

**Final Report**

## **Upscaling the RMG Sector**

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Notwithstanding, any limitations and/or views expressed in this report are solely those of the authors and should not be attributed to the ERD or any of the aforementioned organizations or individuals.

## ABBREVIATIONS AND ACRONYMS

<b>Acronym</b>	<b>Abbreviation</b>
AI	Artificial Intelligence
AIT	Advanced Income Tax
BGD	Bangladesh
BGMEA	Bangladesh Garment Manufacturers and Exporters Association
BIDS	Bangladesh Institute of Development Studies
BKMEA	Bangladesh Knitwear Manufacturers and Exporters Association
BTMA	Bangladesh Textile Mills Association
CAD	Computer-Aided Design
CAM	Computer-Aided Manufacturing
CD	Customs Duty
DCS	Duty Credit Scrips
DCTS	Developing Countries Trading Scheme
EDF	Export Development Fund
EFPF	Export Facilitation Pre-Finance
EPB	Export Promotion Bureau
EPZ	Export Processing Zones
ERD	Economic Relations Division
EU	European Union
FDI	Foreign Direct Investment
FOB	Free on Board
FY	Fiscal Year
GOTS	Global Organic Textile Standard
GSP	Generalized System of Preference
GVC	Global Value Chain
HS	Harmonized System
IFC	International Finance Corporation
ISO	International Organization for Standardization
ITC	International Trade Centre
LDC	Least Developed Countries
LPI	Logistic Performance Index
MMCF	Man-made Cellulosic Fibre
MMF	Man-Made Fibre
NAP	No Additional Potential
NRCA	Normalised Revealed Comparative Advantage
OTEXA	Office of Textiles and Apparel
PET	Polyethylene Terephthalate
PLI	Production Linked Incentive
PTA	Purified Terephthalic Acid

PWC	PricewaterhouseCoopers
RAPID	Research and Policy Integration for Development
RCA	Revealed Comparative Advantage
RD	Regulatory Duty
RMG	Ready-Made Garments
RTISC	RMG and Textile Industry Skills Council
SD	Supplementary duty
SEIP	Skills for Employment Investment Program
SIF	Strategic Investment Fund
TQM	Total Quality Management
TTI	Total Tax Incidence
UK	United Kingdom
USA	United States of America
UV	Ultraviolet
VAT	Value-added tax
VSF	Viscose Staple Fibre
WITS	World Integrated Trade Solution

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# Upscaling the RMG Sector

## Executive Summary

### Background

Bangladesh's Ready-Made Garments (RMG) sector, accounting for 84.7 per cent of its total merchandise exports in FY23, has, over the past several decades, contributed to a remarkable economic transformation. However, the resultant export concentration has become a pressing concern for long-term economic resilience and diversification. Furthermore, within the garment exports, the concentration on cotton-based products, which contrasts with global preferences for non-cotton apparel, raises concerns. As Bangladesh approaches its graduation from the Least Developed Countries (LDC) category, diversification of the overall export structure, along with garment exports, becomes extremely important to buffer against potential external shocks and also to tap into newer market segments and opportunities. This study aims to explore the prospects of expanding man-made fibre (MMF) exports and offers recommendations for such a strategy to enhance the overall performance and competitiveness of the garment sector.

### Trends in Cotton and Non-Cotton Apparel: Bangladesh vs Global Suppliers

The global apparel export industry has undergone significant changes, with the market doubling to \$505 billion over the past two decades. In 2021, man-made and blended apparel exports reached \$271 billion, surpassing cotton at \$219 billion. The relative significance of cotton garments declined over the past decade, while man-made fibre apparel more than doubled. Global fibre production in 2020 was 109 million tonnes, with synthetic fibres comprising 62 per cent. The synthetic fibre market is projected to expand from \$70 billion to \$115 billion by 2030, signalling a shift towards man-made fibre apparel. Non-cotton fibre-based apparel now represents over 57 per cent of the trade. Leading clothing exporters like China, India, and Vietnam have significantly expanded MMF and blended apparels into their export portfolios. Bangladesh primarily exports cotton-based apparel, constituting 71 per cent of total exports, with cotton apparel exports growing significantly from \$3 billion in 2001 to \$33 billion in 2021. In contrast, MMF apparel exports increased by \$8 billion over two decades. This indicates that Bangladesh is making steady progress in MMF apparel and increasing its footprint in the global non-cotton apparel market.

Bangladesh has made significant strides in the global cotton apparel market, ranking second with a market share of 16.5 per cent, trailing only behind China's 24 per cent. As China's share in the global apparel market has declined over the past decade, Bangladesh has successfully captured a significant portion of China's lost cotton apparel market. Given the impressive growth rate, Bangladesh may soon surpass China in the global cotton apparel market. Bangladesh is the largest cotton apparel exporter to Canada, the EU, India, and the UK, holding an impressive market share in these markets. Despite its strong presence in the cotton market, Bangladesh has substantial room for growth in MMF & blended apparel, where it holds a 5.6 per cent global market share compared to China's dominant 36 per cent. Vietnam also excels in MMF & blended apparel in the USA and Japan markets.

### *Reasons behind the Global Shift from Cotton to Man-Made Fibre-Based Apparel*

Consumer preferences are driving the transition from cotton to man-made fibre (MMF) apparel. MMFs are versatile, offering characteristics like moisture-wicking and wrinkle resistance, meeting various consumer needs. These fibres promise durability, longer lifespan, and easier maintenance, appealing to today's practical consumers.

Environmental policies, especially in regions like the EU and big clothing brands, are steering the textile industry towards sustainable fibres. MMFs have several sustainability advantages over cotton:

- MMFs, especially polyester, require less water than cotton.
- MMFs produce fewer carbon emissions and have a smaller ecological footprint in terms of soil erosion and land use.
- The global focus is shifting towards recycled fibres, with polyester leading the recycled fabric market.

Countries like India, China, and Vietnam are adapting policies to tap into the growing MMF market.

- India prioritises MMF, offering incentives through the 'Make in India' initiative and focusing on eco-friendly textile production.
- Vietnam is bolstering domestic synthetic fibre production and targeting foreign investment.
- China is pivoting from apparel to high-tech textiles, aiming for greener textile practices and increasing focus on recycled fabric.

These policy shifts underscore the global momentum towards MMF and environmentally conscious practices in the textile sector.

### **Improving Domestic Value-Added and Exploring Market Prospects**

Despite Bangladesh making significant inroads in the global apparel market, it receives lower prices than its competitors. One salient feature of the garment industry is that manufacturing itself is associated with very low value in comparison with the overall value that a product generates. There are two primary avenues to move up the global value chain: creating more sophisticated items and enhancing backward and forward linkages. Although Bangladesh has diversified its product range, certain areas like product design, branding, sales, and after-sales services remain largely out of reach. Strengthening backward linkages is thus seen as a key strategy to boost domestic value addition. In the realm of knitwear, Bangladesh has robust backward linkages, but most woven garment fabrics are imported. The country's reliance on imported yarn and fabrics for MMF apparel is even more pronounced, predominantly from China and India, which are also major competitors. Expanding cotton production in Bangladesh is not feasible due to land constraints and existing agricultural practices. However, developing MMF backward linkages is achievable and would improve fibre security.

The Revealed Comparative Advantage (RCA) analysis, a tool for assessing a country's competitiveness in specific industries, was used to evaluate Bangladesh's potential in MMF apparel exports. This analysis highlighted the top 20 promising cotton and MMF & blended apparel items, revealing that while the RCA values for MMF were lower than for cotton, there is still significant potential for MMF expansion. The combined export potential for the top 20 products in both MMF and cotton is approximately \$16 billion, with cotton products accounting for \$12 billion and MMF products for \$4 billion. However, the lower export potential for MMF is attributed to Bangladesh's currently much larger exports of cotton garments.



To overcome the problem of the relatively low current exports of MMF items, a subjective analysis of the export potential of the top 20 such items was undertaken. It involves anticipated market shares of the selected products in the near future. The findings suggest that if Bangladesh achieves the projected market shares for these products, MMF export earnings could increase by \$12.5 to \$19 billion. Given Bangladesh's existing exports of these products and the reasonable nature of the expected shares, reaching these projected market shares seems plausible.

## Transitioning to MMF Apparel Exports: Constraints & Challenges

This study conducted a comprehensive analysis to identify challenges hindering the further growth of MMF items, categorizing them into two domains: policy issues and firm-level constraints.

### Policy Issues:

**Lack of access to duty-free raw materials:** The textile industry in Bangladesh faces a major challenge regarding import duties on various fibres, with cotton enjoying duty-free status while many man-made fibres are subject to import duties.

**Inefficient custom clearance and complicated duty-drawback procedures:** Complex customs clearance procedures pose significant challenges for importers, causing delays in clearing raw materials and impacting the industry's efficiency. In addition, duty-drawbacks are complex, making it challenging for many firms to access the benefit.

**Policies on PET bottles and scraps imports and exports of plastic wastes:** Discriminatory import policies on PET bottles and scraps have created an uneven playing field, with factories outside Export Processing Zones (EPZs) facing constraints in their production capacities due to limited access to these essential raw materials. On the other hand, exports of plastic wastes and flakes limit domestic supplies of the same to local MMF manufacturers, resulting in increased cost of production.

**Limited capital investment support for the backward industry:** Limited access to favourable financing is impeding the development of a comprehensive and modern backward linkage in the textile sector, including MMF-based apparel production, which requires substantial capital investments.

**Inadequate short-term financing support:** Textile millers have disproportionately limited access to the Export Development Fund (EDF) and the Export Facilitation Pre-Finance (EFPF). This disparity raises concerns about the backward linkage sector's long-term sustainability.

**Extremely inadequate foreign direct investment:** The limited inflow of foreign direct investment (FDI) into Bangladesh's export sector presents a significant challenge. MMF production is capital-intensive, requiring substantial initial investments for state-of-the-art machinery and technology, which local industries may lack but foreign investors can provide.

### Firm-level constraints:

**Lack of modern technology adoption:** The production of MMF-based apparel is often conducted using outdated technology, leading to increased downtime and escalating maintenance costs. Additionally, the delay in adopting automation and digitisation hinders global competitiveness, as advanced technologies such as robotics and computer-aided design can enhance productivity and efficiency. Transitioning to modern technology is hampered by high initial investment requirements

for expensive machinery and infrastructure development, as well as limited access to local technology providers, which often leads to prolonged procurement and increased expenses.

**Skills gaps in top and mid-level managerial positions:** The skill gap in top and mid-level managerial positions is a prevalent issue in the country's RMG sector. While cotton-based factories are diminishing their reliance on foreign employees, the MMF industry depends on them due to the sector's relative novelty. The management-related challenges in Bangladesh's MMF-based apparel industries include inefficiencies in supply chain management, the need for rigorous quality control measures, and a focus on sustainability practices. There is also a significant shortage of well-trained and experienced top and mid-level managers in the MMF-based apparel industries, with specific skill gaps identified for both top-level and mid-level management. These gaps encompass areas such as market competition and adaptability, operational mastery, customer-centric focus, supply chain management, health and safety compliance, sustainability stewardship, human resource management for top-level management, technical proficiency, problem-solving prowess, independent initiative, result-driven mindset, communication skills, and openness to new experiences for mid-level management.

**Lack of skilled workers:** MMF-based apparel industries face a lack of a skilled workforce, hindering the adoption of modern technology and quality maintenance. Specific skill gaps identified in the study encompass a wide range of machinery and processes, from operating polymerisation and spinning machinery to managing weaving looms and conducting quality inspections.

**Limited R&D activities:** Limited research and development (R&D) at the firm level can severely hinder technological innovation and adaptation, acting as a roadblock to staying competitive in a rapidly evolving industry.

**Low levels of compliance and certification practices:** The absence of recognised standards and certification in Bangladesh's textile and MMF industries poses significant challenges that can hinder the sector's growth and global competitiveness. Lack of certifications related to sustainability and ethical production also hinders appeal to conscious consumers and opportunities for process optimization, potentially raising production costs and reducing competitiveness.

## Policy Recommendations

### Recommendations to address broad policy issues:

**A dual-track growth strategy for apparel sector:** Bangladesh needs to consolidate cotton apparel export market dominance while expanding MMF apparel production and exports. Export diversification is not about pivoting away from cotton but about embracing a wider variety of products. Thus, while strategising for MMF growth, the foundational strength of the cotton apparel sector should also be nurtured and fortified while making inroads into MMF apparel should be a judicious policy choice.

**Ensuring duty-free access to all fibres:** By adopting a uniform duty-free import policy for all fibres, including those lesser-known ones, Bangladesh can foster innovation, meet specific global buyer demands, and capture premium prices for its textile products.

**Building domestic capacity for MMF fibre:** Devising a strategy for fibre security for the garment industry by diversifying supply sources of both natural and man-made fibres and building domestic capacity for MMF should be given special consideration. To strengthen the synthetic fibre supply chain and reduce dependence on foreign sources, utilising by-products from expanding oil refining,

investing in synthetic fibre factories, and strategic investment in technology and infrastructure is essential.

**Ensuring supply of raw materials for man-made fibre production:** Bangladesh should consider offering financial assistance or subsidies to domestic industries involved in recycling PET bottles, flakes, plastic wastes and processing petrochemicals. This can be consistent with promoting circular economy and protecting the environment. It is also important to review the export of plastic wastes, which hinders the access of the same by local MMF manufacturers and raises the cost of domestic sourcing.

**Establishing a strategic investment fund:** To address the huge investment requirement for MMF-based textile plants, there is a need to establish a dedicated low-cost Strategic Investment Fund (SIF), with financing and management potentially sourced through partnerships with international organizations such as the World Bank and the International Finance Corporation (IFC).

**Simplifying the duty-drawback processes:** Simplifying the duty-drawback processes is vital for exporters who cannot access duty-free import of inputs. One solution is effective implementation of the National Tariff Policy 2023. Another is to replace or supplement traditional duty-drawback with Duty Credit Scrips (DCS), which are tradeable certificates offering exporters a percentage of export value as credit to offset import duties on raw materials and machinery. Also, streamlining the existing duty drawback facilities is important.

**Modernising the customs clearance processes:** Modernising the customs clearance processes is crucial for enhancing export competitiveness in general, including for the MMF-based RMG and textile industries.

