



## Executive Summary

Bangladesh's RMG, Leather, Leathergoods and Footwear sectors are pivotal to the national economy, driving Gross Domestic Product (GDP) and export earnings, and providing employment for millions, particularly women. However, these sectors face escalating vulnerability due to the impacts of climate change, including rising temperatures, increased flooding, and extreme weather events. Such risks severely disrupt industrial productivity, compromise supply chains, and endanger workers' health. Women, in particular, face additional reproductive health challenges. This vulnerability is compounded by the dual burden of environmental pollution, outdated technologies, and poor infrastructure, which expose workers to occupational hazards such as heat stress, respiratory diseases, and toxic chemical exposure.

**Keywords: RMG, Leather, Leathergoods and Footwear, Climate Vulnerability, Climate-Induced Migration, Industry Readiness, Sustainability Measures, Just Transition**

Despite their economic significance, research on climate impacts across these industries remains fragmented. Crucially, it often fails to explore the interconnected dimensions of climate resilience, occupational health, gender equity, and socio-economic security. The concept of a Just Transition which mandates an inclusive and fair shift towards low-carbon, climate-resilient industrialization but remains significantly underexplored. Against this backdrop, this study critically examines the effects of climate change on the RMG, Leather, Leathergoods, and Footwear sectors through a rigorous mixed-methods approach. It highlights challenges and opportunities for businesses, communities, and workers. By generating evidence-based insights, the study aims to inform policies and practices that promote climate resilience, safeguard worker well-being, and advance pathways for a Just Transition, thereby ensuring long-term sustainability, inclusivity, and industrial competitiveness.

### Methodology

This study employed a pragmatist, mixed-method approach to examine the multidimensional impacts of climate change. Data were collected between April and June 2025 across key industrial zones, including Ashulia, Savar, and Gazipur. The primary data sources included a structured survey of 700 workers, complemented by 44 Key Informant Interviews (KIIs), 7 Focus Group Discussions (FGDs), and 8 case stories. This design facilitated the triangulation of quantitative analysis (conducted using SPSS) with rich qualitative insights, ensuring a robust evidence base regarding worker vulnerability and industrial readiness. The research strictly adhered to rigorous ethical standards, ensuring informed consent and confidentiality.

### Demographic Profile

The analysis reveals a predominantly young and economically fragile workforce, with an average age of 25.1 years. While the overall gender distribution is nearly balanced, RMG remains heavily female dominated, contrasting with the overwhelmingly male Leather sector. A high dependency burden is noted, with 80.7% of workers married and a fifth supporting large households ( $\geq 6$  members), amplifying financial pressures. Educational attainment is low, with only 10.5% achieving higher secondary or equivalent qualifications. The average monthly wage is modest (BDT 13,208, rising to BDT 17,780 with overtime), while leather workers earn the least despite facing higher risks, pointing to systemic inequities. Geographic concentration in flood-prone and polluted industrial zones such as Savar, Gazipur, Ashulia, and Hemayetpur further compounds the climate and health vulnerabilities for these workers.

### Working Information and Conditions

The working conditions of RMG, Leather, Leathergoods and Footwear workers in Bangladesh reveal systemic overwork, sectoral disparities, and heightened climate vulnerability. In RMG, most workers (59.3%) are concentrated in sewing, an intensive role prone to heat stress and musculoskeletal strain, while Leather production is diversified, with 38% in finishing and 15.3% in tanning, where high heat and exposure to toxic chemicals are common. On the other hand, Footwear roles focus on sewing (44.7%), lasting (17.3%), and cutting (14.7%), involving prolonged standing in poor indoor conditions.



Workforce stability varies, with RMG showing high turnover (47.5% with  $\leq 3$  years' experience), while Leather (82% with  $\geq 2$  years) and Footwear (76.7% with  $\geq 3$  years) demonstrate greater retention due to technical skills. Working time patterns underscore systemic exploitation: nearly half of all workers (49.2%) work 9–11 hours daily, and 25.5% exceed 11 hours. RMG is most affected during peak seasons, while 30% of Leather workers endure 12+ hours. Only a quarter comply with the legal 8-hour limit. Weekly rest is equally uneven; while most report a six-day week, over half in Leather (53.3%) work all seven days, denying recovery time and compounding fatigue.

