

Perceptions of Stakeholders Towards Climate Change, Just Transition & Environmental Sustainability in the Bangladesh RMG Sector



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This report is part of Ethical Trading Initiative Bangladesh's project titled, "Promoting Just Transition and Environmental Sustainability in the Bangladesh RMG Industry," under their three-year strategic goal on Climate Change & Worker Rights.

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Message from Country Manager

Since its inception, Ethical Trading Initiative has been dedicated to addressing the complex challenges within the global supply chains and improving the lives of workers worldwide. ETI began its journey in Bangladesh from 2014. Guided by ETI's global vision and strategy, ETI Bangladesh's mission is to enable the most vulnerable workers in Bangladesh achieve decent work and, create an environment where workers can advocate for improved pay, better working conditions and economic equality. Driven by its mission statements, ETI Bangladesh intends to continually adapt and work on a diverse thematic range and produce more tangible and sustainable outcomes.

Given the gravity of global warming worldwide, ETI Bangladesh has adopted climate change action as one of its key strategic goals. Adopting greener practices and transitioning towards green energy is crucial for Bangladesh's economy to be competitive post-LDC graduation in 2026. Emitting a substantial 15.4% of the country's total CO2 emissions, it is especially important for the RMG sector, which is considered the lifeblood of its economy, to address this issue. Transitioning to a greener industry will not only make it more competitive within the global market but can also create more decent work and less inequality.

At ETI, we believe that as the garment sector holds such great national significance, improvements here will impact other industries and the economy holistically. Therefore, keeping worker rights within its crux, this study is positioned to start the conversation for an industry-wide green transition and enable collaboration and innovation across multiple-stakeholders towards a climate-friendly RMG sector.

By collaborating with a multi-tiered respondent demographic, ranging from the government to the worker level, the project tries to illuminate readers on the industry's current on-the-ground reality and assess its capacity towards a just and inclusive green transition. The key focus of this study was to gauge the current perceptions on climate change and just transition, map existing green energy or sustainability practices, uncover key stakeholder motivations and challenges, and assess their readiness towards a "just" green energy transition.

Despite commendable strides within the industry towards energy-efficient and sustainable practices, there is still a massive lack in awareness of the intersectionality between workers and climate change. Moving forward, an industry-wide consensus needs to be built to nurture a unified effort that keeps workers in mind.

I want to extend my utmost gratitude to the research team at BRAC University for conducting this research, as well as all the respondents for making their time to participate. A special thanks is also extended to our development partners for their constant faith and support throughout the tenure of this project.

Lastly, we, the team at ETI Bangladesh hope the study findings can help enrich existing practices and policy developments and create more scope for the inclusion of worker voices and their direct action towards climate action. As we proceed with our strategic action plans, we warmly welcome your critiques and suggestions to enhance the quality of our interventions.

Abil Bin Amin
Country Manager
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Preface

The following study has been conducted by BRAC University, funded by ETI Bangladesh. This project delves into the current on-the-ground reality of the ready-made garment (RMG) industry in Bangladesh and its attitude towards climate change based on data collected between August and October 2023. The aim is to understand the perception of suppliers, buyers, government, unions, and other key stakeholders about green energy transition and environmental sustainability and their readiness for this transition. The findings of this study have been based on a sample of 130 respondents which includes representatives from factories, brands, federations, trade associations etc.

Given the pressing state of the climate change situation worldwide and the urgent need for green transitions within major industries, I hope this study will provide an opportunity for policymakers to better understand the need for a “just” green transition and inclusion of worker rights within the garment industry of Bangladesh. The significance of this study lies in its commitment to addressing the inadequacies of current initiatives that fall short of embracing the principles of a 'Just Transition.' Recognising the need to mitigate social and economic impacts resulting from this transition, our study aims to contribute to the discourse by examining the transition of the Bangladesh Ready-Made Garment (RMG) industry to an environmentally friendly sector. Within this framework, our study delves into the perceptions of stakeholders regarding environmental sustainability based on the principles of 'Just Transition.'

By scrutinizing these perceptions, we aim to identify whether stakeholders view environmental upgrading as a viable business case. Our findings discuss the understanding of stakeholder perceptions, which is essential for gauging the potential success of such environmentally conscious initiatives. Additionally, our study assesses the readiness of stakeholders for this transition and critically reviews existing practices related to environmental sustainability. Through this analysis, we seek to uncover potential gaps in strategy, bridge the divide between concept and implementation, and evaluate the effectiveness of current initiatives.

In summary, this study aims to contribute valuable insights to the ongoing discourse on sustainable industrial transitions, particularly within the context of the Bangladesh RMG industry. We aspire to lay the foundation for a more informed and effective approach to achieving a 'Just Transition' and creating a sustainable and inclusive RMG sector that aligns with the SDGs 7, 8, 12 and 13.

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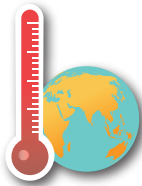
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Abbreviations & Acronyms

BBT	Busbar Trunking System
BCCSAP	Bangladesh Climate Change Strategy and Action Plan
BGMEA	Bangladesh Garment Manufacturers and Exporters Association
BKMEA	Bangladesh Knitwear Manufacturers and Exporters Association
BPDB	Bangladesh Power Development Board
BRAC	Bangladesh Rural Advancement Committee
CMA	Certified Management Accountant
COP	Conference of Parties
CSR	Corporate Social Responsibility
CBA	Collective Bargain Agreement
DOE	Department of Environment
EGB	Exhaust Gas Boiler
EIS	Environment Impact Statement
ESG	Environmentally Sustainable Governance
ETI	Ethical Trading Initiative
ETP	Effluent Treatment Plant
ETV	Environmental Testing Verification
EU	European Union
FGD	Focus Group Discussion
GCF	Green Climate Fund
GGGI	Global Green Growth Institute
GHRM	Green Human Resource Management
GI	Geographical Indication
GHG	Greenhouse Gas
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GOTS	Global Organic Textile Standard
GRS	Global Recycle Standard
HVAC	Heating, Ventilation, and Air Conditioning
IFC	International Finance Corporation
ILO	International Labour Organization
IPE	Institute of Public and Environmental Affairs
ISO	International Organization for Standardization
IBC	IndustriALL Bangladesh Council
KII	Key Informant Interview
LEED	Leadership in Energy and Environment Design
LFL	Lower Flammable Limit
MCPPI	Mujib Climate Prosperity Plan
NAPA	National Adaptation Programme of Action
NGO	Non-government Organization
PaCT	Partnership for Cleaner Textile
PC	Participatory Committee
PKSF	Palli Karma-Sahayak Foundation
PPA	Power Purchase Agreement
RCS	Recycled Claim Standard
REB	Rural Electrification Board
RMG	Ready-made Garment Sector
RO	Reverse Osmosis
ROI	Return On Investment
SME	Small and Medium Enterprise
SWOT	Strengths, Weaknesses, Opportunities And Threats
SDG	Sustainable Development Goal
STWI	Sustainable Textile Water Initiative
TDS	Total Dissolved Solids
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention for Climate Change
USAID	United States Agency for International Development
USGBC	United States Green Building Council
ZDHC	Zero-Discharge Hazardous Chemicals

Executive Summary

Human-induced climate change is a pervasive global threat, hitting the poorest countries the hardest. Between 2030 and 2050, it is projected to cause 250,000 additional deaths yearly. Global organisations stress the urgency of climate mitigation, emphasising goals such as clean energy, decent work, responsible consumption, and climate action. Bangladesh currently has a decent understanding of climate change and its impacts. The country is actively working on climate change adaptation and mitigation. The general population is aware of the effects of climate change, such as rising temperatures and saline water intrusion. Climate change is often attributed to global causes rather than local activities. Additionally, Bangladesh's low carbon footprint is currently not a significant concern. The current state in Bangladesh is characterised by rising temperatures, posing challenges to worker health and productivity. However, as Bangladesh faces climate challenges, with its major industries, especially textiles and garments, contributing significantly to emissions, awareness of climate change alone cannot suffice.



Between 2030 and 2050, Climate change is projected to cause 250,000 additional deaths yearly.

Despite government initiatives and international collaborations, existing efforts fall short, lacking coherence and neglecting social and economic costs. A 'Just Transition' framework is crucial in ensuring a fair shift to environmentally friendly industries, considering worker safety, labour rights, and community support. In this context, it is crucial to assess stakeholder perceptions of environmental sustainability through the lens of 'Just Transition.' Analysing stakeholder views may help determine whether they see environmental upgrading as a viable business case, wherein actors modify production practices for positive environmental outcomes with positive financial implications.



A 'Just Transition' framework is crucial in ensuring a fair shift

The overall objectives of this research were to understand the perception of suppliers, buyers, government, unions and other key stakeholders about green energy transition and environmental sustainability and their readiness to this transition, reflecting on what factors may incentivise the readiness. Qualitative methods have been employed for this investigation, where a total of 130 respondents were interviewed (89 male, 41 female) within 80 KIIs, 2 FDGs and 2 consultative workshops. Participants included representatives from factories, brands, worker federations/committees, bussiness associations, development partners government etc.



A total of 130 respondents were interviewed (89 male, 41 women)

Amongst the 50 factories interviewed, only representatives from 7 factories were familiar with the concept of 'Just Transition.' Those recognising it emphasised transparent communication, worker involvement, training, and fair treatment in environmental sustainability. Some, still unaware of the term, acknowledged its future importance for global market survival. Suppliers cited the absence of explicit buyer requests for 'Just Transition' engagement and the historical emphasis on worker rights over environmental issues. The absence in addressing any significant correlation between worker rights and climate change was noted, highlighting a gap in sustainability awareness within the industry. The same had been found when discussing Just Transition with federation representatives, trade unions and workers.



Among the 50 factories interviewed, only representatives from 7 factories were familiar with the concept.

Findings suggest that numerous challenges impede progress in addressing climate change and achieving a Just Transition. Obstacles include difficulties in forming trade unions for ensuring Just Transition, incorporating CBA, and a lack of government monitoring and action. Limited awareness amongst owners, a shortage of qualified trainers, and a lack of solidarity between stakeholders hinder progress. Despite the growing seriousness of environmental issues, some stakeholders may be hesitant to collaborate, impacting the effectiveness of initiatives. Local government leaders' minimal involvement and factory owners prioritizing production over a just transition further complicates the landscape. Despite these challenges, there is a growing awareness and seriousness within certain stakeholders, driven by the increasing popularity of green practices.

In the interviews with brand representatives, it has been found that their fabric and raw material teams handle basic compliance with environmental and sustainability policies. Brands prioritise certifications based on both home country policies and global environmental standards, focusing on supplier capacity development and monitoring. Initiatives initially centred on water and energy savings, later expanding to chemicals. Brands have set various Key Performance Indicators (KPIs) globally, customised to some extent for different countries. Leading suppliers prioritise initiatives addressing energy usage, water, chemicals, and recycling, with some brands actively engaged in sustainability research. Collaborations with development partners and agencies, such as GIZ, USAID, UNDP, and SwissContact, highlight the proactive stance of the Bangladesh RMG industry in addressing environmental challenges. Recycling and circularity, supported by platforms such as Reverse Resource, are also gaining importance, aimed to position the RMG sector as a recycling hub. Certifications such as LEED, OkoTex, Sedex, and Higg serve as benchmarks for evaluating factory practices. Buyers encourage solar energy and biomass use for energy savings, reflecting a growing emphasis on energy efficiency and environmental sustainability.

The climate parameter is therefore, becoming increasingly vital for the industry's business case, particularly amongst top-tier suppliers with the financial capacity for necessary changes. Brand interventions, especially regarding renewable energy sources, have prompted suppliers to proactively secure resources and turn a profit. Green collaborations, such as those with ETI reportedly ensure this sought-after sustainability. Many suppliers, motivated by survival, are now shown to propose environmental-security projects.

Nonetheless, factories are still primarily motivated to implement green initiatives because of the requirements of brands. However without responding positively to these practices, it is very difficult for the suppliers to sustain their business. One of the most important aspects of these environmentally friendly initiatives for brands is the ability to nurture and maintain long-term relationships with suppliers. These relationships are sustained through incentives and recognition of the suppliers' positive contributions. This strategic approach not only strengthens business ties but also fosters efficiency and mutual growth. Additionally, the collaborative and long-term nature of these relationships serves as a marketing advancement, enhancing the brand's reputation and projecting a positive image. Research also shows that advanced eco-friendly machines significantly reduce energy consumption, with energy-efficient measures leading to decreased water, energy, and air pollution. Factories implement certain measures for climate mitigation, such as adopting solar panels, contributing to both energy conservation and cost savings. Water-saving technology further enhances eco-friendly practices. The involvement of environmental initiatives has also increased waste management capacity in factories, turning it into a business model (with significant contributions from brands). Regardless, the on-the-ground reality of the industry in its current state poses quite a few challenges regarding the ability to undergo and sustain a full-fledged green transition.

The lack of financial assistance is the primary challenge for factories, impacting their ability to

implement environmental projects and set up energy-efficient machines. The suppliers expect better prices from the brands as incentive for the installation of environmentally friendly machineries in their factories, but the study did not find any shared financial responsibility from the brands. Garment suppliers express frustration over inadequate financial support from buyers, who prioritise cost-cutting over sustainability. Delays in securing funding, as well as the time-consuming process required, can lead to frustration and loss of interest to conduct these initiatives. While development partners sometimes provide financial support in the form of loans, the need for recognition and support for water conservation and carbon emission reduction efforts is emphasised by trade associations. Furthermore, the lack of knowledge and skilled personnel in addressing environmental concerns is evident in Bangladesh's context.

Given its current state, the RMG industry in Bangladesh is not a primary environmental concern compared to other industries. Environmental initiatives often begin with consultant visits and assessments by brands. Some suppliers struggle to execute theoretical knowledge in a specific context, and the lack of dedicated personnel for environmental initiatives hinders progress. Brands note misinterpretations by suppliers and a focus on mitigation rather than adaptation in the industry. Concerns about the uncertain effectiveness of environmental collective initiatives and the unequal distribution of climate change costs highlight the need for serious consideration of adaptation alongside mitigation efforts. Nonetheless, buyers' varying commitments to environmental sustainability create challenges for suppliers, with leading brands prioritising environmental concerns while non-leading brands focus on low-cost production. Suppliers therefore, face difficulties meeting diverse buyer requirements and tackling overlapping initiatives, leading to a lack of cooperation with brands.

Finally, all factory and worker representatives indicated that one of the major hindrances was a lack of external bureaucratic support. Factories state that they do not receive direct environmental guidelines from the government. Factories also have not seen significant engagement or benefits from business associations regarding environmental matters. They believe that the BKMEA and BGMEA will be able to promote the potential of garment factories to the government, but that is yet to be implemented. Based on these findings, the primary recommendations of this study are as follows:

Enhancing the integration of climate and rights in the workplace

1. Strengthen the link between climate and worker rights:

- Conduct further evidence-based research to solidify the connection between climate and human rights, emphasising the impact of climate change on worker health and productivity.
- Highlight scientific findings to convincingly demonstrate the direct linkage between climate issues and the interests of both suppliers and buyers.

2. Overcoming challenges in worker engagement:

- Address the knowledge gap accompanied with building capacity for soft skills amongst workers and union/federation leaders by providing comprehensive training programmes on environmental issues.
- Create awareness amongst stakeholders on the importance of prioritising the environment, emphasising the challenges in changing human behaviour.
- Explore potential strategies to balance financial costs for environmental initiatives without compromising worker wellbeing.

3. Initiate a culture of positive behaviour:

- Encourage a supportive approach from workers towards energy and resource conservation, showcasing instances of self-initiative.
- Demonstrate eagerness to change working behaviour through practical examples, emphasising the potential positive impact of waste management for worker health.

4. Engage worker representatives:

- Recognise the key role of TUs, democratically elected PCs and Health and Safety Committees in raising awareness for environmental issues amongst workers.
- Provide training to these committees on environmental awareness, breaking down the concept of 'Just Transition' into simpler, more relatable terms focused on job security and economic opportunities.
- Ensure freedom of association, promote a culture of social dialogue and mainstream climate and environmental agenda in the social dialogue process.

5. Include Just Transition in Sustainability Policy:

- Encourage brands to integrate the principles of 'Just Transition' into their sustainability policies, providing guidelines for factories.
- Educate the environment cell of factories on 'Just Transition' principles, fostering collaboration between brands, factories, and unions to ensure a balanced approach to environmental and social concerns.
- Emphasise the benefits of integrated social and environmental teams for effective project delivery and problem-solving in factories.

6. Enhance the role of global and local agencies:

- Advocate for the incorporation of worker voices in global agency discussions on environmental sustainability, emphasising the crucial role workers play in ensuring factory safety, energy conservation, and water savings.
- Encourage global agencies, such as the ILO, to give greater focus to environmental issues that directly impact workers.
- Utilise the efforts of business associations to drive smaller factories to conduct green initiatives.
- Create a single, specialised environmental cell in every factory to ensure sustainability.

Ensuring environmental sustainability

1. Understanding and executing with context:

- Emphasise the importance of contextual understanding in implementing environmental sustainability initiatives within specific industries and regions.
- Initiate collaborative research projects with universities/research institutes to gain deeper insights into the local environmental and social dynamics.
- Advocate for a strong commitment to sustainability, ensuring that initiatives align with long-term environmental and social goals.
- Research on the viability of green energy transitions collaborating with bilateral research organisations (e.g. ILO, CPD), with a focus on the entire country rather than just the textile and garment industry.
- Capacities of every institution linked with the supply chain (government, factories, banks, ports etc.) need to be assessed.
- Concepts on Just Transition or green energy needs to be linked to the real objectives that stakeholders would want to achieve.
- Goals therefore need to be calibrated with every level of stakeholder.
- The creation of a profitable business model for owners to be incentivised.

2. See voluntary initiatives as business case:

- Present the adoption of environmental initiatives as a voluntary business case, underlining the importance of providing measurable outcomes and benefits.
- Stress that sustainability efforts enforced solely by buyers may not guarantee long-term success and that voluntary commitment from all stakeholders, including factory owners is crucial.

3. Brand support and incentives:

- Encourage brands to actively support factories in finding expertise in environmental matters, sharing technical knowledge, and providing necessary resources.
- Propose the implementation of incentives for suppliers who champion environmentally sustainable practices, creating positive reinforcement for proactive engagement.
- Brands need to be clearer about their expectations, which needs to be dispersed from top to bottom, across the stakeholder body.
- While EU or other international regulations cannot be altered, conversations can be initiated with relevant personnel in-charge on how to make these regulations applicable in the context of the garment industry of Bangladesh.

4. Government involvement and institutionalisation:

- Advocate for government involvement by ensuring easy access to finance for environmentally sustainable initiatives, particularly for Small and Medium Enterprises (SMEs).
- Suggest the formation of a dedicated cell within the government to monitor and support sustainability initiatives such as tax incentives, budgetary allocation, infrastructure development, concrete policy guidelines, media campaign using government-owned media channels, following a roadmap for systematic implementation.
- Emphasise the need to engage the private sector in the institutionalisation of sustainable practices.
- A clear and simplified roadmap is required for the industry as discussing impacts alone cannot incite change.
- Understanding the potential of existing policies and then focusing on adjusting those policies or expanding on them.
- The Government needs to make a cell to study all regulations and then disperse the best ones.
- Although the financing is present, there is a gap in the diffusion of information, which fails to reach the industry-- This information needs to reach factories and they need to be capacitated to receive the funding.

5. Collaborative approach with worker involvement:

- Stress the importance of a collaborative, multifaceted approach involving stakeholders, with a special emphasis on incorporating the voices of workers.
- Propose the establishment of a platform, following Beijing's Institute of Public and Environmental Affairs (IPE) model, involving BGMEA/BKMEA, the government, and research institutions to avoid overlapping initiatives and enhancing coordination.

6. Implement awareness for long-term sustainability:

- Highlight the risk of short-term Key Performance Indicator (KPI) achievements without worker awareness, emphasising the need for holistic and sustainable practices in environmental initiatives.
- Urge stakeholders to consider the long-term impact and benefits of sustainability efforts, ensuring they are embedded in the organisational culture for lasting positive change.

Introduction



1.1 Background

Human-induced climate change is one of the most pervasive threats to the environment and societies the world has ever experienced, where the poorest countries of the world are currently paying the heaviest price. Climate change and global warming have exacerbated water scarcity so much that the world faces an ever-increasing risk of agricultural and ecological droughts, making ecosystems incredibly vulnerable (United Nations, 2023). Between 2030 and 2050, climate change is expected to cause approximately 250,000 additional deaths per year (World Health Organisation, 2021). The need to mitigate Climate Change is a pressing issue for all the key world organizations, particularly outlined in the Conference of Parties (COP) and Sustainable Development Goals (SDGs) namely, SDG7 Affordable and Clean Energy, SDG8 Decent Work and Economic Growth, SDG12 Responsible Consumption and Production and SDG13 Climate action. There is no way to deny the adverse effects of climate change on both developed and developing countries, although the burdens of climate change are most drastic in vulnerable countries such as Bangladesh.