**Attracting FDI in MMF sector:** Bangladesh must attract FDI to foster its role as global MMF hub and to capitalise on the shifting dynamics of the global value chain based on the "China Plus One" strategy adopted by businesses worldwide. It is, therefore, vital to develop comprehensive policies that attract FDI and especially to target and encourage firms that consider relocating from China to elsewhere. Revamped policy initiatives should be aimed at addressing an unfavourable investment climate and high costs of doing business to make Bangladesh an attractive FDI destination.

**Promoting a circular economy to enhance the sustainability of the textile sector:** The global trade landscape is evolving with a focus on sustainability and eco-friendly production methods. To support this shift towards a circular economy, the government can extend policy incentives, including tax incentives, grants, and tax exemptions, to fabric producers who utilise recycled inputs such as plastic waste, flakes, and other materials integral to fibre production.

#### **Recommendations to address firm-level constraints:**

##### **Modernise Technology in the MMF-based RMG and Textile Industries:**

- **Investment Incentives:** Financial benefits such as tax reductions/tax holiday, and low-interest rate loans for the MMF firms can be offered for investing in contemporary machinery and technology. Technology Investment Zones for MMF-focused industries should be initiated.
- **Foster Technology Collaboration:** Encouraging partnerships between local industries and research institutions, as well as attracting international tech leaders to establish R&D centres in Bangladesh, can accelerate technology transfer and innovation.

**Enhancing management capacities:** To enhance managerial competencies in the MMF-based industry, the following policies can prove highly effective:

- **Supply Chain Optimization:** Establish Supply Chain Excellence Centres to share best practices and provide access to experts and modern tools. Offer customised consultation services, especially to SMEs, focusing on inventory management, demand forecasting, and supplier collaboration.
- **Quality Control Assurance:** Institute Quality Excellence Awards to incentivise firms to achieve high-quality standards and provide grants to support quality assurance systems, including ISO certifications.
- **Design and Innovation Support:** Establish Innovation Incubators and organize design thinking workshops and hackathons to encourage creativity and innovation.
- **Export Diversification and Market Expansion:** Provide support for diversifying export destinations, offering guidance on market entry strategies, compliance, and networking. Set up Market Intelligence Centres to gather and disseminate data on international market trends, consumer preferences, and competitive landscapes.

**Enhancing worker skills:** To improve the skill development of the textile and MMF workforce, the following policies are recommended:

- **Capacity building of NSDA and other relevant institutions:** Enhancing the capacity of NSDA, RTISC, and training institutions is extremely important to implement the competency-based training that was prepared by the NSDA effectively. RTISC's capacity should be strengthened to effectively collaborate with industry associations in order to introduce courses based on industry demand and implement the apprenticeship program.
- **Skill Certification:** Launch a Skills Passport system to allow workers to document their skill progression and certifications, improving employability.
- **Effective implementation of the National Action Plan 2022–2027 for Skills Development in Bangladesh** could be effective in addressing the skills gap issues in the RMG sector.

**Encouraging R&D activities:** This can help with faster technological adoption, product and process innovations, and creative solutions while improving overall industry competitiveness.

- **Innovation Initiatives:** Allocate government support for dedicated innovation centres focusing on material innovation, process refinement, and design.
- **Encouraging Diverse Products:** Explore the introduction of R&D tax credits as incentives for research investments, promoting product diversity. Establish Product Innovation Awards to recognize groundbreaking products and stimulate innovation in smart textiles and sustainable fashion.

**Improving compliance and obtaining certifications:** Guidance and assistance in upholding compliance and obtaining certifications will help numerous manufacturing units become export-ready and integrate into the global supply chains, bolstering buyer confidence.

- **Guidance Programs:** Introduce guidance programmes and resources to help companies meet international social and environmental compliance standards.
- **Compliance Certification Grants:** Introduce grants to support companies in obtaining recognised compliance certifications, such as GOTS (Global Organic Textile Standard) and Fair Trade.

## Conclusion

Despite Bangladesh's garment export success, there is an over-reliance on cotton-based products, which contrasts with the global shift towards man-made fibres (MMF). This divergence presents both challenges due to potential market misalignment and opportunities to expand into MMF-based products.

Bangladesh's impending LDC graduation, while a commendable achievement, means potential loss of certain trade benefits that previously bolstered the RMG sector. The global preference for MMF products, driven by their versatility and adaptability, underscores the need for diversification within the garment sector. However, this diversification should not overshadow the dominance and niche in the cotton apparel market. A dual-track growth strategy is suggested: expanding into MMF apparel while strengthening the country's position in cotton apparel.

Strengthening backward linkages in the MMF sector can elevate domestic value addition in exports. This means reducing reliance on foreign imports, thus enhancing fibre security. While there's significant potential for Bangladesh in MMF, challenges from policy gaps to technological limitations persist. The suggested policy recommendations emphasize duty-free access to all fibres, efficient duty reimbursements, and the creation of a strategic investment fund for the MMF sector. Additionally, post-LDC graduation, securing favourable market access is vital. At the firm level, modernising technology, improving management, and enhancing workers' skills are crucial. While policy can guide, the responsibility for a diversified and competitive RMG sector predominantly lies with the industry itself.

# Upscaling the RMG Sector

## I. Introduction

Readymade garments stand as the cornerstone of Bangladesh's export success. In FY23, out of the country's total merchandise exports worth \$55.5 billion, the garment sector's contribution was a staggering \$47 billion, accounting for 84.7 per cent (EPB, 2023). This sector has, over the past several decades, pivoted Bangladesh's economic transformation from predominantly a primary commodities (such as jute, shrimp, and tea) supplier to a manufacturing exporter, generating employment for millions, especially women. However, as the apparel success story could not be replicated in other sectors, export concentration has become a pressing concern for Bangladesh's long-term economic resilience and diversification.

A closer look at the composition of RMG exports reveals a further potential concentration risk. Bangladesh's RMG exports are predominantly cotton-based, while non-cotton apparel dominates global markets. Specifically, while 71 per cent of Bangladesh's RMG exports are cotton-based, globally, such items account for 42 per cent of RMG revenue. This discrepancy underscores the need for Bangladesh to diversify and upscale its RMG sector, particularly towards non-cotton apparel, to maintain growth and competitiveness.

The global market is witnessing a growing preference for non-cotton apparel, driven by factors such as versatility, durability, and the ability to blend with other materials to create innovative fabrics. Non-cotton items, especially those made from man-made fibres (MMF), are often more adaptable to changing fashion trends and technological innovations in textile manufacturing. They also offer varied functionalities, from moisture-wicking sportswear to luxurious evening wear. In contrast, an excessive dependence on cotton can be risky for several reasons. Cotton cultivation is susceptible to environmental factors, pests, and diseases, which can lead to fluctuating yields and prices. Furthermore, as global consumers become more environmentally conscious, the water-intensive nature of cotton farming and its environmental footprint might come under scrutiny. Diversifying away from cotton not only aligns with global market trends but also serves as a hedge against potential supply chain disruptions and market volatilities associated with cotton.

As Bangladesh approaches its graduation from the Least Developed Countries (LDC) category, diversification of the overall export structure along with within the ready-made garments (RMG), sector becomes extremely important. The LDC graduation signifies a developmental milestone, but it also means that Bangladesh might no longer enjoy the same preferential trade benefits and market access privileges that come with the LDC status. These benefits have historically given the country's RMG sector a competitive edge in international markets. If the RMG sector remains concentrated in specific product lines, the loss of these trade advantages could expose the industry to vulnerabilities,

especially when competing with other emerging economies that might still have access to such privileges.

Moreover, as global trade dynamics evolve, there is an increasing emphasis on product diversity and adaptability to cater to changing consumer preferences and market demands. Diversifying within the RMG sector not only provides a buffer against potential external shocks but also positions Bangladesh to tap into newer market segments and opportunities. In the face of LDC graduation, such diversification can be a strategic move to ensure the sustained growth and resilience of Bangladesh's flagship export sector.

The concept of upscaling in the Ready-Made Garments (RMG) sector refers to the strategic enhancement of the sector's value proposition, both in terms of product quality and diversity. It is not just about exporting more, but about producing better and diversifying the range of products. That is, it involves moving up the value chain to produce higher value-added goods and diversifying into more complex products. A significant aspect of this upscaling is diversification within the RMG sector, particularly shifting focus from traditional cotton-based products to a broader array of non-cotton products. This diversification is crucial as it allows responding to the growing and varying demands emanating from global markets and reducing over-reliance on a single type of product, thereby mitigating risks associated with market fluctuations specific to cotton-based apparel.

Against the above backdrop, the main objective of this study is to analyse the potential of man-made fibre exports as a strategy to enhance the overall performance and competitiveness of the garment sector, especially when Bangladesh's LDC graduation is imminent. Drawing from global trends, market insights, and industry consultations, the analysis undertaken here seeks to provide actionable recommendations on how the integration and emphasis on man-made fibre products can lead to further expansion for the garment industry, consolidating its position in the global market.

More specifically, the scope of this study is to (i) analyse the current global export market trend of readymade (RMG) products made of man-made fibre (MMF) and cotton fibre; (2) analyse Bangladesh's export trend of RMG products made of MMF and cotton fabrics; (3) analyse the potential export gap of Bangladesh in penetrating the current global market of RMG made of MMF and cotton fabrics; (4) identify policy, technology, management, investment and skills gaps through analysing the current status of the use of MMF and cotton fabrics in the RMG industry of Bangladesh; and (5) recommend a range of strategies, policies, and support for the transformation of the RMG sector from cotton fabric to MMF including those associated with attracting local and foreign investment for MMF-based apparel production, enhancing skills and managerial capacities, promoting green and sustainable practices during the transformation process. This report also provides a time-bound action plan with measurable indicators for implementing recommended policies and strategies.

This study is organised as follows: after this introduction, Section II provides the methodology of the study. Section III provides the trends in cotton and non-cotton apparel exports, comparing Bangladesh with rival suppliers in the global market. Section III highlights the significance of building

MMF backward linkage and explores the market prospects of some selected MMF apparel items. The challenges and constraints facing the strengthening of the MMF sector in Bangladesh are discussed in Section IV, while Section V offers policy recommendations to deal with those issues. Finally, Section VI concludes.

## II. Methodology

The study employs mixed methods methodology, which is a combination of quantitative and qualitative research methods. Qualitative methods encompass an extensive review, Key Informant Interviews (KII), Focus Group Discussion (FGD), and factory visits. In the quantitative analysis, a descriptive trend analysis has been conducted to comprehend the current state of RMG exports categorized by types of fibre. The study also employs price comparison analysis, revealed comparative advantage analysis, and export potential analysis have been conducted.

### 2.1 Qualitative methodology

**Comprehensive desk research:** RAPID undertook comprehensive desk research related to the study. These include various policy documents of Bangladesh and other countries, published literature, reports, and WTO's Agreements. This review helped the study team to gather information related to the technological and manufacturing know-how, policy supports taken by comparator countries, and existing policies of Bangladesh.

**Key informant interview, FGD, and factory visits:** This study employed a comprehensive approach to gathering information and industry perspectives to explore these issues more deeply. Initially, a series of factory visits were conducted in Dhaka (Gazipur, Savar, Tongi areas) and Chattogram. These visits offered a first-hand look at operational practices, encompassing everything from raw material procurement to skilled labour challenges. Direct interactions with senior managers also shed light on their experiences and views regarding the transition to MMF.

Moreover, group discussions were held with representatives from various departments within textile firms, shedding light on collective challenges and strategies employed to advance MMF. KII was also conducted with industry experts, policymakers, and textile company management. These discussions, structured around open-ended questions, encouraged participants to share in-depth insights and future expectations related to the textile sector. Questionnaires were distributed to a wider industry audience to bolster the qualitative findings. These questionnaires guaranteed a thorough representation of stakeholder opinions and were designed to gather information on problems and possible solutions.

### 2.2 Quantitative methodology

**Trend analysis:** It involves examining historical data to identify patterns, trends, and changes over time. In the context of analyzing international and Bangladesh's export trends of MMF and cotton-based apparel, this methodology is utilised to understand how exports of these products have



evolved over recent years. The analysis compares Bangladesh's export composition with that of its comparator countries, allowing for a comprehensive assessment of market dynamics and competitive positioning. By analysing trends in MMF and cotton-based apparel exports, valuable insights are gained into factors influencing market demand, shifts in consumer preferences, and the effectiveness of export strategies.

**Export potential analysis:** The Revealed Comparative Advantage (RCA) analysis—an analytical tool widely used for evaluating a country's competitiveness in particular industries or products—is employed to examine the export potential of MMF and cotton apparel for Bangladesh. By utilising HS 6-digit level data, RCA analysis is conducted for all garment items exported by Bangladesh. By comparing the RCA of MMF apparel with that of cotton, important insights into the country's potential for exporting MMF-based garments can be gained. A positive RCA in a specific item indicates that Bangladesh has a higher level of competitiveness and specialisation in that product. The details of RCA and NRCA can be found in Annexe A1 to this study.

The results from the RCA analysis helped the study team identify the most promising products. The export potential of these products is estimated using the export potential map. It was devised by the International Trade Centre (ITC). This method utilises two key indicators to assess export potential: the Export Potential Indicator (EPI) and the Product Diversification Indicator (PDI)<sup>1</sup>. The Export Potential Index (EPI) evaluates a country's competitiveness and potential success in target markets by considering supply capacity, demand conditions, and bilateral ease of trade. Supply capacity factors in market share, expected economic growth, trade balance, and global preference margins, while demand conditions assess projected imports based on GDP, population growth, and distance advantage. Bilateral ease of trade compares actual trade with hypothetical trade, indicating trade facilitation between countries. By multiplying these factors, the export potential is determined at the HS 6-digit level. The Product Diversification Indicator (PDI) uses the product space methodology to link products based on their coexistence in export baskets across countries, combining supply capacity with target market demand and market access conditions. This aids in identifying potential items for diversification and estimating untapped export potential. These indicators are used to estimate the untapped export potential for MMF and cotton apparel exports from Bangladesh across different markets, complementing comparative advantage analysis and guiding policy interventions.

By employing both qualitative and quantitative assessments, a comprehensive understanding of the export trend, as well as the potential and challenges of the RMG sector, has been gathered. This combined approach also ensures that policy recommendations and interventions are informed by evidence and tailored to address the specific needs and opportunities of Bangladesh's apparel industry.