These patterns demonstrate how excessive hours, lack of rest, chemical exposure, and high turnover not only violate labour standards but also magnify workers' vulnerability to climate induced stressors such as heat, poor air quality, and physical exhaustion.

### **Climate-induced Migration Status**

Bangladesh's high climate vulnerability, driven by floods, cyclones, river erosion, and rising heat, is intensifying climate-induced migration from rural to urban and industrial zones, with profound implications for the export sectors. An estimated 91.5% of workers are internal migrants, while only 10.3% reported climate-driven displacement including RMG (10.8%), Leather (6.6%), Leathergoods and Footwear (12.6%), originating mainly from northern and coastal districts such as Rangpur, Mymensingh, and Noakhali. Migration exacerbates exposure to hazardous working conditions, overcrowded housing, and inadequate social protection. In terms of post-migration, workers struggle with finding stable employment, low wages, poor housing, social isolation, discrimination, and health risks from combined occupational hazards and environmental stress. They also face multiple barriers, including ineligibility for government incentives due to non-permanent residence, communication barriers, social isolation leading to mental health issues, and a housing crisis with higher living costs than their hometowns.

These vulnerabilities are compounded by large household responsibilities, limited savings, and reliance on precarious incomes, reinforcing cycles of economic insecurity and climate risk. Despite minimal wages, larger household sizes (19.7% with  $\geq 6$  members) mean workers struggle to survive. Women and other marginalised groups are disproportionately affected, experiencing heightened exposure to heat stress, unsafe conditions, and reduced social mobility.

The systemic gaps in housing, social support, and labour protections leave migrant workers highly susceptible to exploitation and climate shocks. This highlights the urgent need for targeted Just Transition policies, inclusive urban planning, and worker-centric climate adaptation measures.

### **Climate-Induced Disruptions to Livelihoods and Well-Being**

Climate-induced disruptions are reshaping the livelihoods, well-being, and resilience of workers across all sectors. Climate-driven migration which is triggered by floods, cyclones, salinity intrusion, and erosion, often results in insecure housing, limited sanitation, and weak social networks, amplifying vulnerability to heat stress and occupational hazards. Over 60% of households report severe financial strain due to climate shocks where RMG workers experience financial burden (84%), with 48.3% in debt. Leather workers face economic strain (78.7%), alongside health challenges (60%). Over 80% of Footwear workers endure wage cuts (82%), increased medical costs (82.2%), and rising living costs (83.3%).

Sectoral disparities exist in housing and essential services as such housing quality is lowest in the Leather sector, with 12.7% living in tin sheds and 42% in semi-pucca homes. Safe drinking water access ranges from 68% in Leather to 90% in RMG and Footwear, with 46% of Leather workers relying on tube wells vulnerable to arsenic. The availability of safe water sources is further reduced during natural calamities.

On the other hand, sanitation is uneven; only 18.7% of Leather workers have access to sewer-connected toilets. Job security is threatened by climate-related wage cuts, unpaid leave, and production disruptions affecting 35.3% of Leather, 32% of Footwear, and 17% of RMG workers. These findings underscore the urgent need for climate-resilient housing and infrastructure, equitable social protection, and targeted interventions to support migrant, low-income, and female workers, enabling a just and adaptive transition.



## Climate-Induced Disruptions to Productivity

Climate change is increasingly disrupting working conditions and productivity across all sectors. Extreme heat, poor ventilation, waterlogging, and chemical exposure are the primary stressors, affecting health, absenteeism, and income. Approximately 82.1% of all workers report significant heat stress. RMG (87%), Leather (79.3%), and Footwear (72%) are particularly affected due to dense or chemically intensive workspaces. Only about half of all workplaces report adequate, yet often inefficient, cooling or ventilation. Chemical exposure is intensified under high temperatures, impacting over 50% of Leather and Footwear workers.

Overall, 60% of workers perceive climate change as reducing productivity. Footwear reports the highest impact (64%), followed by RMG (58.3%) and Leather (39.3%). Rigid targets and heat-induced fatigue reduce output, elevate medical costs, and compromise worker livelihoods.