Bangladesh's unique geographic features make the country especially susceptible to climate change and natural disasters. Due to Bangladesh's location in the tropic of cancer, the country is recently the target of extreme weather events including droughts, floods and cyclones which tends to be exacerbated by climate change (Kreft et al., 2017). Erratic weather patterns, increasing temperatures, heavy precipitation and rise in the prevalence and variation of infectious disease thus characterise the country's geography (World Bank, 2021). Its status as a large riverine delta with a low mean elevation results it being especially vulnerable to rising sea levels. The biggest contributors of greenhouse gas and CO₂ emission in Bangladesh include, energy generation, industries and municipalities, transportation, building and construction, agriculture, and forestry (IPCC, 2014).

The textile industry (includes fabric/material production and processing for production of clothing, footwear, bedding etc. of which the RMG sector is a part) encompasses a large share of this burden. As the second largest exporter of garments in the world, the RMG sector of Bangladesh has become one of the largest contributors of CO₂ emissions (at 15.4%) in Bangladesh (Green Climate Fund, 2020). The weaving, dyeing, and finishing processes of this industry are the most energy-intensive, requiring heavy utilisation of fossil fuels (ILO, 2022).

The government and certain segments of the garment industry have made efforts to mitigate the climate issue, but existing efforts are still insufficient to tackle the problem. Bangladesh has a range of environmental laws and regulations that apply to all industries, including the RMG sector. These include the Environmental Conservation Act 1995, the Bangladesh Environment Conservation Rules 1997, and the Bangladesh Renewable Energy Policy 2008. These regulations address issues such as wastewater treatment, air pollution control, use of renewable energy, and environmental impact assessments. Although climate change is not particularly addressed in most of these regulations, they do include guidelines to reduce carbon emissions. One of the most notable policies of Bangladesh moving forward, includes "The Mujib Climate Prosperity Plan 2022-2041." This policy aims to counteract the climate-induced damages and losses by equipping vulnerable communities, industries, and the government with the Mujib vision supported by optimised financing tools and models that will be key to embracing new risk management. The Mujib Climate Prosperity Plan leverages the financing of the 8th Five Year Plan (2021-2025) of Bangladesh, Vision 2041, and Bangladesh Delta Plan 2100 with synergies with the Bangladesh Climate Change Strategy and Action Plan (BCCSAP) 2009, National Adaptation Plan and Nationally Determined Contributions submitted in 2020, to unlock a pathway for a fast-tracked delivery of the SDGs by 2030 and GDP per capita growth commensurate to upper middle-income status. Other existing policies include The National Adaptation Programme of Action (NAPA) for Bangladesh, 2009 and the National Disaster Management Policy, 2015. Bangladesh actively participates in international initiatives and collaborations related to sustainable practices in the RMG sector. For example, the government has partnered with organisations like the International Finance Corporation (IFC) and the Global Green Growth Institute (GGGI) to support sustainable and climate-resilient development in the industry. In addition, the garment industry of Bangladesh has had notable progress in its greening initiatives. Bangladesh boasts over 200 LEED-certified green factories, as of May 2024) with 53 of the top 100 highest-rated green factories worldwide, being in Bangladesh according to the USGBC (Hassan, 2023; The Daily Star 2024).

However, the existing efforts are considered inadequate in different ways. Although Green RMG is the trending buzzword and Bangladesh has showcased some formidable achievements, there are complexities and challenges to attaining a truly sustainable RMG sector. Stakeholders are still unwilling to incorporate green human resources management and sustainable practices for several reasons including, lack of interest, lack of managerial support, lack of monetary incentives, hesitation due to its strict rules and regulations and high employee turnover (Islam et al., 2019). Considering the entirety of the garments sector (which holds over

3000 factories), merely 4% of the factories are LEED-certified. As the LEED certification heavily emphasises energy efficiency, LEED-certified factories in Bangladesh may or may not make improvements in ventilation, materials for roofing, workplace crowding, heat from machines, and active cooling systems. Urgent investments need to be made in 'green' factories which ensure such improvements. If at least half of Bangladesh's apparel manufacturers make investments in cooling practices and temperature reduction, an annualised 2.66% increment in productivity by 2030 can be achieved (Judd et al., 2023). This could also avoid a projected loss of 28.44% of export earnings by 2030 (USD 7.58 billion) and 73,372 jobs due to high heat stress. Pushing the share of green factories above 50% may lead to larger projected gains by 2050 (Judd et al., 2023). A study conducted by ILO analysing the quality of Environmental Impact Statements of the Bangladeshi industrial sector (cement, textile, leather) found 80% of EIS's to be of poor quality, which may indicate a lack of effective intervention and monitoring of textile factories (ILO, 2022). In many cases, Green RMG remains within the factory parameters. The social and economic costs of the adjacent habitation are often neglected.

Existing policies and initiatives are not adequately coherent. Additionally, most do not incorporate the principles of 'Just Transition', a framework that focuses on ensuring a fair and inclusive transition from an economy heavily reliant on fossil fuels and high-carbon industries to one that is sustainable, low-carbon, and environmentally friendly. The Bangladesh RMG industry's transition to an environment-friendly sector needs measures to ensure workers' voices to be more sustainable and socially responsible. This includes improving worker safety standards, enhancing labour rights, promoting sustainable practices, and supporting workers and communities affected by the transition by including them in the necessary conversations. The goal is therefore, to create a more sustainable and socially just RMG sector that considers both environmental and social considerations (gender, socio-economic class, etc.).

In this context, it is pivotal to understand the perceptions of the relevant stakeholders towards environmental sustainability and green energy transitions based on 'Just Transition', their readiness toward this transition and the gaps within available policies on environmental sustainability. By analysing the perceptions, it would be possible to identify whether stakeholders consider the idea of environmental upgrading as a viable business case. In the process of environmental upgrading, actors modify or alter production systems and practices that result in positive (or reduce negative) environmental outcomes (Krishnan, 2017, p. 117) and a direct or indirect financial impact on the business. Reviewing what policies are available for the stakeholders to address this transition, would help identify the loopholes in strategy, gap between theory and practice, and their parameters of effectiveness.

1.2 Objectives

The overall objectives of this research are:

1. To understand the perception of suppliers, brands, national government, unions and other key stakeholders on green energy transitions and environmental sustainability and their readiness for this transition by reflecting on what factors incentivise them.
2. To review relevant policy frameworks initiated by international authorities, government, business associations, brands, etc.

1.3 Research Questions

Based on the above-mentioned objectives, the research questions framed for this study were as follows (see next page):

- I. What are the current ideas, perceptions, and awareness levels of the relevant stakeholders regarding green energy transition in the Bangladesh RMG industry?
- II. What are the existing practices and initiatives related to environmental sustainability and climate-friendly energy practices in the RMG sector?
- III. What are the key challenges and barriers faced by stakeholders in adopting and implementing initiatives for environment sustainability, just transition and climate-friendly energy practices?
- IV. How ready are the stakeholders for a transition towards climate-friendly practices and environmental sustainability, and what factors influence their readiness?
- V. Is there any collective initiative to address the issues related to environmental sustainability, just transition and climate-friendly energy practices in the Bangladesh RMG industry?
- VI. How and at what levels are workers voices reflected/heard in the existing process? What mechanisms are available for workers to participate in the issues related to climate change and just transition (factory levels and sectoral levels)?
- VII. Are the stakeholders interested in joining sectoral/national level multi-stakeholder dialogue on environmental sustainability, just transition and green energy transition?

1.4 Conceptual Framework

In response to climate change, ETI's Green Social Dialogue Programme promotes worker-led climate action and centres itself around 'Just Transition' policies and frameworks. These frameworks focus on inclusivity, the reduction of inequalities, and social justice during transitions to greener economies (ILO, 2022). Although climate mitigation practices might have the potential threat of job losses or rising financial inequality for workers, if carefully managed, this process may create new jobs, decent work, and thereby, more economic equality. Programmes such as Green Social Dialogue can ensure necessary re-skilling initiatives, safe working conditions and good pay for all workers involved during the implementation of greening initiatives (ILO, 2022; ILO, 2015; ADB, 2019).

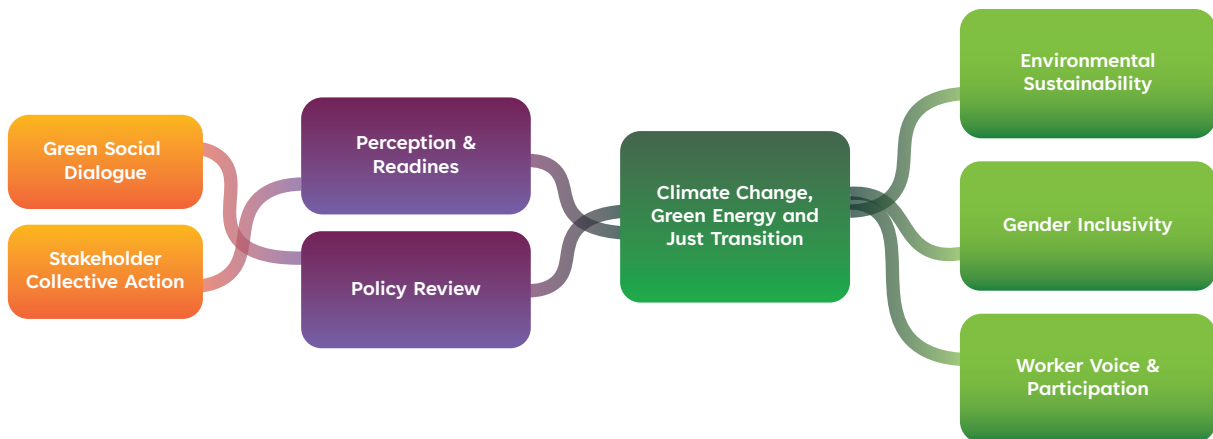


Figure 1. Conceptual framework

To achieve the goals of Green Social Dialogue, it requires 'Collective Action' which refers to the activities initiated and executed by stakeholders at all levels, including foreign buyers, factory management, worker representatives, government entities, trade organisations, labour unions and development project implementation agents. It is the key to sustainable and effective solutions which not only reduce further damage to the environment but also ensure all stakeholders equitably benefit from it. By collecting and analysing information regarding the perceptions, challenges, readiness and existing policies or frameworks on green energy, climate change and Just Transition, the specific outcomes of environmental sustainability, gender inclusivity and worker voice and participation can be achieved.



Literature Review

2.1 Climate change and Bangladesh

In Bangladesh, climate change has resulted in erratic weather patterns, increasing temperatures and precipitation, and a rise in the prevalence and variation of infectious diseases (World Bank, 2021). Bangladesh's unique geographic and climatic features make the country especially susceptible to climate change and natural disasters. The country's status as a riverine delta with a low mean elevation results in it being especially vulnerable to rising sea levels. Due to Bangladesh's location in the tropic of cancer, the country is also the target of frequent extreme weather events including droughts, floods and cyclones which usually tend to get exacerbated by climate change (Kreft et al., 2017). The most significant contributors to greenhouse gas and CO₂ emissions in Bangladesh include power generation, industrial municipalities, transportation, building and construction, agriculture, and forestry (IPCC, 2014).

Tonnes of CO₂ per unit of total primary energy supply (tCO₂/TJ)

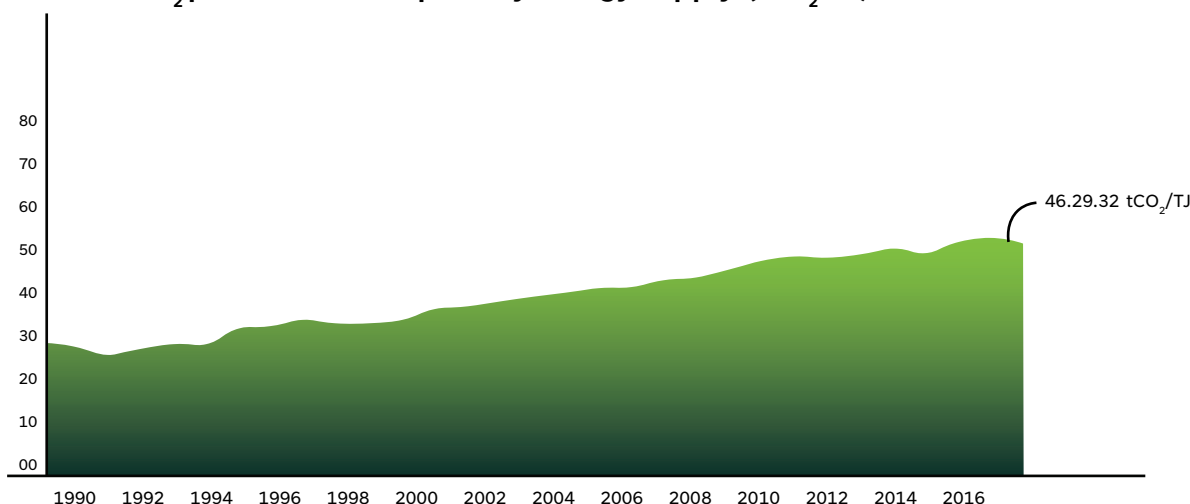


Figure 2. Carbon intensity in Bangladesh across the years: *In Bangladesh, carbon intensity has consistently increased since 1990. Carbon intensity shows how much CO₂ is emitted per unit of energy supply. This high level reflects the continuously high share of fossil fuels in the energy mix. (Source: Enerdata, 2020)*

Additionally, the impact of global warming on the labour force is already evident and is unequally distributed across the world where poorer countries such as Bangladesh may experience a decline in growth due to hotter temperatures (Dasgupta et al., 2021; Diffenbaugh and Burke, 2019). Climate impacts also disrupt the labour market. This is exemplified by coastal flooding causing soil salinisation, harming agriculture, and livelihoods, and promoting urban migration (Letsch et al., 2023; Alam and Mamun, 2022). Key industrial areas experience significant in-migration due to job availability, such as the textile and RMG sector, where 36% of current RMG workers are such climate migrants who have migrated due to climatic disasters into urban areas (Daily Star, 2024). However most of the climate migrants are unskilled, and a skilled labour shortage still plagues the industry since Covid-19 (Daily Star, 2022). Bangladesh's recent economic growth, propelled by export-focused sectors like the garment industry, has yielded socioeconomic progress. Preserving these growth trends amidst escalating climate impacts necessitates a shift to sustainable growth, safeguarding workforce well-being and environmental harmony, aligning with the country's goal to be an upper-middle-income goal country by 2031 (Reza et al., 2017; World Bank, 2022). The potential consequences of a 3°C global temperature increase could lead to a 1.7% annual GDP reduction in Bangladesh by 2037 and a long-term decrease of 7.6% (Kompas et al., 2018). Projected outcomes under a high-emission scenario, with 'business as usual,' condition indicate a yearly GDP decline of 0.55% in 2030, 2.68% in 2050, and 8.59% in 2100 (Kahn et al., 2021). Even in cooler sectors, a combined 9 percentage-point decrease is anticipated in productivity due to climate change and hotter temperatures (Letsch et al., 2023). The loss in labour productivity may even compromise efforts to reduce poverty in Bangladesh and the attainment of SDGs goals, making it more difficult to achieve prosperity and inclusive growth in the medium/long term (Letsch et al., 2023). Bangladesh is therefore, currently at the frontline of this worsening climate crisis, where rising temperatures pose health risks such as heat-related illnesses and diseases, along with reduced productivity due to heat stress (World Bank, 2021; Dasgupta et al., 2021). Indirectly linked impacts of such health risks are also critical to address, but they fail to receive the same attention by researchers and policymakers (Letsch et al., 2023).

Currently, economic growth in Bangladesh relies heavily on fossil fuels, especially natural gas, which covers over half the country's energy supply. Natural gas usage dominates the clothing and textile industry, accounting for about three-fourths of their energy demand (IEA, 2022). Although renewable energy, such as waste incineration and biofuels, contributes to a fifth of the energy demand, modern renewables like solar and wind energy use remain marginal,

constituting less than one per cent of the electricity supply, primarily hydropower in Bangladesh (IEA, 2022). Solar power has seen local adoption but faces challenges like land acquisition and subsidy absence, hampering on-grid solar development. To harness intermittent renewables grid modernisation is essential. Additionally, nuclear power is under construction, but in the very preliminary stages, so its contribution is currently absent (World Nuclear News, 2022).

The 2018 National Climate Vulnerability Assessment highlights the importance of elevating the nation's capacity to adapt, which can be made attainable through avenues such as education, technology, and enhanced access to vital resources such as water, electricity, and healthcare. Prioritising the reinforcement of the country's adaptive capability is pivotal to diminish climate vulnerability, while simultaneously tackling gender disparities and poverty. Nonetheless, even though a commitment has been shown, current policies lack implementation (Finnwatch, 2023). Most importantly, there is not enough detailed research directly linking climate change to labour rights, thereby impeding proper traction for this issue.

2.2 Bangladesh garment industry and environmental sustainability

The textile and garment industry emerges as one of the largest greenhouse gas contributors in the world, producing approximately 1.2 billion tonnes of CO₂ equivalent emissions i.e. nearly 10% of global emissions due to complex and intricate supply-chain processes (European Parliament, 2021; UNFCCC, 2018; Rana et al., 2019). Heavy reliance on coal to generate heat and electricity in major textile-producing nations such as China, India and Bangladesh, exacerbates the issue (Finho et al., 2022). The sector's escalating energy consumption, driven by rising textile-based product demand, has led to an estimated 35% increase in climate impact between 2005 and 2016, with projected trends indicating amplified impacts through 2020 and 2030 (Quantis, 2018). With over 80 million tonnes of fibre used in 2012, the industry accounted for approximately 1.9% of global energy use (Palamutcu, 2015). In fact, 41% of the total energy used in this industry is by the spinning sector, indicating a heavy reliance on non-renewable energy for fibre-related processes (Rana et al., 2019). Around 15%–20% of the remaining total energy is used as electricity in the RMG sector for its production processes (laying, cutting, stitching, processing, pressing, and finally, packaging) where a significant portion powers laundering (Rana et al., 2019). This industry exerts substantial pressure on various other environmental aspects e.g. land, water, and air quality, depleting natural resources (Niinimäki et al., 2020). Addressing these concerns necessitates transformative shifts in an industry employing approximately 300 million individuals across its global value chains. Such transformations encompass adopting innovative fibres, circular business models, changing consumer preferences, and enhancing recycling practices to shape a more environmentally sustainable economy (Finnwatch 2023; ILO, 2019; Quantis, 2018; BGMEA, 2015; Chen et al., 2021; Ferdousi et al., 2020). However, the surge of fast fashion, marked by disposable clothing, intensifies the ecological strain while growing production rates due to globalisation and population expansion compounds the challenge (Berg et al., 2021).

Specifically bringing the focal lens towards Bangladesh, the clothing and textile industry has emerged as a cornerstone of the Bangladesh economy, generating around 4.2 million jobs and advancing women's empowerment and financial independence. Currently, Bangladesh stands as the second-largest exporter of ready-made garments, where 3.6 million of these jobs generate from the RMG sector specifically (Goosen et al., 2018). Additionally, approximately 9.6 million more jobs are indirectly linked to the RMG sector, contributing to 54% of the country's industrial workforce (Finnwatch, 2023). The RMG sector thus contributes a substantial 10% to the country's GDP accounting for 84% of Bangladesh's foreign export earnings, making it stand as a vital force towards progress (Kumar, 2020; Islam, 2020; Mia & Akhter, 2019). Nonetheless,

Apparel and footwear value chain GHG emissions in 2018

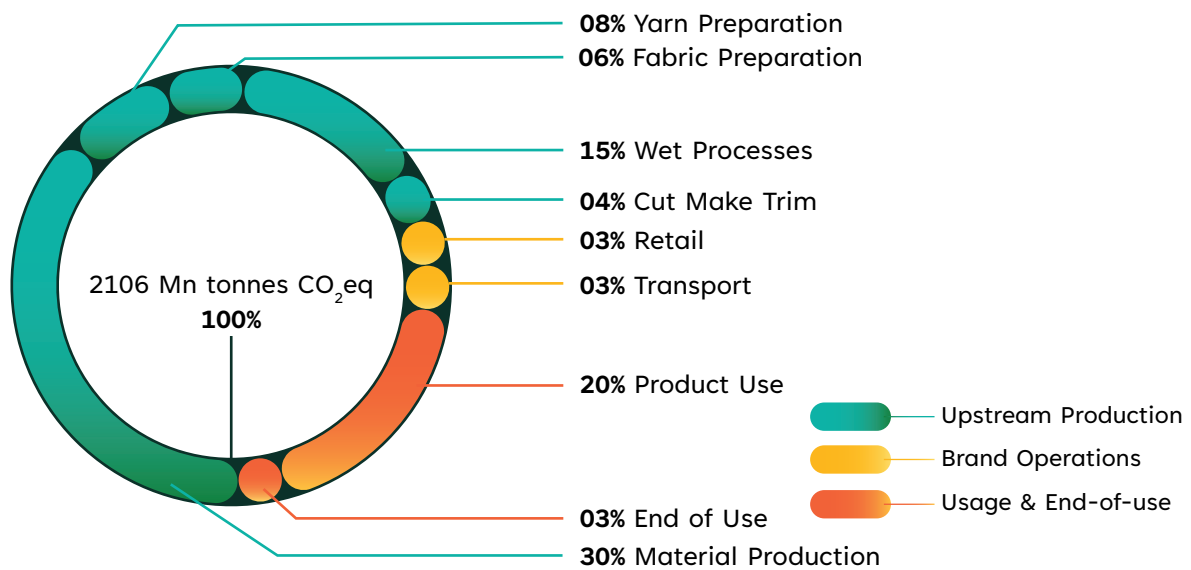


Figure 3. % GHG emissions divided by category within the value chain of the textile and apparels industry (Source: McKinsey & Company, 2020)

despite this sector's economic advances, it still grapples with climate change vulnerabilities. The RMG sector in its current state, is still a heavily non-renewable resource-concentrated and pollution-intensive sector (Kumar et al., 2020; Oyshi et al., 2021; Rahman et al., 2020), with a 15.4% contribution to the country's total CO₂ emissions (Green Climate Fund, 2020). As a result, the industry's value chain activities have been continually criticised for its ongoing environmental pollution and long-term negative social and environmental impacts (Chowdhury et al., 2022). This economic reliance exposes Bangladesh's susceptibility to global market shifts, emphasising the need for adaptation. As the nation is set to graduate from least developed country (LDC) status to developing country status in 2026, aligning with labour and environmental standards is imperative to retain EU trade preferences (The European Commission, 2022).

