplay involving extended suppliers beyond Tier-1 (Najjar and Yasin, 2023, Nath and Eweje, 2021). Moreover, existing studies rarely capture the specific sustainable practices adopted in the upstream manufacturing stages such as spinning, knitting, weaving, dyeing, garment production despite their critical role in shaping environmental outcomes. This highlights the need for context-specific empirical research that examines how upstream fashion suppliers implement environmentally sustainable practices within these production processes.

2.2 Institutional Theory and Fashion Supply Chain Sustainability

Fashion suppliers interact with a wide range of stakeholders, both directly and indirectly. Implementing sustainable practices in upstream operations requires coordinated engagement, communication and transparency among key actors including suppliers, managers, employees, buyers, consumers, designers, government bodies, trade associations, media, NGOs, professional networks and competitors (Khurshid et al., 2021; Hossain et al., 2025). To better understand how these interactions shape sustainability practices, researchers have increasingly turned to theoretical frameworks such as institutional theory. Institutional theory (DiMaggio and Powell, 1983) has been widely applied in research to explore suppliers' perspectives on sustainability (Ahmed et al., 2019; Nath et al., 2019; Wang et al., 2018). It is a theoretical lens that helps understand how to respond to the isomorphic pressure of institutional actors (DiMaggio and Powell, 1983; Ouyang and Shiner, 1995) in a set of homogeneous business practices, including supply chain management (Huq and Stevenson, 2020; Kalyar et al., 2019). Institutional theory (DiMaggio and Powell, 1983) outlines three types of pressure that influence decision making: coercive, normative, and mimetic and these pressures stem from both internal and external institutional actors (Rafi-UI-Shan et al., 2020).

Pressures from various institutional actors can either support or hinder the implementation of sustainable practices (Latif et al., 2020; Sayed et al., 2017; Stål and Corvellec, 2018). Coercive pressure is exerted by the powerful entities within the network, such as buyers and governments, who suppliers rely on for business. Regulatory pressure plays a key role in enforcing environmental and social standards through formal compliance mechanisms and suppliers must adhere to these standards to avoid penalties or sanctions from regulatory bodies (Nath and Eweje., 2021; Liu et al., 2018). Normative pressure, driven by societal expectations,

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3 professional networks and consumer demands encourages suppliers to align with accepted
4 norms and behaviours (Wang et al., 2019). Non-compliance can result in reputational damage,
5 isolation or public backlash (e.g. environmental protests) (Nath and Eweje., 2021). Mimetic
6 pressure influences supplier behaviour, particularly under conditions of uncertainty, where
7 firms may imitate the sustainability practices of successful competitors to gain legitimacy
8 (Nath et al. 2019). These pressures can shape supplier behaviour in varied and sometimes
9 conflicting ways. Prior research suggests that the roles and effects of coercive, normative and
10 mimetic pressures are often complex, context dependent and not fully understood (Sayed et
11 al., 2017). Institutional actors may act as enablers or barriers to sustainability depending on
12 contextual factors such as firm size, product type, resource capacity, frequency of pressure and
13 management strategies (Roxas and Coetzer, 2012; Wang et al., 2018; Bendoly et al., 2021).
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24 Institutional theory has been applied in supply chain management, yet its use in addressing
25 environmental sustainability, particularly within upstream manufacturing remains relatively
26 underexplored. Existing research such as Huq and Stevenson (2020), explore social practices
27 in the Bangladeshi fashion industry, demonstrating how institutional pressures can help address
28 decoupling and support the implementation of socially sustainable practices. Similarly, Nath
29 and Eweje (2021) highlight two types of thematic responses to institutional pressure to
30 implement sustainable practices-coupling (the good side) and decoupling (the dark side) of the
31 supply chain. Some studies examine environmental sustainability through an institutional lens.
32 For instance, Kalyar et al. (2019), find institutional pressure positively affects green supply
33 chain management and supplier financial performance, though their survey focuses solely on
34 focal firms. Latif et al. (2020) and Wang et al. (2018) link institutional pressure to the adoption
35 of environmental management accounting (EMA) yet these studies also rely on single-tier data
36 and overlook upstream supplier perspectives, where resource constraints are more acute.
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48 While institutional theory offers valuable insights into sustainability practices, broader research
49 in sustainable supply chain management has explored a range of strategic and operational areas.
50 These often include supplier selection and assessment (Kauppi and Hannibal, 2017), strategic
51 management, collaboration and development (Liu et al., 2018) and top management roles (Liu
52 et al., 2018; Wang et al., 2018), Other studies highlight practices linked to resource-saving and
53 compliance (Chu et al., 2017; Jia et al., 2015; Turker and Altuntas, 2014). However,
54 institutional theory is frequently used as secondary to other frameworks such as legitimacy
55 theory, resource-based view and stakeholder theory (Jia et al., 2021; Khurshid et al., 2021);
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Tachizawa and Yew Wong, 2014). There is a clear need for theoretical and empirical enquiry into how institutional pressures influence environmental sustainability among upstream suppliers. Given that many sustainability risks lie beyond the first tier and are often obscured from key stakeholders (Tachizawa and Wong, 2014; Wilhelm et al., 2016; Islam et al., 2021; Bendoly et al., 2021), institutional theory offers a valuable lens to investigate how upstream suppliers, such as those in Bangladesh adopt environmentally sustainable practices.

3. Research Methodology

3.1 Research Design: Multiple Case Study

An exploratory multiple-case study of eight fashion suppliers based in Bangladesh enables the examination of complex, real-world issues and offers rich, in-depth insights. (Huq and Stevenson, 2020; Yin, 2018; Harrison et al., 2017)). As a major hub for global fashion manufacturing, Bangladesh represents an ideal context for empirical research. The supply chain comprises multi-tiered suppliers (Tier-1, Tier-2, Tier-3, Tier-4) which can be categorised according to their manufacturing function and roles within the supply chain structure (Table I).

Insert Table I here

This research adopts an inductive approach, using semi-structured interviews with suppliers, alongside document and report analysis for cross-validation (Saunders et al., 2016). Institutional theory (DiMaggio and Powell, 1983) is applied as an analytical lens to explore how environmentally sustainable practices are implemented across multi-tier supplier contexts. An initial list of potential participants was compiled using the membership directory of a fashion trade body in Bangladesh. The lead researcher contacted participants via email, phone call, or directly through their personal network. The selection criteria included: (i) the company is involved in textiles and/or fashion manufacturing (ii) the company has multiple operational tiers and functions such as garment production, knitting, dyeing, spinning, weaving, printing, washing etc. (iii) willingness to cooperate with the research. Eight fashion suppliers manufacturing for UK, EU and North American markets agreed to participate, representing a range of company sizes (large and SMEs), product types (knit, woven, denim), and multiple supply chain tiers (Tier-1, Tier-2, Tier-3, Tier-4). It is important to recognise that some Tier-1 suppliers not only manufacture for global external customers but also produce their own

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3 private-label products for domestic markets. As a result, they may have internal customers
4 within their own operations. Eight fashion manufacturing companies in Bangladesh using
5 purposive sampling were selected to ensure diversity in size, product typology, multiple tiers,
6 and export orientation. This number was guided by the principle of thematic saturation
7 (Saunders et al., 2016, Yin, 2018), where additional cases were unlikely to yield new insights.
8 After the eighth case, we observed consistent and clear patterns across the data, indicating
9 sufficient depth and coverage. A larger sample might have compromised the depth of analysis,
10 while fewer cases could have limited the diversity of perspectives. Thus, eight cases provided
11 a balanced scope for meaningful insight, coverage and cross-case comparison while
12 maintaining analytical richness. To enrich the findings and enable triangulation, additional data
13 was collected from stakeholders including brands, government representatives, suppliers, trade
14 bodies, media, NGOs, consultants, professional associations, and education institutions.

25 **3.2 Data Collection and Analysis**

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27 The research draws on semi-structured interviews with 43 manufacturing supplier
28 representatives, spanning multiple tiers of the supply chain and holding various roles and
29 responsibilities (e.g., managing directors, merchandisers, sustainability/compliance managers,
30 production executives, and general managers). In addition, interviews were conducted with 16
31 related stakeholders' representatives such as buyers, academics, industry associations,
32 consultants, auditors, policymakers, NGOs (See Appendices Table II). These stakeholders play
33 a significant role in influencing suppliers to implement sustainable practices. Fashion
34 manufacturing includes a range of operations including dyeing, knitting, weaving,
35 merchandising, garment production, printing, washing, packaging, and spinning. Accordingly,
36 respondents were purposively selected based on their involvement in these operational stages,
37 their experience, relevance to the research, job role, and willingness to participate in the study
38 (Patton, 2015; Yin, 2018). A snowball sampling technique was also adopted to identify
39 additional participants through referrals (Hashimov, 2015).

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41 A semi-structured interview format was used, combining prepared open-ended questions with
42 flexibility to explore emerging topics. To mitigate potential desirability bias, particularly given
43 the sustainability focus of the study, we ensured participant anonymity, used neutrally worded
44 interview questions and encouraged participants to share reflective, experience-based insights
45 rather than normative or idealised responses. Each interview lasted 60 minutes on average and
46 was recorded and transcribed to increase data reliability. Data collection continued until
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3 thematic saturation was reached, when no new codes emerged and participant responses
4 became repetitive. At this point, a total of 59 interviews were deemed sufficient (Mason, 2010).
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6 To ensure research rigour, we adopted multiple strategies to enhance credibility, transferability,
7 dependability, and conformability (Yin, 2018). To mitigate desirability bias, several measures
8 were implemented. Using multiple cases and interviewing more than one individual per
9 organisation broadened the insights and helped mitigate researcher bias. Collecting data from
10 diverse sources further strengthened the validity, while strict participant anonymity encouraged
11 disclosure (Saunders et al., 2016, Yin, 2018). Participants were selected for their subject-
12 specific expertise, and triangulation was achieved through supplementary materials including
13 company documents, reports, stakeholder perspectives, the lead researcher's factory
14 experience, and website content. Additionally, interviews employed neutral, non-leading
15 questions and data capture to minimize bias. These measures enhanced the rigor and credibility
16 of the study. Furthermore, analytical themes were explicitly mapped to the theoretical
17 underpinning and research questions, reinforcing transparency and strengthening the
18 connection between methodology and findings.
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31 Data analysis followed a thematic and content analysis approach, both within and across cases.
32 First, interview transcripts and supporting documents were carefully reviewed to identify
33 underlying ideas and assumptions. The researchers took detailed notes and memos for data
34 familiarisation. Next, a flexible coding process was followed to generate initial codes and
35 themes from the interview data, theory and other documents using qualitative data analysis
36 software NVivo 14 (Hashimov, 2015). These codes were grouped into sub-categories,
37 reviewed iteratively by the research team to identify patterns, reorganise themes and resolve
38 inconsistencies. Finally, inductively derived themes and categories, based on similarities,
39 pattern relationships and content were used to explain institutional pressure mechanisms,
40 informing the development of propositions and a conceptual model for implementing
41 sustainable practices in fashion manufacturing.
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4. Results

4.1 Institutional Pressure Mechanisms and Their influence on the Implementation of Sustainable Practices.

The findings reveal a complex interplay of institutional pressures shaping the implementation of environmentally sustainable practices in Bangladeshi fashion manufacturing. Table III provides an overview of key institutional actors and the pressure mechanisms influencing the adoption of sustainable practices, accompanied by illustrative quotes. The data analysis reveals that all three institutional pressure mechanisms i.e., coercive, normative, and mimetic, influence the implementation of environmentally sustainable practices among upstream suppliers. The extent of this varies depending on the level of pressure exerted (high, moderate, low). Participant quotes reflect a mix of positive and negative perceptions about the role of institutional actors within multi-tier supply chains and the ways in which case companies implement sustainable practices. The companies in this research are multi subsidiary organisations operating across multiple supply chain tiers, including ‘full-package operations’, covering all major production stages such as spinning, weaving, knitting, dyeing, sewing, printing, washing, finishing and packaging. Tier-1 suppliers maintain direct relationships with the global brands, while lower tiers suppliers (Tier-3, Tier-4) have indirect communication. Lower tier suppliers typically perform specific supply chain operations and are often structured as subsidiaries within larger organisations. Institutional pressure is considered low when actors gently encourage suppliers to address sustainability issues through indirect and infrequent engagement, resulting in limited influence. In contrast, high institutional pressure involves regular enforcement of strict codes of conduct and strong demands for widespread adoption of sustainable practices.