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<sup>1</sup> The detail methodology can be found here: [https://umbraco.exportpotential.intracen.org/media/cklh2pi5/epa-methodology\\_230627.pdf](https://umbraco.exportpotential.intracen.org/media/cklh2pi5/epa-methodology_230627.pdf)

### III. Trends in Cotton and Non-Cotton Apparel: Bangladesh vs Global Suppliers

#### 3.1 Analysis of the global export trends of cotton and man-made fibre apparel

In recent years, the global apparel export industry has undergone significant transformations. Over the past two decades, the apparel market more than doubled from less than \$250 billion to \$505 billion. In 2021, man-made fibre-based (MMF) and blended fibre apparel products together accounted for \$271 billion, while cotton-only apparel constituted \$219 billion. The remainder is attributed to wool and silk-based clothing items (see Box 1 for classification).

##### Box 1: Defining various types of fibres

This report classifies apparel into two primary types: cotton and non-cotton. Cotton-based apparel consists entirely of 100% cotton. In contrast, non-cotton-based apparel is further divided into three subcategories: Man-made fibre (MMF), wool and silk, and blended (with varieties of fibres). MMF textiles are synthetically produced, often from chemicals or regenerated from plant-based fibres. Wool and silk fibres derive from natural sources, such as animals and silkworms. The blended category predominantly includes textiles made by combining two or more different types of fibres to produce a fabric, which can involve both natural and synthetic fibres. Some common types of man-made fibres:

**Nylon:** This was the first commercially successful synthetic fibre. It's known for its strength and elasticity. It's often used in clothing, carpets, and ropes.

**Polyester:** It is one of the most popular synthetic fibres and is known for its wrinkle resistance, durability, and ability to hold dye well. It's often used in clothing, home furnishings, and industrial applications.

**Acrylic:** It is a lightweight, soft, and warm fibre that is often used as a less expensive alternative to wool. It's commonly used in knitwear, like sweaters and socks.

**Rayon:** While rayon is derived from a natural source (cellulose from wood pulp), it is chemically processed, making it a semi-synthetic fibre. It's known for its silk-like feel and is often used in dresses, blouses, and linings.

**Spandex (or Lycra):** This fibre is known for its exceptional elasticity. It's often blended with other fibres to give garments stretch, making it common in athletic wear and form-fitting clothing.

**Aramid (e.g., Kevlar):** This is a class of heat-resistant and strong synthetic fibres. They are used in aerospace and military applications, for ballistic-rated body armor, and as an asbestos substitute.

The production of these fibres involves various chemical processes, and each fibre type has unique properties that make it suitable for specific applications.

According to the International Trade Center (ITC) Trade Map database, there are 253 products at the HS6-digit level that are identified as apparel or RMG products. Of these products, 53 are in the pure cotton apparel category, 71 are in MMF apparel, 82 are in other textiles apparel, and 47 are in the wool and silk categories. For a detailed list of these products, please see Annexe A2 to A5.

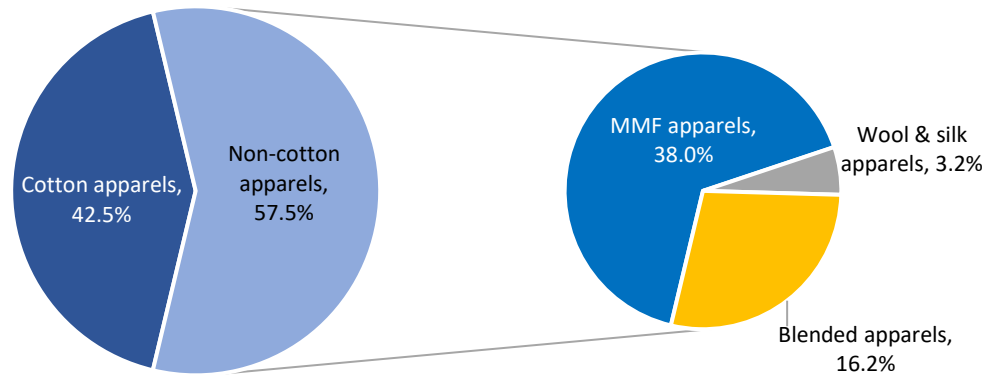
The relative significance of cotton in ready-made garments (RMG) has seen a decline over the past decade. While cotton apparel exports, in absolute terms, saw an increase from \$127 billion in 2005 to \$219 billion in 2021, MMF-based apparel more than doubled from \$126 billion to \$271 billion during the same timeframe. This trend underscores the evolving dynamics of the global apparel sector, with MMF-based apparel experiencing significant growth and dominating the global market.

The global fibre production reached 109 million tonnes (in 2020), with man-made synthetic fibres comprising a substantial 62 per cent, or 68 million tonnes (Textile Exchange, 2021). Research suggests the synthetic fibre market is valued at approximately \$70 billion and is projected to reach \$115 billion by 2030 (Precedence Research, 2022). This trend indicates a shift towards MMF-based apparel, gradually replacing cotton-made items. Furthermore, considering both man-made cellulosic and synthetic fibres, the potential for MMF-based apparel in the global market is even more promising in the upcoming years.

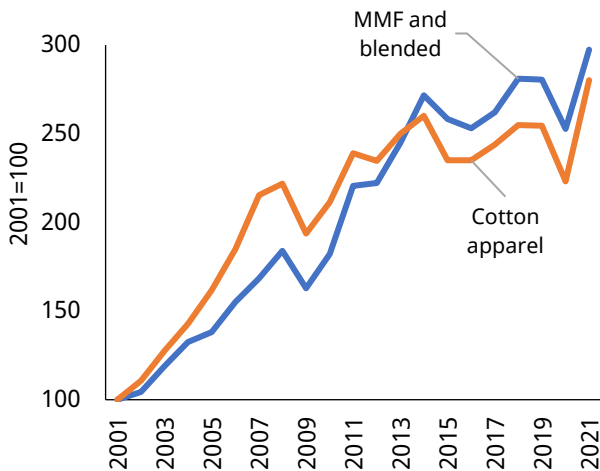
Currently, non-cotton fibre-based apparel represents over 57 per cent of the apparel trade, with cotton contributing about 42 per cent (Figure 1). In the non-cotton segment, MMF apparel accounts for 38 per cent, blended apparel for 16 per cent, and wool & silk for 3 per cent. Historically, cotton has been the mainstay of the apparel trade, but its market share began to wane as MMF and blended fibres gained traction (Figure 2).

Leading clothing exporters like China, India, and Vietnam have significantly incorporated MMF and blended apparel into their export portfolios (Figure 3). Both China and Vietnam have established robust export bases in this segment, and India has also swiftly expanded its MMF and blended apparel exports. By 2015, India had increased its share of MMF and blended apparel exports to over 50 per cent, up from 28 per cent in 2010. In contrast, Bangladesh's MMF and blended apparel exports remain around 25 per cent.

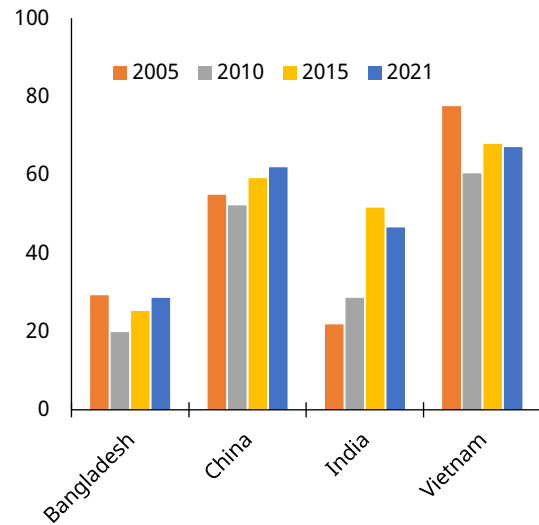
**Figure 1: Global apparel export composition**



**Figure 2: Global exports of MMF and blended, and cotton apparel**



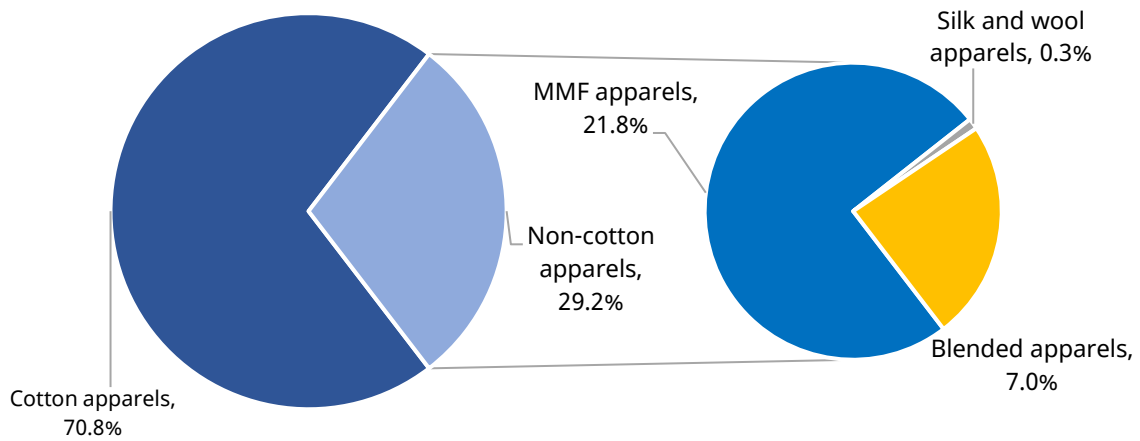
**Figure 3: Share of MMF and blended apparel in countries' total apparel exports (per cent)**



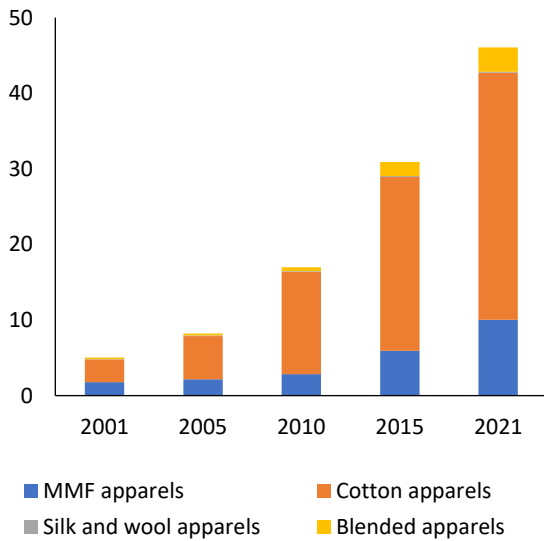
Source: Authors' analysis based on the ITC Trade Map database.

Bangladesh's apparel exports predominantly comprise cotton-based products, accounting for approximately 71 per cent of total exports (Figure 4). Over the years, Bangladesh has expanded its cotton share more significantly than its MMF and blended apparel. Bangladesh's cotton-based apparel export was about \$3 billion in 2001, rising to around \$33 billion in 2021 (Figure 5). On the contrary, MMF apparel exports increased by about \$8 billion over the past two decades. However, the rising export trend of MMF apparel implies that Bangladesh is making consistent progress in this segment and increasing its footprint in the global non-cotton apparel market (Figure 6).

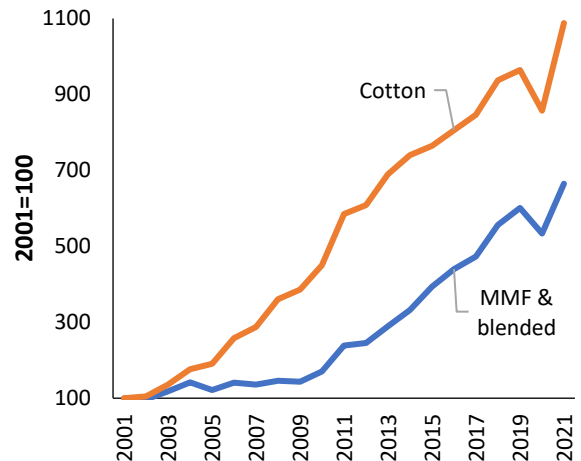
**Figure 4: Export composition of Bangladesh's apparel products by fibre types**



**Figure 5: Bangladesh's apparel exports by fibre (billion \$)**



**Figure 6: Bangladesh's exports of MMF and blended, and cotton apparel**



Source: Author's analysis based on ITC Trade Map database.