Life Cycle Stage

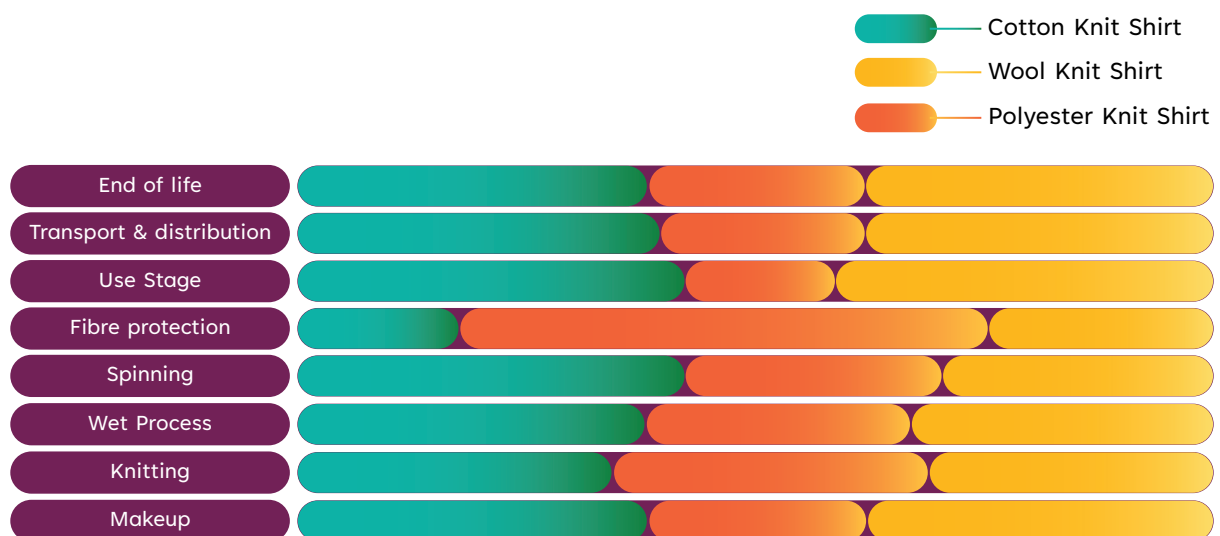


Figure 4. CO₂ emissions proportional breakdown across on different stages of the life cycle for knit apparels (Source: Moazzem et al., 2018)

Currently, global brand environmental and social concerns are driving the greening of Bangladesh's garment and textile industry, but practical limitations stem from a significant workforce skills gap and higher costs of adopting cleaner technology (ILO, 2021). The sector's primary environmental impacts pertain to energy, water, and chemical use, prompting the emergence of "green factories" as a response. These green factories, endorsed by BGMEA and the Bangladesh Government, aim to decrease energy consumption by 40% and water usage by over 30%, symbolising a positive image shift post-Rana Plaza tragedy (KPMG, 2018). Government support for greening is demonstrated through reduced corporate tax rates for LEED-certified factories. Despite controversies around LEED certification as an energy efficiency indicator, Bangladesh boasts the highest number of LEED-certified factories globally, with approximately 209 in operation as of February 2024 and more to follow (The Daily Star, 2024). This proliferation of green factories in Bangladesh is driven by external stakeholder pressure and the pursuit of global competitive advantage in the fashion and apparel industry (Chowdhury et al., 2022; Hossain et al., 2017).

LEED: Leading the Way in Green Building

LEED factory certifications stand as the world's leading green building rating system. Launched as a pilot programme in 1998 and formally established in the year 2000 by the U.S. Green Building Council (USGBC). LEED has since evolved to encompass diverse markets, building types, and technological advancements. They offer a framework for developing healthy, efficient, and cost-saving green buildings that yield environmental, social, and governance benefits. To achieve LEED certification, a project must adhere to prerequisites that address carbon, energy, water, waste, transportation, health and indoor environmental quality.

LEED certifications are globally recognised as a symbol of sustainability, with over 197,000 LEED projects spanning 186 countries and territories. Notably, the Philip Merrill Environmental Center in Annapolis, Maryland, and the Heritance Kandalama Hotel in Dambulla, Sri Lanka, earned the first-ever LEED certifications, setting the stage for widespread adoption.

The certification's journey in Bangladesh started in 2008 when the Sustainable Built Environment Initiative, Bangladesh (now, Bangladesh Green Building Council) was founded. They brought together all major stakeholders to work towards the common goal of a greener country. LEED certifications have since become the gold standard for showcasing dedication to sustainability and environmental conscientiousness. Bangladesh is currently a major source of inspiration for many, as the nation has the highest number of green garment factories worldwide (The Daily Star, 2024).

Bangladesh boasts 209 LEED factories (as of February 2024), 18 of which are of the top 20 green factories in the world (The Daily Star, 2024). In fact, the world's highest rated green building, SM Sourcing is also located in the country.

Reports indicate that LEED certification alone is an insufficient remedy for ensuring environmental sustainability (Finnwatch, 2023; Dhaka Tribune, 2022). Although factory buildings can attain certifications based on design and estimated manufacturing energy

efficiency, actual emissions remain unaccounted for. LEED does not particularly mandate a switch to clean energy, but only requires specific structural alterations (Dhaka Tribune, 2022). While LEED certifications encompass health and well-being criteria for building occupants, including factory workers, on-ground assessments in Bangladesh reveal that green factories can still subject workers to health and safety risks akin to those in non-certified facilities (Solidarity Center, 2022). This is attributed to factors like yarn dust, chemical usage, excessive heat, and inadequate amenities. Consequentially, achieving environmental sustainability in this sector necessitates more than "clean" energy adoption.

Circular economy initiatives which aim to foster textile recycling, similar to the Circular Fashion Partnership project, are nascent in Bangladesh, yet widespread implementation remains pending (Finnwatch, 2023). Other initiatives include IFC-SEDF, and their initiative called "Cleaner Production (CP)" which was implemented in 18 factories to reduce waste production (BGMEA, 2015). The Bangladesh Partnership for Cleaner Textile (PaCT) also furthered CP initiatives by including brands and factories, gauging possible policies to utilise (Oka et al., 2020; BGMEA, 2015). The initiative included 75 factories undergoing basic CP assessments while 56 factories underwent intensive CP assessments (BGMEA, 2015). Similarly, the Textile Resource Efficiency and Environmental Sustainability, TREES initiative has been proven to provide custom solutions for waste management, carbon emission and water footprint reduction etc. (Finnwatch, 2023), which have been implemented in 10 factories. Furthermore, there are some measures in place to train and educate factories on environmental compliance such as Zero Discharge of Hazardous Chemicals (ZDHC) and Textile Technology Business Centre (TTBC). Even still, the existing issue with all the established initiatives remains to be the gap between initiative and mainstream implementation. This creates the question of adequacy within the current pool of initiatives in circulation, where a lack of dialogue between relevant stakeholders, including workers is prevalent.

Inclusion of worker voices is critical as a shift towards sustainable and circular supply chains also carries with it, the possibility of employment loss. Efforts to realise labour rights and enhance social security in Bangladesh remains crucial. Although there are 114 aid programmes currently in place, they primarily focus on food provisions and elderly support and are reportedly inefficient (ILO, 2022). Limited unemployment support remains to be an issue for garment factory workers. Most of the existing support in Bangladesh is mainly tailored for agricultural workers during low-demand periods (Finnwatch, 2023). Despite the government's acknowledgment of unemployment protection needs in the National Social Security Strategy of 2015, implementation has been shown to be extremely slow.

2.3 Climate change and its impact on garment factory workers

The industry's severe reliance on fossil fuels, leading to toxic gas emissions is extremely alarming for the health of its workers (ILO, 2019). Chemical processes such as dyeing, not only waste a significant amount of water, but the chemicals predominantly in use are also extremely harmful (Letsch et al., 2023; Peters et al., 2015). Detailed studies on the health-related effects due to toxic fumes or chemicals have only been covered sparingly in literature. Most of the available literature on the impact on workers focus on heat stress and productivity (Reza et al., 2017; Chowdhury et al., 2017; Letsch et al., 2023; ILO, 2019). Diminished labour performance and increased absenteeism have been highlighted as the major resulting issues (Letsch et al., 2023). Productivity loss affects economic output and wages, impacting both local economies and communities (Kahn et al., 2021).

ILO (2019a) particularly emphasises the gravity of rising temperatures as they project that by 2030, 4.84 percent of working hours of Bangladesh's total formally employed population will be

lost due to heat stress, which is the equivalent of 3,833,000 full-time jobs. In Dhaka's garment factories, temperatures can reach up to 38°C during peak production hours, posing significant risk of heat strokes or indoor suffocation (Chowdhury et al., 2017). Poorly ventilated workplaces elevate heat-related occupational hazards, which is further amplified in urban areas due to heat-absorbing infrastructures (ILO, 2019b). The rising heat's critical role in workplace productivity is underscored by studies, revealing challenges in temperature control within garment sector workplaces. Notably, 17% of participating Bangladeshi factories in the Better Work program failed to meet temperature standards in 2019 (Letsch et al., 2023). Research indicates that once factory temperatures surpass around 29°C, each degree rise lowers productivity by 3% and profits by 2.2% (Adhvaryu, Kala, & Nyshadham, 2018).

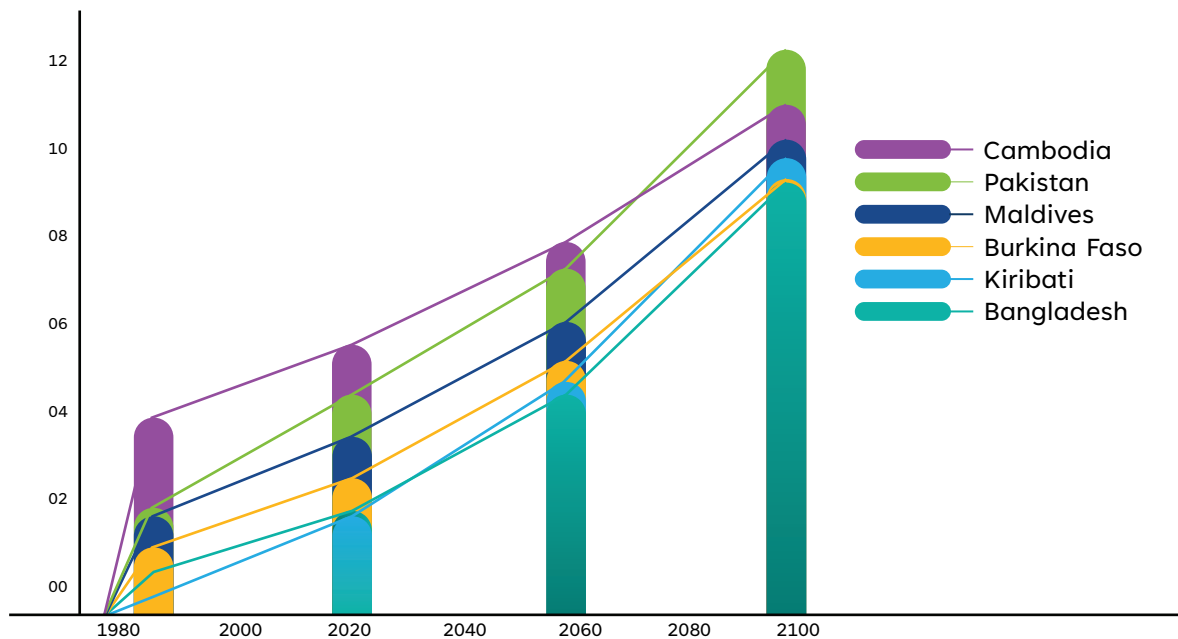


Figure 5. Percentage of daylight work hours lost (RCP6.0, 300W) in worst affected countries. (Source: UNDP, 2016)

Beyond heat stress, the increasing occurrence of extreme weather events such as monsoons, cyclones and floods add to the list of challenges (ILO, 2019). Research indicates that these extreme weather events not only disrupt Bangladesh's crucial economic activities e.g. agriculture, forestry, fishing, and manufacturing but can also lead to severe health consequences. Major recorded disasters surged from 4,212 (1980-1999) to 7,348 (2000-2019), potentially impacting productivity (UNDRR, 2020). Furthermore, BSR's study involving 15,000 Dhaka workers showed monsoons and excessive precipitation heightened sick leave rates by 10 percentage points, while average temperatures of 30°C correlated with a 2% productivity dip (Sebastio, 2018). These findings stress the significance of temperature management and its profound impact on productivity. Moreover, such extreme weather may lead to increased absenteeism which will ultimately lower productivity as well.

Women are cited to bear the brunt of such issues as they are more likely to be absent from work due to their disproportionate care duties within the domestic sphere (ILO, 2019). Losses in income can be particularly challenging for women, as they have limited access to resources and ownership, and already receive lower wages than men on average (Kapsos, 2008). Additionally, as gender-based violence and harassment are already pervasive throughout the sector, studies indicate that decreasing levels of productivity due to climate change can have the potential to result in heightened levels of harassment against women workers particularly (ILO, 2019; UN Women, 2014). Suggested solutions within the literature include shifting work hours to cooler periods and encouraging regular breaks for rehydration, but potential health impacts, such as altered sleeping patterns, should be considered (Jaren et al., 2022). Investing in water and

sanitation services can enhance factory productivity and worker health, reducing waterborne diseases (WHO, 2022). Initiatives like Hong Kong's three-tier heat warning system demonstrate adaptable solutions, that balance rest and work for outdoor and indoor labour (Bach et al., 2023). Effective factory conditions involving cooling systems, insulation, and retrofitting can also lower indoor temperatures and increase comfortability (Bach et al., 2023). To implement these actions, collaboration between the government, employers, labour unions, and institutions is crucial, as successful policies need to ensure a participatory approach.

Considerations for the specific impacts on women are critical. Natural disasters not only lead to disproportionate impacts on women within the industry but outside as well. Women across the country suffer more during deadly cyclones, rising sea levels, droughts etc. as they lack access to assets such as land and money, necessary social networks and information (Fatema, 2020; Kamal and Hayat, 2019). Additional disparities include health-related burdens such as increased physical and mental stress from bearing most of the work burden at home, poor sanitation in shelters and sacrificing their own health needs for other family members (Fatema, 2020). Awareness building and capital funding are extremely important to allow for such adaptations. Even though this link has been made in literature, detailed studies do not explore the specific connection between gender and climate change. There may be more avenues within the aspect of climate change and women worker rights within the garment sector. Climate change's effects can worsen gender disparities. Therefore, the literature recommends that targeted focus be placed on bridging gender gaps in the sector and broader society, to combat violence, enhance unpaid care support, ensure equal pay, and amplify women's voices, representation, and leadership (ILO, 2019). By tackling these issues, gender dynamics may be enhanced both in workplaces and society, ensuring sustainability.

2.4 The 'Just Transition' framework and its importance for the textile and RMG industry

Given the pressure to meet climate change targets, structural changes are underway worldwide in fossil fuel production and carbon-intensive industries (Atteridge and Strambo, 2020). These changes are expected to create economic opportunities and co-benefits such as improved air quality and energy security (Karlsson et al., 2020). But, the distribution of these opportunities and transition costs are predicted to be uneven across countries, regions and industries (Ferrer Márquez et al., 2019; ILO, 2015; Gambhir et al, 2018; Green and Gambhir 2019). Although a low-carbon transition could increase employment, it might not generate jobs in areas dependent on carbon-intensive industries, where jobs are likely to change- some will have new skill requirements, some will be relocated (e.g. near-shoring closer to consumers) and some will be lost altogether (Finnwatch, 2023; ILO, 2018). Poorly managed transitions could lead to hardships, particularly in communities/industries relying on fossil fuel activities.

The idea of a "just transition" is therefore gaining prominence to navigate the shift from fossil fuels to decarbonisation equitably. Just Transition has a specific focus on worker rights as they are the most likely to be affected due to the possibility of employee turnover. This concept originated in the 1970s when labour unions advocated support for workers affected by environmental regulations. Over the years, the notion has evolved to encompass a broader range of equity issues related to large-scale green energy transitions. Ensuring a just transition involves avoiding new investments in carbon-intensive activities and protecting marginalised groups through social support measures (Atteridge and Strambo, 2020). Supporting just transitions involves addressing compensation, employment, environmental protection, economic diversification, and socio-economic and gender equality (Finnwatch, 2023; Atteridge and Strambo, 2020). Moreover, the transition toward an environmentally sustainable textile

economy necessitates early consideration of its social implications. Just transitions require planned approaches to mitigate social issues and inequality during ecological shifts, applicable at all scales, with both state and corporate roles. Corporations are obliged to assess the human rights effects of their climate actions on workers and stakeholders within their value chains and appropriately address negative impacts (Finnwatch, 2022).

The clothing and textile sector exemplifies the need for coordinated and inclusive transitions, given the potential for significant employment shifts and projected social challenges (Finnwatch, 2023; Quantis, 2018; Atteridge and Strambo, 2020). Many brands are also increasingly favouring countries with technological advancements that emphasise sustainable production i.e. reduced supply chain emissions and circular solutions (SGT, 2022; Centre for Policy Dialogue, 2019). Adding to this burden, as of 2022, the European Commission laid out a set of principles for the sustainability of the textile and garment industries which they require to be implemented by 2030 (EU Commission, 2022). This is especially relevant for countries such as Bangladesh, where the industry is an essential part of the economy and an important source of employment. It is estimated that the nature and the overall number of jobs in the industry will slowly change when the demand for new clothing diminishes due to increased lifespan, reuse, and recycling of existing clothing (Chowdhury et al., 2022; Quantis, 2018; Rana et al., 2019). Suggested greening solutions generally focus on how to reduce the carbon footprint, manage wastewater and certain infrastructural adaptations. Given that the major carbon footprint of textile industries primarily originates from the creation, processing, and utilisation of fibre products, recycling holds a significant influence on the carbon footprint (ILO, 2019; BGMEA, 2015). For instance, reusing 1 tonne of cotton fibre requires only 2.6% of the energy needed for new materials (Palme et al., 2014). Considerable enhancements in the product life cycle can be accomplished by embracing distinct alternatives such as opting for low-emission fibres (Peters et al., 2020). Textile yarn spinning is also generally energy-intensive, where energy consumption is influenced by the yarn size and spinning technique. Utilisation of thinner yarns would demand greater energy (Van der Velden et al., 2014). Air-jet spinning is also a new form of technology, which boasts low energy use (Peters et al., 2020). When it comes to wastewater management, a report by the BGMEA highlights certain possible measures, such as harvesting rainwater, reducing water use by recycling. Additionally, it suggests infrastructural changes such as conducting cogeneration methods (producing heat and electricity simultaneously), using condensate recovery boilers, and introducing solar panels, prismatic skylights, and LED lights. Factories are suggested to use a broad spectrum of methods rather than any single measure to make the apparel industry sustainable in the long run (Quantis, 2018).

These kinds of solutions, however, lack the acknowledgement or any consideration for workers specifically— whether such infrastructural changes will have an impact on their employment status or wages are not specified. Hence, studies emphasise that achieving a sustainable transition necessitates companies to uphold a human rights-based commitment, aligning their climate objectives with the Paris Agreement's goal of committing global warming to a maximum of 1.5 degrees celcius. Companies should engage in early and transparent dialogues, involving not only value chain partners but also employees, trade unions, authorities, and stakeholders, thereby ensuring an inclusive energy transition to achieve their required goals. Taking proactive measures entails supporting societies through tax contributions, enhancing working conditions, and influencing policies for employee social security during the transition. Active involvement in projects that focus on labour force retraining and enhanced job mobility is equally pivotal (Quantis, 2018). In practise, industries worldwide, including Bangladesh, only focus on the environmental impacts of their factories (EEB, 2022). Climate action by textile brands is still in the early stages, where brands seem to focus on their parent-company emissions (e.g. their offices or sales locations) rather than on their supplier factories (Finnwatch, 2023).