The results indicate that sustainable practices in upstream manufacturing stages (e.g., spinning, knitting, dyeing, finishing) are primarily driven by mandatory regulations and buyer audits. Coercive pressures from buyers and government dominate, compelling firms to comply with stringent environmental standards such as eco-certifications and audit system. There is little evidence of proactive efforts from lower tier suppliers, suggesting that sustainability at these levels is largely a response to coercive pressures rather than a reflection of internal organisational commitment. This aligns with institutional theory, where survival imperatives drive compliance rather than voluntary engagement. Moreover, the data suggests that normative pressures currently exert less influence than coercive mechanisms in driving sustainability improvements in upstream operations. While leading firms have selectively

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3 adopted sustainability practices, inspired by industry pioneers (particularly in areas such as
4 wastewater management and renewable energy), the overall diffusion of such practices remains
5 limited.
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8 Suppliers are under a high level of coercive pressure, particularly from buyers, who demand
9 compliance with sustainability requirements such as environmental audits, chemical
10 management, sustainable materials, certifications and eco-friendly materials. These practices
11 are primarily adopted to enhance resource efficiency, attract customers and secure export
12 orders. Governmental pressure, while similarly coercive, is marked by irregular enforcement
13 and complex regulatory expectations. Respondents noted that the lack of consistent support
14 and clarity in policy implementation creates operational uncertainty. In contrast, normative
15 pressure, exerted by educational institutions, NGOs, media, and professional associations, is
16 generally moderate to low, often weak and fragmented, especially for indicators such as
17 biodiversity, carbon emissions and sustainability related R&D, which reveals a lack of systemic
18 advocacy and collaborative governance Internal management initiatives vary significantly
19 across firms, with some demonstrating proactive engagement through training, workshops and
20 KPIs, while others lack strategic alignment and resources. Mimetic pressure tends to be
21 inconsistent and is primarily observed among larger firms. Smaller upstream suppliers, often
22 operating in less visible tiers of the supply chain, typically face limited external scrutiny and
23 reputational pressure, which can reduce their motivation and strategic prioritisation of
24 sustainability. However, when buyer-driven coercive demands reinforce specific
25 environmental expectations, lower-tier suppliers may perceive stronger mimetic pressure and
26 feel compelled to imitate competitors particularly in adopting practices such as eco-friendly
27 materials, processes, dyestuffs and environmental assessments. Overall, mimetic pressure is
28 weak or absent for certain practices including eco-design strategies, carbon footprint reduction,
29 waste management, biodiversity, and traceability. This is largely due to limited awareness,
30 unclear benefits and a lack of strategic support among suppliers. Overall, sustainability efforts
31 are predominately reactive, driven by basic regulatory compliance in response to direct
32 institutional pressures.
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This research also captures a wide range of environmentally sustainable practices adopted in upstream manufacturing (Table IV). The level of implementation varies across case companies and is presented as a percentage for each practice and company. While basic practices such as the use of eco-friendly materials, chemical management, and environmental audits are fully adopted (100%) across all firms, other strategies like carbon footprint capture and reduction (37.5%), circular economy principles (50%), and green technologies (62.5%) remain sporadic. Key environmental practices such as eco-design strategies, sustainable materials, process optimization, product sustainability, chemical management, environmental assessments, water, energy and effluent management are widely adopted and prioritised. In contrast, practices related to green technologies, waste management, ethical reporting, and environmental traceability receive comparatively less attention. This disparity reflects a compliance-driven orientation rather than strategic integration of sustainability for competitive advantage. Several critical areas including transportation, logistics, collaborations, carbon footprint reduction, and air emissions remain under-addressed and warrant greater focus from the case companies. Also, the limited uptake of collaboration strategies (62.5%) and ethical reporting (50%) further indicate weak transparency and inter-organizational learning, undermining systemic transformation. The findings indicate that case companies 1, 3, and 7 demonstrate strong compliance with most environmentally sustainability practices adoption (90-100%), signalling proactive investment in R&D and eco-design. Case companies 2, 4, 5, and 6 show partial compliances, while case company 8 exhibits poor performance, with limited capacity to meet key sustainability indicators, constrained by contextual, financial and technical limitations.

Insert Table IV here

The different types and intensities of institutional pressure (i.e., high, moderate, low- see Table III) influence how upstream suppliers implement environmentally sustainable practices across operational units such as dyeing, sewing, knitting, weaving, washing, spinning. These practices are categorised as reactive (R), proactive (P), and value-seeking (V) (see Table V), depending on the strategic intent and level of commitment. Reactive practices represent a basic level of engagement, adopted mainly to meet legal compliance and build basic sustainability awareness. These practices involve minimal effort, and suppliers are focused on internal survival, risk avoidance and capability development. Proactive practices are more advanced and systemic, aimed at mitigating sustainability risks, developing dynamic capabilities and achieving

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3 strategic benefits. Suppliers consider practices such as eco-friendly materials, process
4 improvements and management strategies, as essential for receiving export competitiveness
5 and environmental performance. Value-seeking practices reflect a high level of strategic
6 commitment, driven by a positive organisational mindset and a desire to lead in sustainability.
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8 These practices are embedded in all levels of the organisation and extend beyond compliance
9 to create long term value. However, the data shows that few suppliers currently pursue value-
10 seeking practices independently.
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27 **5. Discussion**

28 **5.1 Interplay of Institutional Pressures in Implementing Sustainable Practices**

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30 Institutional pressures play an important role in shaping the adoption of environmentally
31 sustainable practices in multi-tier fashion supply chains. The findings reveal that, coercive,
32 normative, and mimetic pressures, interact in complex and varied ways across different supply
33 chain tiers, influencing suppliers' responses and implementation strategies to sustainability.
34
35 Overall, the data suggests a predominant reliance on coercive pressure, particularly in the form
36 of buyer demands and regulatory requirements. In contrast, normative and mimetic influences
37 appear to have more limited impact. This imbalance may hinder the broader diffusion of
38 sustainability practices, especially in upstream contexts that are less visible and characterised
39 by institutional complexity. Without robust normative and mimetic pressures, sustainability
40 initiatives often remain limited to compliance-driven activities, rather than evolving into
41 strategic or transformative practices capable of delivering lasting organisational change.
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50 Coercive pressure emerges as the dominant institutional pressure driving the adoption of
51 sustainable practices among multi-tier fashion suppliers. This pressure is exerted directly by
52 powerful actors such as buyers, governments, and auditing bodies requirements related to codes
53 of conduct, supplier selection, assessment, regulations, and environmental certifications.
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55 Suppliers primarily comply with these demands to secure orders, maintain legitimacy, avoid
56 penalties and sustain stakeholder relationships. The findings show that coercive pressure is
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3 more pronounced among Tier-1 and Tier-2 suppliers and gradually extends to Tier-3 and Tier-
4 suppliers. In Bangladesh's buyer-driven fashion supply chains, factories that struggle to meet
5 buyer expectations often face challenges in maintaining business relationships, while non-
6 compliance with government regulations can result in significant penalties. These results align
7 with previous research highlighting the influence of regulatory and powerful institutional actors
8 in shaping sustainability practices (Huq and Stevenson, 2020; Latif et al., 2020; Nath and
9 Eweje, 2021; Zhu and Sarkis, 2007). In addition, our research reveals that the intensity of
10 pressure tends to gradually reduce at lower organisational tiers, which operate within broader,
11 multi-level structures. For instance, when external bodies offer sustainability training and
12 workshops, employees in Tier-3 and Tier-4 units are often deprioritised compared to those in
13 Tier-1. Suppliers often face varying demands from internal and external customers, each
14 exerting distinct levels of pressure and expectations. A supplier may, for example, apply
15 different environmental standards when dyeing fabric for its own private-label versus an
16 external customer, depending on the specific sustainability requirements of each. Similarly,
17 lower tier subsidiary suppliers, with limited engagement from lead Tier-1 suppliers and buyers,
18 typically implement sustainability practices only when there is a mandatory requirement. This
19 limited adoption is often driven by cost saving strategies, limited resource constraints, and a
20 focus on short-term competitive advantage. Thus, this leads to our first propositions:

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34 *Proposition 1 (a): Suppliers simultaneously serve multiple customers, each exerting different*
35 *levels of pressure regarding sustainability requirements. The pressure tends to diminish at*
36 *lower tiers of the supply chain due to differences in customer expectations, operational roles*
37 *and the specific drivers influencing sustainability adoption.*

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Proposition 1(b) Powerful institutional actors (e.g., buyers and government bodies) need to
ensure that coercive pressure is consistently applied across all tiers of the supply chain, both
within and beyond the Tier 1 companies, to enable effectively implementation of sustainable
practices.

Evidence suggests that fashion suppliers primarily perceive normative pressure from institutional actors such as NGOs, government agencies, industry alliances, and professional associations. These actors influence environmental practices by offering recommendations, guidelines, and capacity-building initiatives. Additional influence comes from within organisations through employee collaboration, training sessions, workshops, and sustainability awareness initiatives. Respondents from Tier-1 and Tier-2 suppliers recognised the positive impact of multi-level stakeholder collaboration in supporting the implementation of sustainable

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3 practices. However, this influence tends to diminish in lower tiers of the supply chain. Despite
4 collaboration efforts at higher levels, normative pressure from NGOs, trade bodies,
5 professional networks, and institutions remains limited in tier-3 and tier-4 operations,
6 indicating missed opportunities for collective action, inclusivity and capability building.
7
8 Lower-tier suppliers often lack access to sustainability education, training and resources,
9 particularly for factory floor workers and management, which restricts their participation in
10 broader collaborative sustainability initiatives (e.g., projects, training).