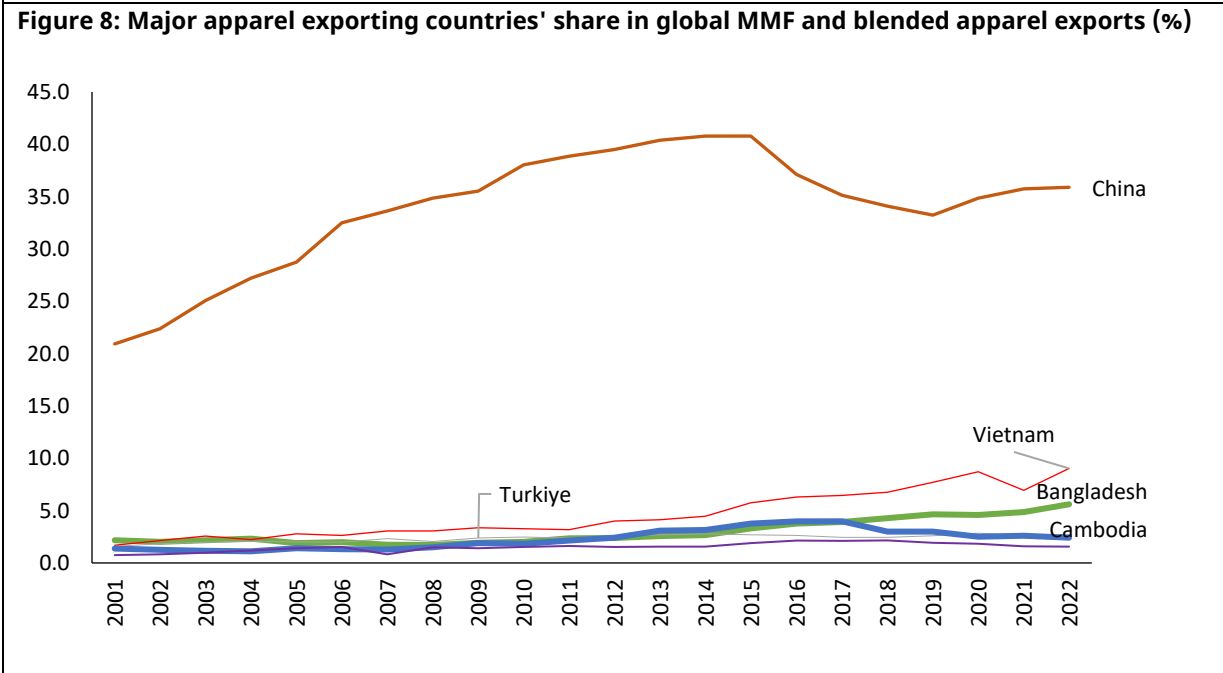
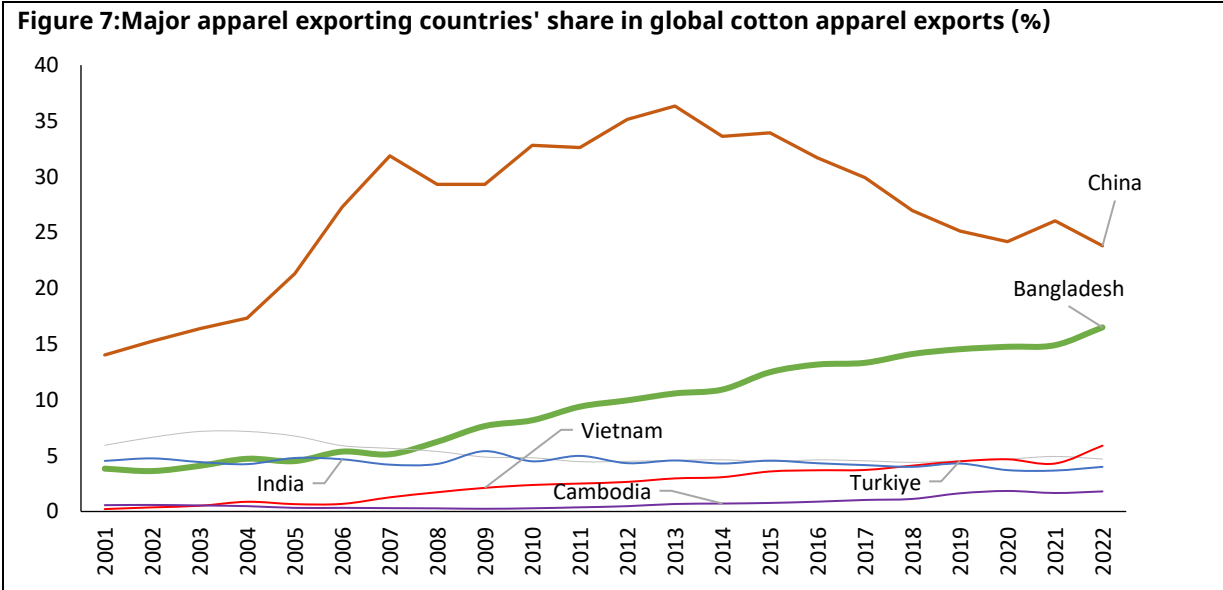
### Bangladesh and its competitor countries share in the global apparel market

Among apparel-exporting countries, Bangladesh, Cambodia, China, India, Türkiye, and Vietnam have emerged as the dominant suppliers. Together, these six countries account for 56 per cent market share.

China holds the largest share in the cotton apparel market, with about 24 per cent, followed by Bangladesh (16.5%), Vietnam (5.9%), and India (4.0%) (Figure 7). As China's share in the global apparel market is declining, Bangladesh and Vietnam have capitalised on this trend. Notably,

Bangladesh has captured a significant portion of China's lost cotton apparel market. Given the impressive growth rate, Bangladesh may soon surpass China in the global cotton apparel market. Bangladesh is the largest cotton apparel exporter in Canada, the EU, India, and the UK, holding an impressive market share in these markets.

With such an impressive growth rate, Bangladesh could soon become the largest cotton apparel market globally. However, in terms of MMF and blended apparel exports, Bangladesh has lots of room for improvement. Bangladesh only holds less than 6 per cent share of the global market in this segment, while China holds the largest share of 36 per cent (Figure 8).



Source: Authors' analysis based on information from the Trade Map database.

**Table 1: Bangladesh and its rival suppliers' market share in major destinations in 2022 (in %)**

Importer	Bangladesh		Cambodia		China		India		Türkiye		Vietnam	
	Cotton	MMF & blended	Cotton	MMF & blended	Cotton	MMF & blended	Cotton	MMF & blended	Cotton	MMF & blended	Cotton	MMF & blended
<b>World</b>	16.5	5.6	1.8	1.6	23.8	35.9	4.0	2.4	4.9	2.7	5.9	9.0
<b>Australia</b>	20.0	3.9	1.9	1.6	54.6	68.1	6.3	2.4	1.5	0.6	5.0	7.8
<b>Canada</b>	22.3	9.2	12.2	9.5	18.3	38.2	6.5	1.4	2.4	1.2	10.2	17.4
<b>EU</b>	24.4	8.9	2.9	3.1	10.6	28.0	5.0	1.9	10.2	6.3	2.0	4.8
<b>EU*</b>	34.7	12.2	3.6	3.9	14.9	41.2	7.4	2.5	14.6	8.9	2.3	6.5
<b>India</b>	57.7	28.8	1.4	1.7	11.2	28.5	-	-	1.8	1.0	2.7	6.4
<b>UK</b>	28.0	12.6	4.4	5.0	12.3	35.3	9.4	3.4	12.0	7.4	3.1	6.4
<b>USA</b>	14.7	5.0	5.4	3.6	12.7	31.0	9.1	2.7	1.3	0.8	15.3	20.8
<b>Japan</b>	10.7	3.1	7.2	3.8	45.6	61.2	2.3	0.3	1.0	0.2	16.1	16.1

Source: Author's analysis based on Trade Map database and EU comext. \* = EU's import from extra European countries

Source: Authors' analysis based on information from the Trade Map database.

**Table 1** provides information about major suppliers' apparel market shares disaggregated by cotton and non-cotton categories by the world's most important importers. The following points summarise the major trends for Bangladesh.

- **Global Presence:** Bangladesh stands out in the cotton apparel market with a 16.5 per cent share, second only to China's 23.8 per cent (as also shown in Figure 7). In the MMF & blended category, Bangladesh holds a 5.6 per cent global market share, noticeably trailing China's dominant 35.9 per cent but still ahead of some rivals like Cambodia and Türkiye.
- **Dominance in the Indian Market:** Bangladesh's cotton exports to India are exceptional at 57.7 per cent. This is notably higher than any other country listed, including China. In the MMF & blended category, Bangladesh also leads with a 28.8 per cent share in India.
- **Strong Presence in extra-EU apparel imports:** In the EU market, Bangladesh holds about 35 per cent share of cotton, dwarfing China's 15 per cent. Even in the MMF & blended category, Bangladesh's 12.2 per cent surpasses several competitors, although still lagging far behind China's above 41 per cent.
- **UK Market:** Bangladesh's cotton exports to the UK are strong at 28.0 per cent, ahead of China's 12.3 per cent. For MMF & blended, Bangladesh also leads other countries except China, which has a share above 35 per cent.
- **USA Market:** In the USA, Bangladesh's cotton market share is 14.7 per cent, which is slightly higher than China's 12.7 per cent but just lower than Viet Nam's 15.3 per cent. However, in the MMF & blended category, Bangladesh, with a market share of 5 per cent, trails far behind Vietnam (21%) and China (31%).

- **Japanese Market:** In the Japanese market, while China overwhelmingly dominates with 45.6 per cent in cotton and a staggering 61.2 per cent in MMF & blended, Bangladesh maintains a modest presence with a 10.7 per cent share in cotton and 3.1 per cent in MMF & blended, with Vietnam also showing strength in the latter category at 16.1 per cent.
- **Rivals' Presence:** China stands out as a dominant force in most markets, particularly showcasing its stronghold in the global, Australian, and Japanese sectors. However, in the EU, its cotton market share is overtaken by Bangladesh, though it retains a significant lead in the MMF & blended category. Vietnam demonstrates notable strength in the MMF & blended market in the USA and Japan, with a commendable presence in the cotton sector as well. Cambodia, although generally overshadowed by its competitors, has carved out a niche for itself in the Canadian market across both categories. Meanwhile, Türkiye distinguishes itself with a strong presence in the EU, especially in the cotton market.
- **Room for Growth in Non-Cotton Categories:** Despite Bangladesh's strong presence in the cotton market across various regions, there's potential for growth in the MMF & blended category, especially when compared to China's commanding presence.

In summary, Bangladesh exhibits a strong foothold in the global cotton market, often leading or ranking second in many regions. Its MMF & blended exports also show promise, but there's room for growth, especially when juxtaposed against the dominant Chinese market share. The competition is varied, with different rivals leading in different regions and categories.

### 3.2 Changing market shares in major destinations

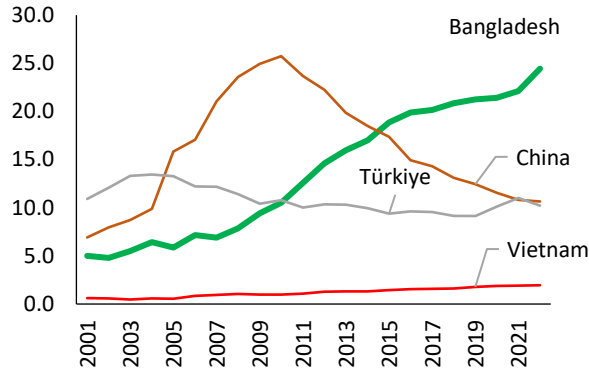
Figures 9 and 10 show the changing market shares of Bangladesh and its key rivals by cotton and non-cotton items, respectively, in the EU. On the other hand, Figures 11 and 12 provide the same information for the US market. There are some striking contrasts in these two markets.

- First and foremost, Bangladesh has strongly outpaced all other countries in the EU when it comes to cotton apparel. Bangladesh's market share in MMF and blended items is also quite impressive.
- In the US market, the declining share of China has mostly been captured by Vietnam, which has now become the largest supplier of cotton apparel, marginally ahead of Bangladesh. In MMF and blended items, Vietnam is fast growing its share, taking advantage of the declining relative significance of China in this category. Bangladesh has just a modest share of 5 per cent.
- The contrast between the EU and the US markets can largely be attributed to different market access conditions of Bangladesh, which has long enjoyed duty-free market access in the EU accompanied by relaxed rules of origin conditionalities, allowing single transformation of apparel products. In the USA, major rivals such as Bangladesh, China, India, and Vietnam do not have any preferential market access.

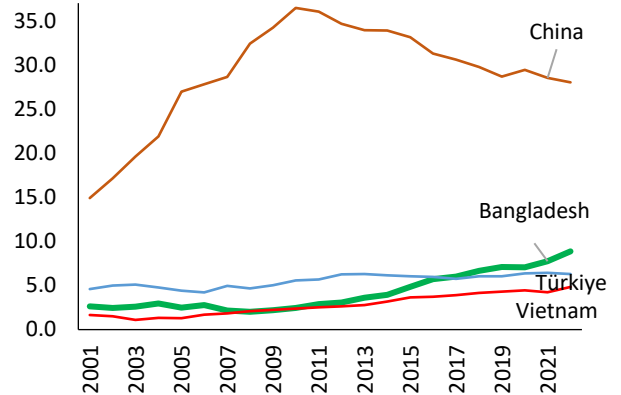


- It is worth pointing out that Vietnam signed an FTA with the EU, and this trade agreement came into effect in 2020. Under this FTA, EU tariffs on Vietnam's imports of clothing are being gradually reduced. By 2027, Vietnam will start receiving duty-free market access. On the other hand, after LDC graduation in 2026 and followed by a three-year transition period, Bangladesh's garment exports could come under MFN tariffs in the EU. These changes in relative tariff situations can greatly undermine Bangladesh's export competitiveness.

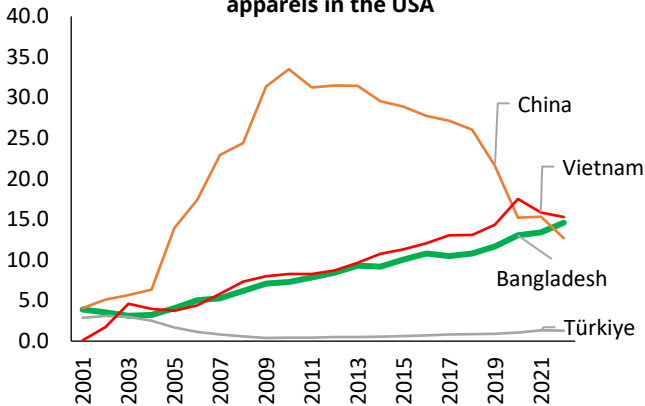
**Figure 9: Major suppliers' share in cotton apparel in the EU**



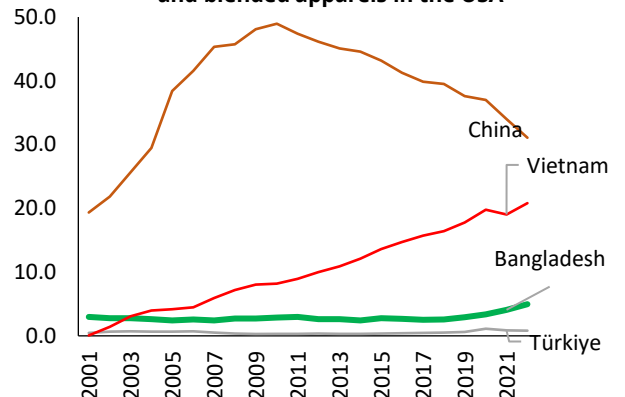
**Figure 10: Major suppliers' share in MMF and blended apparel in the EU**



**Figure 11: Major suppliers' share of cotton apparels in the USA**



**Figure 12: Major suppliers' share of MMF and blended apparels in the USA**



Source: Authors' analysis based on information from the ITC Trade Map database.

Table 2 provides information on cotton apparel market shares over two decades, starting from 2001. Clearly, over the past two decades, Bangladesh's cotton apparel exports have showcased impressive growth across various key markets. In the global market, Bangladesh's share surged significantly from 3.8 per cent in 2001 to 14.9 per cent in 2021. While China experienced growth until 2011, it saw a decline in the subsequent decade, allowing Bangladesh to expand its market share consistently.

The growth of Bangladesh in the Indian market is particularly remarkable, jumping from 9.1 per cent in 2001 to an impressive 57.4 per cent in 2021, leaving all competitors far behind.