Historical industrial closures reveal challenges faced by regions during energy transitions, including economic decline, out-migration, and social instability. Environmental damage, mental and physical health deterioration, and gender-specific impacts are also typical. Transitioning regions require various investments and financial support mechanisms, such as infrastructure, and debt restructuring (Sartor, 2018). Strictly regulated and active labour policies, such as employment services and training, yield better outcomes than passive measures. Studies conducted in Europe and the United States illustrate how the successful development of new industries or new technologies in regions depends on pre-existing regional capabilities, such as local knowledge, skills, and institutions (Berge and Weterings, 2014; Boschma et al., 2015; Neffke et al., 2011), as reflected in the European Union's "smart specialisation" agenda (EU Commission, 2014). That said, not all industries or nations are developed enough to contain such pre-existing structures. Lesser developed economies are in greater need of just transitions to ensure labour rights, but the cases of active participation of labour in their energy transitions are few and far between. The coal mining industry in Spain is a rare example where unions and workers actively engaged in discussions to address the impact of industry transitions (Just Transition Centre, 2019). The report suggests that the coordinated efforts within trade unions led to sharper negotiation skills and unity, resulting in substantial reinvestment (€250 million) for job training, priority employment for affected miners, environmental site regeneration, and community infrastructure upgrades to support the transition. Another such example exists in the Colombian mining industry, where collaborations with NGOs and academia were aimed towards enhancing workers' direct influence on such transitions (Coninx et al., 2022; Dijkshoorn-Dekker et al., 2022). The inclusion of academia can be extremely useful, as there may be different interpretations of Just Transition by different stakeholders. This has been exemplified in the energy transition scenario with trade union members in Norway (Normann and Tellmann, 2021). Nuanced and contextual understanding is required to come to an agreeable middle ground for everyone affected. Otherwise, these transitions may fail to aid those they were intended for. Therefore, the available literature suggests that **implementing just transitions involves actively promoting decarbonisation, assisting workers and communities, remediating environmental damage, addressing inequalities, and ensuring transparent planning processes. Inclusion of marginalised groups, such as women and considering local assets or capacities are essential** (Atteridge and Strambo, 2020). Just Transitions therefore, demand a holistic approach to achieving their environmental, social, and economic goals.

2.5 Perspectives on energy transitions

Due to international legislation, consumer and investor demand, international apparel and textiles brands are already seeking to minimise their environmental footprint (Nazrul and Rahman, 2021). Countries such as the United States have their own set of regulations on health and safety that need to be adhered to when offshoring work to factories in other countries (OSHA). Similarly, countries within the European Union strongly emphasise safety standards that promote the working and living conditions of workers in less developed nations (Islam et al., 2019). The Government of Bangladesh has also recognised the significance of utilising green energy and has developed various commitments in this regard e.g. Environmental Conservation Act (1995), Mujib Climate Prosperity Plan (2022-2041), Nationally Determined Contributions (2021), Bangladesh Climate Change Strategy and Action Plan (2009), National Adaptation Plan (2023-2050), the 8th five-year Plan (2020-2025), and Vision 2041.

Despite increasing international and national commitments, perspectives of stakeholders are shown to vary. Specific studies on green transitions and perspectives on the garment industry are still limited. Moreover, most of the literature on stakeholder perspectives on green energy transitions in factories is primarily from a Western lens (Banerjee and Schuitema, 2022; Sicotte

et al., 2022; Finke, Gilchrist, and Mouzas, 2016; Islam et al., 2019). Some of the available non-western literature includes the Indian automobile industry, where stakeholders (such as managers) of Indian factories highlight cost as the main barrier to sustainability as well as a limited managerial support (Paille et al., 2013). In the case of the Iranian energy sector, energy workers identify **a lack of concrete planning and organisation as well as a proper understanding of green policies** as the biggest impediments to green transitions within the workplace (Fayyazi et al., 2015). Additionally, they are shown to be wary of the **negative social effects** of such a transition and the burden of costs that it would entail (Guerci and Carollo, 2016). Energy workers within the Nigerian power sector acknowledge the need for more sustainable sources of energy for an energy transition but highlight **the critical need to disseminate the necessary knowledge** for such transitions and **advocate low-carbon development** within the national curriculum (Shari et al., 2023) – signifying how understanding is quintessential for an all-over transition (Atteridge and Strambo, 2020). Respondents also added the need for such transitions to be financially feasible suggesting the use of **tax holidays** on the usage of energy components or **low-interest loans** from commercial banks for clean energy projects (Shari et al., 2023). Qualitative studies deep-diving into more nuanced worker, manager or union member perspectives are mostly limited to studies in the West. In a study using energy worker perspectives of the US, workers listed apprehension over the **loss of their job security** as their biggest fear of such transitions, however, the study also found enthusiasm by some percentage of respondents (mostly union members) for the addition of new technology (Sicotte et al., 2022) -- indicating a **link between unionisation and willingness towards energy transitions**.

The literature on the perspective of stakeholders on such a transition in Bangladesh itself is extremely limited. Islam et al. (2019) conducted one of the first studies on the challenges and solutions of Green Human Resource Management (GHRM) in Bangladeshi garment sector. The study showcases the many perceived barriers to such a green overhaul within the factory and how that may have an economic as well as social effect from the perspective of workers, managers, finance, and even human resources. It justifies previous literature on energy transitions and stakeholder perspectives by stating similar **challenges** such as **a lack of rules for GHRM, lack of organisational support, possibly high employee turnover, and high costs of practising and lack of managerial interest**. The study finds that stakeholders believe the following to be essential for a successful green transition within factories- **strict rules and regulations, government-mandated monitoring, training programmes for workers, monetary incentives, and mandatory courses in universities** to develop green attitudes within students. Azad et al. (2022) further verified the findings of the study by conducting similar research on the perspectives of stakeholders and subsequently quantifying the results. These findings align with other Western literature on just and inclusive energy transitions which discuss how **active labour policies, training programmes and knowledge, are key for a successful transition** (Berge and Weterings, 2014; Boschma et al., 2015; Neffke et al., 2011).

Islam et al. (2019) and Azad et al. (2022) manage to nuance this field of research and attempt to fill the research gap in the context of perspectives on successful implementation for the Bangladesh RMG sector. However, they still do not fully address the idea of **“collective action.”** Studies on just transitions stress the need for such transitions to be affordable, sustainable, safe, and feasible for all individuals involved, for which strong advocacy, collective action and knowledge are required (Shari et al., 2023, ILO, 2021). Moreover, Finke, Gilchrist, and Mouzas (2016) discuss how companies fail to collectively respond to climate change due to the multiplicity of interests of actors involved in the network which is aggravated by 1) economic reasoning 2) weak stakeholder bonds and 3) differing perceptions of the rules of transition, suggesting that differing interests is the overarching reason why collective action is hindered. Therefore, the studies on green energy transitions in Bangladesh, especially, in its RMG sector are still very limited in their scope. Further investigation is required to seek out how to actively

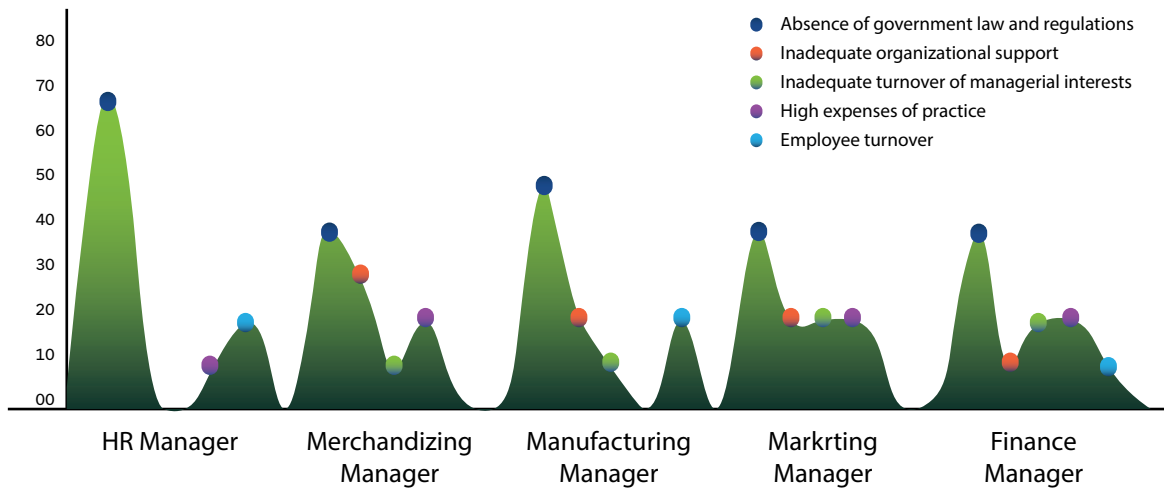


Figure 6. Challenges cited by mid-level management in RMG factories for GHRM (Source: Azad et al., 2022)

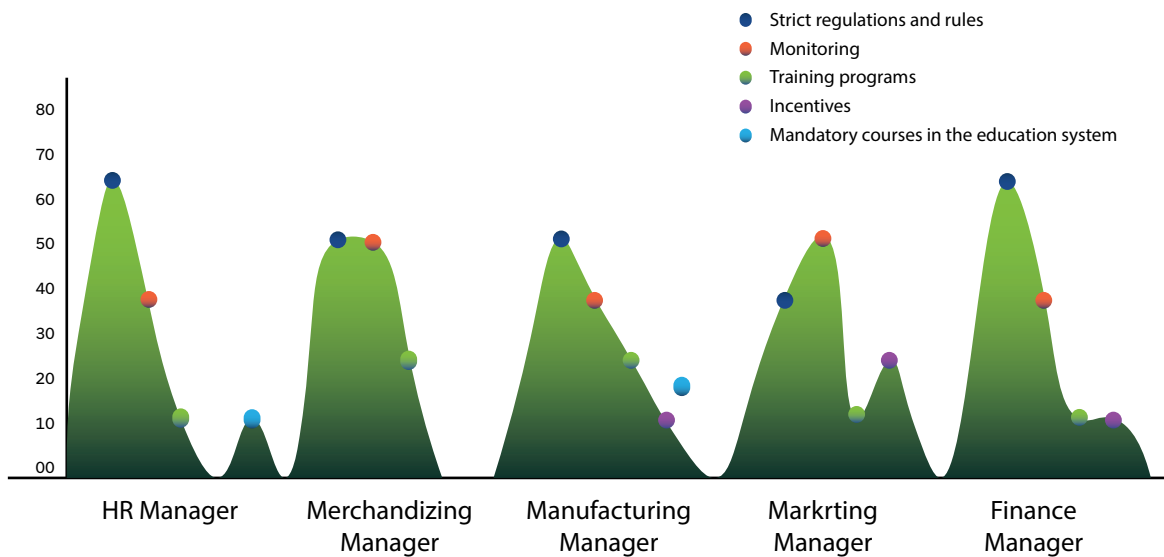


Figure 7. Solutions as suggested by mid-level factory management on successful GHRM in RMG factories (Source: Azad et al., 2022)

engage a collective action from all levels of stakeholders by finding a common midpoint within their interests. Lastly, it is important to note a large amount of the Western literature on stakeholder perspectives comes from workers who are still relatively socially and economically better off than most of the workers within the Bangladesh garment industry. As seen in the Irish peat industry, without a full-fledged understanding of a just transition, the transition would inevitably fail/result in job loss for workers (Banerjee and Schuitema, 2022). Hence, any investigation should keep in mind the socio-economic statuses of the RMG workers when trying to find solutions in merging the theory of just transition into practice and considering methods of knowledge dissemination for the workers.

Methodology



3.1 Data Collection

This research has relied on qualitative methods for data collection through Key Informant Interviews (KIIs) and Focus Group Discussion (FGDs). This allows respondents to define and frame issues from their own viewpoints and provide in-depth information on specific subjects. Furthermore, these open-ended interviews have allowed the research team to build a relationship with respondents and ask in-depth follow-up questions via phone calls/emails.

Field research for this study lasted a span of one month from September 15 - October 15 (of 2023). The lead researcher conducted most of the key interviews, such as with brands, labour right experts, business associations, FGDs and federation leaders, where the assistant researcher provided additional support and was responsible for some of the key interviews. Due to the nature of the research and the short timeframe, an enumerator was enlisted to conduct the bulk of the interviews. Interviews ranged from 45-60 minutes in length. While most interviews were conducted in-person, due to the availability and location of some respondents,

a few of the interviews have been conducted via Zoom/Google Meet. Data for the study has been recorded (with the consent of the respondents) using a tape recorder. Transcripts for the interviews were provided by the enumerator and his team. The following table (**Table 1**) describes the nature of stakeholders, the number of respondents, their types and focusing areas of interviews:

KIIs and FGDs with Stakeholders	Number of Respondents	Types	Mode of interview	Focusing Areas
Factory Management	50	Small 9, Medium 17, Large 24 Green 16, Non-Green 34	Online 7 In-person 43	<p>Agenda: Priority ranking of greening initiatives and reasons behind priority level</p> <p>Motivation: Interests behind creating environmental progress, i.e. Audits, buyer attraction, green labelling commercial benefits, safe working conditions, and meeting SDGs.</p> <p>Action: Measures taken to promote environmental sustainability, green policies established, decarbonisation and waste management measures in place, operational costs and outcomes of measures.</p> <p>Challenges: Obstacles faced in the implementation of greening policies, including unaffordable cost/expenses, repetitiveness, worker-management relations, lack of belief in benefits, employee turnover</p> <p>Mitigation: Steps taken to mitigate challenges and overcome obstacles</p> <p>Social Dialogue/Collective Action: Existence and/or readiness regarding inclusivity in greening initiatives. Barriers to collective dialogue and incorporation of workers.</p>
Brands	10	Participants included Sustainability manager, Head of social compliance, Environment and chemical manager, public relation officer etc	Online 3 In-person 7	
Labour Union and Federation	10	General Secretary, Executive Director, and President. Male 8, Woman 2	Online 2 In-person 8	
Department of Environment, Government of Bangladesh	01	Senior staff working in climate change section	Online	
Business Associations	03	Members associated with sustainability initiatives	In-person	
Research Institutions	03	Researchers working in projects on climate change and RMG industry	-	
Development Partners	02	Development professional working in projects on climate change and RMG industry	Online	
Global Labour Organisation	01	Senior staff member	Online	
Global Trade Foundation	01	Expert in social compliance	Online	
FGDs of Union leaders/ Participation Committee	18	Woman 11 Male 7 Location: Mirpur and Savar	In-person	

KIIs and FGDs with Stakeholders	Number of Respondents	Types	Mode of interview	Focusing Areas (cont'd)
Bank	01	Head of the sustainability department of a private bank	In-person	<p>Gender: Any disproportionate effect on women due to climate change and pollution at workplace needs to be accounted for.</p> <p>Policy review: Environmental Conservation Act, the Bangladesh Environment Conservation Rules, the Hazardous Waste Management Rules, Mujib Climate Prosperity Plan, Bangladesh Climate Change Strategy and Action Plan, National Adaptation Plan, Nationally Determined Contributions, and other policies.</p>
Consultative workshop with Women's Federation leaders	17	Location: ETI BD Office	In-person	
Consultative workshop with Youth Federation leaders	13	Woman 3 Male 10 Location: ETI BD Office	In-person	
Total interviews	80	-	-	-
Total participants	130	Male: 89 Woman: 41	-	-

Table1. Respondent demographic of study

3.2 Data Analysis

The recordings of the interviews have been transcribed and then translated into English as necessary. The raw data was then transferred to NVIVO for qualitative analysis. Table 2 showcases the full process of analysis. First order categories were selected by the software, after which the research team assessed these categories to find the overarching themes within the responses.

First order categories	Second order theme	Overarching themes
Initiatives, measures, practices, impact, obstacles, challenges, readiness, importance, agenda, issues, threats, conflict, motivation, sustainability, GHG emission, energy efficiency, green energy, Just Transition, worker rights, gender, collective action, commitments, institutional framework	Perception	<ul style="list-style-type: none"> • Just transition • Green energy transition & environmental sustainability • Worker rights • Gender inclusivity
	Policy Review	

Table 2. Data analysis process



Findings

This study finds that how Bangladesh locals have a decent understanding of climate change and its impacts in general. They are aware of the effects of climate change, such as rising temperatures and saline water intrusion. But, due to Bangladesh's low carbon footprint the majority does not see climate change as a significant concern for the country as of right now.

4.1 Just Transition and rights for workers

The relationship between worker rights and climate change can be analysed through the lens of Just Transition. The Just Transition concept involves assessing the procedures, regulations, and rights protection for workers during energy transitions. Just Transition aims to work in harmony with other incentive programmes and initiatives. The involvement of everyone connected to factory operations is sought to create a comprehensive approach to environmental and worker concerns. This study's respondents did not however, find major connections between local/industry-level activities and climate change. The impact of climate change on workers in the garment and textile factories particularly have therefore been difficult to ascertain.

4.1.1 Understanding Just Transition

Results indicate very low awareness levels for climate change, Just Transition and environmental sustainability amongst key stakeholders. Most do not see any correlation between energy transitions and worker rights. Only 7 respondents from the 50 sample factories have indicated that they had heard of Just Transition. According to them, a Just Transition involves transparent communication, worker involvement in decision-making, training programmes and fair treatment in the process of environmental sustainability. Amongst those who said no, one management personnel realising the significance of the term said,

“Currently, I don’t feel that there is any relationship amongst these two things, but I also think that within 5 years we won’t survive in the global market if we deny this.”

One of the main reasons for their unfamiliarity is the lack of brand emphasis, with a factory manager stating,

“Buyers have not explicitly asked for engagement with Just Transition.”

The absence of discussions on just and inclusive transitions with buyers indicates an area that the factories have yet to explore in its sustainability journey. Most of the time, when brands ask for improvements in social compliance, there is no direct focus on environmental concerns or clean energy. A compliance officer added,

“These two things [worker rights and climate change] are not correlated, I guess. But theoretically, in a broader perspective, there could be a connection. But practically for me, no.”

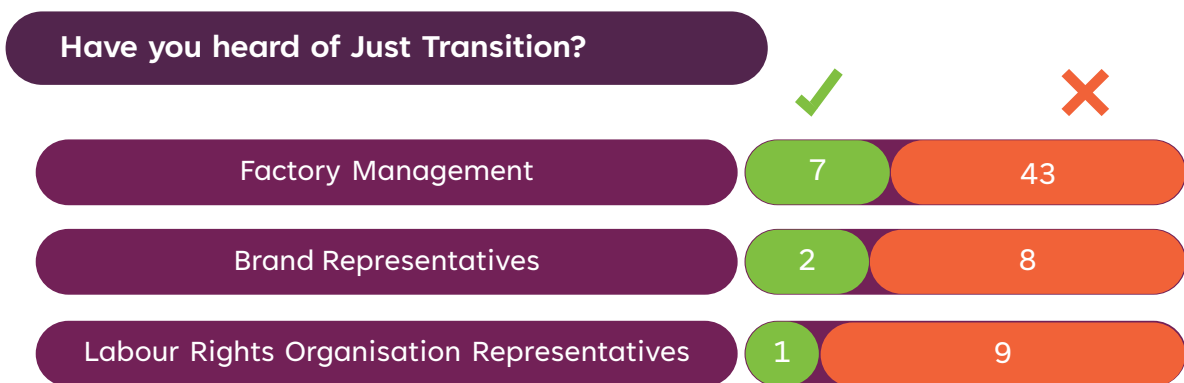


Table 3. Stakeholder knowledge on Just Transition

When brand representatives were asked, if they had heard of Just Transition, most brands including leading international buyers said that they had not heard of the term. Most brands asserted that while they were unaware of the Just Transition terminology, they were still familiar with the justice philosophy in the supply chain. If they created any initiative, they should aim to avoid the adverse effects on the workers. Some however, struggled to find a strong connection between worker rights and climate change.

In our interviews and discussions with federations and trade unions, many of the trade unions had not heard of the term at all, while higher-up federation representatives (secretary level and

above) mostly had. Unfortunately, their awareness solely extended to knowing the name of the term. Trade unions did not seem to find a close connection between climate change and worker rights, with one respondent commenting,

“Climate change is not directly linked to worker rights or operations, given that Bangladesh's carbon emissions are relatively low.”

He further added that green factories improve thermal comfort and air quality but do not necessarily require different skills for workers. Some of the higher-up federation representatives do see a connection, but they still expressed that this concept is novel to them, and they require more knowledge and training before they can implement it themselves. One federation leader stated,

“Despite attending an entire programme on Just Transition, we are still unsure of what it means. What I took away from the presentation is that Just Transition will bring about some sort of reform in the RMG industry. Slowly but surely, the fourth revolution is beginning. Digital, automated, and artificial changes are now present in the RMG business. I heard that a project worth 12,000 crores is coming, which will be based on advanced technology and will be climate friendly. But we still don't know the full process and how they would aim to achieve it.”

Another representative further added,

“As you are aware, numerous green factories have already been established in our country, with eight of them recognised by America and placed in the platinum category. However, there hasn't been a comparable initiative specifically focused on workers yet. Nevertheless, Just Transition is gaining significance in various sectors, particularly in the green energy sector.”