11
12 The research highlights the importance of sustainability knowledge exchange and the existing
13 skills gap within the fashion education system in Bangladesh. Participants emphasised the need
14 for educational institutions to take a more proactive role, particularly through industry-
15 academia collaborations and the integration of sustainability into education and research
16 projects. These findings align with previous studies that underscore the importance of
17 education and training in advancing sustainability (Bostrom and Micheletti, 2016; Oelze,
18 2017). Our findings provide a more nuanced insight that sustainability education, training, and
19 resources must be made be accessible to all levels of the workforce, including lower-level
20 management and factory floor workers, to ensure effective implementation of sustainable
21 practices. Top and middle management also play a pivotal role in promoting sustainable
22 practices by raising awareness, motivating colleagues, facilitating training and workshops, and
23 providing financial support for eco-friendly materials, machinery, technologies, and processes.
24 This is consistent with earlier research recognising the influence of leadership in driving
25 sustainability initiatives (Bendoly et al., 2021; Chu et al., 2017; Wang et al., 2018; Warasthe
26 et al., 2020). Normative pressure driven by societal expectations, professional norms and
27 consumer demands also contributes to the establishment of standards and accountability,
28 guiding organisational behaviour toward conformity and advantage. This form of pressure
29 positively influences fashion suppliers to adopt sustainable practices (Chu et al., 2017; Latif et
30 al., 2020; Wang et al., 2019). The discussion leads to the following proportions:

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32 *Proposition 2: The effective implementation of sustainable practices across all tiers of the*
33 *supply chain requires a more proactive and coordinated approach from institutional actors.*
34 *Collective normative pressure delivered through inclusive and accessible collaboration,*
35 *education, and training can support supplier development and drive meaningful sustainability*
36 *outcomes.*

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38 Third, we find that mimetic pressure from competitors plays a role in encouraging the adoption
39 of sustainable practices. Suppliers often emulate best practices of their competitors to gain
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3 strategic advantages such as the use of eco-friendly materials, technologies and processes, as
4 well as improvements to the working environment and voluntary initiatives (e.g. tree planting).
5 This form of pressure is primarily driven by the desire to secure export orders, enhance
6 reputation, improve resource efficiency and achieve economic and operational benefits. A
7 growing number of Leadership in Energy and Environmental Design (LEED-certified)
8 factories in Bangladesh exemplify this trend, with many adopting proactive, value-driven
9 sustainability approaches that generate further mimetic pressure across the industry. As of
10 August 2025, Bangladesh had 258 LEED-certified factories, including 109 platinum and 133
11 gold certifications, 12 slivers, with over 559 additional factories awaiting certification
12 (BGMEA, 2025). This competitive momentum has also encouraged suppliers to pursue other
13 certifications and such as Oeko-Tex, BLUESIGN, GOTS, Fairtrade and the Higg Index, to
14 strengthen their market position and gain competitive advantage.
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24 The literature presents mixed views on the influence of mimetic pressure. While some studies
25 argue that it encourages the adoption of sustainable practices for competitive advantage (Kalyar
26 et al., 2019; Latif et al., 2020; Nath et al., 2019; Zhu and Sarkis, 2007), others (Wang et al.,
27 2019; Nath et al., 2019) suggest its impact is limited or insignificant. This research reveals that
28 mimetic pressure tends to be minimal, particularly among suppliers who are already proactive
29 in implementing a broad range of sustainability practices. For example, one LEED-certified
30 factory reported feeling little competitive pressure, citing its established reputation, and a focus
31 on continuous improvement. These proactive suppliers often pursue certifications such as
32 LEED, not necessarily in response to peer pressure, but as a strategic move to attract export
33 orders and enhance their market position. The findings also indicate that buyers are
34 increasingly recognising the value of sourcing from certified factories, reinforcing the business
35 case for voluntary sustainability leadership. The discussion leads to the following propositions.
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46 *Proposition 3 (a): Rising mimetic pressure, drive by competitors' best practices, encourages*
47 *suppliers to implement sustainable practices in pursuit of strategic advantage.*

48 *Proposition 3 (b): The influence of mimetic pressure is minimal when suppliers are intrinsically*
49 *motivated and have already implemented a wide range of sustainability initiatives.*
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54 Fourth, although the findings indicate that Bangladeshi suppliers are increasingly adopting
55 sustainable practices in their manufacturing operations, suppliers expressed concerns about the
56 role of institutional actors such as brands, media, educational institutions, government and
57 NGOs, in addressing sustainability challenges. Many suppliers perceive the pressure from these
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actors as excessive and unfair, particularly when it fails to take into account the factory capacity, financial constraints, operational barriers and the operating environment. This disconnect can lead to mock compliance, where factories superficially meet environmental audit requirements without genuine implementation of sustainable practices. Such practices raise concerns about transparency in the upstream supply chain and highlight the need for ethical and inclusive disclosure through improved information sharing and stakeholder engagement (both internally and externally). These findings align with previous research that has documented mock compliance during social audits (Huq and Stevenson, 2020) and highlighted how coupling and decoupling dynamics hinder authentic sustainability efforts in complex supply chains (Nath and Eweje, 2021).

The findings reveal varied perceptions of institutional actors involved in sustainability efforts. Suppliers expressed frustration with government representatives due to bureaucratic delays and complex procedures involved in approving documentation related to sustainability implementation. While the media is recognised for its role in raising awareness by reporting on unsustainable practices, participants in this research called for more balanced and responsible news coverage. They emphasised the importance of highlighting both positive and negative examples to foster a more constructive narrative around sustainability. Although previous studies have acknowledged the positive influence of institutional actors including NGOs, government, media, educational institutions, and industry associations, in promoting sustainable practices (Ahmed et al., 2019; Macchion et al., 2018; Rafi-Ul-Shan et al., 2020), the findings from this research suggest that pressure from these stakeholders is often perceived as weak and insufficient to drive meaningful change, in upstream supply chain tiers. This highlights the need for greater contextual understanding and collaborative support tailored to the realities of supplier operations. The discussion leads to the following proposition:

Proposition 4: Stakeholder pressure to implement sustainable practices in the upstream supply chain is often ineffective unless it accounts for company-specific contests (such as operational capacity, financial constraints, risks exposure, collaboration opportunities, contextual factors, and the broader operational environment) to promote sustainable practices with greater transparency.

Fifth, suppliers are implementing sustainable practices to varying degrees. Increasing production costs, lack of technical support, resource constraints, and a focus on short-term profit maximisation often discourages suppliers from investment beyond basic compliance. In

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3 some cases, unhealthy memetic pressure driven by the need to compete at reduced prices, leads
4 suppliers to scale back sustainability to maintain margins. Lower-tier suppliers face pressure
5 from stakeholders to adopt sustainable materials, processes, technologies and infrastructure,
6 yet often receive little to no financial support. Suppliers argue that sustainability should be
7 pursued through fair cost sharing with brands and other stakeholders who benefit from higher
8 profit margins. They consistently emphasise the need for more collaborative support, including
9 financial and technical assistance. The findings also show that coercive pressure is more
10 prominent than normative and mimetic pressure at the Tier-1 and Tier-2 levels, while Tier-3
11 and Tier-4 suppliers experience inconsistent and weaker institutional pressure. As a result, the
12 implementation of sustainable practices across the supply chain is often marked by volatility
13 and complexity. Previous studies have provided limited insight into the barriers and contextual
14 challenges faced by lower-tier suppliers such as factory size, product type, strategic orientation
15 and organisational culture (Islam et al., 2021; Kwak et al., 2018; Moretto et al., 2018; Roxas
16 and Coetzer, 2012). Additionally, this research reveals that suppliers operating under intense
17 pressure to meet sustainability targets may struggle without adequate support, which can hinder
18 their capacity to implement lasting environmental improvements. Overlooked issues like
19 mental health support, costs and technical assistance can hinder sustainability efforts (Kalyar
20 et al., 2019; Miemczyk and Luzzini, 2019; Nath et al., 2019; Macchion et al., 2018; Sayed et
21 al., 2017). These insights suggest that more direct and consistent pressure from powerful
22 institutional, particularly buyers and governments combined with strategic support, would be
23 more effective in driving meaningful sustainability outcomes. The discussion leads to the
24 following proposition.

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43 *Proposition 5(a): Upstream suppliers are strongly influenced by the regularity (e.g. frequent*
44 *vs occasional), control (e.g. direct vs indirect), and power asymmetry of institutional actors.*
45 *However, the absence of strategic support (such as technical assistance, financial resources*
46 *and collaborative opportunities) creates dissatisfaction and hinders the effective adoption of*
47 *sustainable practices.*

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52 *Proposition 5(b): Direct and consistent institutional pressure, combined with strategic support,*
53 *is more effective in influencing and enabling multi-tier suppliers to implement sustainable*
54 *practices.*

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56 Finally, this research highlights the influence of institutional pressure within buyer-supplier
57 relationships on the implementation of sustainable practices. The findings reveal a uniform
58 power asymmetry, where buyers exert unilateral control over upstream suppliers to achieve
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3 their own sustainability objectives, often leaving suppliers with limited agency. In contrast,
4 mutual benefits are more likely when suppliers have a substantial amount of control, resources,
5 skills, and technical support to pursue shared sustainability objectives. In harmonious
6 relationships, buyers and suppliers collaborate toward holistic improvements. However, when
7 sustainability initiatives involve financial risk, brands often limit engagement.
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11 Some brands do offer support such as guidance, training and information sharing (e.g., material
12 sourcing), but this is inconsistent. Coercive pressure is frequently used to control costs and
13 restrict suppliers sourcing choices, often requiring specific certifications, standards, audits and
14 in-house testing facilities, which impose financial burden and challenges. Suppliers comply to
15 secure orders, maintain relationships, but this dynamic can lead to poor sustainability
16 performance, especially among lower tier suppliers (tier-3, tier-4) who often adopt compromise
17 or avoidance strategies. Such a dynamic underscores a power asymmetry in which suppliers
18 bear the cost of sustainability mandates and associated burden, potentially compromising long-
19 term innovation, continuation and ownership of sustainable transitions. Brands tend to support
20 sustainability efforts that align with their own priorities, such as improving traceability,
21 information sharing and inventory management. Yet, limited collaboration, guidance,
22 communication and strategic support frequently result in suboptimal practices, undermining
23 long-term sustainability goals for both parties. While prior research has explored buyer-
24 supplier asymmetry (Wijethilake et al., 2017; Rafi-Ul-Shan et al., 2020), it has largely focused
25 on Tier 1 relationships and lacks a comprehensive focus on environmental sustainability. This
26 study extends the analysis beyond Tier-1, showing how multi-tier suppliers respond to coercive
27 institutional pressures through strategies such as adaptation, compromise, avoidance, and
28 promotion. These findings call for further research into the conditions under which suppliers
29 can proactively adopt sustainable practices and how internal and external capabilities can be
30 reconfigured to support sustainability in dynamic environments. This discussion leads to a
31 proposition:
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48 *Proposition 6 (a): Asymmetry in the buyer-supplier relationship presents challenges to*
49 *implementing sustainable practices, which can be addressed through shared values, resolution*
50 *of conflicting interests and proactive bilateral support, particularly in managing financial risks*
51 *and fostering collaboration.*
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Proposition 6 (b): A harmonious buyer-supplier relationship, built on shared values and
mutual support, enhances supplier capacity and facilitates the widespread adoption of
sustainable practices across the supply chain.