Furthermore, Bangladesh's prominence in the extra-EU market has been on an upward trajectory, registering more than a threefold increase from 8.7 per cent in 2001 to 31.8 per cent in 2021. This contrasts with China, which witnessed a decline after 2011. In both the Australian and Japanese markets, Bangladesh marked substantial growth, especially given China's diminishing hold over the years. In major Western markets, including the UK and the USA, Bangladesh has been consistently expanding its footprint, with its market share in the USA more than tripling between 2001 and 2021.

Table 3 provides comparable information for the MMF and blended category. Between 2001 and 2011, Bangladesh's market share in MMF and blended apparel categories exhibited a relatively modest increase globally, moving from 2.2 per cent to 2.3 per cent. However, the following decade witnessed a more significant uptick, with the share almost doubling to 4.8 per cent by 2021. This growth trajectory was particularly pronounced in the extra-EU market, where Bangladesh's share jumped from 4.4 per cent in 2011 to 11.4 per cent in 2021, indicating a strong and growing foothold in European markets outside the EU.

China, historically a dominant supplier, experienced a substantial rise in its global market share from 20.9 per cent in 2001 to a peak of 38.8 per cent in 2011. Nevertheless, by 2021, this figure slightly declined to 35.7 per cent, illustrating a levelling off in dominance. A remarkable episode of growth is seen in Vietnam's US market share, which surged from a mere 0.1 per cent in 2001 to an impressive 19.0 per cent by 2021. In stark contrast, China's share in the Japanese market, which was dominant at 80.0 per cent in 2001, has seen a significant drop, falling to 61.2 per cent by 2021. A detailed market prospect analysis for both cotton and MMF-based apparel has been included in Annex A9.

**Table 2: Major apparel exporters share of cotton apparel in major destinations countries (%)**

Market	Bangladesh			Cambodia			China			India			Türkiye			Vietnam		
	2001	2011	2021	2001	2011	2021	2001	2011	2021	2001	2011	2021	2001	2011	2021	2001	2011	2021
<b>World</b>	3.8	9.4	14.9	0.6	0.4	1.7	14.0	32.6	26.1	4.5	5.0	3.7	5.9	4.5	4.9	0.2	2.5	4.3
<b>Australia</b>	0.1	7.4	19.6	0.0	0.4	1.6	77.2	77.1	56.5	2.8	2.9	6.2	0.3	0.7	1.5	0.8	0.7	4.1
<b>Canada</b>	3.5	16.8	21.5	0.1	7.3	12.3	19.5	41.8	19.9	11.2	5.7	5.7	2.1	1.4	2.2	0.7	3.1	9.6
<b>EU</b>	5.0	12.6	22.1	0.4	1.0	2.7	6.9	23.7	10.8	4.5	6.6	4.9	10.9	10.0	11.0	0.6	1.1	1.9
<b>EU*</b>	8.7	17.7	31.8	0.8	1.4	3.9	12.1	33.3	15.6	7.9	9.3	7.0	19.1	14.1	15.9	1.1	1.5	2.8
<b>India</b>	9.1	14.2	57.4	0.0	0.2	1.3	8.5	28.8	13.0	-	-	-	0.0	1.7	2.0	0.0	0.6	2.3
<b>Japan</b>	0.1	1.9	9.8	0.0	1.0	6.5	79.5	79.8	50.9	1.2	1.7	2.1	0.1	0.4	1.1	1.4	5.3	13.5
<b>UK</b>	4.6	12.9	21.9	0.9	2.0	2.8	11.5	27.9	10.2	5.4	11.5	8.4	13.0	9.2	10.7	0.3	1.2	1.1
<b>USA</b>	3.9	7.9	13.4	2.1	4.1	5.1	4.1	31.3	15.3	3.7	6.1	8.4	2.9	0.4	1.3	0.1	8.3	15.9

Source: Author's analysis based on Trade Map database. \* = EU's import from extra European countries

**Table 3: Major apparel exporters share of MMF and blended apparel in major destinations countries (%)**

Market	Bangladesh			Cambodia			China			India			Türkiye			Vietnam		
	2001	2011	2021	2001	2011	2021	2001	2011	2021	2001	2011	2021	2001	2011	2021	2001	2011	2021
<b>World</b>	2.2	2.3	4.8	0.7	1.6	1.6	20.9	38.8	35.7	1.4	2.1	2.6	1.6	2.4	2.7	1.7	4.0	9.0
<b>Australia</b>	0.2	1.4	3.8	0.0	0.8	1.5	68.7	79.5	68.1	1.9	1.5	2.1	0.0	0.3	0.5	1.9	1.3	6.9
<b>Canada</b>	2.6	6.3	8.3	0.7	4.5	10.2	27.4	58.2	38.2	3.1	1.8	1.1	0.3	0.8	1.5	1.0	4.9	14.8
<b>EU</b>	2.6	2.9	7.8	0.4	0.9	2.8	14.9	36.0	28.0	1.5	2.1	1.9	4.6	5.7	6.4	1.7	2.5	4.2
<b>EU*</b>	5.0	4.4	11.4	0.8	1.4	4.1	28.2	54.9	41.9	2.8	3.2	2.8	8.7	8.6	9.5	3.2	3.8	6.2
<b>India</b>	5.1	12.8	28.9	0.0	0.2	1.3	48.5	42.9	28.5	-	-	-	0.0	0.7	1.0	0.0	0.9	5.9
<b>Japan</b>	0.2	0.7	2.6	0.0	0.1	3.8	80.0	83.2	61.2	0.2	0.4	0.4	0.0	0.1	0.3	5.1	6.2	15.4
<b>UK</b>	5.1	5.6	9.7	2.0	1.9	3.3	21.1	40.8	35.3	2.1	4.1	3.1	4.9	7.0	6.9	1.3	3.1	3.3
<b>USA</b>	3.0	3.0	4.1	1.0	2.5	3.6	19.3	47.4	31.0	2.3	2.1	2.3	0.5	0.3	0.9	0.1	9.0	19.0

Source: Author's analysis based on Trade Map database. \* = EU's import from extra European countries.

### 3.3 Top MMF & blended items of Bangladesh's export basket

Bangladesh's total MMF and blended apparel exports were \$13 billion in 2021. Of the \$13 billion earnings, just above half (\$6.7 billion) was generated from the ten products listed. Table 4 presents a detailed breakdown of Bangladesh's top 10 MMF & blended apparel exports over the years 2010, 2015, and 2021. These products are identified by their HS Codes and include items such as jerseys, trousers, and anoraks. In 2021, "Jerseys, pullovers, and cardigans" (HS 611030) held the largest share of Bangladesh's total MMF apparel exports at 25.3 per cent, though this is a decrease from 41.0 per cent in 2010. Notably, while some products like "Men's or boys' shirts" (HS 620530) experienced a decline in their share from 2010 to 2021, others like "Women's or girls' trousers, knitted or crocheted" (HS 610463) witnessed significant growth, increasing their share from 1.2 per cent in 2010 to 4.5 per cent in 2021. The table also provides the export growth rate from 2017 to 2021, with products such as "Men's or boys' anoraks" (HS 620193) and "Women's or girls' trousers, knitted or crocheted" (HS 610463) registering notable growth rates of 19.6 per cent and 21.7 per cent, respectively.

**Table 4: Top 10 MMF & blended apparels of Bangladesh and its share in total MMF-apparel export and global import**

HS Code	Product	Export in million USD			Share in BGD total MMF apparel export (%)			Export growth rate
		2010	2015	2021	2010	2015	2021	2017 to 2021
611030	Jerseys, pullovers, and cardigans	1165	1894	2539	41.0	31.8	25.3	5.1%
620343	Men's or boys' trousers	187	434	894	6.6	7.3	8.9	12.6%
620193	Men's or boys' anoraks	138	339	782	4.8	5.7	7.8	19.6%
620293	Women's or girls' anoraks	97	256	536	3.4	4.3	5.3	15.0%
620640	Women's or girls' blouses	76	238	320	2.7	4.0	3.2	1.9%
620463	Women's or girls' trousers, excluding knitted or crocheted	104	216.	380	3.6	3.6	3.8	10.6%
610463	Women's or girls' trousers, knitted or crocheted	36	174	453	1.2	2.9	4.5	21.7%
620530	Men's or boys' shirts	212	346	261	7.4	5.8	2.6	-4.2%
621040	Men's or boys' garments of textile fabrics	84	330	275	2.9	5.5	2.7	-2.0%
621050	Women's or girls' garments of textile fabrics	55	205	295.0	1.9	3.5	2.9	6.9%

Source: Author's analysis based on ITC Trade Map database.

Bangladesh is renowned for exporting basic t-shirts. Table 5 provides a comparative analysis of the country's exports of cotton T-shirts (HS610910) and non-cotton T-shirts (HS610990) to various global destinations. Globally, Bangladesh's cotton T-shirt exports significantly outpace its non-cotton counterparts, with an average export value of the former being more than \$6 billion on average between 2019 and 2021. This is in comparison with a much lower export volume of \$763.2 million for non-cotton T-shirts for the same period. The growth rate for cotton T-shirts is also found to be higher at 7.4 per cent, compared to 2.0 per cent for non-cotton T-shirts. The EU emerges as the most

prominent market for both categories, especially cotton T-shirts, with an average export value of close to \$4 billion (during 2019-21).

India and the USA display remarkable growth rates in both categories. In India, cotton and non-cotton T-shirt exports grew at 38.7 per cent and an impressive 56.4 per cent, respectively. The USA also showed significant growth, with cotton T-shirt exports expanding at 23.4 per cent and non-cotton at 35.3 per cent. However, there was a contrasting trend in the Japanese market, where non-cotton T-shirt exports declined by 8.6 per cent between 2017 and 2021. Overall, while Bangladesh's cotton T-shirt exports dominate, certain markets show promising potential for non-cotton T-shirt exports.

**Table 5: Bangladesh Cotton and MMF & Blended T-shirt export and growth rate**

Destination	Cotton T-shirt (HS610910)		Non-Cotton T-shirt (HS610990)	
	Avg. export (2019-21) (million \$)	Growth rate (2017-21)	Avg. export (2019-21) (million \$)	Growth rate (2017-21)
World	6043.8	7.4	763.2	2.0
Australia	167.3	5.6	11.2	9.5
Canada	110.0	5.7	20.2	2.6
EU	3838.4	6.2	445.6	3.0
India	32.2	38.7	8.5	56.4
Japan	134.3	3.4	51.2	-8.6
UK	457.4	0.9	78.4	0.2
USA	308.7	23.4	30.2	35.3

Source: Author's analysis based on ITC Trade Map database.

### 3.4 Reasons behind the shift from cotton to man-made fibre-based apparel in the world market

#### Inherent characteristics of man-made fibres

One major factor influencing the shifting demand from cotton to MMF apparel is due to growing consumer preferences in favour of the intrinsic characteristics of man-made fibres. Man-made fibres (MMFs), due to their inherent properties, have become increasingly appealing to modern consumers, leading to a shift in demand from traditional cotton to MMF-based apparel. One of the primary intrinsic characteristics of MMFs is their versatility. They can be engineered to exhibit specific properties, be it moisture-wicking, wrinkle resistance, or UV protection. This adaptability allows for a vast range of textile products tailored to various consumer needs, from activewear that efficiently wicks sweat away, ensuring the wearer stays dry and comfortable, to business attire that remains wrinkle-free throughout the day.

Furthermore, MMFs often boast superior durability compared to natural fibres like cotton. They tend to be more resistant to wear and tear, resulting in a longer lifespan for garments made from such fibres. This enhanced longevity means consumers need to replace their clothing less frequently, offering both economic benefits for the consumer and environmental advantages from reduced production. The consistency of MMFs also ensures uniformity in the final product, leading to higher-quality garments that maintain their appearance over time.

Additionally, the care and maintenance of MMF garments are typically more straightforward than cotton apparel. Many MMF textiles are stain-resistant and retain their shape and colour even after numerous washes, reducing the need for special care, such as dry cleaning or hand washing. Moreover, many MMF garments are quick drying, eliminating the need for prolonged drying or ironing. Convenience factors, combined with the aforementioned qualities, make MMF apparel increasingly attractive to today's fast-paced and practical-minded consumers.

**Environmental sustainability influencing the shifts towards man-made fibre garment items**

Environmental and sustainable practices are also driving a shift towards more resource-efficient and recyclable fibres. A significant push for this transition to sustainable materials is emerging from the stringent policies of advanced countries and big brands. The EU, one of the world's largest RMG importers, has provided detailed guidelines on the Strategy for Sustainable and Circular Textiles, advising exporting countries on circular design in the textile industry (European Commission, 2023). Apparel brands like H&M, Nike, Levi Strauss & Co, and Adidas have launched various sustainability initiatives. These efforts require suppliers to adhere to various regulations and utilise environmentally friendly materials in production to meet the set targets.

**Table 6: Greening Initiative Taken by Brands**

Brand	GHG Emission	Freshwater Usage	Recycled inputs
<b>H&amp;M</b>	Reduce emissions by 56 per cent by 2030	Reduce 30 per cent by 2030	Increase the use of recycled materials to 30 per cent by 2025
<b>Nike</b>	Reduce 70 per cent of emissions by 2025	Reduce 25 per cent by 2025	Use 100 per cent recycled material for manufacturing by 2025
<b>LEVI STRAUSS &amp; CO</b>	Reduce 90 per cent of emissions by 2025	Reduce 50 per cent by 2025	50 per cent waste diversion by 2030
<b>Adidas</b>	30 per cent reduction by 2030 and achieve climate neutrality by 2050 in the entire value chain.	Reduce 40 per cent by 2025	Replace all virgin polyester with recycled polyester by 2024.

Source: Latest annual sustainability report of respective brands.

MMF outperforms cotton on the sustainability front, and this is a pivotal reason for MMF's global ascent. The growing popularity of MMF assisting exporters in preparing for forthcoming sustainability compliance regulations is elaborated further.