Therefore, it is apparent that Just Transition is not well understood in Bangladesh, across the board. The term "Just Transition" can be confusing, and many workers/worker representatives even mispronounce it as "Just Transaction." In this context, a labour expert from a global foundation expressed their views on this problem stating,

“Language plays a significant role in this confusion. “জাস্ট ট্রান্সিশন” বললে অনেকে এটি ভুল ভাবে বুঝতে পারে। At the same time, the Bangla term “ন্যায়সঙ্গত পরিবর্তন” can be even more challenging to understand for workers and the general population. Language, therefore, plays a big role in making Just Transition more relatable”

4.1.2 Reasons behind limited interest towards Just Transition

Workers and worker federation leaders from all levels indicated low levels of priority when it came to environmental issues. For them, it is not seen as a matter of the “environment” per se, but what the impact is upon the workers. In this regard, given the current situation in Bangladesh, most federation leaders and representatives stress their fixation on current affairs revolving around worker rights, such as addressing the wage issue (of 2023) rather than climate change. They indicate their priority is more so geared towards upskilling and enhancing the lives of the workers (environment may coincidentally be part of their agenda). A federation executive stated,

“ We mainly work with two types of factories RMG and tanneries, and climate business is taken very seriously here. In the last few years, various problems like river erosion have increased in our country, and most of the people have migrated from such areas. That said, not all garment workers are climate migrants. The majority of the RMG labour force is here for a variety of reasons. ”

When it comes to the inclusion of worker voices, a labour rights expert stressed how workers are often excluded from the conversations on climate change and just transitions. Although workers are primarily concerned with job security and may not have the time to engage, political and business interests may also be intertwined in excluding them-- making it challenging to enforce environmental regulations, involving workers holistically.

4.1.3 Intersection between worker rights and climate change in practice

In practice, worker rights and climate change are not directly linked by those responsible. But interviewees reported inclusions and considerations for workers when factories had undergone infrastructural changes to be more green or initiate environment sustainability practices. Brand respondents have reported that they try to ensure workers work in a safe and healthy environment. If someone loses a job for relocation to a green factory, the brand investigates the reason behind the loss of employment and tries to ensure the best aftermath possible in the case of unethical terminations—be that through charity or compensation. The study's sample brands however noted that they have never heard of any worker losing their job for any green factory development. Additionally, brands make social queries to workers such as ascertaining their comfortability in using certain chemicals or whether workplace temperatures are tolerable etc. Sometimes the workers themselves also express their necessities to brands, which brands then convey to the management.

Rising temperatures are a big issue for workers in factories. There is a legal requirement to keep a visible thermometer on every floor so that auditors can get an idea about the room temperature. Humidity ideally should be maintained between 55-65%. If brand auditors find anything unusual, they alert the owners. Auditors further observe whether the working environment is suffocating as that is not indicated in the thermometer. Some sections in factories are prohibited from utilising any cooling system. Factory respondents reportedly provide saline there for the workers. Workers in those sections also reportedly get a separate heat allowance. Factories maintain various committees to handle worker issues, including the health and safety committee, participation committee (PC), and anti-harassment committee. Through these committees, brand consultants are said to gain insights into worker requirements

and suggestions on different matters, such as the environment.

Brand representatives have expressed the belief that programmes stemming from worker awareness, are the most effective ones, with one respondent stating,

“When management imposes practices upon workers without teaching them anything but rolling out the required KPI, these initiatives cannot positively sustain in the long-run.”

A global labour expert also expressed their view that reskilling workers skills can be an effective climate change adaptation method. Not to mention, workers are the ones who carry out production processes, so there is a direct link between climate change, increasing temperatures, worker health and therefore, their productivity. Worker involvement and understanding is pivotal in ensuring effective conduct of initiatives. The second chapter of the Mujib Climate Prosperity Plan (MCP) has noted two issues in this regard, one of them is upskilling the workers. According to the DOE respondent,

“If the workers ability decreases and because of the temperature rise, working hours also decrease, and the productivity rate of workers is also reducing. If we can upgrade the workers’ abilities, then it may be possible to minimise this. If a worker can complete an 8-hour task same in 6 hours, then the adverse effects of high temperatures may be minimised. Because garment factory salaries mainly depend on the amount of production one single worker may produce, based on the MCP, if we can build green factories, then it is possible for us to adapt to climate change and temperature rise without affecting worker wages.”

Compared to mid-level management, workers have shown more eagerness to change their working behaviour. This is exemplified in the following example offered by one of our factory respondents:

“Workers are excited and eager to follow these rules, it’s the mid-level management that gets annoyed as they want to just be done with work and meet deadlines as fast as possible. Each section in our factory has 6 exhaust fans from Taiwan. These make no sound and are very energy efficient. At first, workers would ask, 'What is this?' Now they take their own initiative to not waste too much electricity. 3 of these fans get switched on at once, so if it’s sometimes cooler, the workers themselves keep half the fans switched off. They have even become aware of energy-saving practices at home, and it shows when we take awareness classes. They ask questions like, 'Sir I have been using LED light, so why have my bills not decreased?’”

Another factory representative highlighted their fresh and motivating experience with their factory's PC and other staff:

“ Our PC and safety committee are motivated to work together to manage our entire system and ensure proper practice. For instance, if anyone breaks anything, or disposes of anything in the wrong place, they will individually point that out and teach the best practice to the employee in question. We even have different bags for different kinds of waste, which the doctor and nurse check before disposing in our waste pile. Again, during the workers’ food breaks, they turn all the lights off, barring the restrooms. All our workers are trained to maintain these best practices through different awareness classes. ”

Exercising awareness is slowly leading to workers' gradual change in attitudes. Their inclusion in sustainability is, therefore, pivotal.

“ Most of the time, they [workers] tell us if there are any issues e.g. water line is leaking. We get good support from them, and they take their involvement positively. ”

remarked a senior-level factory manager.

4.1.4 Observations for promoting Just Transition

To promote a just and inclusive transition, brand respondents suggested several considerations for workers, including ensuring worker safety, maintaining a consistent working process for workers during factory changes, preserving worker salaries and allowing workers the right to refuse any unsafe environment. Brand representatives also emphasised the need to make sacrifices, such as transferring workers from one line to another, to ensure worker safety and facilitate a smooth transition.

One of the brand representatives have suggested the following steps to ensure Just Transition:

- ∴∴∴>** Addressing the relevance and growing trend of Just Transition.
- ∴∴∴>** Highlighting the challenges in implementing the concept, especially when combining social and environmental aspects.
- ∴∴∴>** Emphasising the importance of involving field experts to assess project feasibility from energy, environmental and social perspectives.
- ∴∴∴>** Encouraging collaboration with suppliers to jointly understand and enhance environmental sustainability.
- ∴∴∴>** Promoting the benefits of having integrated social and environmental teams for effective project delivery and problem-solving in factories.

All federation interviews unanimously indicated a desire to promote such inclusive energy transitions but remarked that their limited human resources, capacity, and knowledge, inhibits them from prioritising this agenda. Their understanding often hinges on terms and phrases picked up from programmes or discussions, including the concept of a "just transition." However, the absence of comprehensive awareness campaigns on what this entails has hindered the development of awareness. This is also the case for higher-level stakeholders, which federation representatives have noted, stating,

“Motivating various stakeholders is a key priority before any action is taken. We recognise the critical role awareness plays in enhancing stakeholder efficiency, and we have pinpointed gaps in existing awareness-raising programmes, particularly in terms of their reach.”

Therefore, to effectively engage workers in promoting a just transition, certain pre-requisites need to be ensured first, such as fair worker wages, improved living standards and training sessions on the necessary concepts. A labour rights expert further suggested that the concept of "Just Transition" needs to be simplified and then disseminated to the masses. This includes all levels of stakeholders not just workers. Worker representatives also posed some interesting suggestions on promoting just transitions, such as the utilisation of vibrant posters, social media or television advertising etc.

4.1.5 Gendered differences in perception

While proper gendered differentiation in perception cannot be made with the study's uneven male to female sample ratio, it is important to note that none of the male respondents connected climate change issues to women's health particularly. This was extremely emphasised by the women workers interviewed in the workshops and FGDs. This gap in acknowledgement furthers their economic and social inequities, such as job mobility and income. Many women are even shown to quit their jobs after a certain period due to a lack of proper health amenities which are now even more necessary, due to the increasing weather turbulences and climate change. It has also been observed that women interviewees have showcased the most interest and enthusiasm to learn about Just Transition and implement its practices, with one federation representative stating, “আমরা শিখাবো এবং শিখাবো”

A particular brand with a woman-led employee roster also showcases this significant difference in willingness to partake. Theirs was the only organisation that stated wanting to first, understand any environmental guideline before implementation. They are also shown to be very keen in developing tools to gauge worker needs before implementing any practices. The difference in attitude within women-centric and male-dominated managerial bodies is therefore, extremely telling of the need for female inclusion in future negotiations and collective dialogue. These contrasting attitudes can also be linked to the concept of “ecofeminism” where, women's additional inequity due to environmental factors, has led them to have a deeper vested interest in mitigating these issues and learning the required technical knowledge. While further investigation is required for proper assessment of the gendered differences where, organisations with female management need to be compared, the significance of womens voices within this battle for a green energy transition has been greatly illuminated through these results.

A necessary standard

Findings from this study indicate a plethora of technical initiatives, particularly within the top factories. However, the industry as a whole still grossly ignores the need to wholly incorporate workers and has limited worker-related initiatives to certain small-scale awareness programmes at most. Their voices are still largely not incorporated within meetings and through our field study.

Additionally, it has been observed that many factories which are seen to include worker voices according to the workers themselves, they do so after implementing any technical change that top-management has implemented and simply ask for workers "customer review". One-sided implementations from the top-down not only cannot incorporate the needs of the workers fully, but they seemingly skew the mindset of the workers towards technical/infrastructural changes only, which otherwise may not have been the case. On the other hand, as already noted in the last section, a certain brand with a largely woman-led employee roster is developing tools to analyse workers needs **before** implementing any changes. They remark,

This is a completely new setup, and we are still working on it. We are discussing the initiatives on climate-related issues for workers. Till now we have only looked out for the effects on our production, but now we are also trying to pay attention to our workers as well. We are developing tool to analyse the climate change impacts on workers, and we believe we will be able to initiate this tool by next year. After identifying the impacts, we will set our new KPI.

This, however, is the sole case within the study of such an initiative, and moving forward this example needs to be further highlighted to other influential stakeholders.

4.2 Conceptualising an environment-friendly workplace

The study reveals that many respondents view LEED-certified factories as "green," making LEED a strong indicator for what may be considered an environmentally friendly workplace in practice. The materials used to make a green factory are said to not harm the environment and are manufactured in an energy-efficient way. The 200+ LEED-certified factories in Bangladesh reflect a commendable effort to adopt greener practices and improve environmental performance. When asked to conceptualise a green factory, a senior manager of a garment factory remarked,

“ There is no such thing as green or non-green in our country. For example, if I make a green factory by cutting 10,000 trees, that is not really a 'green' activity and is also contradictory. If it is a green factory, everything must be green. ”

Even when the infrastructure of a factory might be "environmentally friendly," most of their operations may not follow energy energy-efficient processes. Building structures can be green or non-green, but it is important to have low-carbon emissions, energy-efficient processes, sustainable use of resources-- this can be a broader way to define green factories. Discussions with federation representatives revealed that they find energy efficient forms of automation to be extremely necessary for the RMG sector. Even still, they face difficulty conceptualising what a "green" factory should entail. Brand representatives further added how many factories do not know the proper definition of a green factory. The excessive utilisation of the LEED certification

by some to attract buyers is a concern for them as it may sideline other issues, implicating a need for stricter monitoring. After all LEED factories may not necessarily equate to green factories. A brand representative argued,

“ Solely green infrastructures won’t do; we need green maintenance as well. A green factory should be an efficient factory with the lowest emissions. There are very few green factories in Bangladesh according to this definition. Many non-green factories are not LEED-certified, but their emissions may be much lower. When we work with a factory, we expect the whole premises to be under the influence of the green environment process. ”

Green VS Non Green Factories

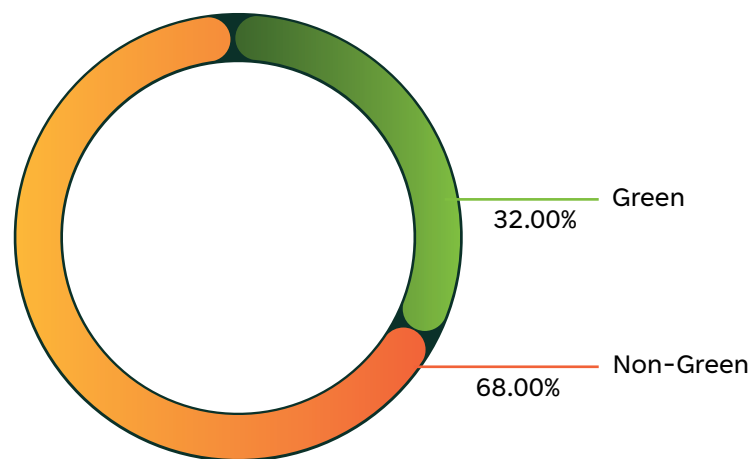


Figure 8. Proportion of green and non-green factories in the sample of this study

Certifications play a crucial role in demonstrating compliance with international sustainability standards and likely boosts a factory's reputation. In practice, it is expected that LEED-certified factories have an operational process which is environmentally friendly. Data from this study did not necessarily find a direct linkage between LEED certification and low energy emissions. For instance, one of the sampled "non-green" factories reportedly had lower levels of energy emissions than its "green" counterpart. This may be due to efficient resource management but is still indicative of the ornamental nature of such certifications. In another case, the same company had four garment factories where only one was a "green" factory. Brands critique this practice as a way to advertise the green and gain more garment orders. Despite the mixed responses, there is no way to deny that "green label" factories have made a significant contribution in Bangladesh. Most stakeholders affirm how LEED certifications have become essential, especially since the Rana Plaza tragedy when the industry's image was extremely bleak. Our respondent from the DoE supplemented this notion stating,

“ It is always true for green buildings that you can run those factories without causing any added harm to the environment. ”

They outline how various factors are involved in constructing a green factory e.g. open space, maximum use of sunlight, utilising less electricity, reducing/diversifying water use, tree plantation programmes etc. Hence, "green" buildings may exhibit possible benefits rather than any additional harm, but future considerations need to be more inclusive.

One factory respondent suggested the following rubric to ensure an environmentally friendly and inclusive work environment:

- ∴∴∴ Ensure that the air temperature is within a comfortable range, through sufficient ventilation so that the hot air inside goes outside
- ∴∴∴ Air conditioning in the generator room
- ∴∴∴ Providing cold drinks to workers during hot weather periods
- ∴∴∴ High-rise ceilings for constant air circulation and passage
- ∴∴∴ Special rooftops, consisting of three-layer protection systems and the use of reflectance index paint that helps in maintain a balanced temperature
- ∴∴∴ Use of sustainable and recycled materials in the construction of factories

4.3 Defining sustainability

Mixed responses from interviews indicate that defining sustainability itself is complex as it is heavily dependent on the context of individual stakeholders and the functionality/availability of resources. Some suppliers believe that sustainability is essential for the well-being of the local community, not just an imposition by international buyers. It is a continuous process that should ideally be constantly improving to benefit both the environment and the long-term well-being of the community and industry. One respondent aptly defined sustainability in the following manner:

“ **Sustainability, in our context, involves balancing economic viability with environmental and social responsibility. When we talk about environmental sustainability, climate-friendly practices will be sustainable only when they are incorporated into the overall framework (of the industry).** ”

Within such a framework, suppliers need to have data of the entire process so that they can predict the future situation. In this regard, a supplier commented,

“ **We need to measure how much we are consuming; a lot of people talk about sustainability, but they don't know how much they are spending. With existing technologies, we can now track how much electricity, water, air and gas we are utilising. This is real-time data. And our factory has already spent 1.3 million Euros on this.** ”

The sustainability of initiatives depends on whether they provide measurable outcomes or benefits, which is why **date-driven tracking is paramount**. Other suppliers added that sustainability should ensure resource utilisation is optimal and no resource is wasted.

Excerpt of an interview with a factory respondent regarding process of sustainability:

Sustainability is viewed as a long-term commitment, and effort is ongoing to develop it further. Continuous worker awareness and training are essential to maintain sustainability. The owners who understand the gravity of such programmes are scaling up such initiatives. In some cases, these types of factories receive more orders from their buyers as reward or as incentive. Such motivation also ensures sustainability. The factory owners who understand this strategy, will also realise that these programmes will benefit them financially eventually. Factories need to therefore analyse the most cost-effective ways of implementing the ideas. This is where many factories lag as they do not have the capacity to effectively assess. Let's say that foreign experts will give us some guidance, but the problem is their guidelines will not be country specific. So, you must identify and know where your factory or the industry has problems. For example, for us water usage was a big problem, so we knew we had to be involved with initiatives that would reduce our water consumption. This was done with PaCT. But PaCT consultants helped us only up to a point. They then reported our water consumptions were brought down sufficiently at 59L. But we are still thinking of taking it down to 23L with further technological improvements. We try to bring down water consumption as we identify it as one of our most important limited resources. This is not the case with many factories in the industry as they feel water is a free natural resource.

To ensure sustainability, brands believe that a clear roadmap toward renewable energy goals is essential. They expressed concerns about the lack of progress, noting that industries are forgetting their renewable energy targets, making it impossible to achieve them without a well-defined approach. Brands expressed that factories could enhance accessibility to information and address the challenges associated with factory access. Collaborative efforts between brands and factories can facilitate solutions and improve access and support. That said, long-term sustainable outcomes can only be achieved by proper monitoring and accountability through government-mandated cells, which would reduce the need for additional effort by brands. According to a respondent,

“ An industrial movement is needed, otherwise these will only stay as round-table discussions. ”

Brands highlight the significance of government assistance in tackling environmental issues and the necessity for modifications, including addressing groundwater reuse and heavy metal contamination by certain factories. An ideal approach for factories would involve appointing a sustainability expert as a coordinator. This expert's role would be to assemble teams from maintenance, administration, and production to work collectively towards sustainable goals. Brand representatives felt that an Environmental Management System (EMS) team must be a minimum requirement for factories moving forward. One brand respondent remarked how neighbouring countries have more support for renewables. They are working on corporate PPA or virtual PPA and believe that if the government could establish a framework for these initiatives, it would greatly benefit them. Another respondent similarly suggested that new projects, instead of pilot initiatives, may be more sustainable due to business models and stringent legislation. Some brand respondents also noted that if business associations were more proactive in their actions, then the government would not need to be directly involved but facilitate operations.

Brand respondents further highlighted the potential for collaboration with trade unions to work on safety and environmental preservation. This collaboration could drive change from the

grassroots level. Behavioural change is required for the sustainability of such transition processes. Implementing changes without worker awareness may achieve short-term KPIs but will not be sustainable long-term. However, a labour expert emphasised that associations should also ensure worker voices are heard and that they should seek financial investments from brands to support initiatives.

Suppliers have suggested tax reductions or exemptions for environmentally friendly equipment such as inverters for solar panels. Others suggested having a fixed platform to disseminate knowledge on environmental sustainability as an institutional approach stating, *“We should create a cell where we can go, or you can reach us.”* In this regard, a few of our factory respondents showcased keen enthusiasm to work with research institutions. A factory representative stated, *“We want universities to be much stronger in collaborating with us. Their research would guide us.”* Researchers interviewed for this study emphasised the importance of environmental governance of public and private organisations in the context of climate change and value chains. The role of consumers is also important. They have the power to pressurise brands into maintaining ethical practices in sourcing countries. ETI's influence over brands and consumers was mentioned by a development partner as a mechanism to drive proper processes. This suggests that the market power of ethical consumers can push brands and factories to adopt greener practices.

Not all factories have the same financial capacity, and government funds, such as those for climate change and the Delta-B plan can be instrumental in supporting the RMG industry. A multifaceted approach is imperative. This involves substantial investments in worker training for green factories, ensuring safe working conditions and upholding fair labour practices. Results from this study indicate that factories must engage in ongoing monitoring and maintenance activities. This includes regularly inspecting and servicing solar panels, energy-efficient equipment, and other green technologies. Any issues that arise, such as the maintenance of energy-efficient machinery, needs to be addressed promptly. Ongoing communication and collaboration with brands is essential to ensure alignment with customer expectations and any changes in their sustainability standards.

Brands play a pivotal role in influencing practices and business associations, emphasising the need to transform the theoretical concept of "green and just factories" into tangible realities through collaborative effort and a focus on protecting worker rights. It is also important to bear in mind that enforcement from brands or buyers cannot ensure sustainability. The suggested collaborative ethos extends to comprehensive research, involving buyers, factory owners, governments, and international organisations, to facilitate effective just transition activities.

4.4 Initiatives

Most brands utilise their fabric and raw material teams for basic compliance on environment and sustainability, guided by the policies of their home country. Brands had started with water and energy saving projects in Bangladesh and then moved toward chemicals. Brands have various KPIs under these three programmes which are set after discussion with factories on the requisite timeline. The process of implementing initiatives is done globally, with one brand personnel stating,

“...if we have suppliers from ten countries all around the world, then all the suppliers would have to follow the initiative. It can be customised in some ways from the perspective of some countries.”

Brands are additionally said to be conducting research and experimenting with various sustainability initiatives (but may not have precise priorities yet). Specific banks such as BRAC

Bank and City Bank were indicated to be actively working on sustainability.