5.2 Conceptual Model of Institutional Pressures Influencing Sustainable Practice

Implementation

Figure 1 presents a conceptual model that synthesises the findings, illustrating how institutional pressures drive the adoption of environmentally sustainable practices across multi-tier supply chains. It highlights the sources of pressure (such as from buyers and government), the level of pressure exerted (high, moderate, low), frequency (regular, occasional), and control (direct, indirect). Buyers exert the most influence in the upstream supply chain, often by nominating or recommending suppliers for key inputs such as yarns, fabrics, chemicals, packaging components. Tier-1 suppliers experience the greatest pressure, followed by tier-2, tier-3, and tier-4 suppliers. Suppliers respond strategically based on drivers, barriers, risks, opportunities and contextual factors (such as company size, product type, strategy, culture, operating environment). These responses fall into four categories

Adaptation - Compliance with stakeholder demands to maintain business relationships.

Compromise - Balancing conflicting stakeholder expectations with internal priorities.

Avoidance - Minimising engagement due to pressure-induced fatigue or resource constraints.

Promotion - Proactively influencing other stakeholders by showcasing sustainable practices and building collaborative relationships.

These strategies are shaped by factors such as supplier positioning within multi-tier supplier chains, power asymmetry, financial constraints, resource limitations, legitimacy, experience, associated risks, and the behaviour of other supply chain actors.

Institutional pressure drives suppliers to adopt sustainable practices at three strategic levels:

Level-1: Reactive - minimal compliance.

Level-2: Proactive - deliberate improvements.

Level-3: Value-seeking - embedding sustainability into core operations.

However, suppliers face challenges such as cost implications, limited resources and gaps in knowledge/skills and R&D on environmental issues. To overcome these, it is crucial to consider drivers, barriers, risks, and contextual factors (such as company size, product type, strategy, culture, operating environment). Achieving sustainability goals requires targeted collaboration among stakeholders, particularly within specific production units (e.g., spinning, weaving, knitting, dyeing, and packaging).

Insert Figure I here

6. Conclusion and research implications

Implementing environmentally sustainable practices in supply chain operations is a strategic response to global sustainability challenges such as climate change and net-zero emission. It enables firms to comply with institutional pressures, improve environmental performance, remain competitive and gain long-term strategic advantages. This study empirically investigates how institutional pressures influence the adoption of environmentally sustainable practices in the fashion supply chain, focusing on Bangladesh as a developing country context. The findings reveal a nuanced understanding of coercive, normative, and mimetic pressures, showing that multi-tier suppliers are shaped by these mechanisms. While compliance-driven behaviour aligns with institutional theory's emphasis on coercive pressure, it also exposes a gap in fostering proactive sustainability efforts, particularly in lower-tier suppliers. To drive meaningful environmental improvements in upstream manufacturing, it is crucial to strengthen normative and mimetic pressures through strategic policies, greater buyer engagement, technical support, and enhanced stakeholder collaboration. The research offers practical insights into how institutional pressures shape supplier responses (adaptation, compromise, promotion, avoidance) across different tiers. These responses vary depending on the nature of the pressure and contextual factors. Pressure dynamics also differ across multi-tier supply chains with variations in regularity, visibility and control among supply chain tiers. Suppliers also adopt sustainable practices strategically (reactive, proactive or value-seeking) based on the type and intensity of pressure as well as barriers and drivers. This final section provides an overview of the theoretical and practical implications, along with limitations and directions for future research.

6.1 Theoretical implications

This study empirically examines how institutional pressures shape environmental practices in the upstream fashion supply chain and contributes to a wider understanding of sustainability implementation beyond first tier. It contributes to the literature in several ways. First, it addresses a gap in the sustainability literature by exploring multi-tier, multi-subsidiary supply chains in an emerging country like Bangladesh, where institutional complexity and limited transparency pose unique challenges (Nath et al., 2019; Islam et al., 2021). The research extends institutional theory (DiMaggio & Powell, 1983), by revealing how coercive, normative and mimetic pressures influence the adoption of sustainable practices across different supplier tiers. While coercive pressures may drive compliance, they do not necessarily foster innovation

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3 or the strategic integration of proactive and value-seeking sustainable practices. For example,
4 the limited adoption of certain practices, such as carbon footprint tracking, circularity
5 principles and ethical disclosure highlights the shortcomings of externally imposed mandates
6 in the absence of internal capacity-building or collaborative mechanisms. Second, this research
7 enriches our understanding of the roles and interactions of institutional actors in upstream
8 multi-tier supply chains (Kalyar et al., 2019, Moretto et al., 2018, Macchion et al., 2018).
9 While previous research has highlighted the importance of comprehensive environmental
10 practices in upstream supply manufacturing operations to achieve sustainability (Islam et al.,
11 2021, Wang et al., 2019, Jia et al., 2021), this study extends those insights by applying
12 institutional theory to the perspectives of multi-tier fashion suppliers.

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Third, the study extends the literature by offering empirical insights from an emerging context
like Bangladesh, where institutional voids and resource constraints complicate sustainability
transitions (Islam et al., 2021, Nath and Eweje, 2021) and is underrepresented in the
sustainability literature. A key contribution therefore lies in its focus on multi-tier and multi-
subsidiary companies beyond tier 1, specifically tier-2, tier-3 and tier-4 suppliers within
Bangladesh's fashion manufacturing sector. This underexplored perspective reveals how
suppliers adopt varied sustainability practices (reactive, proactive and value-seeking)
depending on their specific context, enriching prior research (Nath and Eweje, 2021; Macchion
et al., 2018; Caniato et al., 2012). The analysis highlight differences in implementation levels,
capabilities and response strategies, shaped by supply chain structure, stakeholder roles and
contextual factors such as product type (e.g., knit, woven, denim), materials, processing, and
operations stages. By capturing the mechanisms through which pressure influences practice
adoption, this research provides empirical insight into institutional effectiveness in
implementing sustainable practices within the upstream supply chain. Fourth, the study
develops six propositions and introduces a conceptual model to further explain how
institutional pressures influence the adoption of environmentally sustainable practices across
multi-tier supply chains. These propositions and the accompanying model provide a foundation
for future research and policy interventions aimed at enhancing institutional effectiveness and
fostering systemic sustainability transitions within multi-tier fashion supply chains in emerging
economies like Bangladesh.

6.2 Practical Implications

This research offers several practical implications by showing how institutional pressures
influence the implementation of sustainable practices and supplier response strategies across

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3 multi-tier fashion supply chains. The findings support managers (brands/retailers), and
4 policymakers in navigating challenges related to green supplier selection, supplier
5 development, and sustainability implementation beyond Tier-1. Findings highlight an
6 institutional paradox: while external pressures catalyse compliance and the implementation of
7 certain sustainable practices, they fail to foster deep-rooted sustainability capabilities at the
8 level of upstream suppliers. Addressing this gap requires a shift from coercive mandates to
9 enabling mechanisms, such as shared investments, broader inclusion of lower tier stakeholders
10 (Tier-3, Tier-4), industry-wide knowledge platforms, and policy incentives, to embed
11 sustainability as a strategic, value-creating norm rather than a cost-centric obligation across
12 multi-tier supply chains. Highlighted examples throughout the study provide tangible insights
13 into how leading companies are already implementing sustainability strategically. Managers
14 are encouraged to prioritise sustainability performance, foster collaboration and implement
15 targeted practices that align with broader sustainability goals, avoiding fragmented efforts and
16 investments. Understanding the interplay between institutional pressures and supplier
17 strategies helps stakeholders balance relationships, resource constraints and strategic
18 objectives. At the same time, extreme coercive pressures, such as strict environmental
19 compliance regulations that overlook operational, financial and technical constraints can have
20 a negative impact on sustainable performance. Addressing environmental decoupling (such as
21 mock compliance) is especially critical in key garment producing counties like Bangladesh,
22 which exemplifies the broader challenges faced in similar contexts.

23
24 This study encourages stakeholders such as buyers, government, educational institutions,
25 media, industry associations and NGOs to work with suppliers in a more responsive, inclusive,
26 ethical, and proactive manner. Providing technical, financial, and collaborative support is
27 essential to advancing environmental practice. The conceptual model developed in this
28 research, helps stakeholders understand how specific institutional pressures influences the
29 adoption of sustainable practices across multiple tiers, guiding strategic implementation
30 throughout complex supply chains. The findings suggest that while coercive pressures drive
31 baseline compliance, they are insufficient for fostering holistic sustainability. A more balanced
32 approach integrating normative and memetic pressures is essential. Furthermore, enabling
33 mechanisms such as financial incentives, collaborative platforms and technical, and capacity-
34 building support from key stakeholders could enhance meaningful engagement. The
35 sustainability trajectory of upstream suppliers requires recalibrating institutional roles and
36 fostering systemic collaboration to move beyond compliance toward strategic transformation.
37 To ensure environmental initiatives are embedded within broader strategic goals, managers

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3 must explicitly link sustainability to the triple bottom line and Sustainable Development Goals
4 (e.g., SDG 12, 9, 13 and 17) to ensure effectiveness of efforts, investments and outcomes. This
5 research also supports policymakers in identifying institutional mechanisms and actor's roles,
6 enabling more efficient resource allocation. For example, lead firms and governments should
7 extend sustainability education, training, and support beyond tier-1 suppliers. A mandatory
8 transparency reporting system is needed to disclose sustainability performance and traceability
9 across all tiers. Public-private-academic partnerships can further build upstream suppliers'
10 capacity to meet evolving sustainability standards. The adoption of sustainable practices by
11 upstream suppliers not only supports environmental goals but also fosters inclusive socio-
12 economic development within local communities. Together, these insights highlight the
13 importance of integrated, multi-stakeholder approaches that align environmental sustainability
14 with broader economic and social objectives across the entire supply chain. Figure 2.
15 summarises the research contributions and implications for theory and practice.

26
27 **Insert Figure II here**

31 **6.3 Limitations and future research**

32 This study focuses on environmental issues within the upstream supply chain of Bangladesh's
33 fashion industry. Future research could adopt a more holistic approach by exploring
34 institutional pressures across both upstream and downstream tiers (including consumers and
35 retailers) to further understand the adoption of sustainable practices and their impact on
36 stakeholders. Building on this, the conceptual model and propositions developed here highlight
37 the need for further investigation into addressing the challenges of implementing sustainable
38 practices, particularly relating to net-zero emissions, climate change, sustainable resources, and
39 circularity. To broaden the scope, future studies could also integrate social and economic
40 issues, placing both people and the environment at the core of sustainability efforts. Addressing
41 the complexities of multi-tier supplier networks requires greater stakeholder accountability,
42 fair pricing, meaningful collaboration, and increased transparency. Moreover, investigating the
43 moderating role of key institutional actors across other sectors (e.g., leather, chemicals,
44 automobile, pharmaceutical) could further extend the findings. Finally, testing and validating
45 the proposed framework and propositions could strengthen its applicability and relevance
46 across diverse industrial and geographical contexts.