*MMF requires less water during production:* In 2020, it was estimated that approximately 4024 million cubic metres of blue water (equivalent to 9 cubic metres per person) were needed to produce and manage all the clothing, footwear, and household textiles purchased by households in the EU-27. This places textiles as the third most significant category in terms of water usage, preceded by food and recreation (European Environment Agency, 2022). The EU Strategy for Sustainable and Circular Textiles highlights this concern, concentrating on the entire life cycle of textile products, with particular emphasis on the wet processing of textiles to diminish water consumption. This trend is steering exporters towards MMF over cotton. The water footprint of cotton fabric considerably surpasses that of other fabrics. Research by Lawson et al. (2022) indicated that every kilogram of cotton demands between 4392 and 6902 litres of water. Conversely, MMCF, an MMF derived from cellulose, necessitates between 351 and 520 litres of water per kilogram. Among the fibres analysed, polyester, a synthetic MMF variant, demands the least water, ranging from 84 to 143 litres per kilogram.

**Table 7: Water requirement to produce fibre based on fibre types**

Staple Fibre	Water Footprint (L/kg)
Cotton	4342 - 6902
Hemp (bast)	3108
MMCF	351- 520
L-MMCF	290
L-MMCF	290
Polyester	84 - 143

Source: Lawson, et al., 2022

*Reduced Carbon Emissions:* New regulations concerning textiles imported into the EU target 20 air and water pollutants (European Commission, 2023). Consequently, manufacturers are paying greater attention to the emissions linked with textile production for garments. The greenhouse gas emissions from polyester production are considerably less than from cotton. For every kilogram of polyester, 3.8 kg of carbon dioxide is emitted, compared to 5.3 kg for cotton (Rana et al., 2014). When considering sulphur dioxide emissions per kilogram of production, cotton releases 4 grams, while polyester emits a mere 0.2 grams. The reduced emissions associated with MMF position it as an appealing fibre for exporters gearing up for the EU's stringent regulations.

*Land Use Considerations:* One significant environmental drawback of cotton production is its propensity to cause soil erosion and alter soil content. The vast land area necessary for cotton cultivation poses another challenge. In 2016, cotton made up a third of the global fibre production, with 27 per cent of land allocated for its growth (CIRFS, 2017). In contrast, synthetic polymer MMF, which comprised 68 per cent of global fibre production, virtually eliminated land use. Given that this fibre originates from recycled plastic and petrochemicals, the additional land requirement is almost nil, thereby preserving the earth's finite land resources. Viscose, a variety of cellulosic MMF,

necessitates merely 3-4 per cent of the land area demanded by natural fibres (CIRFS, 2017). These attributes make MMF a more efficient and eco-friendly alternative to cotton.

*Durability and Recycling:* A prime strategy to mitigate a product's environmental impact is to extend its lifespan through thoughtful design (European Court of Auditors, 2023). This underlines the motivation for RMG manufacturers to explore more durable fabrics. While cotton is prized for its softness and comfort, its durability is less impressive. MMF surpasses cotton in terms of endurance. Utilising synthetic materials prolongs a product's life cycle, positioning manufacturers advantageously in anticipation of the EU's impending durability standards for textiles. The global trend is tilting towards recycled fibres; between 2020 and 2021, the market share of recycled fibres rose from 8.1 to 8.5 per cent (Textile Exchange, 2022). The forthcoming EU ecodesign directive will mandate enhanced recyclability for textile products (European Commission, 2023). In 2021, polyester claimed 15 per cent of the recycled fabric market share, while cotton secured a mere 1 per cent (Textile Exchange, 2021). Polyester's dominance stems from the ease of recycling PET bottles into polyester, compared to the complexity of recycling cotton. Harnessing the chemical "polyethylene terephthalate", or PET, from PET bottles as raw material for polyester fibre diminishes reliance on virgin materials, endorsing recycled polyester as both resource-efficient and environmentally sustainable.

The recycling potential is even higher for cellulose-based fibres. For example, Tencel Lyocell, a type of cellulosic fibre, is produced in a closed-loop process using 99 per cent recycled water and solvent (Tencel, 2023). The regulations related to ecodesign on textiles are likely to be agreed upon by 2024 and come into effect by 2025. With limited time at hand, exporters are gearing up for the EU's stricter sustainability policies. This has elevated MMF above cotton in the global RMG market due to its recyclability and resource efficiency.

While MMF fibres offer several advantages, they are not devoid of environmental concerns. A primary issue with synthetic fibres like polyester, which is derived from petroleum, is that they release microplastics into the environment during washing. These tiny particles, filtered out by wastewater treatment plants, end up in oceans and waterways, posing threats to marine life and entering the food chain. Additionally, the production of MMF fibres often involves the use of non-renewable resources, chemical solvents, and energy-intensive processes, all of which have significant environmental footprints. Furthermore, while MMF garments are durable, they do not biodegrade easily, leading to concerns about long-term waste management and potential landfill accumulation. Given the current knowledge and the direction of policy discourse, MMF seems to be gaining favour among both consumers and regulators, who perceive it as aligning more closely with sustainable practices despite the aforementioned concerns.

### **Various policies of different countries favouring MMF use in apparel production**

Countries that export garments are responding to the expanding global MMF market with favourable policies and incentives. This is also increasing the supply of MMF-based products. Building a solid backward linkage industry is becoming a priority for countries such as India, China, and Vietnam.



For instance, India aims to grow its technical textiles sector from \$22 billion to \$50 billion by 2028 (Mint, 2023) and achieve \$300 billion in apparel exports by 2047 (Apparel Resources, 2023). As per this plan, it prioritised MMF and technical textiles over cotton, as evidenced by the incentives designed under its 'Make in India' initiative. Imports of purified terephthalic acid (PTA), which are crucial for India's MMF industry, had been subject to anti-dumping duties between 2016 and 2019. Given the limited potential of cotton due to issues like water scarcity and premature crop uprooting, MMF was considered the key growth area. To facilitate this sector's growth, the government revoked anti-dumping duties on PTA, Viscose staple fibre (VSF), and Acrylic (The Economic Times, 02 February 2020).

India's Production Linked Incentive (PLI) scheme for textiles targets selected MMF apparel and fabric categories, excluding natural fibres. Firms would receive incentives based on their incremental revenue for five years, with a government outlay of 10,683 crore rupees (Hindustan Times, 08 September 2021). The scheme aims to scale and enhance the manufacturing capacities of products that have not yet reached the full potential of domestic manufacturing and are relying on imports with high tariffs.

India wants to position itself as the hub of eco-friendly textile production in the global value chain as a strategy to capture 20 per cent of the global trade over the next decade. For this to be achieved, the country has allocated an outlay of 1000 crore rupees for research in technical textiles with a focus on 94 product categories (Fibre2Fashion, 2022). It has approved research grants of up to 50 lac rupees targeting startups and individuals working with technical textiles (The Economic Times, 29 August 2023).

The Vietnamese government is focusing on developing domestic production capabilities for synthetic fibres. As per the "Strategy for the Development of Vietnam's Textiles and Clothing, Leather and Footwear Industries to 2030, with a vision to 2035" adopted by Vietnam, the country is working on the development of specialised industrial parks centring on the Textile, Clothing, Footwear, and Leather industry. The establishment of such industry-specific infrastructure will position Vietnam as an attractive destination for setting up factories, and the production of T&A commodities within the country is likely to increase. These parks are located in the Key Economic Zones in Northern, Central, and Southern Vietnam. This is expected to result in a significant inflow of FDI into the country.

China, once predominantly an apparel exporter, is recalibrating its focus towards high-tech and industrial textiles. The nation's ambitious plans, as outlined in its 14th five-year plan, indicate a decline in the fibre end-use for apparel from 40 per cent to 38 per cent by 2025. In contrast, the allocation for industrial textiles is set to rise from 33 per cent to 35 per cent. China is also investing more in research and development, with plans to increase its R&D spending from 1 per cent of textile industry revenue to 1.3 per cent by 2025. This redirection is further emphasised by the country's green initiatives, including increased emphasis on recycled fabric manufacturing and targets to reduce carbon dioxide emissions and energy consumption (14th Five-Year Plan, 2021). China is transitioning towards a greener textile industry. A detailed comparison (Annex 3C) of the 14th five-

year plan to its predecessors makes clear China's ambition to focus more on sophisticated synthetic fibres and take a strong position in the growing global MMF market.

## **IV. Apparel Exports: Improving Domestic Value-Added and Exploring Market Prospects**

### **4.1 Domestic Value Added and Moving Up the Global Value Chain**

Despite establishing a strong footprint in the global apparel market, as evidenced by its significant market share in some key destinations, the average prices received by Bangladesh are much lower than those of its comparators. A recent report by ITC compared the FOB price of the top 10 RMG products from Bangladesh with other countries in the USA market, highlighting that Bangladesh was offered lower prices for its products compared to its counterparts (ITC, 2022).<sup>2</sup> As part of this study, when a price comparison analysis was undertaken considering all apparel products, it was found that Bangladesh's lower unit value prices were quite pervasive in both the U.S. and the EU markets, with average prices in both destinations significantly lower (Figure 9 and

Figure 10). This detailed analysis also revealed that such a phenomenon for Bangladesh was true for both cotton and non-cotton items.

One characteristic feature of the garment industry is that manufacturing itself is associated with very low value in comparison to the overall value that a product generates. The RMG manufacturing value chain can be broadly categorised into upstream production (R&D, product design, branding, logistics management, sales, after-sales services, etc.) and downstream (primarily manufacturing, cut, make, and trim operations). Over time, the value added at manufacturing has declined further (Cosbey, 2017). There are two options for increasing value added: producing more complex or sophisticated items and strengthening backwards and forward linkages. While Bangladesh has certainly diversified into a broader product range beyond basic items, spheres of activities such as product development, branding, sales, and after-sales services remain largely out of reach. Therefore, it is widely acknowledged that by strengthening backward linkage capacities, Bangladesh can add more value domestically (PWC, 2023, and McKinsey, 2021).

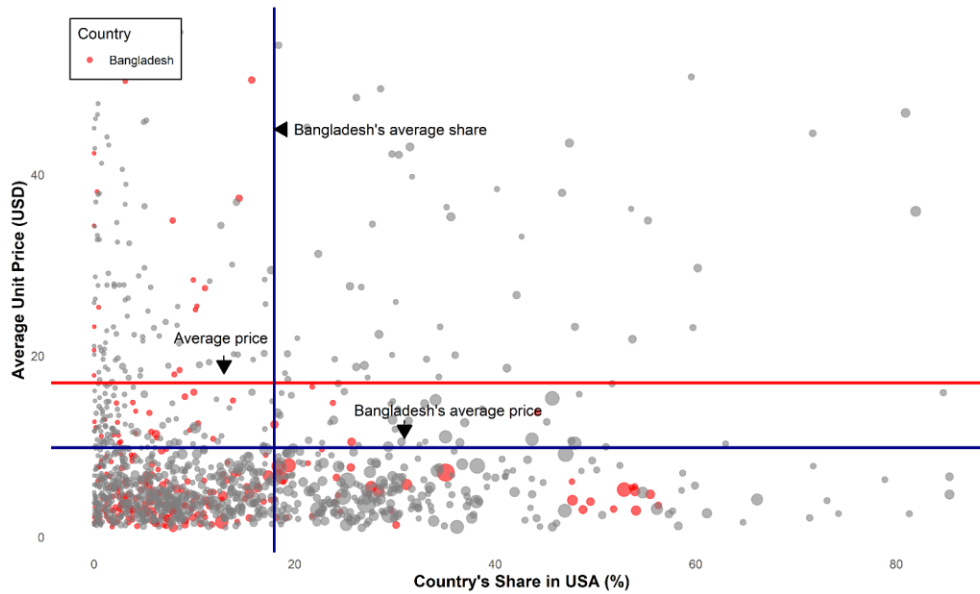
In knitwear, Bangladesh has managed to build a very strong backward linkage, although most fabrics for woven garments are still imported. Data from the Bangladesh Bank seem to suggest that the overall domestic value addition in the RMG industry has fluctuated between 54 per cent and 64 per cent (

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<sup>2</sup> An analysis undertaken as part this study and presented in Annex Table 11 also confirms such a trend. In 2022, the USA imported around \$1,908 million worth of men's cotton jeans whose average unit price was \$9.5. For similar products, Bangladesh received \$8.4 on average, which 13.1 per cent less than world average price.

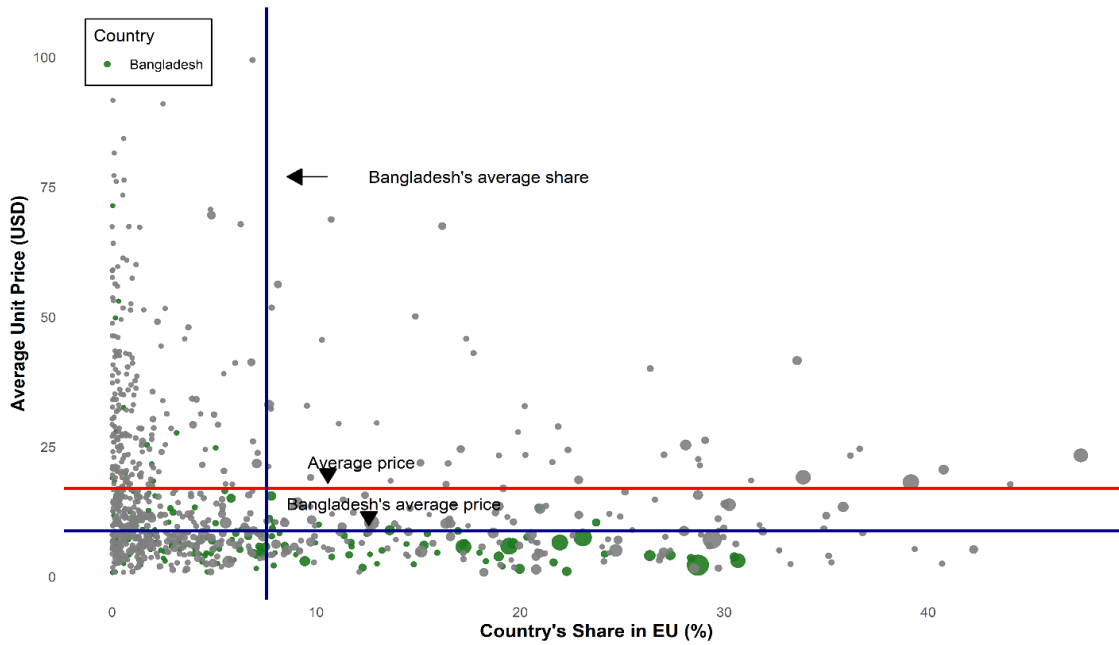
Figure 11). For cotton apparel, Bangladesh heavily relies on the import of raw cotton to produce yarn and fabrics. In MMF, the dependence on imports for yarn and fabrics is even higher. During the KIIs, industry experts noted that over 90 per cent of MMF raw materials are imported from other countries. Presently, the domestic demand for MMF raw materials amounts to approximately 980 tonnes per day. However, domestic firms only supply around 100 tonnes of this demand, with the rest being met through imports. Around 80 per cent of MMF's total raw materials are imported from China and India—two countries that are also significant competitors in the apparel market and have vast demand for such materials for their own domestic consumption (Figure 12). Given the scarcity of land and the existing crop production pattern, expanding cotton production in Bangladesh isn't realistic. However, building a backward linkage for MMF should be more feasible. By localising MMF production, it's possible to add greater value to exports and enhance fibre security.