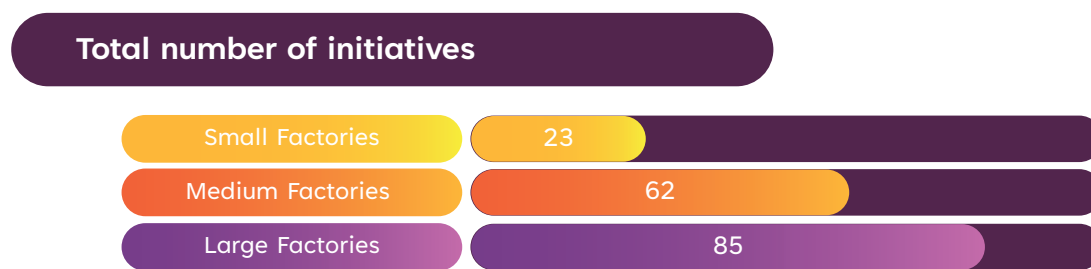


Figure 9. Total number of initiatives from sample factories based on factory size

There are other projects which are designed in collaboration with development partners. Some buyers have reported working with GIZ for circularity and have arranged a water-based training programme, where brand personnel are trained on water efficiency. Other collaborative projects include the Corporate Power Purchase Agreement by USAID, IFC’s PACT, SwissContact’s 'Progress' (a capacity building training programme on climate data recording), EQMS’s capacity building as consultant, and the green social dialogue initiative by ETI.

Circularity and waste management are now being explored by brands. Recycling and circularity are emerging as important facets of climate change initiatives. New platforms such as Reverse Resource, have been introduced. The RMG sector is aiming to become the next recycling hub in Bangladesh. Global Recycling Standards and Global Organic Textile Standards will now be given to factories as well. Moreover, some of the factory respondents have stated that BGMEA is involved in reaching out to international stakeholders and sponsoring such programmes.

Certifications such as LEED, OkoTex, Sedex, and Higg are primarily used as benchmarks to evaluate factory practices.



Table 4. Total initiatives currently on the ground

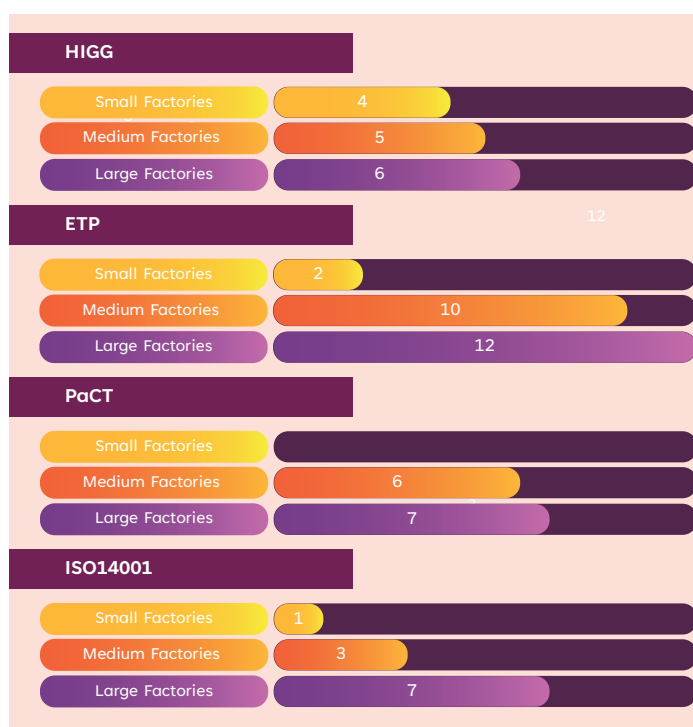


Figure 10. Most frequently utilised initiatives by sample factories

Taking brand initiative to heart: An exceptional business case

The factory started their sustainability journey in 2013, where they reportedly were one of the first factories to become a certified green factory. This was not the requirement by stakeholders at the time. They were the first to become a LEED Platinum certified laundry worldwide. LEED Platinum certification is provided in two categories, one for newly constructed buildings and the other for older buildings that have been refurbished and this particular factory belongs to the latter category.

To increase energy efficiency and reduce use of fossil fuels, the factory moved to septic power generation and are currently not utilising national grid powered electricity. Their own electricity is produced in-house using natural gas. From 2006–2022 they relied on a single generator. With increasing factory capacity, the factory invested BDT 3–5 crores to bring in an updated generator and boiler.

Installation of solar panels had been attempted in 2017 in collaboration with IFC but was later halted for the time-being. Technical calculations indicated that the same investment on solar panels in 2026 would produce 3 times more energy with advancing solar power extraction technologies by then. This would enable 40% of their energy requirements to be solar powered.

Finally, the factory reported advances in their waste management. They reported that 30% of fabrics get wasted (called “jhoot”). The factory is currently partaking in an EU initiative where they directly sell this jhoot to recyclers. However, not all waste can be reduced this way as certain technologies are unavailable as well as very expensive—the factory, therefore, segregates their waste accordingly.

4.5 Impact

The outcomes of factory efforts have been made evident through this research where, utilising advanced eco-friendly machines has reportedly led to a considerable reductions in energy consumption for factories. Factories which are reportedly proactive in climate action are reportedly thinking about securing resources and ensuring profit. According to one respondent,

“If suppliers are investing ten million (1 crore) BDT, they are planning to get fifty million (5 crores) BDT in a three-year period. So, they are investing, while attempting to secure their future with a handsome amount of profit. This way, they are also helping the government by saving their resources. For instance, if it takes a hundred mega-joules of energy to produce, one may reduce it by thirty mega-joules by using a consumption-efficiency technology. Those who are smart are taking advantage of these technologies in Bangladesh.”

Factories with energy efficiency measures in place have already seen a significant decrease in water, energy, and air pollution. One factory reported that stringent measures have been implemented to mitigate sound pollution stemming from generators, ensuring that emissions do not harm the environment. Additionally, their factory in Manikganj boasts a roof space of 20,000 square metres, which has been equipped with solar panels generating 3.57 megawatts

of electricity. This capacity adequately meets their daily power requirements, including holidays, owing to a government agreement. Surplus electricity is exported to the National Grid, further contributing to the energy supply during non-operational hours. The adoption of water-saving technology (WST) has also played a pivotal role in enhancing eco-friendly practices. These efforts have yielded substantial cost savings, with electricity expenses decreasing from over USD 92,000 to an estimated USD 65,000 for certain factories after the implementation of these changes.

Factory	Name of Initiative	Annual savings (\$)	CO2 avoided per year (ton)	Initial investment (\$)	Payback period (year)
A	Servo motor	2980	8	847	0.4
B	Thermal insulation	966	18	2961	1.3
C	Insulation of steam pipelines	920	18	940	1
D	Installation of condensate recovery systems	39000	963	49814	2.3
E	Installation of LED lights	2860	81.29	4236	1.6
F	Installation of 20KWp solar panels	2870	18.53	14238	5
G	Use of counter current flow technology in continuous washing machine	2860	-	2835	-

Table 5. Individual initiatives by 6 sample factories and their reported impacts

Factory	Current KPI	Future KPI	% Reduction (tonne/year)
J	16241	15753	3
K	2664	2200	5
L	3417	486	86
M	7745	2952	62
N	998	283	72
O	1299	199	85
P	19857	18480	15
Q	2900	2668	8

Table 6. CO₂ emission reduction targets by 8 sample factories

When discussing different initiatives and their success stories, most of the factory respondents had mentioned the use of PaCT. This programme is supported by IFC (World Bank) and have been introduced to factories by brands, so that they may feel obligated to implement it. Adopting the PaCT programme meant that factories were accountable to report and share

information on the costs of electricity, water, gas etc. used in their factory with the initiating brand as well as other brands at times. One brand respondent had claimed that after PaCT, brands have started taking into consideration the costs for the factories when they set up the price of the garments. Before the introduction of PaCT, their expenditure and savings data were unknown but now it is open to the brands, allowing them to offer better prices.

Views of a factory respondent on PaCT:

The consultants of PaCT are meeting with senior management officials. Their calculations show that we will get millions of dollars in returns, which is not possible practically speaking. Suppose a factory runs for 10 hours, no machinery there runs continuously for that period. Take the case of a dyeing machine, it takes a load of 40 kW, but that doesn't account for the entirety of the time it runs. It must drain, fill and then lift the fabric too. There are many steps like that. PaCT doesn't take these into account. They assume that it can take a load of 40 kW for 10 hours straight.

Then they show you that you can save 'x' amount during that period. But the actual case is not that simple. We must consider the time it took to run, the amount of water and steam we used and so on. They just take a general assumption of the overall input and ascertain the projected savings based on that. That's the reason why the amount of return seems so large. But looking at the calculations keeping these nuances in mind, we realise the actual amount, which is not that high.

But we really do appreciate some of the things they did. For example, 70-80% of our factory was appropriately arranged beforehand, and the rest was done later when PaCT came in, such as the metering system, which wasn't there when we started. Most other things were in place: the steam-line had proper insulation, the leakages in every step were mended accordingly etc. Once, we had an issue with water. For a production of 9 tonnes per day, we needed 3 million litres of water. We conducted the process in 1:20 or 1:30 liqure ratio, whereas it should have taken a dyeing ratio of 1:10. These things stopped after PaCT stepped in. We needed 200/300 litres per dyeing session before, now we need around 40-45 litres. Currently, my factory produces 27 tonnes, and the amount of water we need stands at 29-32 litres. You can clearly see how far the factory has come in terms of production, but the water input has remained the same. I didn't even have to increase my ETP. We use the same amount of water for 30 tonnes of fabric as we did for 9 tonnes in the past.

But Pact wasn't entirely responsible for these changes. They just showed us a possible scenario. We made the changes ourselves. We had to increase the amount of electricity and the number of generators and dyeing machines, but boilers and ETPs remained the same. Now, if I run a 1:6 dyeing, I don't need as much as I needed for 1:10. Which means the boiler can save heat, which in turn, leads to saving gas. That's conducive to electricity saving too, because the generator doesn't need as much time to revolve the water. I can save 4% electricity through this now, thanks to PaCT I should say.

For small factories, whenever they take a loan for their capital equipment, there will be interests as usual. But the loans made for investments in environmental sustainability should be at a zero interest rate. Then, a portion of the savings you make through that investment can be paid back to the bank. Once the money is paid back in full, you can enjoy the machinery all by yourself. Or else, the smaller factories will keep being left out. You can't just convince the owner about the importance of buying meters to observe the aggregate water usage unless they have the privilege of acquiring the investment money from banks or other government institutions. Another chief addition should be the introduction of payment to use water. You can calculate the amount you save based on that and then pay a specific portion of that amount back to the bank. You can easily tell that one can save around 7 lac takas on the boiler per month. So, if they return 5 lac takas to the bank without any interest, it can't hurt them financially.

4.6 Motivation

4.6.1 Commitment to global agreement and policy

Brand motivations reportedly stem from a combination of adherence to governmental regulations and strategic marketing efforts. They stress the significance of substantiating their social and environmental credentials and drawing attention to national targets to reduce carbon emissions. Brands indicated they have short and long-term objectives, where their key focus areas are water consumption, carbon emissions, and biodiversity preservation. Leading brands reportedly aim to achieve full transparency on the environmental impacts of all their products by 2024.

4.6.2 Image to the world

Other than responsiveness towards global climate change targets, brands heavily prioritise their global image. The value of a company in the stock market and their brand value depends on this image. A leading brand had remarked,

“ It is our brand value. We are a public related company, i.e., our price in the share market is very important to us. Green initiatives add value to our case and helps to increase brand awareness. ”

In this sense, engagement in projects can be a business case, which encourages certain companies to partake in them.

4.6.3 Buyer's requirements to secure orders

Factories have expressed that brand requirements mainly push them to initiate environmentally friendly practices inside factories. Buyers are increasingly focusing on sustainability and are careful to purchase eco-friendly products. Brands therefore, expect their garments to carry eco-friendly certification labels. Moreover, global treaties signed by brands on energy consumption reduction tend to force their supplier factories to address global commitments toward net zero. These requirements often involve investments in energy-efficient machinery, waste management, and reduced emissions. Suppliers must meet these standards to secure orders.

4.6.4 Business case

A key motivation for suppliers to initiate energy efficient practices in factories is the projected financial impact and the possible monetary returns by saving water, energy, gas, time, manpower etc. Tangible outcomes are shown to drive supplier initiatives, as business professionals prioritise the "bottom-line" first and foremost. If there is a clear business case, suppliers are shown to be extremely eager, with one supplier stating,

“ The main objective is to analyse our existing practices and determine how much money can be spent safely based on the resources that we have. If we don't have the ability to implement, then it is not realistically possible to do it. ”

Economic benefits, such as reduced electricity costs due to solar panels, serve as additional motivation. Current global events have been shown to strongly motivate suppliers in this regard. Increased electricity prices due to the Russia-Ukraine war, has led suppliers to consider energy efficiency to off-set the losses from these price hikes. Many factories are reportedly aiming to scale-up their solar projects as well.

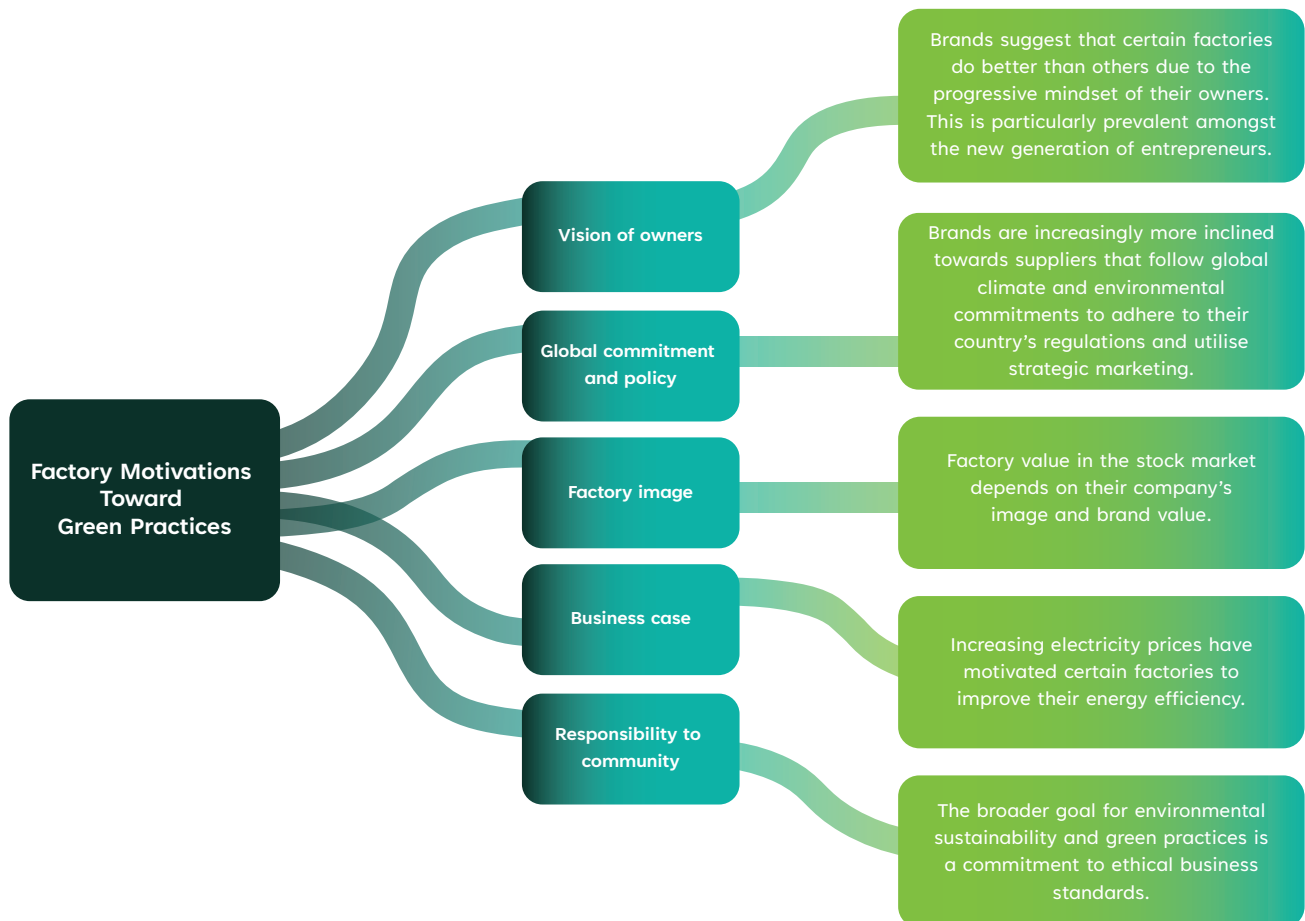


Figure 11. Reported motivations of factories towards greening practices

4.6.5 Environmental sustainability and future-proofing businesses

The brands sampled for this study have shown a keen interest towards futureproofing their businesses, where investments in sustainability play a big part. Other than expected financial returns, new legislations and consumer expectations, this is crucial for the continued sustainability of their companies in the long-term. A brand representative asserted,

“ Industries are using resources and not preserving anything for future generations. Our business strategy is to ensure sustainability. We want to ensure sustainability at all costs, as we don't want to make the situation any worse. ”

One of the most important aspects of these environmentally friendly initiatives for brands is the ability to nurture and maintain long-term relationships with suppliers. These relationships are sustained through incentives and recognition of suppliers' positive contributions. This strategic approach not only strengthens business ties but also fosters efficiency and mutual growth.

Additionally, the collaborative and long-term nature of these relationships serves as a marketing advancement, enhancing a brand's reputation and projecting a positive image. One of the brands emphasised,

“ Brands seek to enhance sustainability practices in Bangladesh by involving suppliers in green initiatives to promote the use of renewable resources and increase energy efficiency. This approach aims to make existing green practices even more environmentally friendly.”

Initially, brands were primarily concerned with social compliance. After the Rana Plaza incident, focus shifted towards health and safety. Since the last 5 years, environmental sustainability has also been growing as a key concern for brands due to increasing global recognition of climate change. According to a brand,

“ We didn't have such expertise to conduct in-depth inspections. Now, we have a wing that will ensure the environmental part. Initially there was no expert staff for environmental issues due to their narrow market in Bangladesh.”

Leading brands generally have their own sustainability department which ensures environmental sustainability in supplier factories. Smaller brands are shown to lag due to limited resource availability but have expressed increasing considerations for opening such departments. Sustainability policies of brands mainly focus on social compliance, workplace safety and the environment. For instance, a leading brand has 3 separate wings, namely:

- i. Empowerment
- ii. Respect for the planet and,
- iii. Ensuring human rights.

The 'respect for the planet' wing has its own policy for natural resources, climate change, and circularity. Instead of a sustainability department, few brands use an Environmentally Sustainable Governance (ESG) team which has four key focus areas: the planet, the product, circularity, and communities.

Finally, as different development partners are currently playing a significant role in environmental sustainability it would be apt to ascertain their exact motivations before curating any long-term plan. This was stressed by one of our respondents, who stated:

“ We need to investigate and understand the reconfiguration of the global value chain due to climate change and climate legislation. The scope of their (development agencies) work extends from slow fashion to waste management, energy, and water consumption. They are currently starting to explore the perspectives of both European and Bangladeshi stakeholders, including the government.”

4.6.6 Responsibility to community

The broader goal of contributing to environmental sustainability and reducing the factory's carbon footprint reported by both brands and suppliers, is a commitment to ethical business practices. As part of their CSR, suppliers are required to bear the responsibility for the community and raise awareness for the environment.

The desire to reduce pollution and maintain a green environment has become a service to the society for some suppliers. One factory, for example, is located near Gazipur National University, and the owner expressed concern over the impact of pollution from the factory on the university students. In this case, the factory's geographical position may have played a part in their environmental conscientiousness. Expressing a desire to ensure a safe and healthy future for themselves, their family, and the people they work with, another factory representative also remarked,

“ I am doing my job here for a fixed salary. I will get a salary whether I work here or in another factory. But the most important part is that if it impacts the place where I live, whether it is my village, country, or place, in return, it will also impact me, my family, and the people I work with. So, considering these factors, we always think about and are careful not to ruin our future income sources. The lives and livelihoods of our future generations may be at risk. This is where my motivation comes from, and I always try to act based on this motivation.”

4.6.7 Vision of factory owners

Brands surveyed in this study have been shown to believe that one of the major differentiating factors for factory performance is the presence/absence of a positive mindset by factory owners. The new generation of entrepreneurs particularly, have exhibited keen sense for ensuring financial affordability, expert energy/environment human resources and most importantly, understanding the demands and expectations of brands. Factories that are implementing renewable energy and energy efficiency appropriately, maintain their waste and have lower carbon emissions. Suppliers who lag, do not see environmental sustainability as an issue for them. One brand representative highlighted,

“ Nowadays, when we approach the suppliers, they seem to be exploring the idea of environmental sustainability and green energy. This is one kind of self-awareness. The new generation (of suppliers) is now quite enthusiastic and aware compared to their predecessors.”

According to the same brand,

“ Compared to other countries like India or China, the suppliers of Bangladesh are much more receptive, and this is beneficial for us. They explore our demands and try their best, even if that is not their one hundred percent. If you look at our trade associations, you may notice that they have also understood this importance and taken similar initiatives.”