Sector-specific disruptions highlight the varying vulnerabilities of each industry. In the RMG sector, absenteeism (37%), production delays (23.5%), and heat-related wage impacts (26.25%) are widespread, especially in sewing sections. In the Leather sector, workers face challenges from climate-sensitive raw material supply chains (64.2% report quality declines and 62.7% supply delays), along with high absenteeism (43.3%) and workflow disruptions, amplified by waterlogging in 52% of factories. In the Leathergoods and Footwear sector, workers experience the highest efficiency losses (89.2%), absenteeism (44.1%), and heat-related illnesses (41.9%), with reduced working hours (29%) further undermining output. These findings demonstrate that climate change threatens both immediate productivity and long-term industry viability, underscoring the urgent need for climate-resilient infrastructure, adaptive work practices, and sector-specific interventions.

## Climate-Induced Impacts on Workers' Health

The study concludes that climate change is driving a severe and multidimensional health crisis for workers in all sectors. Escalating heat, unsafe workplaces, and weak occupational health systems have left workers vulnerable to physical, mental, and reproductive health risks, while imposing heavy financial burdens.

It is found that about 53.4% of all workers report excessive heat stress or fatigue, while 36% of them suffer dizziness or dehydration, and 2.3% have experienced heatstroke. In this case, Leather workers face the highest dehydration (66.7%) due to insufficient water intake and RMG workers report the broadest range of symptoms (73.3% feel unwell due to heat).

Regarding occupational and chronic illnesses, about 48.6% of all workers report chronic headaches, 40% of leather workers suffer skin diseases, and 31.3% report respiratory problems linked to toxic chemical exposure. In addition to this, mental health impacts are widespread, affecting over 55% of all workers. Footwear workers are the most severely affected, with 58.7% reporting mental health issues and 86.8% citing stress and anxiety linked to job insecurity.

Vulnerabilities among women workers are also alarming, which identified that 26.4% of the women workers face menstrual irregularities with 10.6–19% report miscarriage risks, and up to 14.3% of leather workers suffer from infertility due to combined heat and chemical exposure.

Health service access and sanitation are deeply unequal. While 88.5% of RMG workplaces report having health facilities, only 23% of leather workplaces do. Unsafe sanitation further compounds risk: 40% of leather workers, 23.8% of RMG workers, and 21.3% of footwear workers deliberately restrict water intake to avoid unhygienic or distant toilets, heightening risks of dehydration and heatstroke.

The financial toll is heavy. Two-thirds (66%) of workers spend at least BDT 500 per month on healthcare (30–50% of their net income), with nearly one-third (29.3%) of leather workers spending more than BDT 3,000 per month, forcing debt and food insecurity. Formal sick leave, while available to 85.7%, is often unused due to fears of wage loss or production pressures.



These findings confirm that climate change is a profound threat to occupational health, gender equality, and social justice. They call for urgent investment in climate-resilient workplace adaptation, stronger occupational safety enforcement, improved health and sanitation access, gender-responsive health protections, and a Just Transition framework.

### **Perspectives on Climate Change and Just Transition**

The study highlights that climate change is already shaping the daily realities of workers, though awareness and mitigation action remain low. Initial awareness of the Just Transition concept is low (fewer than 20% of workers). However, once explained, 82% view it as a hopeful pathway to safer jobs, fair wages, and new skill development opportunities. Regarding stakeholder perception, Trade Unions show moderate awareness; with 60% workers identify climate change as weakening labour rights, and 68% of them see a Just Transition as a tool to strengthen worker protections. Employers recognise climate risks through productivity losses (57%), but only 40% see greener practices as beneficial, while government actors display high policy awareness (70%+) but weak enforcement (35%). On the other hand, Civil Society Organisations emerge as the most informed; and they frame climate change as a justice issue (85%), and focus promoting a Just Transition as a rights-based approach (78%).

Climate-related vulnerabilities are eroding workers' health, incomes, and security. Yet, a Just Transition offers structured pathways to adaptation through reskilling, worker participation, social protection, and green innovation. Examples such as solar energy adoption, eco-friendly vegetable tanning, and environmental certifications (e.g., LWG) demonstrate how targeted measures can link global standards with local resilience.