**Figure 9: Average unit value prices of Bangladesh vis-à-vis the average in the US market in 2022**



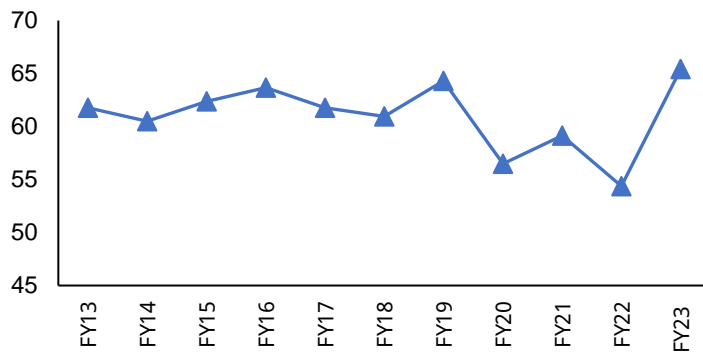
Source: Authors' representation based on data from OTEXA.

**Figure 10: Average unit value prices of Bangladesh vis-à-vis word the average in the EU, 2022**



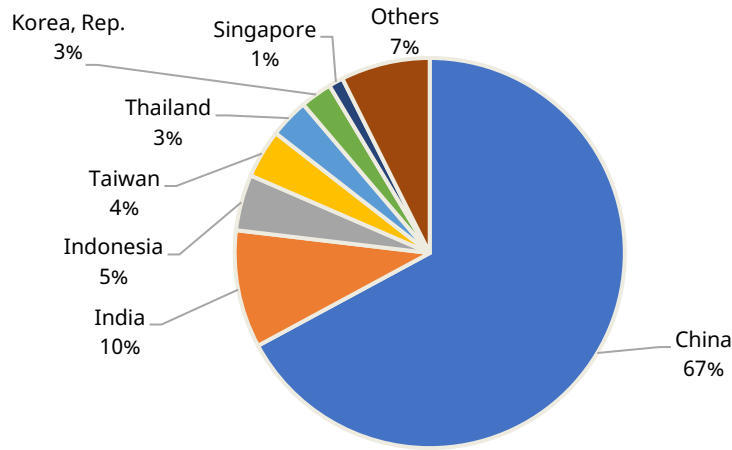
Source: Authors' representation based on WITS data.

**Figure 11: Value addition in Bangladesh's RMG sector (%)**



Source: Quarterly Review on Ready-made Garments, Bangladesh Bank

**Figure 12: Sources of Man-made fibre imports into Bangladesh (%)**



Source: Author's presentation based on ITC Trade Map database.

## 4.2 Exploring Bangladesh's export potential

The RCA analysis identifies the top 20 promising cotton and MMF & blended apparel with high RCA values (

Table 8). For cotton apparel, the highest export potential is found in HS 620342, with an untapped potential of around \$2,652 million in additional exports. Other notable products include HS 610910 and HS611020. Given the current size of exports, the potential for cotton apparel appears to be quite large. In terms of major export destinations, the US shows promising demand for cotton apparel, with potential values ranging from \$22 million to \$404 million across different product categories. The EU also demonstrates considerable demand, ranging from \$179 million to \$2370 million.

Turning to MMF and blended apparel items, HS611030 (jerseys, pullovers, cardigans, waistcoats, and similar articles of man-made fibres, knitted or crocheted) stands out with a potential of \$1,525 million. HS620343 and HS620193 also show noteworthy potential values, amounting to \$483.6 million and \$511.5 million, respectively. The total export potential of the top twenty products in MMF and cotton in major export destinations is about \$16 billion, where cotton apparel accounts for around \$12 billion and MMF & blended accounts for \$4 billion. It is important to note that the export potential for MMF apparel is lower than that of cotton apparel in Bangladesh. This is because the ITC's projected export potential is based on Bangladesh's current supply capacity, as reflected in current exports.

**Table 8: Most promising products and their export potential**

HS Code	Type	Untapped export potential (in million USD)						
		EU	US	UK	Japan	South Korea	Canada	Total
610342	Cotton	179	22	30	4.8	0.939	3.4	240.1
610711	Cotton	328	35	n.a.	10	0.685	6.3	379.9
610510	Cotton	290	98	37	22	5.1	14	466.1
611120	Cotton	295	141	90	10	2.6	14	552.6
610462	Cotton	511	219	28	21	3.8	28	810.8
620520	Cotton	749	n.a.	73	49	13	15	899.0
620462	Cotton	1326	202	74	39	19	13	1,673.0
611020	Cotton	1048	424	152	52	11	53	1,740.0
610910	Cotton	1499	404	201	222	53	73	2,452.0
620342	Cotton	2370	NAP	130	66	43	43	2,652.0
620530	MMF & Blended	60	NAP	NAP	6.9	4.1	3.9	74.9
610463	MMF & Blended	125	34	6	2.4	0	9.9	177.3
620463	MMF & Blended	155	11	NAP	10	4.1	NAP	180.1
620640	MMF & Blended	160.3	38	8.7	10	3.9	5	225.9
621040	MMF & Blended	210	NAP	30	7	0.244	NAP	247.2
621050	MMF & Blended	197	17	27	6.2	NAP	1.3	248.5
620293	MMF & Blended	348	NAP	32	2.7	8	NAP	390.7
620343	MMF & Blended	427	NAP	19	25	10	2.6	483.6
620193	MMF & Blended	452	NAP	48	9.7	1.8	NAP	511.5
611030	MMF & Blended	983	371	117	15	NAP	39	1,525
		<b>11712.3</b>	<b>2016</b>	<b>1102.7</b>	<b>590.7</b>	<b>184.268</b>	<b>324.4</b>	<b>15,930.3</b>

Source: Author's calculation and estimation based on ITC trade map and potential map database.

Note: NAP stands for no additional potential.

In Table 9, a subjective export potential of the MMF and blended products with high RCA values is employed. For this analysis, the top 20 MMF and blended items are selected based on the criteria of their export market size and export growth over the past five years. Then, subjective assessments are made about their expected market shares in the near future (shown as expected share). If Bangladesh manages to expand its market share of these 20 products, the potential export earnings from them could range from \$12.5 to \$19 billion. As Bangladesh already exports these products, and given that the expected shares are quite reasonable, achieving the expected share in the global market can be considered plausible.

**Table 9: Estimation of export potential of identified MMF and Blended products**

HS code	Product name	Avg. market size (million USD)	Import growth (2012-2021)	BGD's avg export (million USD)	BGD Share	BGD export growth (2017-21)	Expected share	Expected export (million USD)
611030	Jerseys, waistcoats	22211	1.7%	2434	11%	11%	15% to 20%	3332 to 4442
610990	T-shirts	11767	2.0%	763	6%	11%	10% to 15%	1177 to 1765
620193	Men's Anoraks, wind jackets	9584	4.5%	644	7%	14%	10% to 15%	958 to 1438
621210	Brassieres	9522	1.7%	645	7%	9%	10% to 15%	952 to 1428
620293	Women's anoraks, wind jackets	8957	4.8%	463	5%	8%	10% to 15%	896 to 1344
621010	Nonwoven garments	8305	57.2%	22	0%	131%	1% to 3%	83 to 249
610463	Women's trousers	7716	13.2%	326	4%	22%	7% to 12%	540 to 926
620343	Men's trousers	7488	3.5%	771	10%	12%	10% to 15%	749 to 1123
620443	Women's synthetic dresses	6494	2.0%	95	1%	23%	3% to 7%	195 to 455
620640	Women's synthetic shirts	6409	3.6%	375	6%	16%	10% to 15%	641 to 961
620463	women's synthetic trousers	6009	3.4%	352	6%	15%	10% to 15%	601 to 901
620213	Women's man-made overcoats	4662	2.8%	109	2%	12%	5% to 10%	233 to 466
621143	Women's man-made tracksuits	4137	4.0%	104	3%	11%	5% to 10%	207 to 414
611430	Other garments	4020	4.8%	179	4%	19%	7% to 12%	281 to 482
610343	Men's trousers	3791	9.4%	202	5%	29%	10% to 15%	379 to 569
610443	Women's Dresses of synthetic	3694	1.8%	142	4%	12%	5% to 10%	185 to 369
611596	Full or knee-length hosiery and socks	3648	4.9%	2	0%	81%	1% to 3%	36 to 109
621050	Rubberised women's garments	3607	2.8%	257	7%	15%	10% to 15%	361 to 541
620469	Women's textile trousers	3543	3.5%	385	11%	10%	15% to 20%	531 to 709

<b>620444</b>	Women's non-knitted synthetic dresses	3510	10.8%	136	4%	23%	5% to 10%	176 to 351
<b>Total</b>								12,512 to 19,042

Source: Authors' calculation and estimation based on ITC trade map

## V. Transitioning to MMF Apparel Exports: Constraints & Challenges

The potential of Bangladesh's MMF-based apparel production and export is undeniably vast. Evidence suggests that in certain markets, such as the EU and India, Bangladesh has demonstrated a rapid expansion in apparel exports. However, several factors need addressing to support the further growth of MMF items. After synthesising all the information gathered through both qualitative insights and quantitative data, it was deemed fitting to categorise the challenges into two primary domains: policy constraints, which encompass policies and barriers beyond firms' control, and firm-level constraints, which include factors like technology adoption, management practices, and workforce skills. Each category presents unique challenges that require thorough analysis.

### 5.1 Policy Constraints

#### 5.1.1. Lack of access to duty-free raw materials

One significant challenge highlighted by textile millers relates to the payment of import duties on various types of fibres. Within the textile manufacturing sector, a distinct difference exists in the treatment of import duties between cotton and other materials. Cotton benefits from a duty-free import status, along with a streamlined customs clearance process. In contrast, materials other than cotton are subject to prespecified taxes.

Textile millers can utilise provisions such as bonded warehouses and duty drawback facilities to import selected fibres at concessional rates. However, for a broader range of fibres, import duties are obligatory. The landscape of artificial fibres is continually evolving, with regular introductions of new varieties. Unfortunately, the advantage of duty-free import is restricted to a specific set of fibre types, and this can sometimes be withdrawn due to nomenclature discrepancies. For example, Viscose (HS Code: 55041000), a semi-synthetic fibre derived from wood pulp, benefits from reduced duty rates on import. Yet, a more refined version, Tencel (HS Code: 55049000), does not enjoy the same import benefits due to its distinct name (Table 10). Buyers often stipulate the types of fibres they need for their products. Regrettably, factories often have to refuse such orders as the considerable taxes on these materials make profitability challenging (Box 2).



This taxation issue presents a significant obstacle to the development of higher-value fibres. Stakeholder estimates suggest that a factory can typically sell 1 kilogram of cotton fabric for about \$1 to \$2. In contrast, if they produce a blended fabric comprising 45 per cent Tencel and 55 per cent Linen, the same quantity of fabric might fetch \$4. Impressively, without altering their investments, workforce, or utility costs, factories can enhance the value of their products significantly by using a mix of different fabric types. Discriminatory duties on imported materials prevent MMF industries from transitioning to higher value-added products.

This is because there is no domestic man-made fibre industry that these tariffs would traditionally protect. Given the small import volumes of these fibres, the government's tariff revenue is also minimal. Considering these factors, there is a clear lack of economic rationale for maintaining tariffs on man-made fibre imports. Additionally, the competition for these blended fabrics is significantly lower than for pure cotton fabrics. This indicates that Bangladesh could potentially command premium prices for such high-value textile products, positioning itself favourably in the global market.

**Table 10: Operative tariff for FY2023-24**

HS code	Product Description	Import in 2022 (USD in million)	CD	SD	VAT	AIT Rate	RD	AT	TTI
52010000	Cotton, not carded or combed	2855	0	0	0	0	0	0	0
54026200	Synthetic Multiple or Cabled Yarn Of Polyesters, Nprs	36	10	0	15	5	0	5	37
54033100	Single Yarn Of Viscose Rayon,Untwisted	15	5	0	0	5	0	5	15.25
55021000	Artificial filament tow of cellulose acetate	5.3	25	0	15	5	3	5	58.6
55032000	Of polyesters	151	5	0	0	0	0	0	5
55049000	Other artificial staple fibres, not carded/combed/otherwise processed for spinning, nes	36	5	0	15	0	0	5	26

Source: The National Board of Revenue, 2023.<sup>3</sup>

**Box 2: NZ Tex Group Pioneering Sustainability while Tackling Textile Industry Challenges in Bangladesh**

NZ Tex Group, founded in 1982, is a trailblazer in Bangladeshi textile exports. The company has expanded into five distinct sectors, specialising in denim, textile, fabric, apparel, and flax spinning. As the sole linen spinner in Bangladesh, they have ventured into international markets such as Japan, South Korea, Belgium, Lithuania, and India. Their fabric portfolio encompasses cutting-edge materials, including sustainable, recycled, and traceable premium fabrics. Employing a workforce of 7,000, the company has an annual capacity of 72 million yards for weaving, dyeing, and finishing, complemented by an integrated recycling unit for sustainable yarn production. With a firm commitment to environmental goals, they aim to transition to green energy by 2024 and intend to reduce their carbon footprint by 65% by 2030. Their collaboration with a Finnish firm to produce Spinnova fibre, renowned for its eco-friendliness with a 72% reduced carbon footprint, represents a significant leap in Bangladesh's sustainability endeavours.

<sup>3</sup> Accessed from [http://bangladeshcustoms.gov.bd/trade\\_info/operating\\_center](http://bangladeshcustoms.gov.bd/trade_info/operating_center).