Some suppliers are already exhibiting a change in the mindset, with a long-term vision and goal of sustainability. For instance, this project discovered an owner who attends international seminars and workshops on environmental policies and implements their learnings within their factory. Additionally, Expert human resources for the scientific application of environmental initiatives in factories is also missing. Representative suppliers expressed that they are unable to see any real-time application of the inputs they receive from external sources. They feel that it would be more effective if there was an institutional approach for these sorts of applications,

where factories were provided the aid of technical advisors. Currently, factories implement initiatives based on their specific buyer demands, where there is no coherence from factory to factory. Such affordability is not, however, possible for most suppliers.

Post-Rana Plaza: *Slowly altering visions*

The following text blurb is an excerpt from a factory respondent interview that illuminates the post-Rana Plaza era and the slow but subtle move towards sustainability in Bangladesh:

We are the second factory in Bangladesh to get our LEED certification. What motivated us was the Rana Plaza incident that occurred in 2013. At that time, I met an unknown person on a plane in Nepal who was utterly surprised that I was not in Bangladesh scoping out the aftermath of the incident. That's when it hit me that even strangers from other countries also have expectations from us (factory management) as the faces of Bangladesh industries.

After returning from Nepal, I discussed it with my team and asked for their help. One of my team members mentioned a green factory in Sri Lanka. So, we invited the Sri Lankan consultants in Bangladesh and built our own green factory. Later, we publicised our initiative. Afterwards, many other factories leaned forward to build their own green factories.

I believe, we somehow motivated many factories in this regard, which ultimately brought back the lost glory of Bangladesh industries to the world. In seven years, we have created more than two hundred Leed-certified factories, though not all are platinum. Still, it's a huge success for us. Now, whenever a factory is in the building process, they intend to maintain the green factory standard. It has become an unwritten benchmark.

4.7 Major Challenges

Majority of the core challenges uncovered in this research have been from the supplier point-of-view, which have been explicitly detailed in sections 4.7.1, 4.7.2, 4.7.3, 4.7.4, 4.7.5, 4.7.6 and 4.7.7.

4.7.1 Lack of knowledge and human resources

Following the recent climate change conferences, particularly after 2017, addressing climate change has become a focal point for sustainability. Since this is still an emerging area, suppliers lack the requisite information to understand the problem and act accordingly. Education regarding Due Diligence and legislation for stakeholders is in the initial stages, with development agencies such as GIZ only recently facilitating meetings with the German Due Diligence and factory owners. Expert human resources for the scientific application of environmental initiatives in factories are also missing. Echoing this challenge, a supplier commented,

“ We don't see any applications in our factory; no one is applying what they are learning from external sources. It would be beneficial if our technical/scientific knowledge could be improved. There is no institutional approach in our factory; we try to work according to the pressure that comes from buyers. ”

Moreover, the necessary tools and equipment to implement any change does not only require money but the awareness that such technical materials are needed. This is the case for most SMEs, where many suppliers noted not knowing what equipment to use for energy efficiency. Smaller factories also showcased concern over losing out on productivity during any related training as they already have limited workers in the production floor. The manager of a small factory noted,

“When we call 20–25 production workers for training, it is difficult for us to replace them because it hampers our production process. Even mid-level management members must do some multitasking, and we have a limited workforce, so it is difficult for us to continue our work and training sessions at the same time. When we provide training to our workers, they can’t continue their work during that time, but we must pay them their respective salary. So, it is a loss for our factory.”

Mid-level management was found to be particularly agitated regarding the need to send workers for environmental training sessions. This may be for a few reasons, the combination of their socio-economic class, limited education and strict deadlines. Any new factor they may have to account for becomes extremely taxing under current circumstances. In some cases, factories reported that workers had left factories after their training since they received better opportunities with higher wages in other factories. Hence, mid-level management feel that their own targets and the climate agenda are at times antagonistic, which makes them very reluctant.

4.7.2 Limited access to finance

Regardless of the presence or absence of any motivation, no initiative can be realised without the access to finance. This is one of the primary issues for most of the factories including the large and leading factories. Adequate financing is essential to set up different machines for energy efficiency and monitoring. Suppliers need to set individual meters for monitoring water use in different areas and install various meters for different gas corners. These processes are extremely costly. Trade associations stressed the industry's need for recognition regarding water conservation and reducing carbon emissions, especially in comparison to practices in other countries. This would speed up the access to financial capital. For instance, a factory reportedly wanted to conduct rainwater harvesting which required a huge budget to build a large reservoir. When the mid-level management communicated this to upper-level management, it was not prioritised in their agenda and financing took a long time. Such delays stagnated the implementation process and the mid-level management expressed losing interest.

The lack of funds for "hand-holding" programmes suggests a need for financial support to kick-start or scale-up initiatives. According to a development agency, international funding sources, such as **PKSF** or **GCF**, can be crucial in filling this financial gap. Loans are offered sometimes by development agencies, but this is widely believed to be insufficient on an

industry-level. However, a supplier nuanced this notion with his own anecdote:

“When factories are trying to install solar panels and there is an allocation of 8 to 10 crores BDT, they install the panels with that fund. Factories send their facilitators to source and collect these loans, so they do not check which organisation the loan is from, be it IFC or World Bank or GI. So, factories have no knowledge of the existing organisations that have such funding, as this knowledge is therefore not mainstream. Limited awareness of existing resources stunts industrial growth, only improving some specific corners of the industry.”

4.7.3 Hesitance from factory management

Getting the full cooperation from factory owners for adopting and investing in environmental initiatives is an incredible challenge. Owners might prioritise cost-cutting over sustainability, which hinders progress. These challenges require a shift in mindset, substantial investments, and changes in operational processes. They can also impact the competitiveness and financial stability of a factory. Overcoming these challenges necessitates a strong commitment to environmental sustainability and alignment with the various stakeholders involved.

Some factories have additionally expressed resistance due to their fear of factory data being disclosed to the public. They believe that it would be better to keep their data private to remain competitive. Another source of resistance comes from mid-level management who had been working in their factories for a long time and expressed reluctance to adapt to new ideas and compete with young minds. An upper management representative claimed,

“Top management has no problem; they are very supportive, but mid-level management needs a lot of work. They lack awareness and are unable to significantly contribute. Awareness is also blossoming at the worker level, but very little.”

The absence of young ideas at the conversation table was also identified as a key factor for such reluctance. Advocating for the inclusion of fresh ideas, a factory respondent shared their personal experience with a "young" organisation,

“...one thing that is beautiful about these organisations is that they do crowdsourcing for idea generation. It means that they put a problem on the table and brainstorm collectively. After which they come out with the best suggestion.”

4.7.4 Gap between theory and practice

The study found that implementing an environmental initiative typically began with a factory visit by a consultant or a brand's environment team, who assessed the factory, provided a report with improvement suggestions, and offered technology recommendations, gap analysis, and guidelines. Suppliers were responsible for implementing these recommendations and often

paid fees for the consultant's expertise and advice. The issue however is that suppliers would often struggle with execution due to contextual differences between their factory circumstances and the perspectives of these consultants. This resulted in suppliers faltering with their execution as the theoretical suggestion often did not work, as the situation of one factory could differ from another one. A supplier lamented on how brands may provide expert advice, but all that information feels too theoretical. Another factor for this gap in theory and practice is that in most factories environmental compliance is handled by their social compliance team who are not necessarily experts in environment or energy efficiency. The gap between theory and practice was also notified by sampled brands. Brands also reported how factories commonly misinterpret the key intention behind certain programmes. For instance, a brand representative reported their experience in trying to implement HIGG and the misunderstanding exhibited by some of their supplier factories. They stressed how HIGG is persistently treated as an audit, whereas in reality, it is a form of self-assessment for factories.

4.7.5 Insufficient support from brands

According to majority of our sample factories, one of the key demands of brands is to reduce GHG emissions. This can be challenging for some factories as it requires significant infrastructural changes. At the same time, factories must meet these targets to secure orders. Suppliers repeatedly showed frustration for not getting their expected prices for their attempts toward energy efficiency. Despite strong data collection by brand consultants on factory energy consumption and their expenses, financial support from brands were said to be limited. Suppliers argued that although some brands had sustainability policies, their prime concern was still low prices. Brands are believed to cut costs while simultaneously expecting quality products at reduced rates. The following anecdote by a supplier aptly summarises this dilemma:

“ The price of organic cotton is a lot, and the brands are aware of it... If they put a tag on it and claim that they have bought it from a green factory, they can easily sell it for a higher price... We have taken the initiative to be green and in return, we can expect them, as our business partners, to support us by offering higher price. But, when the green and the non-green factories are receiving the same price from brands, where's the extra benefit? So, it seems, when it comes to price, there is no ethical trading. ”

Some of the sampled supplier respondents expressed appreciation for the exchange of knowledge on environmentally friendly workplaces from brands. But they still stressed their struggles to acquire the capital needed to purchase the required technology and machineries. For instance, one of our respondents used the example of PaCT:

“ After PaCT, our use of water for 1 denim piece went down from 195-200 litres to 120 litres and now, after the installation of a biological ETP, it has gone down to 85 litres. But, according to the Joint Life Programme, they require our water use to be 65 litres—that can be challenging. This kind of reduction is not possible without recycling water. We have tried to construct a plan on recycling half of the water used in our factory, but where's the money to do that? The excessive energy and chemical costs are very hard to sustain. Not to mention, the prices offered by brands is too competitive. There is no alignment within all these factors. ”

Suppliers further added that meeting various brand requirements is challenging since different buyers have different policies and guidelines. Brands might require factories to implement specific environmental initiatives, which could be costly and time-consuming. At the same time, many suppliers struggle with project duplications by brands. Suppose, one brand may focus on water-saving through PaCT while another expects a different water project from the same supplier. Therefore, when other brands ask factories to comply with the **same** initiatives again, this overlap can be very taxing. This duplication, driven by the suppliers' limited bargaining power and lack of brand cooperation, hinders progress. Brands fail to align their initiatives despite sharing common suppliers. To remedy this issue, a **business association representative** proposed,

“ A unified code of conduct can streamline the certification process. This would involve categorising factories based on their grades and providing brands with a preference for highly compliant factories. ”

Having said that, unified compliance requirements are challenging to achieve, as different brands and stakeholders have distinct legal systems and procedures. A brand representative for a leading company agreed with the auditing fatigue of suppliers due to project duplication and suggested a way out:

“ It overlaps a lot and many stakeholders across the world are working to combine them into one, but this is never possible. The USA has 5 policies for chemical use only and a federal policy on top of that. So, as a brand, I must maintain all these requirements because we export to other countries like the USA. All this creates a kind of pressure on the suppliers. In this case, we have an important role to play along with business associations and the government. There is a non-profit environmental research organisation registered and based in Beijing called IPE (Institute of Public and Environmental Affairs) just like the DOE (Department of Environment) in Bangladesh. If you work with IPE in China, then most of the issues can be solved. Again, if our government identifies who our top markets are and the BGMEA makes guidelines for them, then the process can be seamless. The DOE or the BGMEA can therefore, create a platform where, suppliers can post complaints and then have them resolved without need for any direct interaction. Then it will be easy. ”

Finally, an important caveat to mention, is that suppliers work with different types of brands where, not all of them are actually eager to implement energy efficiency or environmental sustainability. The leading brands usually prioritise the environment and expect their suppliers to address climate change. However, non-leading brands reportedly are satisfied with lower prices regardless of the working conditions. Due to this variation in commitment, not all the sampled suppliers were actively engaged with environmental sustainability. Non-leading brands neither push for these initiatives nor do they provide support to achieve environmental targets. This constricts factory interest to scale up such initiatives.

Transcript of an interview with a senior factory manager questioning the rationale of environmental initiatives:

We have been meeting the parameters used in Bangladesh with the conventional ETP without any problem. But we are struggling to meet brand parameters. Previously the investment we made was 2-3 crore takas but now it is 30 crore takas because of those 16 additional parameters of brands. Now, we need micro filters, cooling tar, R.O. etc. One cooling tar costs 25 lac takas. Removing the enzyme dust requires 1-1.5 crore takas. There are 3-4 stages in R.O. where the first stage requires 30 crore takas. In total, 100 crores will be spent. This huge investment for 30 tonnes of production will be recovered in 20-25 years. So, we are falling behind by 25 years. We show brands that a certain number of resources are saved. But saving resources is not enough. The cost outweighs the savings. Then, how can I consider this a business case?

Brands highlight the benefits in terms of safety concerns. The process involves installing meters in each segment for energy and water saving mechanisms. But the involvement of such a huge investment is overlooked. They claim that we can identify at which point the water and energy is mostly wasted. But there are points at which saving is not possible. Say, you replace 40-watt fluorescent bulbs with 9-watt LED lights. But the investment is huge. The price of LED bulbs is three times higher than that of fluorescents. Now, we need to invest 6 lac takas whereas we had to invest only 2 lacs before. Our shift to LED was to save 50% energy. But the electricity usage in lights and utilities is only 5% of the total electricity usage in the factory. So, 5 kilowatts from the total 100 kilowatts. So, 50% of 5 kilowatts meaning only 2.5 kW is saved. But the investment behind it weighs much more than that (1 fluorescent bulb costs 150 taka, LFL 240 taka and LED 320-325 taka). There might be even more technological shifts which they will again force us to accept.

One thing not discussed at all, is whether LED rays may be harmful to our health. This is just a guess, but scientists may discover that someday. Then we would have to invest again. If you were to calculate, the saving may be half of this continuous investment. As a result, there is an added pressure on the business, and we don't even get bank loans for that. If the owner had invested the money on a sewing machine, then he could make a profit. If we request the buyer to continue with what we have to bring changes step by step, they disagree.

We must change the system immediately. Previously we had manual drive sewing machines. Now, the system has changed to servo drive. This saves 30% of the energy consumption. The problem, however, is investment. One motor used to cost 5000 takas but now one card for the new machine costs 25000 takas. The full motor costs 35-40 thousand takas. So, the total cost becomes 60-65k takas. Brands pressurise to make these investments.

Savings in one area means costs in another. For example, in salt recovery, the huge amount of salt we use in dyeing must be recovered. We need bigger investments and a large enough space for that. We don't really need that here. If we keep the amount down to 1800-2100 TDS, it's fine. But DETOX wants the amount further down to only 5 TDS. For that, we have no other option but to recover the salt. We need to make investments in crores for that. Now brands are talking about slasta, which is a receptacle of all the inferior chemicals. They won't allow us to discard those chemicals. Bangladesh or any other country doesn't have any laws for this anyway, but they still put pressure on us. Yes, I can make some savings. But every instance of saving requires a huge amount of investment.

4.7.6 Challenges from the Government

All suppliers within this study unanimously highlighted the key role the government plays as a major stakeholder. But government support was reported to be limited, where factories remarked not receiving any direct environmental guidelines from the government. Recent regulatory changes in government policies have affected the suppliers' environmental practices. However, the DoE was noticeably absent in providing significant support. The government sometimes check waste discharge, noise pollution etc. which was reported by factories as the extent of their involvement, where a supplier commented,

“ **Motivation from the government is zero.** ”

One of our research institution respondents supplemented this concern by remarking how the nation is still in the policy-making level hence, implementation is non-existent. They further added,

“ **You will see what the situation was before and after the net metering guidelines. You will see that nobody had a headache about energy before this came.** ”

Bureaucratic mismanagement within government departments was also noted as a key concern. Suppliers emphasised the absence of a one-stop service for environment clearance. In some cases, suppliers have reported not receiving accurate information and service in due time, where one supplier noted,

“ **We are one of the top green factories, but we didn't have the environmental clearance certificate for almost two years, until about two weeks ago. There is a lot of trouble in the system.** ”

Moreover, with limited access to financing already being a major drawback for factories, minimal government assistance when trying to access necessary information regarding financial assistance services was noted by SMEs. Concerns about taxation on environmental initiatives, such as solar panels and chemicals used in ETPs were also identified by our factory respondents. According to Trade union leaders believed such taxes hinder the progress of green initiatives. Many of the respondents also hinted at possible hidden factors influencing policymakers and associations which may lead to limitations in addressing environmental issues effectively.

4.7.7 Challenges from business associations

Suppliers interviewed in this study expressed similar dissatisfactions with business associations. Listed below are some of the major unfulfilled expectations as reported by the study's factory respondents:

- i. Limited engagement with or policy implementation/provision of support on sustainable in.
- ii. No organised facilitation of collective initiatives for environmentally friendly practices in the industry
- iii. Insufficient monitoring and advisory support to member factories on their environmental compliance
- iv. No strict implementation at future targets (for their members) on environmental sustainability

Frequently highlighted challenges by factories

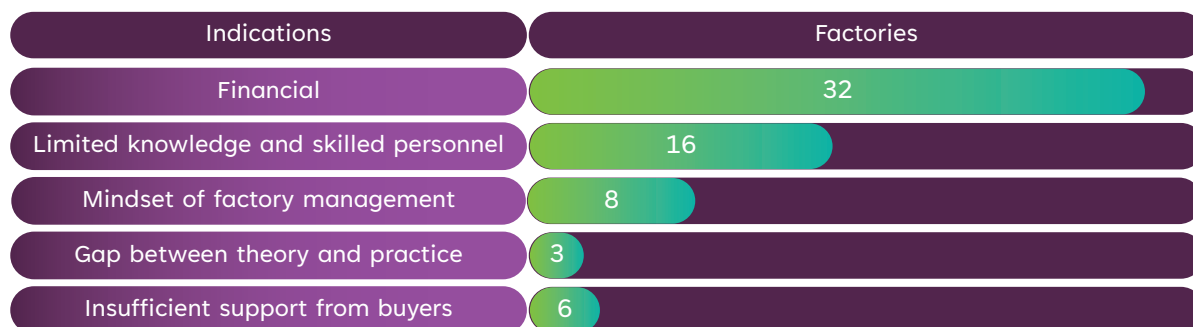


Figure 12. Frequently highlighted challenges by factories

4.7.8 Reported challenges for workers and worker representatives

Listed below are the most highlighted challenges towards a just and inclusive transition for the factory workers and their representatives, as reported by the study's respondents:

Issue	Description
Formation of labour-led working group	Lack-of any institutionalisation of the issue restrains federations to collectively form any group and work towards climate change.
	Difficulty in forming trade unions as factory owners are unwilling to cooperate. In the cases where owners allow their formation, the condition is that they follow the owner's requirements, defeating the purpose of a trade union.
	The CBA does not have any agenda on "Just Transition" specifically.
Inhibitions towards open dialogue	Job loss fear inhibits open dialogue by workers
	Malnourishment, health and living condition issues etc. take more precedence over green energy/environment concerns— <i>workers trace their discussions back to wages whenever given the opportunity to speak.</i>
	Limited priority and motivation as majority of workers are unaware of the issue- significance, benefits etc. – "Just transition" is too vague."- reports a worker representation.
	Limited scope for meaningful social dialogue, alongside the difficulty in freedom of association and unionisation makes it doubly harder for workers to advocate for and contribute to an inclusive green transition.

4.7.9 Reported challenges for sectoral-level stakeholders

Challenges for brands, government and business associations towards a just and inclusive transition cited in this study, have been listed below:

Brands	Government	Business Associations
<p>Difficulty balancing local and global standards makes contextual implementation very complex:</p> <ul style="list-style-type: none"> – <i>different buyer countries have different criteria</i> – <i>local context in different supplier countries/regions also differs</i> 	<p>Development of a policy with all the variables in mind, as different kinds of factories have different environments (e.g. composite vs. sewing factories)</p>	<p>Inability to impose environmentally friendly practice on SMEs; can only encourage</p>
<p>Inability to introduce sustainable materials– <i>Even when brands recommend such materials, the European market is not always ready to accept the higher costs</i></p>	<p>Some policies are developed but the industry is not ready to implement them, so the government struggles to scale-up initiatives</p>	<p>Occupied responding to member requests and face difficulty making time to focus on environmental issues</p>
<p>The over-emphasis of LEED certification by some factories to attract buyers, sidelines other key issues that may require monitoring</p>	<p>Political and business interests are stated to be intertwined, making it challenging to enforce and support environmental regulations</p>	<p>-</p>
<p>Difficulty convincing suppliers to adopt international standards, where brands need to invest significant time, effort and money to train factories</p>	<p>The absence of a common yardstick for measuring progress in environmental sustainability and energy efficiency, making assessment of achievements very complicated</p>	<p>-</p>

Missing puzzle-piece in existing practices and perceptions

A researcher stressed that mitigation is still the primary focus for the Bangladesh garment and textile industry, which excludes adaptation. To the researcher, climate change costs are not equally distributed, and mitigation itself is a lengthy process. For this reason, adaptation should also be considered seriously. The long-term future also needs some critical thought.

One brand was reported to have begun such thinking, which has been shared by their representative:

To my knowledge, Bangladesh's temperature may be 35 degrees Celsius, but increasingly frequent heat waves are cause for concern. So here we have our infrastructure set at 35° or 37° but when temperatures rise to the extreme, we must increase the amount of investment. Our concern should mainly be in this area and whether we are ready for this sort of massive endeavour. "Can we maintain this situation with an air-cooling system as our electricity prices are increasing? Should we develop something for our water-cooling system?" In this way, we are slowly thinking of climate change adaptation.