The study emphasises that workers are not passive victims but active stakeholders ready to engage in sustainable practices if institutional and policy support exists. Building a Just Transition framework in Bangladesh requires expanding green skills, strengthening labour rights, ensuring workplace adaptation, broadening social protection, and scaling green financing.

### **Industry Readiness against Climate Change**

The readiness of Bangladesh's RMG, Leather, Leathergoods and Footwear sectors to confront climate change is uneven, marked by partial progress but significant structural gaps. Nationally, fewer than one in four factories comply with international sustainability standards, and only one-third operate effective waste management systems. Material reuse is limited (16.9%), and chemical reduction in leather production is negligible (3.3%).

From the sectoral view, RMG shows relatively better progress while 47.3% of the workers reported that factories have waste management systems and 34.3% reporting compliance with standards. Footwear demonstrates stronger uptake of solar and eco-machinery (37.3% and 36% respectively) but weak water management. Leather remains the most vulnerable, with 44.7% of factories reporting no pollution-reduction measures and widespread dependence on outdated practices.

Climate-resilient measures are concentrated in immediate, low-cost responses. Nationally, 77.7% of factories report heat-stress mitigation, but only 13.3% use renewable energy, and just 20% have functional water management despite recurrent floods. RMG leads on flood protection (76%) and structural reinforcement (77%), leather on building safety (85.3%) but lags in renewable energy (7.3%), while footwear is strongest in heat mitigation and ventilation (92%) each with moderate solar adoption (37.3%).

Worker governance structures show disparity, for instance, safety committees exist in 89.5% of RMG and 85% of Footwear factories but with limited climate integration. Management attitudes reinforce these divides as such only 36.5% of factory leaders nationally show readiness, with the lowest readiness in Leather (24.7%), moderate in RMG (34.8%), and highest in footwear (52.7%).



Social protection is the weakest pillar of industry readiness. About 39.7% of workers reported having no social protection benefits at all. Regarding sector-specific benefits, RMG is the highest in the health insurance (13.4%), pension plans (9.4%), disability benefits (10.7%) and maternity benefits (47.8%). While Leather sector is the slightly higher in the injury benefits with 5.6% but Leathergoods and Footwear is higher in the health insurance (6.7%), pension plans (3.8%) compared to leather sector. Out-of-pocket health expenses consume 30–50% of monthly wages, pushing families into debt and food insecurity, with women disproportionately harmed due to poor maternity and reproductive protections.

### **Sectoral Resilience Initiatives and Uneven Progress**

RMG demonstrates the most advanced uptake, leveraging green finance schemes (e.g., Green Transformation Fund, PaCT programme) to achieve significant resource efficiency (e.g., 15 billion litres of water saved in 200+ factories). Adoption includes process optimisation, waste reduction, and renewable energy pilots, such as solar rooftops demonstrating substantial CO<sub>2</sub> savings. Worker-focused measures, including the Employment Injury Scheme pilot and internal heat stress mitigation protocols, are also being trialled, alongside the adoption of global standards (Higg FEM) and sustainable sourcing targets.

The Leather sector shows progress through centralised infrastructure (the Savar CETP), the emergence of individual Effluent Treatment Plants (ETPs), and increasing environmental certifications (LWG, ISO 14001). Innovation is visible in water recycling and zero-waste initiatives. The Leathergoods and Footwear sector is strengthening alignment with global compliance, with over 100 Small and Medium Enterprises (SMEs) adopting Sustainable Consumption and Production (SCP) practices, which has correlated with a reduction in medical leave. Investment in eco-packaging, recycled materials, and circular economy pilots signals an early transition toward low-carbon production.

However, the efficacy of these initiatives is limited by their concentration: advanced measures and global certifications (LEED, LWG) are disproportionately adopted by large, export-oriented factories, failing to reach the numerous small and informal units where the majority of vulnerable workers are employed.

### **Policy Ambition Versus Implementation Reality**

Bangladesh possesses an extensive and ambitious national climate policy framework, reflecting its vulnerability and global leadership. Key instruments include the Bangladesh Climate Change Strategy and Action Plan (BCCSAP, 2009), the National Adaptation Plan (NAP, 2023–2050), and the Mujib Climate Prosperity Plan (MCP, 2022–2041), supported by other frameworks such as the Nationally Determined Contributions (NDCs).