Data availability statement

The datasets generated during and/or analysed during the current study are available from the corresponding author upon request.

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Table 1: Multi-tier suppliers in the manufacturing of fashion products

Multi-tier suppliers	Manufacturing/Supplier unit	Supply chain relationship
Tier-1 (T1)	Garment production, i.e., sewing, cutting, finishing.	Final fashion manufacturers who supply to buyers (retailers/brands).
Tier-2 (T2)	Dyeing, fabric finishing, washing printing,	Supply finished materials directly to the tier-1 firm.
Tier-3 (T3)	Knitting, weaving, packaging, trimmings, accessories.	Supply fabric materials directly to the tier-2 supplier.
Tier-4 (T4)	Spinning, sub-contractors, chemicals, and technologies suppliers etc.	Suppliers to tier-2 and tier-3 companies.

Table II: Overview of suppliers and key institutional actors interviewed

Case company, and multi-tier supplier unit levels	Size Turnover/yr, No of workers	Interviews (s) and Total No.	Product Area
Company 1 (C1): Knitwear manufacturer. (T1, T2, T3)	50 M USD, 4200	Asst. Manager (Environmental Management System and Corporate Sustainability), Manager (Dyeing), Deputy General Manager (DGM)-Knitting, DGM (Printing and Embroidery), Manager (Fashion Design), and Manager (Merchandiser). Total: 06	Knit garments (tops and bottoms across menswear, womenswear, childrenswear).
Company 2 (C2): Denim manufacturer (T2, T3, T4)	100 M USD 1500	Manager (Environmental Management System and Effluent Treatment Plant), General Manager (GM), Plant, DGM (Dyeing), Manager (Dyeing and Chemical), Manager (R&D), and DGM (Utilities). Total: 06	Denim yarn & fabric for menswear, womenswear and childrenswear garments.
Company 3 (C3): Knitwear manufacturer (T1, T2, T3, T4)	600 M USD 38000	Chief Sustainability Officer, DGM (Fabrics), manager (Dyeing); Manager (merchandising), Manager (CSR), Manager (sustainability), DGM (Washing), GM (spinning), Total: 07	Knit garments (t-shirts, polo shirts across menswear, womenswear and childrenswear).
Company 4 (C4): Knitwear and woven manufacturer (T1, T2, T3)	10 M USD 750	CEO Factory, Manager (Admin and HR), Manager (IE & Planning), DGM (Merchandising), Manager (Sourcing &Marketing). Total: 05	Knit and woven garments across menswear, womenswear and childrenswear.
Company 5 (C5): Denim, knitwear, and woven manufacturer (T1, T2, T3, T4)	500 M USD, 25000	Sr.GM (Operations), DGM (dyeing, knitting), Sr. Manager (Merchandising), DGM (Weaving, Planning), Manager (Finishing), Executive (HR&CSR) Total: 06	Woven garments across menswear, womenswear and childrenswear
Company 6 (C6): Knitwear manufacturer (T1, T2, T3)	175 M USD, 18000	Executive Director, Manager (Supply Chain), Manager (Knitting and Dyeing); Manager (Merchandising and Marketing). Total: 04	Knit garments (t-shirts, polo shirts, tops and leggings across menswear,

			womenswear and childrenswear)
Company 7 (C7): Knitwear manufacturer (T1, T2, T3)	100 M USD 10,000	Executive Director, Executive (Dyeing) Manager (CSR), Manager (Merchandising). Total: 04	Knit garments (tops and bottoms across menswear, womenswear and childrenswear).
Company 8 (C8): Denim & woven manufacturer (T1, T2, T3, T4)	300 M USD 13000	CEO (Textiles & Denim), DGM (Merchandising), (GM) (textiles), GM (Washing), Manager (Quality Control). Total: 05	Denim and woven garments across menswear, womenswear and childrenswear).
Institutional actors		Interviews (s) and No.	Product and service
Buyer 1 (B1) (UK)		Manager (1)	Knit, woven fashion, tops and bottoms
Buyer 2 (B2) (Hongkong)		Country Manager (1)	All types of woven and knit products
Buyer 3 (B3), (North America)		Sustainability Manager (1)	Woven products
Buyer 4 (B4), (North America)		Deputy General Manager (Sustainability) (1)	Knit and Woven garments
Buyer 5 (B5), (Europe)		Manager, Sourcing & product (1)	Sports fashion, jersey tops and bottoms
Buyer 6 (B6), (Europe)		Global Technical Head (1)	All knit garments
Supplier (Chemicals) (CS) (T4)		Country Director (1)	Dyeing and washing, chemicals
Industry Association (IA)		Deputy Secretary (1)	Facilitate industry engagement and policy advocacy.
Professional Network (PN)		President and Entrepreneur (1)	Protecting and supporting workforce interests.
Third-Party Organisation (TPO)		Operations Director (1)	Certifications and technical support
NGO (N)		Co-founder & Director (1)	Drive positive change in response to environmental challenges.
Audit body and Consultant (SC)		Lead Auditor (1)	Assessment, auditing and certification
Public Regulatory body (PR)		Deputy Director (1)	Inspection, policy and regulation.
Academic Institution (AI)		Professor, Vice-Chancellor, Pro-Vice Chancellor, Professor (3)	Education and skills support in the fashion and textile sector

Table III: Key actors and mechanisms of institutional pressure influencing the adoption of sustainable practices

Institutional actors	Types & level of pressure	Sources of pressure and mechanism	Sample illustrative quotes by case company and respondent
Buyers	Coercive-High	Directly from the buyer through supplier selection, codes of conduct and performance assessment. These mechanisms directly influence the suppliers' ability to secure orders.	<p><i>"We get regular pressure from the buyer for different environmental requirements and certifications, e.g., Global Organic Textiles Standard (GOTS), Better Cotton Initiatives (BCI) which require extra cost, but we have to fulfil it for business survival." (C1-R1)</i></p> <p><i>"[...] every time buyers are coming with a lot of sustainability requests, and the factories need to comply with them. (C3-R1)</i></p> <p><i>"[...] We are getting huge pressure, especially from brands, to implement sustainable practices without cost support. We are bound to follow these. For survival, we [suppliers] are trying to satisfy all [requirements] but struggling and not satisfied at all (C6-R3).</i></p>
Government	Coercive-High/Moderate	Directly/indirectly, irregularly through legal obligations, policy and law enforcement	<p><i>"We have pressure from the government that whatever the Effluent treatment plant (ETP) plan you have, [we must] submit a three-year recycling plan. It means within three years; we have to recycle certain amounts of water" (C6-R3).</i></p> <p><i>"Government rules for social and environmental standard parameter settings and environmental requirements [such as effluents, water quality etc.] should be changed and realistic to avoid unnecessary hassle." (C2-R1)</i></p> <p><i>"We need to comply with government pressure, especially the environmental legal regulations. If you do not maintain them, then the factory get a penalty, and you cannot do business in the market." (C7-R2)</i></p>
Industry Association	Coercive-Moderate	Association members are required to adhere to a code of conduct participate in training and	<p><i>"The associations, e.g., Bangladesh Garment Manufacturers and Exporters Association (BGMEA), have some good initiatives that deserve applause, but they should become more actively involved in companies' sustainability efforts." (C4-R1)</i></p>

Institutional actors	Types & levels of pressure	Sources of pressure and mechanism	Sample illustrative quotes by case company and respondent
Media	Normative -Low	Media coverage of sustainability issues (both positive and negative) can create pressure on factories by influencing public perception and stakeholder expectations.	<p><i>"BGMEA must play a more proactive role as a professional body. If we can build a central team for sustainability, to jointly implement practices, e.g., monitoring, training... [....]. Then it will be easier and viable". (C7-R2)</i></p> <p><i>"Many factories receive orders from buyers with exceptionally low prices by reducing sustainability activities. BGMEA and FBCCI should take more initiatives and talk with the owners". (C1-R1)</i></p> <p><i>"When the media reports on sustainability, you see that all the textiles and garments in Bangladesh are very bad, some media in Bangladesh will just create tension and report no positive news." (C4-R1)</i></p> <p><i>"The media are not serving their expected purpose and always focus on the negative issues. But the media should have a big role [in reporting positive sustainability efforts] instead of always playing a negative role in sustainability. The trade bodies and professional societies like BGMEA, BKMEA, ITET should play a more responsible role. (SC-R1)"</i></p>
NGOs	Coercive- Low	Collaboration with factories and partners involves raising awareness, delivering training, conducting workshops, and supporting project implementation	<p><i>"NGOs act in such a way that they always try to find an issue, rather than having any contribution to the improvement of sustainability in the industry." (C4-R1)</i></p> <p><i>"NGOs have pre-defined themes and try to fit them within the industry, which is not realistic. So, when designing sustainability projects, NGOs should consider bottom-up approaches and understand the problems at the bottom level [of the supply chain]" (TB-R1)</i></p>
Employee/ Management	Normative -Low	Training, knowledge sharing, employee education, and fostering a willingness to engage in sustainable practices.	<p><i>"Internal management appoint specific resourceful people to create a positive environment, arrange sustainability training and workshops and set KPIs to improve sustainability" (C5-R5).</i></p> <p><i>"Our managing director often encourages us to learn the best practices from other factories, such as how to maintain effluent treatment plants, water reduction, materials processing, new technologies etc. (C4-R2)</i></p> <p><i>"Our management are not organised, and our activities are not linked with sustainability</i></p>

			<i>activities. We are simply doing a green project in a factory, but we don't have resource manpower.” (C7-R2)</i>
Competitive organisation	Memetic-High	Suppliers perceive direct or indirect pressure from competitors to adopt best practices and strategies in order to gain competitive advantages.	<p><i>“We feel huge cost pressure from our competitors however, if they receive product orders with exceptionally low prices, they cannot maintain sustainable practise” (C1-R1).</i></p> <p><i>“Our factory has adopted various certifications and standards (e.g. Oeko-Tex, BLUESIGN, GOTS), to gain competitive advantages, otherwise you will not get orders from buyers” (C4-R2).</i></p> <p><i>“We do not feel pressure from other companies as we have already adopted a range of sustainable practices (e.g., sustainable processes, materials, technologies). We only focus on continuous improvement” (C3-R1)</i></p>

Table IV: Sustainable practices implemented by case companies (Y=Yes, N=None)