4.8 Buyer-supplier relationship

4.8.1 Collaboration and fostering good will

Transparency and compliance with brand requirements are essential. Brand representatives have emphasised the need for full disclosure when exporting to the European market, as they must ensure international standards and are accountable to their government, consumers, and to global agreements including the UN policy. Brands are stated to choose strategic suppliers who demonstrate commitment to such requirements. Compliance expectations are conveyed to the owners of factories by the brands, following a top-down approach. At the same time, brand representatives have stated that they listen to their suppliers, and try to understand their demands and adapt accordingly, to avoid conflict. Representatives insisted that they generally try to come to a mutual agreement with their suppliers rather than imposing their requirements.

Specific conditions must be met to maintain a long-term relationship between brands and suppliers. The progress that the suppliers make is measured in percentages by using the HIGG platform. Brands often visit factories to observe the implementation of their policies and the roadmap. According to a supplier,

“Brands are very elite. They are first-world people; they hold advertisements to protect their country's business image and retain customer attraction. Energy saving, solar use, sustainable consumption of natural resources, and reducing pollution gets priority when they (brands) can show it to the final customers. As per the brand's recommendation, we do more or less work with them. The more CSR is highlighted, the greater the scope for business. Brands prefer those factories. It is a win-win situation for both sides. SWOT analysis through CMA has increased over the past few years. You must do these things to survive in the market.”

The suppliers who are successful in fulfilling brand requirements maintain long-term business relationships with them. Interestingly, this study discovered an instance of a brand reducing its suppliers from 150 to 70 within the last 5 years, but their volume of production had increased over time. This was claimed to be due to a strong supplier-buyer relationship with their remaining suppliers. When buyers come up with new ideas such as ways to be more energy efficient, the strategy they opt for is first presented as a business case to the suppliers. If there is any sign of financial gain, suppliers who have the capacity may engage. A brand representative remarked,

“ Garment factories are a business; they are not an NGO. What we do is show them the business profit. Brands use business profit data to show that sustainable products are not more expensive. Ultimately, most factories get convinced on the basis of profit. ”

Another brand representative added,

“ I can say how my suppliers react. The first attempt was a bit shaky. But when they learn the benefits that everyone is getting out of it, they adapt accordingly. We could not do anything without their support. The mindset of suppliers has changed a lot. At present time, if you bring something to the suppliers they will explore it, whether they will do it or not comes later, but they will explore it. ”

Some brand representatives emphasised that if factories seek out any help from them, their sustainability units try their best to find a solution. For instance, recently a brand organised a programme with a third party on chemical optimisation. This proposal came from a supplier that they wished to optimise their chemicals. So, the brand engaged them with a third party. This led to improved results, even if not outstanding. When the brand noticed from this pilot practice that this was an effective measure, they escalated the programme and engaged many other suppliers. But such support from brands is only when they have sufficient resources and capacity globally, which is difficult for non-leading brands to offer.

4.8.2 Underlying asymmetric power relationships

While most brand representatives have expressed utilising a collaborative approach with suppliers during programme implementations, the top-down nature of these initiatives cannot be ignored. The sector is buyer-driven and there is no way to deny the existence of an asymmetric power dynamic. One of the brand representatives themselves affirm this fact, stating,

“ There is a problem with the culture in Bangladesh. They can hardly say no to their buyers. This creates difficulties for them as they sometimes fail to meet our sustainability requirements and lose out in the long run. ”

Typically, buyers, who are often large international retailers or brands, have greater economic and negotiating power than individual suppliers. This power imbalance can affect the dynamics of their relationship. Some suppliers claimed that buyers frequently imposed strict standards for quality, pricing, and lead times. These standards could also extend to environmental and social compliance. Suppliers must adhere to these standards to maintain relationships and secure

future orders. Buyers conduct frequent inspections and audits to ensure that suppliers are complying with their standards, which includes environmental sustainability, worker safety, and labour conditions. Non-compliance can result in orders being cancelled or not renewed. Buyers often exert pressure on suppliers to offer competitive prices, which can lead to cost-cutting measures that may impact worker wages and environmental initiatives. Factory representatives expressed their difficulty in complying with requirements effectively as technical support from brands is only surface level. This inhibits them from building relationships of trust with their buyers. A supplier mentioned,

“ If the buyers have concerns for the workers, they should come up with incentives but there is no incentive. Even the best, platinum LEED-certified green factory in the world does not get any added benefits for their extra efforts. So how can other factories expect incentives? ”

Many suppliers have claimed that brands often push for initiatives their factories are not prepared for but are forced to comply. If supplier requests or decisions do not align with brand headquarters, local brand representatives are unable to help. This gap between suppliers and brand headquarters, leads to severe frustrations for factory management. One senior manager stated,

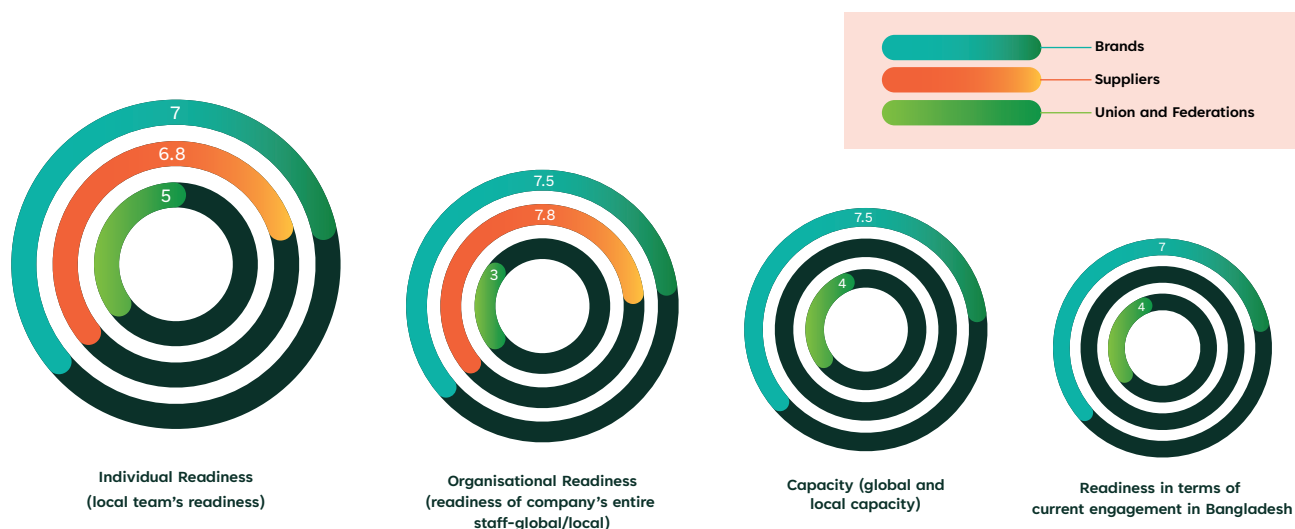
“ I do not have the scope to bargain with buyers. They have created the organisation in such a way that the suppliers cannot bargain. This can be called bullying and is a double standard from the brand's end. They are displaying to the world that they are sustainable but maintains their business policy with the suppliers at gunpoint. We follow their policies to retain our businesses. ”

Suppliers are then faced with a trade-off between sustainability and cost savings. This is a difficult gamble for suppliers at times. When suppliers breach regulations, including violations of global environmental standards, depending on the severity, brands reportedly terminate their business relationships. Although the first action is not always to stop their business. Brands have stated first conducting some follow-ups and ascertaining whether the situation improves. If it does not, they are forced to stop their business as their whole country would be blamed.

4.9 Readiness for green energy transitions and environmental sustainability

Respondents had been asked to assess their own readiness for an industry-wide green energy transition and environmental sustainability using a scale of 0 to 10, where 0 refers to not ready and 10 to completely ready. The following table showcases the results:

Levels of Readiness



The above estimated projections come from respondents own beliefs on their organisational capacity, although realistically this may not be an accurate projection.

Figure 13. Readiness levels of stakeholders

From Figure 13, brands can be surmised to be the “most ready”, however, proper collaboration with other stakeholders is still missing (as highlighted by suppliers). Suppliers are a close second in terms of readiness while unions are illustrated to struggle the most.

To attain higher scores, it is essential to have a dedicated environmental team in the sustainability wing for brands. However, not all brands have that capacity to invest in this resource. Brand readiness depends on the status of their suppliers, where the action of suppliers varies from region to region. Although globally brands have a high capacity, the same cannot be said for their representatives in sourcing countries. Not all suppliers are strongly committed to sustainability. For this reason, a high score in engagement was not reported in this research project.

4.10 Willingness to join ETI’s working group

Collaboration amongst all stakeholder groups is crucial for any industry-wide climate action. A development partner noted in their interview, ***“The involvement of various stakeholders, including government bodies and NGOs, underscores the complexity of the issues and the need for a coordinated approach.”*** Accordingly, all respondents were asked whether they would join a sectoral working group for climate change, environmental sustainability and Just Transition led by ETI.



Figure 14. Willingness to join ETI's working group by different stakeholders

Out of the 50 sample factories, 47 showed interest in joining. Despite their individual challenges, suppliers highlighted their own ongoing involvement with ETI initiatives, stating,

“None of the projects that we have collaborated with ETI or have been due to brand encouragement. We took them up on our own, such as the Green Social Dialogue programme, where worker engagement is at the root level.”

The 3 suppliers who responded with a 'no' had expressed their reservations regarding any tangible outcome from such a group, with one supplier stating, “

“I have doubts about the end-benefits of such a group if we cannot align everyone, which is an extremely difficult task.”

Challenges would include agreeing on a common goal, limited flexibility amongst stakeholders for shared priorities, and the reluctance to sacrifice individual priorities. Lack of education, diverse interests, ethical concerns, the absence of benchmarks, and power dynamics may also complicate the process.

Barring one brand, all other brands responded with 'yes'. However, some brands still exhibited hesitance due to existing commitments, while other brands were wary about their compatibility with larger brands. Brands therefore suggested that ETI ought to explore existing forums for collaboration, emphasising the importance of involving responsible individuals from various sectors and government support. Representatives from different tiers, such as garment suppliers and mills, should also be involved to address their distinct responsibilities and challenges they bring. Government involvement and support from business associations are also essential for the success of such a programme. Brands also proposed involving local industry leaders and engaging versatile brands from the UK, EU, or the USA.

Interestingly, although worker representatives have the least technical capacity, they expressed the most willingness to join with all responses being 'yes' —this may offer insight into the **differential power dynamics of the industry** where the voice of workers still trails behind. A coordinated multi-stakeholder group could be one of the few platforms for workers to ensure their opinions are exactly delivered to key change-makers of the industry.



Conclusion

Although Bangladesh has been culminating a growing awareness of climate change with active efforts mitigation, challenges persist in achieving a just and inclusive energy transition. This research assessed stakeholder perceptions, revealing limited understanding of 'Just Transition' within the RMG industry of Bangladesh and a gap between theory and practice. Challenges include financial constraints, knowledge gaps, and varying commitments amongst stakeholder. The industry faces obstacles to align with global environmental standards, overcome bureaucratic hurdles, and secure government and industry support. The study highlights the need for a unified approach, a fair transition framework, and increased collaboration to ensure a socially just and sustainable sector amidst the urgent global climate crisis.

Specifically focusing on the arena of “Just Transition,” there are multiple loopholes in the Bangladesh context. First and foremost, the term itself is too ambiguous and foreign for any level of stakeholder to understand and implement in practice. Secondly, the existing guidelines are not only too vague and open to loose interpretation, but more importantly, are not applicable within Bangladesh’s existing structure. A more conducive and inclusive idea of “Just

Transition” needs to be curated for Bangladesh specifically, before any real, on-the-ground change can be made.

Finally, and most importantly, the central facet of “Just Transition” is workers and ensuring their rights. However, workers are still not included within discussions for green initiatives within factories where factory management finds their inclusion redundant. Factories are unable to see the need to include workers beyond some training programmes on energy efficient workplace practices, so that their own utility bills decrease. This has resulted in the desired results, as the workers are very receptive and eager to practice, strengthening the belief that a few routine training sessions is good enough. Their voices are thus included once technical changes have **already** been implemented within factories. However, this skews their opinion and requires further effort to mitigate and ensure unbiased worker inputs. Additionally, discussions regarding environmentally friendly initiatives still lack the inclusion of women’s voices from all levels, particularly the worker level, where women make up a large part of the workforce. This leads to grossly ignoring a plethora of health-related issues specific to women which curbs their productivity– the key factor stakeholders at the top are essentially concerned about, yet their inclusion is still minimal. This issue mainly comes from imbalanced power dynamics and a lack of space to freely articulate grievances. Given the historically exploitative beginning of the industry, workers are happy with the current bare minimum rights they have (cooling systems, PPEs, Health and Safety Committees etc.). When asked whether they would want anything more, almost all workers promptly responded with, “No.” – partly due to fear of repercussions and partly due to limited understanding of the issue (which is the case for even their management). With the current trend in decline of both skilled and female RMG workers, if labour retention is to be desired within this industry, inclusion, collaboration, re-skilling and other mitigation efforts need to happen, sooner rather than later.

This study has therefore, found a massive gap in awareness across the board on the need for inclusion of workers. Results have been indicative of infrastructural changes that respondents are already part of or, perceive would work to sustain the industry, ignoring the "human aspect" of an energy transition. Moving forward, if feasible worker-led solutions are to be curated, one must think of asking the workers themselves first what issues need to be addressed and what questions to ask, before scaling up to the top. As it stands, the precursor for any large-scale energy transition within Bangladesh must begin with knowledge-building. While suppliers do not see energy efficiency and worker inclusion as a “business case”, it is crucial for them to understand that the industry cannot and will not exist in a few years, if no changes are made. Simultaneously, the concept of a just transition needs to be made simpler and more contextual. Results suggest that both suppliers and workers both see it as an ornamental requirement from the buyers and nothing more. Finally, once knowledge-building is underway, discussions with stakeholders such as the government, trade associations and brand need to be arranged so that logistical and financial mid-points can be ascertained and implemented. Currently, all levels of stakeholders continue to see the idea of “green” as a foreign luxury, ignoring the extent of their **lived difficulties** due to climate change– this is representative of the persisting short-term mindset in Bangladesh. Hence, long-term planning needs to be in place before any real change can occur.

Recommendations

» Enhancing the integration of climate and rights in the workplace

1. Strengthen the link between climate and human rights:

- Conduct further evidence-based research to solidify the connection between climate and human rights, emphasising the impact of climate change on worker health and productivity.

2. Overcoming challenges in worker engagement::

- Address the knowledge gap accompanied with building capacity on soft skills amongst workers and union/federation leaders, by providing comprehensive training programmes on environmental issues.
- Create awareness amongst stakeholders about the importance of prioritising the environment, emphasising the challenges in changing human behaviour.
- Explore potential strategies to balance financial costs for environmental initiatives without compromising worker wellbeing.

3. Initiate a culture of positive behaviour:

- Encourage a supportive approach from workers towards energy and resource conservation, showcasing instances of self-initiative.
- Demonstrate eagerness to change working behaviour through practical examples, emphasising the potential positive impact of waste management on worker health.

4. Engage worker representatives:

- Recognise the key role of trade unions, democratically elected PC and Health and Safety Committees in raising awareness of environmental issues among workers.
- Provide training to these committees on environmental awareness, breaking down the concept of 'Just Transition' into simpler, more relatable terms focused on job security and economic opportunities.
- Ensure freedom of association, promote a culture of social dialogue and mainstream climate and environmental agenda in the social dialogue process.

5. Include Just Transition in sustainability policy:

- Encourage brands to integrate the principles of 'Just Transition' into their sustainability policies, providing guidelines for factories.
- Educate the environment cell of factories on 'Just Transition' principles, fostering collaboration between brands, factories, and unions to ensure a balanced approach to environmental and social concerns.
- Emphasise the benefits of integrated social and environmental teams for effective project delivery and problem-solving in factories.
- Ensure better coordination between the social, environmental and business teams of brands to promote the Just Transition principles in their purchasing practice.

6. Enhance the role of global and local agencies:

- Advocate for the incorporation of worker voices in global agency discussions on environmental sustainability, emphasising the crucial role workers play in ensuring factory safety, energy conservation, and water savings.
- Encourage global agencies, such as the ILO, to give greater focus to environmental issues that directly impact workers.
- Utilise the efforts of BGMEA to drive smaller factories into conducting green initiatives.
- Create a single specialised environmental cell in every factory to ensure sustainability.

» Ensuring environmental sustainability

1. Understanding and executing with context:

- Emphasise the importance of contextual understanding in implementing environmental sustainability initiatives within specific industries and regions.
- Initiate collaborative research projects with universities/research institutions to gain deeper insights into the local environmental and social dynamics.
- Advocate for a strong commitment to sustainability, ensuring that initiatives align with long-term environmental and social goals.
- Research on the viability of green energy transitions and energy consumption that collaborates with bilateral research organisations (e.g. ILO, CPD), focusing on the entire country rather than just the textile industry. Capacities of every institution linked with the supply chain (government, factories, banks, ports etc.) need to be assessed.
- Assess the capacity of every institution linked with the supply chain (government, factories, banks, ports etc.)
- Concepts on Just Transition or green energy need to be linked to the actual objectives that stakeholders would want to achieve-- goals therefore need to be calibrated with every level of stakeholder.
- The creation of a profitable business model for owners to be incentivised.

2. View voluntary initiatives as business cases:

- Present the adoption of environmental initiatives as a voluntary business case, underlining the importance of providing measurable outcomes and benefits.
- Stress that sustainability efforts enforced solely by brands may not guarantee long-term success and that voluntary commitment from all stakeholders, including factory owners, is crucial.

3. Brand support and incentives:

- Encourage brands to actively support factories in finding expertise in environmental matters, sharing technical knowledge, and providing necessary resources.
- Propose the implementation of incentives for suppliers who champion environmentally sustainable practices, creating a positive reinforcement for proactive engagement.
- Brands need to be clearer about their expectations, which then needs to be dispersed from the top to the bottom, all across the stakeholder body.
- While EU or other international regulations cannot be altered, conversations can be initiated with relevant personnel in-charge on how to make these regulations applicable in the context of the garment industry of Bangladesh.

4. Government involvement and institutionalisation:

- Advocate for government involvement by ensuring easy access to finance for environmentally sustainable initiatives, particularly for Small and Medium Enterprises (SMEs).
- Suggest the formation of a dedicated cell within the government to monitor and support sustainability initiatives such as tax incentives, budgetary allocation, infrastructure development, concrete policy guidelines, media campaigns using government-owned media channels, following a roadmap for systematic implementation.
- Emphasise the need to engage the private sector in the institutionalization of sustainable practices.
- A clear and simplified roadmap is required for the industry (as discussing impacts alone cannot incite change).
- Understanding the potential of existing policies and then focusing on adjusting those policies or expanding on them.

- The Government needs to make a cell to study all regulations and then disperse the best ones.
- Although the financing is present, there is a gap in the diffusion of information, which fails to reach the industry-- This information needs to reach factories and they need to be capacitated to receive the funding.

5. Collaborative approach with worker involvement:

- Stress the importance of a collaborative, multifaceted approach involving stakeholders, with a special emphasis on incorporating the voices of workers.
- Propose the establishment of a platform, following Beijing's Institute of Public and Environmental Affairs (IPE) model, involving BGMEA/BKMEA, the government, and research institutions to avoid overlapping initiatives and enhance coordination.

6. Implement awareness for long-term sustainability:

- Highlight the risk of short-term Key Performance Indicator (KPI) achievements without the involvement of worker awareness, emphasising the need for holistic and sustainable practices in environmental initiatives.
- Urge stakeholders to consider the long-term impact and benefits of sustainability efforts, ensuring they are embedded in the organisational culture for lasting positive change.

Limitations

1. Short research duration

The limited three-month timeframe for the research may have constrained the depth and breadth of data collection, potentially overlooking nuanced aspects of the study's findings.

2. Limited variance of stakeholder types

The case report involves a restricted number of stakeholders, potentially limiting the diversity of perspectives and experiences, and the generalisability of findings within a broader context.

3. Need to hire enumerator:

Due to the study's qualitative nature, it necessitated hiring an enumerator for data collection, which may have introduced the potential for interpretation biases and inconsistencies in the data collection process.

4. Difficulty in scheduling time with stakeholders:

Challenges in coordinating schedules with stakeholders may lead to limited participation and potential non-response bias. This might have impacted the comprehensiveness of the study.

5. Inability to give full attention:

The concurrent audit activities occurring during the study period may have diverted stakeholder attention, potentially affecting the quality of the information provided and introducing distractions that may impacted the study's validity.

6. Small-scale size of research:

The small scale of the research may limit the generalisability of findings our larger populations or diverse settings, emphasising the need for caution in extrapolating results beyond the specific case under investigation.

Considering these limitations, readers and researchers should interpret the findings with a recognition of these constraints, understanding that the study's outcomes may be shaped by these inherent challenges.

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For human rights, better business

ETI is a multi-stakeholder initiative (MSI), that brings Businesses, NGO's and Trade Unions together, to develop the private sector to be a positive force that enables inclusive, sustainable growth that helps reduce poverty whilst respecting worker rights.

Our vision is of a world where all workers are free from exploitation and discrimination, and enjoy conditions of freedom, security and equity.

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