Despite this comprehensive architecture, the reality of implementation is visibly constrained. Significant gaps persist in institutional coordination, financing mechanisms, and local-level capacity. Crucially, while the policy landscape is forward-looking, workers are the most affected and vulnerable groups are not explicitly highlighted or integrated into policy formulation or decision-making processes.

Without immediately addressing these structural barriers, the well-designed policies risk remaining aspirational rather than delivering tangible resilience or ensuring a just and equitable transition. Strengthening institutional coordination, scaling renewable energy, improving social protection, and fundamentally embedding worker participation in climate governance are critical prerequisites for advancing the Just Transition and ensuring the long-term competitiveness of Bangladesh's export sectors.

### **Preparations for Just Transition Pathways**

The findings reveal that workers are acutely aware of the risks posed by industrial transformation and articulate clear priorities for a fair transition. In general, workers mainly demanded for higher wages (74%), health insurance (57.3%), safer workplaces (57.3%), and job security (53.1%), reflecting everyday struggles with climate-induced income shocks and occupational hazards. While re-skilling (88.2%) emerges as the single most important safeguard, underscoring that workers view new skills as a survival strategy against displacement from automation, decarbonisation, and supply chain restructuring.



Highlighting the sectoral priorities, RMG workers emphasise job security (71.5%) and alternative livelihoods, expecting support from brands and the government, and Leather workers prioritise health needs, including chemical safety, health insurance (61.3%), and safer workplaces (67.3%). While Footwear workers are the most insecure, with 95.2% demanding re-skilling, reflecting fears of severe climate-driven job loss.

Regarding stakeholder roles in just transition, workers highlighted that employers (78.4%) are the primary duty-bearers over wages and conditions; Government (57.3%) is expected to provide financial aid and safety nets; and Brands (44.3%) are held responsible for reparative measures, particularly health insurance.

Evidence shows that workers are active stakeholders with clear expectations. However, weak institutional support and fragmented responsibilities leave them structurally disempowered. Addressing these demands requires embedding livelihood security, health protection, and re-skilling programmes at the core of industrial climate strategies to ensure a transition that is not only green but also socially just and worker-centred.

### **Challenges in Just Transition Pathways**

The study reveals significant cross-sectoral barriers to transitioning toward green jobs in the RMG, Leather, Leathergoods and Footwear sectors. The most critical constraint is the lack of alternative job opportunities that is reported by 62.5% of RMG, 65.3% of Leather, and 68% of Footwear workers, underscoring the absence of pathways for workers to shift into sustainable livelihoods.

Financial insecurity compounds this, with low wages constraining workers' capacity to absorb transition risks. Furthermore, weak enforcement of labour laws and employer resistance to change highlight structural governance deficits. Skills and training deficits are a central barrier, particularly acute in Leather (61.3%) and Footwear (53.3%), reflecting workers' limited preparedness for green industrial shifts. Government support for climate adaptation is also perceived as inadequate across all sectors.

From the sectoral nuances, it is identified that RMG faces entrenched labour law weaknesses, while Leather is the most constrained by governance failures, employer unwillingness, and wage insecurity. On the other hand, Footwear is most affected by job scarcity, skills deficits, and weak institutional support.

These trends highlight deep labour market vulnerabilities, persistent policy gaps, and the urgent need for reskilling, regulatory enforcement, and inclusive planning to ensure a Just Transition that protects workers while advancing climate resilience.

### **Policy-Level Recommendations for a Just Transition**

To address climate vulnerability, industry readiness, and just transition for RMG, Leather, Leathergoods and Footwear sectors, recommendations include investing in energy efficiency and renewable energy, developing circular economy models through waste management and recycling, implementing worker skills training for green jobs, strengthening social dialogue for fair policies, improving data collection and transparency on climate impacts, and establishing green funds for sector-specific investments. Bangladesh still doesn't have any Just Transition policy, and no concern is shown in Bangladesh to initiate a Just Transition policy. Even the awareness about Just Transition is very minimal in Bangladesh's labour force. This policy is so emergency for workers, but in this study findings, initially only 20% of workers heard this Just Transition before, rest of the 80% haven't heard this term before. All sectors should also advocate supportive policies, foster collaboration between stakeholders, and ensure workers' voices are integrated into decision-making processes.