Sustainable practices	Implementation of environmentally sustainable practices								
	Case company-3	Case company-7	Case company-1	Case company-2	Case company-4	Case company-6	Case company-5	Case company-8	% Implementation
Eco-design strategies	Y	Y	Y	Y	Y	Y	N	N	75%
R &D for sustainability	Y	Y	Y	Y	N	Y	Y	N	75%
Sustainable materials	Y	Y	Y	Y	Y	Y	Y	Y	100%
Sustainable processes and products	Y	Y	Y	Y	Y	Y	Y	N	87.5%
Dyes & chemical management	Y	Y	Y	Y	Y	Y	Y	Y	100%
Environmental assessment/audits	Y	Y	Y	Y	Y	Y	Y	Y	100%
Green technologies & digitalisation	Y	Y	Y	Y	N	Y	N	N	62.5%
Energy management	Y	Y	Y	Y	Y	Y	Y	N	87.5%
Carbon footprint & air emissions	Y	N	Y	N	Y	N	N	N	37.5%
Wastage management	Y	Y	Y	Y	Y	Y	N	N	75%
Water and effluents management	Y	Y	Y	Y	Y	Y	Y	N	87.5%
Biodiversity	Y	Y	Y	N	N	N	N	N	62.5%
Transport, logistics, distribution	Y	Y	N	N	N	N	N	N	75%
Environmental Management System	Y	Y	Y	Y	N	Y	N	N	50%
Ethical communication & reporting	Y	Y	Y	N	Y	N	N	N	50%
Collaboration strategies	Y	Y	Y	N	N	N	N	N	62.5%
Environmental traceability	Y	Y	Y	N	N	Y	N	N	62.5%
Circular economy principles	Y	Y	Y	N	N	N	Y	N	50%
% Implementation	100%	94%	94%	61%	56%	56%	44%	17%	

Table V: Institutional pressure levels and strategic implementation levels by manufacturing unit

Sustainable practices	Institutional pressure type and level of impact: None (N)/Low (L) /Moderate (M)/High(H)			Strategic level by manufacturing unit									
				None (N),									
				Reactive (R),									
				Proactive (P),									
				Value-seeking (V)									
Coercive (C)	Normative (N)	Memetic (M)	Spinning	Knitting	Weaving	Dyeing & finishing	Printing & embroidery	Apparel production	Washing & dyeing	Accessories & packaging	Subcontractor	Design & development	
Eco-design strategies	Moderate	Low	Low	R	R	R	P	N	P	P	R	N	P
R & D for sustainability	Low	None	None	N	R	R	R	N	N	R	N	N	R
Sustainable materials	High	Low	High	R	P	R	P	R	V	R	N	N	R
Sustainable processes and products	High	Moderate	High	R	P	R	V	R	R	P	R	R	R
Dyes & chemical management	High	Moderate	High	R	R	R	V	R	R	R	N	N	N
Environmental assessment/audits	High	High	High	R	P	P	V	P	V	V	R	R	R
Green technologies & digitalisation	Moderate	Low	Moderate	R	P	P	P	R	R	P	R	N	N
Energy management	Moderate	Low	Moderate	R	P	P	V	R	V	R	N	R	N
Carbon footprint & air emissions	Moderate	None	None	N	N	N	R	N	R	R	N	N	N
Wastage management	High	Low	None	R	R	R	P	N	P	R	R	R	R
Water and effluents management	High	Moderate	Low	N	R	R	V	R	R	R	N	N	N
Biodiversity	Low	None	None	N	N	N	R	N	N	N	N	N	N
Transport, logistics, distribution	Low	None	None	N	N	N	N	N	R	N	N	N	N
Environmental Management System	Moderate	Low	Low	R	R	R	V	R	R	R	N	N	N
Ethical communication & reporting	High	Moderate	Low	N	R	R	V	N	V	R	N	N	N
Collaboration strategies	Low	None	Low	R	R	R	P	N	P	N	N	N	N
Environmental traceability	High	Low	None	R	R	R	P	N	R	R	R	N	R
Circular economy principles	Low	None	None	R	R	R	R	N	R	R	N	N	R

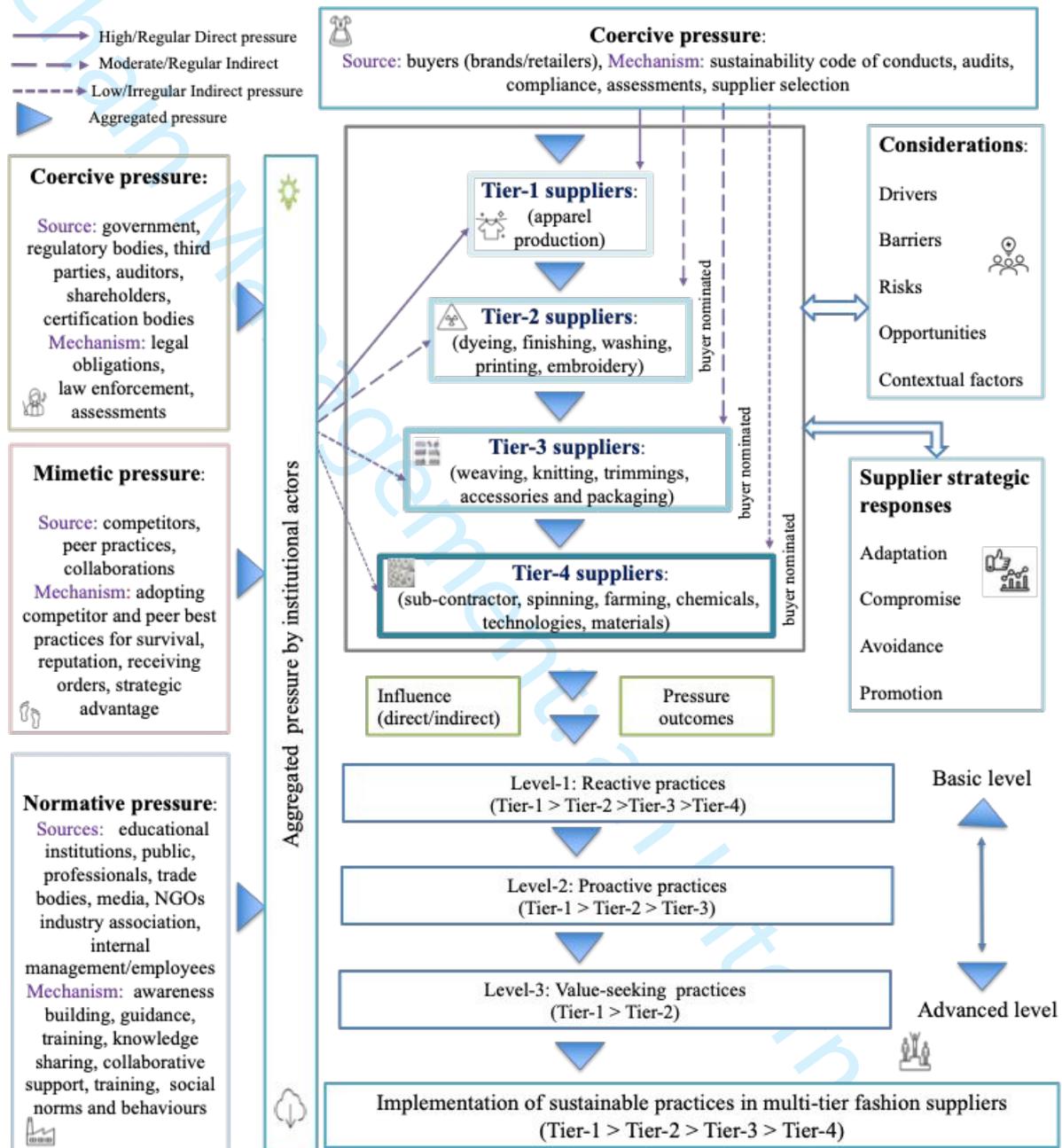


Figure I: Conceptual model of implementing sustainable practices [Source: Authors' own creation]

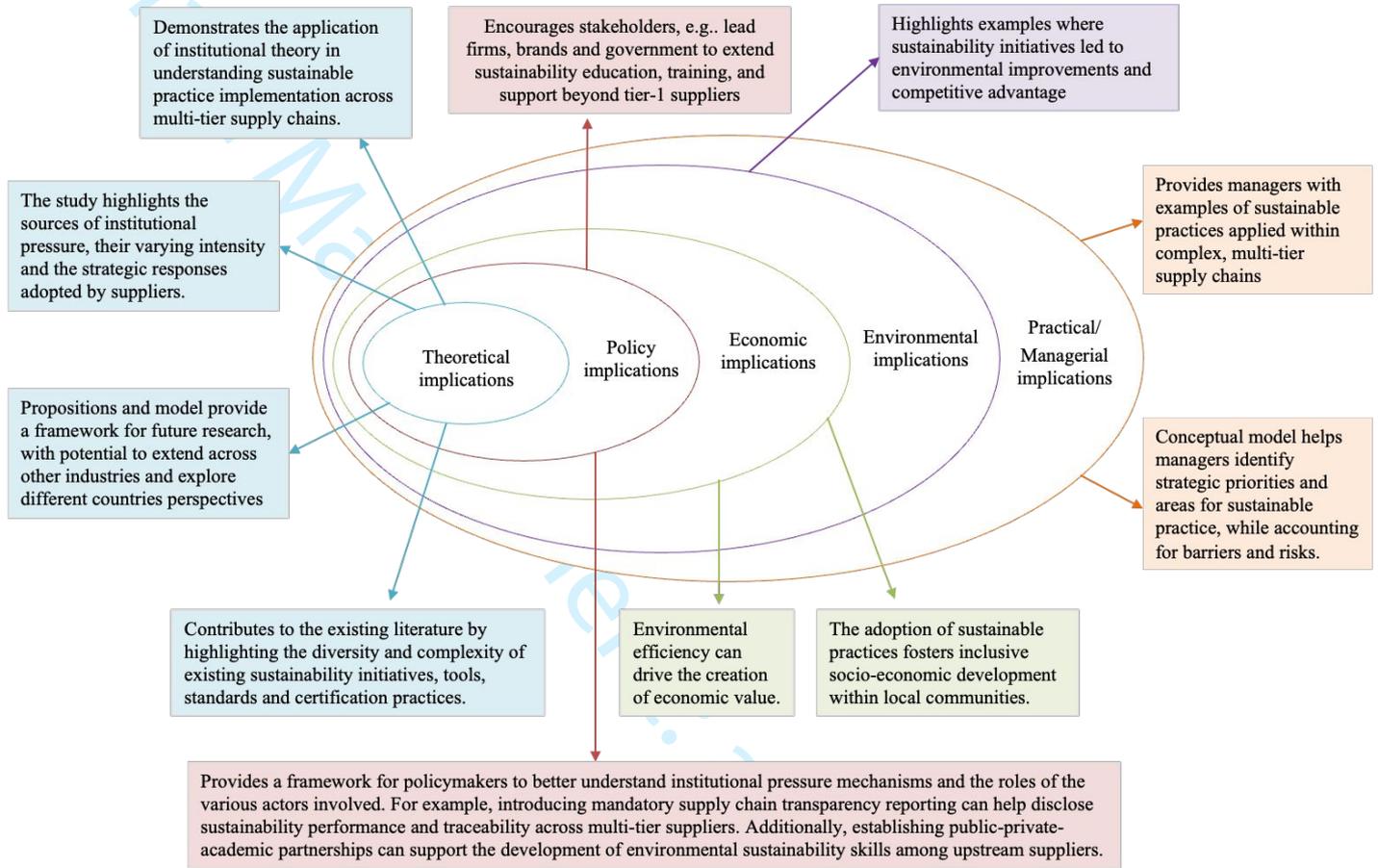


Figure II: Research Implications

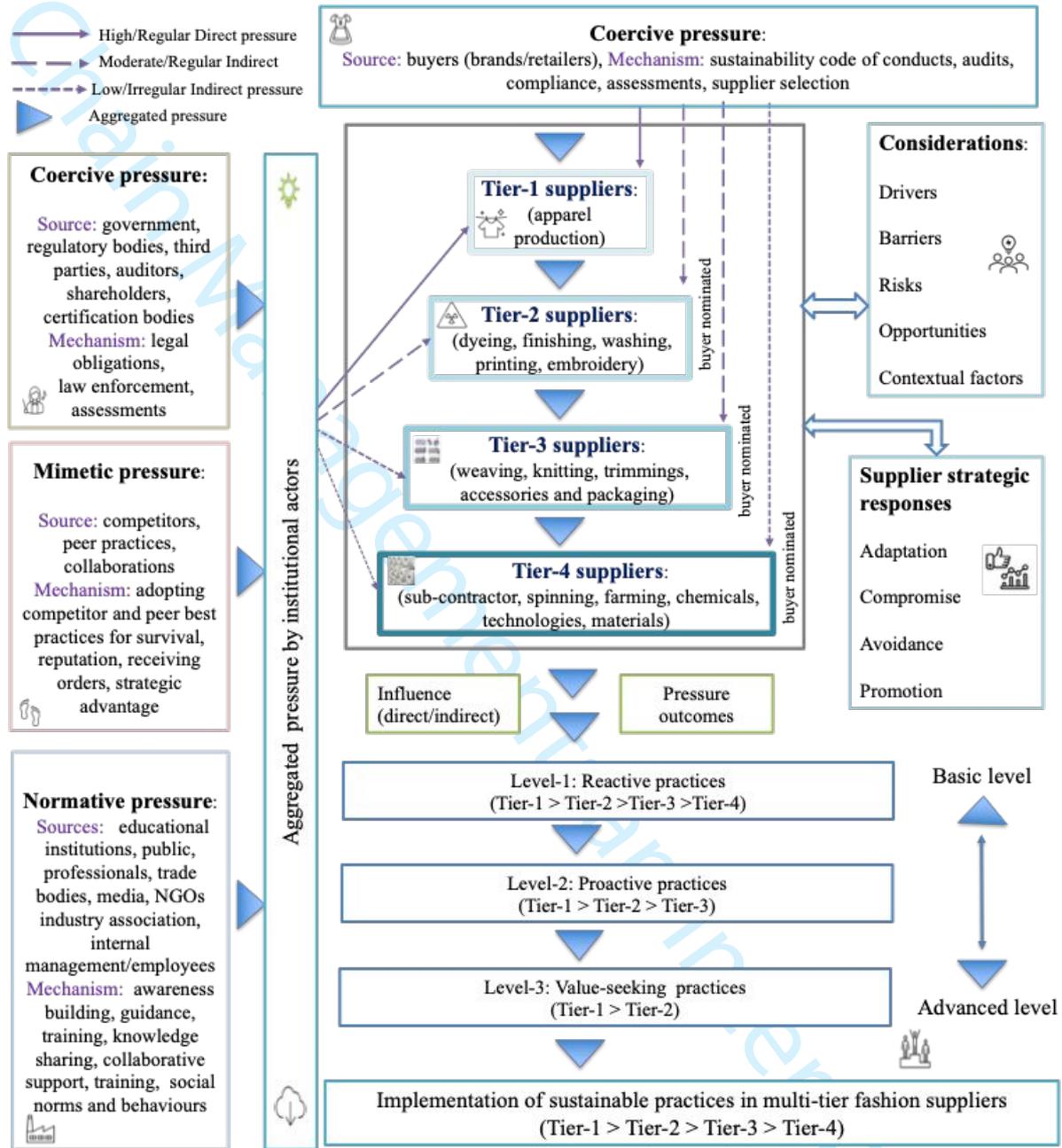


Figure I: Conceptual model of implementing sustainable practices in the multi-tier fashion supply chain [Source: Authors' own creation]

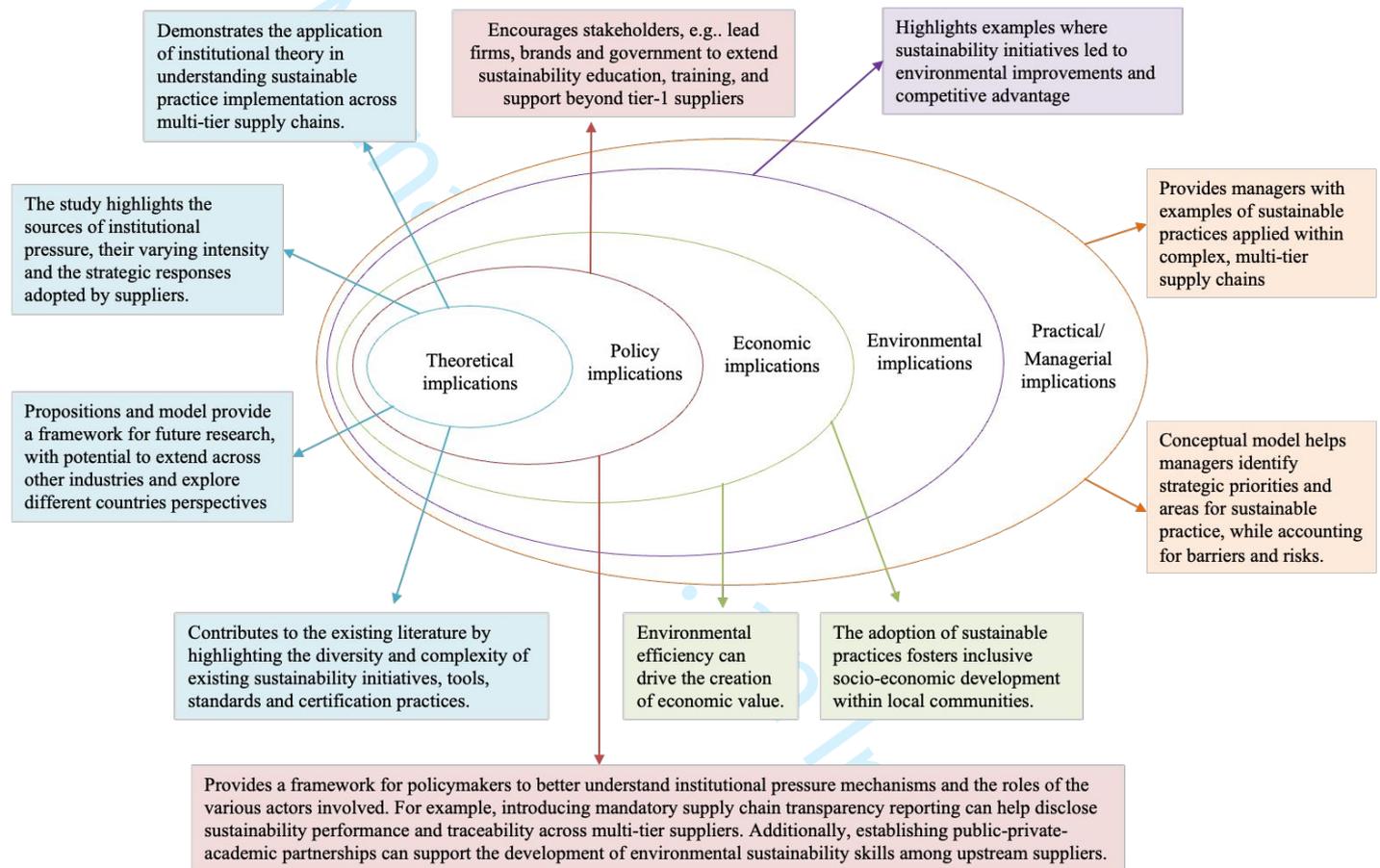


Figure II: Research Implications

Table 1: Multi-tier suppliers in the manufacturing of fashion products

Multi-tier suppliers	Manufacturing/Supplier unit	Supply chain relationship
Tier-1 (T1)	Garment production, i.e., sewing, cutting, finishing.	Final fashion manufacturers who supply to buyers (retailers/brands).
Tier-2 (T2)	Dyeing, fabric finishing, washing printing,	Supply finished materials directly to the tier-1 firm.
Tier-3 (T3)	Knitting, weaving, packaging, trimmings, accessories.	Supply fabric materials directly to the tier-2 supplier.
Tier-4 (T4)	Spinning, sub-contractors, chemicals, and technologies suppliers etc.	Suppliers to tier-2 and tier-3 companies.

Table III: Key actors and mechanisms of institutional pressure influencing the adoption of sustainable practices

Institutional actors	Types & level of pressure	Sources of pressure and mechanism	Sample illustrative quotes by case company and respondent
Buyers	Coercive-High	Directly from the buyer through supplier selection, codes of conduct and performance assessment. These mechanisms directly influence the suppliers' ability to secure orders.	<p><i>"We get regular pressure from the buyer for different environmental requirements and certifications, e.g., Global Organic Textiles Standard (GOTS), Better Cotton Initiatives (BCI) which require extra cost, but we have to fulfil it for business survival." (C1-R1)</i></p> <p><i>"[...] every time buyers are coming with a lot of sustainability requests, and the factories need to comply with them. (C3-R1)</i></p> <p><i>"[...] We are getting huge pressure, especially from brands, to implement sustainable practices without cost support. We are bound to follow these. For survival, we [suppliers] are trying to satisfy all [requirements] but struggling and not satisfied at all (C6-R3).</i></p>
Government	Coercive-High/Moderate	Directly/indirectly, irregularly through legal obligations, policy and law enforcement	<p><i>"We have pressure from the government that whatever the Effluent treatment plant (ETP) plan you have, [we must] submit a three-year recycling plan. It means within three years; we have to recycle certain amounts of water" (C6-R3).</i></p> <p><i>"Government rules for social and environmental standard parameter settings and environmental requirements [such as effluents, water quality etc.] should be changed and realistic to avoid unnecessary hassle." (C2-R1)</i></p> <p><i>"We need to comply with government pressure, especially the environmental legal regulations. If you do not maintain them, then the factory get a penalty, and you cannot do business in the market." (C7-R2)</i></p>
Industry Association	Coercive-Moderate	Association members are required to adhere to a code of conduct participate in training and respond to inspections and compliance requirements	<p><i>"The associations, e.g., Bangladesh Garment Manufacturers and Exporters Association (BGMEA), have some good initiatives that deserve applause, but they should become more actively involved in companies' sustainability efforts." (C4-R1)</i></p> <p><i>"BGMEA must play a more proactive role as a professional body. If we can build a central team for sustainability, to jointly implement practices, e.g., monitoring, training... [...]. Then it will be easier and viable". (C7-R2)</i></p> <p><i>"Many factories receive orders from buyers with exceptionally low prices by reducing sustainability activities. BGMEA and FBCCI should take more initiatives and talk with the owners". (C1-R1)</i></p>
Institutional actors	Types & levels of pressure	Sources of pressure and mechanism	Sample illustrative quotes by case company and respondent