## **Government**

- Strengthen labour inspections and monitoring in industrial clusters to ensure compliance with labour rights, occupational safety, and social protection.
- Develop and implement alternative employment and livelihood programs for workers displaced by automation or climate-induced disruptions.
- Design fair transition strategies, including reskilling, financial support, and job placement services for workers entering green jobs.
- Provide financial incentives (green funds, tax breaks, subsidies) to promote renewable energy adoption, energy-efficient upgrades, and climate-resilient infrastructure.
- Introduce climate-responsive leave policies, including mandatory rest breaks during extreme heat and emergency leave during floods or cyclones.
- Develop integrated, gender-responsive climate adaptation and Just Transition policies, safeguarding youth and women workers.
- Prepare a sectoral climate transition roadmap for RMG, leather, leathergoods, and footwear, with clear targets and accountability mechanisms.
- Establish universal health insurance covering climate- and occupational-related risks, including heat stress, chemical exposure, reproductive health, and mental health.
- Map climate vulnerability at the worker level across major industrial clusters, including informal sectors, communities, and supply chains.

## **Employers / Employer Associations**

- Establish worker-led climate safety committees with authority and resources to monitor heat stress, chemical risks, and workplace safety.
- Invest in climate-resilient infrastructure, including ventilation, cooling, flood protection, energy efficiency, and low-emission technologies.
- Promote sustainable practices such as renewable energy, circular economy models, cleaner production, and Zero Liquid Discharge (ZLD) systems.
- Integrate climate adaptation and Just Transition into core business operations and sustainability reporting, aligning with HREDD, EU CSDDD, GSP+, and LDC graduation requirements.
- Collaborate with international buyers/brands to co-invest in sustainable production, worker health, reskilling initiatives, and ensure fair purchasing practices.

## **International Buyers / Brands**

- Ensure ethical sourcing and responsible purchasing practices that enable suppliers to provide living wages and social protection.
- Provide financial and technical support for suppliers to adopt climate-resilient and green production systems.
- Invest in workforce reskilling, green technology adoption, and Just Transition funds, with transparent reporting on outcomes (e.g., % insured, % trained, % represented in safety committees).
- Support a climate risk insurance pool through multi-stakeholder mechanisms, guaranteeing workers' wages during climate-induced factory shutdowns.
- Promote global regulatory compliance (HREDD, EU CSDDD, UK Modern Slavery Act, EU Forced Labour Regulation) to ensure supply chain transparency and labour rights protection.



## Trade Unions

- Expand presence in both formal and informal sectors; strengthen capacity in climate literacy, occupational health, labour rights, and emerging global frameworks (HREDD, Just Transition, Forced Labour, Modern Slavery).
- Advocate for Just Transition policies to protect climate-vulnerable workers at government, brand, and supplier levels.
- Lead tripartite dialogues with government and employers on reskilling, social protection, and occupational safety.
- Raise awareness on climate-related health risks (heat stress, fatigue, sickness, heatstroke).
- Negotiate for climate-resilient workplaces, job security, reskilling, and stronger OSH measures through structured social dialogue.
- Advocate for climate vulnerability mapping and the development of national transition roadmaps.
- Push for stronger social safety nets, including pensions, sick leave, maternity benefits, injury compensation, and healthcare.

## Civil Society Organisations (CSOs)

- Conduct awareness campaigns on workers' rights, climate risks, and Just Transition, enabling informed worker participation.
- Provide legal aid and support services to workers facing rights violations, workplace injury, or unfair dismissal.
- Facilitate multi-stakeholder dialogue platforms to shape inclusive and evidence-based policy development.
- Monitor and publish independent assessments of labour conditions, OSH compliance, and climate impacts.
- Advocate for gender-responsive adaptation measures, focusing on women workers' health, safety, and skill development.
- Pilot and scale community-based climate resilience programs, including mobile health clinics, green cooperatives, and vocational training.