Media	Normative-Low	Media coverage of sustainability issues (both positive and negative) can create pressure on factories by influencing public perception and stakeholder expectations.	<p><i>“When the media reports on sustainability, you see that all the textiles and garments in Bangladesh are very bad, some media in Bangladesh will just create tension and report no positive news.” (C4-R1)</i></p> <p><i>“The media are not serving their expected purpose and always focus on the negative issues. But the media should have a big role [in reporting positive sustainability efforts] instead of always playing a negative role in sustainability. The trade bodies and professional societies like BGMEA, BKMEA, ITET should play a more responsible role. (SC-R1)”</i></p>
NGOs	Coercive-Low	Collaboration with factories and partners involves raising awareness, delivering training, conducting workshops, and supporting project implementation	<p><i>“NGOs act in such a way that they always try to find an issue, rather than having any contribution to the improvement of sustainability in the industry.” (C4-R1)</i></p> <p><i>“NGOs have pre-defined themes and try to fit them within the industry, which is not realistic. So, when designing sustainability projects, NGOs should consider bottom-up approaches and understand the problems at the bottom level [of the supply chain]” (TB-R1)</i></p>
Employee/Management	Normative-Low	Training, knowledge sharing, employee education, and fostering a willingness to engage in sustainable practices.	<p><i>“Internal management appoint specific resourceful people to create a positive environment, arrange sustainability training and workshops and set KPIs to improve sustainability” (C5-R5).</i></p> <p><i>“Our managing director often encourages us to learn the best practices from other factories, such as how to maintain effluent treatment plants, water reduction, materials processing, new technologies etc. (C4-R2)</i></p> <p><i>“Our management are not organised, and our activities are not linked with sustainability activities. We are simply doing a green project in a factory, but we don't have resource manpower.” (C7-R2)</i></p>
Competitive organisation	Memetic-High	Suppliers perceive direct or indirect pressure from competitors to adopt best practices and strategies in order to gain competitive advantages.	<p><i>“We feel huge cost pressure from our competitors however, if they receive product orders with exceptionally low prices, they cannot maintain sustainable practise” (C1-R1).</i></p> <p><i>“Our factory has adopted various certifications and standards (e.g. Oeko-Tex, BLUESIGN, GOTS), to gain competitive advantages, otherwise you will not get orders from buyers” (C4-R2).</i></p> <p><i>“We do not feel pressure from other companies as we have already adopted a range of sustainable practices (e.g., sustainable processes, materials, technologies). We only focus on continuous improvement” (C3-R1)</i></p>

Table IV: Sustainable practices implemented by case companies (Y=Yes, N=None)

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Eco-design strategies	Y	Y	Y	Y	Y	Y	N	N	75%
R &D for sustainability	Y	Y	Y	Y	N	Y	Y	N	75%
Sustainable materials	Y	Y	Y	Y	Y	Y	Y	Y	100%
Sustainable processes and products	Y	Y	Y	Y	Y	Y	Y	N	87.5%
Dyes & chemical management	Y	Y	Y	Y	Y	Y	Y	Y	100%
Environmental assessment/audits	Y	Y	Y	Y	Y	Y	Y	Y	100%
Green technologies & digitalisation	Y	Y	Y	Y	N	Y	N	N	62.5%
Energy management	Y	Y	Y	Y	Y	Y	Y	N	87.5%
Carbon footprint & air emissions	Y	N	Y	N	Y	N	N	N	37.5%
Wastage management	Y	Y	Y	Y	Y	Y	N	N	75%
Water and effluents management	Y	Y	Y	Y	Y	Y	Y	N	87.5%
Biodiversity	Y	Y	Y	N	N	N	N	N	62.5%
Transport, logistics, distribution	Y	Y	N	N	N	N	N	N	75%
Environmental Management System	Y	Y	Y	Y	N	Y	N	N	50%
Ethical communication & reporting	Y	Y	Y	N	Y	N	N	N	50%
Collaboration strategies	Y	Y	Y	N	N	N	N	N	62.5%
Environmental traceability	Y	Y	Y	N	N	Y	N	N	62.5%
Circular economy principles	Y	Y	Y	N	N	N	Y	N	50%
% Implementation	100%	94%	94%	61%	56%	56%	44%	17%	

Table V: Institutional pressure levels and strategic implementation levels by manufacturing unit

Sustainable practices	Institutional pressure type and level of impact: None (N)/Low (L) /Moderate (M)/High(H)			Strategic level by manufacturing unit									
				None (N),									
				Reactive (R),									
				Proactive (P),									
				Value-seeking (V)									
Coercive (C)	Normative (N)	Memetic (M)	Spinning	Knitting	Weaving	Dyeing & finishing	Printing & embroidery	Apparel production	Washing & dyeing	Accessories & packaging	Subcontractor	Design & development	
Eco-design strategies	Moderate	Low	Low	R	R	R	P	N	P	P	R	N	P
R &D for sustainability	Low	None	None	N	R	R	R	N	N	R	N	N	R
Sustainable materials	High	Low	High	R	P	R	P	R	V	R	N	N	R
Sustainable processes and products	High	Moderate	High	R	P	R	V	R	R	P	R	R	R
Dyes & chemical management	High	Moderate	High	R	R	R	V	R	R	R	N	N	N
Environmental assessment/audits	High	High	High	R	P	P	V	P	V	V	R	R	R
Green technologies & digitalisation	Moderate	Low	Moderate	R	P	P	P	R	R	P	R	N	N
Energy management	Moderate	Low	Moderate	R	P	P	V	R	V	R	N	R	N
Carbon footprint & air emissions	Moderate	None	None	N	N	N	R	N	R	R	N	N	N
Wastage management	High	Low	None	R	R	R	P	N	P	R	R	R	R
Water and effluents management	High	Moderate	Low	N	R	R	V	R	R	R	N	N	N
Biodiversity	Low	None	None	N	N	N	R	N	N	N	N	N	N
Transport, logistics, distribution	Low	None	None	N	N	N	N	N	R	N	N	N	N
Environmental Management System	Moderate	Low	Low	R	R	R	V	R	R	R	N	N	N
Ethical communication & reporting	High	Moderate	Low	N	R	R	V	N	V	R	N	N	N
Collaboration strategies	Low	None	Low	R	R	R	P	N	P	N	N	N	N
Environmental traceability	High	Low	None	R	R	R	P	N	R	R	R	N	R
Circular economy principles	Low	None	None	R	R	R	R	N	R	R	N	N	R

Appendices

Table II: Overview of suppliers and key institutional actors interviewed

Case company, and multi-tier supplier unit levels	Size Turnover/yr, No of workers	Interviews (s) and Total No.	Product Area
Company 1 (C1): Knitwear manufacturer. (T1, T2, T3)	50 M USD, 4200	Asst. Manager (Environmental Management System and Corporate Sustainability), Manager (Dyeing), Deputy General Manager (DGM)-Knitting, DGM (Printing and Embroidery), Manager (Fashion Design), and Manager (Merchandiser). Total: 06	Knit garments (tops and bottoms across menswear, womenswear, childrenswear).
Company 2 (C2): Denim manufacturer (T2, T3, T4)	100 M USD 1500	Manager (Environmental Management System and Effluent Treatment Plant), General Manager (GM), Plant, DGM (Dyeing), Manager (Dyeing and Chemical), Manager (R&D), and DGM (Utilities). Total: 06	Denim yarn & fabric for menswear, womenswear and childrenswear garments.
Company 3 (C3): Knitwear manufacturer (T1, T2, T3, T4)	600 M USD 38000	Chief Sustainability Officer, DGM (Fabrics), manager (Dyeing); Manager (merchandising), Manager (CSR), Manager (sustainability), DGM (Washing), GM (spinning), Total: 07	Knit garments (t-shirts, polo shirts across menswear, womenswear and childrenswear).
Company 4 (C4): Knitwear and woven manufacturer (T1, T2, T3)	10 M USD 750	CEO Factory, Manager (Admin and HR), Manager (IE & Planning), DGM (Merchandising), Manager (Sourcing &Marketing). Total: 05	Knit and woven garments across menswear, womenswear and childrenswear.
Company 5 (C5): Denim, knitwear, and woven manufacturer (T1, T2, T3, T4)	500 M USD, 25000	Sr.GM (Operations), DGM (dyeing, knitting), Sr. Manager (Merchandising), DGM (Weaving, Planning), Manager (Finishing), Executive (HR&CSR) Total: 06	Woven garments across menswear, womenswear and childrenswear
Company 6 (C6): Knitwear manufacturer (T1, T2, T3)	175 M USD, 18000	Executive Director, Manager (Supply Chain), Manager (Knitting and Dyeing); Manager (Merchandising and Marketing). Total: 04	Knit garments (t-shirts, polo shirts, tops and leggings across menswear,

			womenswear and childrenswear)
Company 7 (C7): Knitwear manufacturer (T1, T2, T3)	100 M USD 10,000	Executive Director, Executive (Dyeing) Manager (CSR), Manager (Merchandising). Total: 04	Knit garments (tops and bottoms across menswear, womenswear and childrenswear).
Company 8 (C8): Denim & woven manufacturer (T1, T2, T3, T4)	300 M USD 13000	CEO (Textiles & Denim), DGM (Merchandising), (GM) (textiles), GM (Washing), Manager (Quality Control). Total: 05	Denim and woven garments across menswear, womenswear and childrenswear).
Institutional actors	Interviews (s) and No.		Product and service
Buyer 1 (B1) (UK)	Manager (1)		Knit, woven fashion, tops and bottoms
Buyer 2 (B2) (Hongkong)	Country Manager (1)		All types of woven and knit products
Buyer 3 (B3), (North America)	Sustainability Manager (1)		Woven products
Buyer 4 (B4), (North America)	Deputy General Manager (Sustainability) (1)		Knit and Woven garments
Buyer 5 (B5), (Europe)	Manager, Sourcing & product (1)		Sports fashion, jersey tops and bottoms
Buyer 6 (B6), (Europe)	Global Technical Head (1)		All knit garments
Supplier (Chemicals) (CS) (T4)	Country Director (1)		Dyeing and washing, chemicals
Industry Association (IA)	Deputy Secretary (1)		Facilitate industry engagement and policy advocacy.
Professional Network (PN)	President and Entrepreneur (1)		Protecting and supporting workforce interests.
Third-Party Organisation (TPO)	Operations Director (1)		Certifications and technical support
NGO (N)	Co-founder & Director (1)		Drive positive change in response to environmental challenges.
Audit body and Consultant (SC)	Lead Auditor (1)		Assessment, auditing and certification
Public Regulatory body (PR)	Deputy Director (1)		Inspection, policy and regulation.
Academic Institution (AI)	Professor, Vice-Chancellor, Pro- Vice Chancellor, Professor (3)		Education and skills support in the fashion and textile sector