However, NZ Tex confronts several business challenges. A primary obstacle is the import duty on fibres, with exceptions for cotton and a few non-cotton fibres. This duty hinders the company's competitive pricing and impacts profitability. Moreover, as buyers increasingly shift their orders from China, which predominantly produces high-value MMF-based products, to countries like Bangladesh and Vietnam, the restrictive policy on fibre imports in Bangladesh obstructs manufacturers' capacity to effectively accommodate this demand. Additionally, despite NZ Tex Group's commitment to producing high-quality products, there exists a perception challenge. Buyers often exhibit reluctance to offer competitive prices upon learning that the products originate from Bangladesh. To address this, the company heavily invests in branding, participating in international fashion shows to elevate the stature of Bangladeshi products.

NZ Tex Group advocates for a consistent import policy for all fibres utilised in fabric manufacturing. Such a policy is pivotal for the production of high-value readymade garments (RMG) and is essential for achieving fibre security. Implementing this would position Bangladesh to capitalise on opportunities emerging from China's reducing share in the global apparel market. Furthermore, to bolster the reputation of Bangladeshi products, the company emphasises the need for robust branding supported by government initiatives. A collaborative approach with the government in branding would serve to solidify Bangladesh's standing as a reputable and quality-focused textile exporter.

### **5.1.2. Inefficient custom clearance processes**

According to numerous industry representatives, a recurring challenge in importing raw materials stems from the complexities of customs clearance procedures. Importers, when navigating these processes, often face multiple obstacles that disrupt the seamless flow of business operations. A significant proportion of the interviewed importers and entrepreneurs expressed unanimous concern regarding these customs procedures, citing them as a major impediment to their businesses. Such challenges can lead to considerable delays in clearing imported inputs from the ports. This has a domino effect throughout the production and supply chain, especially in the ready-made garment industry, where promptness is crucial.

Immediate consequences of these delays include extended lead times for shipping finished goods to their destinations. Such prolonged waits can adversely impact businesses, as they risk breaching time-sensitive contracts and agreements with buyers. In certain instances, frustrated buyers might even consider cancelling orders, opting for alternative suppliers offering more reliable delivery timelines. Furthermore, to mitigate these logistical challenges and adhere to delivery deadlines, factories might resort to using air freight as a last-minute solution. Although air freight offers quicker shipping, it is significantly more expensive than traditional sea freight. This results in reduced profit margins, diminishing the export profitability of products.

In summary, the combined challenges of questionable practices among clearing agents, delayed customs clearances, and subsequent supply chain disruptions present a considerable threat to the competitiveness and profitability of businesses engaged in importing raw materials and exporting finished goods. Addressing these challenges is vital to ensure the sustainability and growth of industries dependent on efficient international trade.

### **5.1.3. Complicated duty-drawback procedures**

The duty drawback mechanism is essential for exporters, especially given the numerous customs duties and additional tariffs, such as supplementary and regulatory duties, that many raw materials and intermediate inputs attract. While the mechanism enables exporters to reclaim customs duties on imported inputs used in producing exported goods, many exporters do not have access to bonded warehouse facilities and may not wish to utilise such facilities due to their business models. The duty drawback system is designed to alleviate the cascading effects of taxes and duties, ensuring that exporters' products remain competitive in international markets. It also levels the playing field, allowing domestic producers to compete effectively with international counterparts who may have the advantage of lower input costs or more favourable tax environments in their respective countries.

However, the duty drawback procedures are fraught with challenges. While intended to reimburse tariffs and taxes on essential inputs, the actual process is often cumbersome and convoluted. Exporters are expected to reclaim all duties, adjusted for Value Added Tax (VAT) and Advanced Income Tax (AIT), unless they have access to a bonded warehouse. Yet, securing these reimbursements requires navigating a labyrinthine process that demands a comprehensive suite of documentation, from VAT certificates to detailed import-export records and data on production wastages.

This demanding procedure necessitates significant time, labour, and financial resources, and not all firms are equipped to meet these demands. As a result, the accessibility and utility of duty drawbacks vary significantly across the industry. Many exporters, constrained by resources, opt out of these benefits, leading to disparities and a sense of inequity in the sector. The prevalent sentiment among interviewed importers and entrepreneurs is that the current duty drawback system is not fit for purpose, underscoring the need for reforms to ensure equitable access and benefits for all.

In summary, accessing duty-free raw materials for exports remains a persistent and significant challenge faced by many exporters in Bangladesh. This hurdle hampers their competitiveness and often impedes the smooth flow of their international trade operations.

### **5.1.4. Discriminatory policies on PET bottles and scraps imports**

The primary source of input for the production of man-made fibres is the recycling of PET (Polyethylene Terephthalate) bottles, specifically the scraps and flakes derived from these bottles. While Bangladesh has a substantial supply of PET bottles and similar plastic materials due to its large and ever-growing domestic consumption, the evolving recycling industry landscape has posed significant challenges. PET bottles, once readily available for domestic use, are now increasingly exported, complicating local procurement. This trend introduces a challenging dynamic as the local market competes with international demand for these recyclable materials. Furthermore, a 10 per cent cash incentive was provided for the export of plastic goods and PET flakes, which incentivised the export of PET bottles and flakes over selling them to local MMF manufacturers. As a result, the competition drives up the prices of PET bottles in the domestic market, exerting upward pressure on

the cost of producing man-made fibres in Bangladesh and impacting the overall cost structure of the MMF-based RMG and textile sectors.

Similarly, the challenge of importing PET bottle scraps and flakes has been a recurring concern among industry stakeholders. The core issue is the discriminatory import policies that create an uneven playing field for different manufacturing units. Specifically, factories within Export Processing Zones (EPZs) have the privilege of importing these crucial raw materials, a benefit denied to units outside these zones. This disparity in import regulations poses significant challenges for the entire sector. As a result, many factories operating outside EPZs face constraints in their production capacities. The lack of access to essential PET bottle scraps and flakes means these factories often operate below their potential, leading to disruptions in production schedules, underutilisation of resources, and a decline in overall industry efficiency.

The implications of this policy are profound. Factories, especially those located outside of EPZs, consistently struggle to secure a steady supply of PET bottle scraps and flakes. These production challenges hinder the industry's ability to meet market demands and diminish its competitive advantage. Moreover, the situation escalates operational costs as factories are forced to seek more expensive means to obtain these essential raw materials. The disparity in import regulations also has broader economic repercussions, stifling local manufacturing growth, deterring investments, and undermining the sector's potential for significant economic contribution. In an era where sustainability and resource efficiency are vital, such regulatory inconsistencies further compound the industry's challenges and restrict its adaptability to evolving global market dynamics.

### **Box 3: Maliha's Journey: Converting Plastic to Fibre**

Maliha Poly Tex Fiber Industry Limited, founded in 2020, has swiftly established itself as a prominent supplier of textile-grade recycled fibre both domestically and internationally. Initially exporting to countries such as China, Turkey, Vietnam, and Pakistan, the company expanded its reach to local spinners previously reliant on imports due to the surge in domestic demand. This enterprise is a successful collaboration, drawing on the technical expertise and esteemed reputation of a Chinese partner. The company is renowned for its eco-friendly 100 per cent polyester staple Fibre and, despite its recent inception, has garnered accolades for supplying esteemed brands like ZARA, IKEA, H&M, and Decathlon. However, Maliha Poly Tex Fiber now confronts significant challenges threatening its long-term viability.

A primary obstacle for the company is the limited availability of raw materials, which results in the company operating at a mere 50 per cent of its full capacity. While attempts to procure PET bottle scraps and PET flakes from overseas have been made, prevailing import policies hamper their acquisition. Notably, while factories within the Export Processing Zone (EPZ) are granted permission to import such materials, Maliha Poly Tex Fiber, located outside this zone, faces restrictions. The company's Managing Director, Md. Mahbubul Hassan, has formally sought permission to import these crucial materials, but to date, his request remains unanswered. Currently, the firm procures its raw materials locally, collecting bottles from various sources such as villages and airports. Producing Polyester Staple Fiber (PSF) is energy-intensive, requiring consistent power. Regrettably, the company grapples with regular power disruptions, compounded by escalating electricity costs, which undermine its competitive edge.

Mr Hassan advocates for an industry-wide allowance to import PET bottle scraps and flakes, eliminating distinctions based on the location of factories relative to the EPZ. He emphasises that a reliable and

reasonably priced power supply is essential for the future competitiveness of such enterprises. Recognising the growing global appetite for recycled fibre, Mr Hassan believes that, with proper support, this sector holds the potential to generate significant revenue, running into millions.

### **5.1.5. Limited capital investment support for the backward industry**

The development of a strong backward linkage for the textile sector is a capital-intensive endeavour. Establishing such linkages involves setting up comprehensive infrastructural facilities, which include spinning, weaving, knitting, dyeing, and finishing units. Each of these sub-sectors demands state-of-the-art machinery, sophisticated technology, and extensive quality control measures to ensure the production of globally competitive textile products. Additionally, as the textile industry shifts towards more sustainable practices, there is an increased emphasis on investing in environmentally friendly technologies and processes. This shift towards greener manufacturing often comes with even higher initial costs, given the premium attached to sustainable technologies. Therefore, the capital requirements for creating a comprehensive and modern backward linkage in the textile sector are significant, to say the least.

However, one of the major impediments hindering this development is the lack of access to finance on favourable terms. For many textile manufacturers and entrepreneurs, obtaining the necessary financial support to invest in capital and technology-intensive units remains a formidable challenge. Traditional financial institutions often perceive the textile sector, especially the newer segments focused on man-made fibres, as risk-laden, leading to hesitancy in extending credit facilities. Without the availability of finance on favourable terms, the momentum for investing in the necessary technology and infrastructure for backward linkages is stifled. This situation, unless addressed, could stymie the growth and modernisation of the textile and MMF sectors in the long run.

The move towards establishing backward linkages in the MMF-based apparel export sector is imperative for Bangladesh's continued success in apparel exports. Relying heavily on imported raw materials for producing MMF-based apparels inflate production costs and lead time. As Bangladesh graduates from the LDC status, the preconditions for enjoying duty-free market access in many international markets will evolve. For instance, under the UK's Developing Countries Trading Scheme (DCTS), a double transformation in apparel production will be preconditioned for duty-free market access. This signifies that the country's dependency on imported raw materials will directly impact its competitive edge. Furthermore, by continuing to rely on imports, Bangladesh loses out on potential employment opportunities and technological advancements that a fully integrated MMF sector would bring.

Additionally, while the focus on MMF is pertinent, it is equally important to strengthen the domestic production capacities for high-quality cotton fabrics. A diverse and self-reliant textile sector can cater to varied global demands, ensuring that Bangladesh remains a top contender in the global apparel market. However, achieving this vision of self-sufficiency and diversification hinges on the availability of finance. Textile entrepreneurs consistently underscore the challenges they face in accessing capital on favourable terms. Without the requisite financial support, the aspirations of building

robust backward linkages in both MMF and high-quality cotton sectors might remain elusive. Addressing the financial constraints is not just about ensuring growth; it is about fortifying the very foundation of Bangladesh's textile and apparel industry.

During the consultations conducted for this study, industry experts highlighted a pronounced gap between the annual demand and the domestic production capacity for both cotton and non-cotton fabrics. The yearly demand averages 10 billion metres, while the domestic production capacity is confined to 6 billion metres. This deficiency compels the country to resort to imports to bridge the 4 billion metre shortfall, incurring an annual expenditure of approximately \$10 billion. Of this, 1 billion metres of fabric are sourced from India, with the rest predominantly imported from China.

Addressing this disparity, experts underscore the significance of nurturing and expanding the backward industry. One proposed solution is the creation of a state-of-the-art composite factory that seamlessly integrates weaving, dyeing, and finishing processes. An initial investment of BDT500 crore is estimated to establish such a facility. Once operational with 120 looms at 75 per cent efficiency, this composite factory is anticipated to produce around 0.011 billion metres of cloth each year. To fully cater to the export demand based on this production rate, Bangladesh would require an additional 363 such composite factories, translating to a total investment of BDT 1,815 billion or approximately \$16.65 billion. A recent study has also estimated that around \$18 billion is required to develop a fully integrated value chain in this sector (Wazir Advisors, 2024). Nonetheless, a strategic approach focusing on the technological upgrade of existing textile units can substantially mitigate these costs, offering a more economically viable pathway to self-sufficiency.

For a strategic sector like textiles, which demands vast-scale investment to develop backward linkage capacities, government support is indispensable. State-backed initiatives and incentives can catalyse the necessary capital infusion, ensuring that the textile industry remains competitive and sustainable in the long run.

#### **Box 4: Support provided by the Government of India for textile sector development**

Given the continued declining relative significance of China in global apparel export trade, countries like India and Vietnam are strategically progressing to bolster their textile sectors. India, with an ambitious target to export \$300 billion worth of textiles and apparel by 2047, has implemented several initiatives to realise this vision.

One of the primary initiatives is the Production Linked Incentive (PLI) Scheme for Textiles. This programme promotes the manufacturing of MMF apparel, MMF fabrics, and technical textiles within the country. With an approved budget of Rs 10,683 crore, the scheme provides incentives that range from 3% to 11% based on incremental production. It's strategically designed to foster investments, especially in aspirational districts and Tier-3 and Tier-4 cities. Complementing this is the National Technical Textile Mission, initiated in 2020, which has an allocation of Rs 1,480 crore. It aims to develop technical textiles tailored for various sectors such as agriculture, defence, health, and infrastructure. This mission underscores research, innovation, skill development, and the promotion of exports in the technical textile domain.

Furthermore, the Remission of Duties and Taxes on Exported Products (RoDTEP) Scheme, operational from January 1, 2021, offers to reimburse the taxes and duties that exporters incur on the inputs for the production of exported goods, thereby amplifying the competitiveness of Indian textile exports. The Mega Investment

Textiles Parks (MITRA) Scheme, announced in the Union Budget 2021-22, seeks to construct top-tier infrastructure for the textile sector, enticing significant investments and generating employment. Under this scheme, seven textile parks are slated for establishment over three years. Collectively, these strategies are poised to catalyse the growth of India's textile industry, especially the MMF sector. As the world's second-largest producer of MMF, trailing only China, India boasts a diverse and integrated value chain. By ramping up production and exports of MMF products, India is well-positioned to enhance its stake in the global textile market and elevate its competitiveness.

### **5.1.6. Inadequate short-term financing support**

Alongside the challenges of long-term investment support, short-term financing has also emerged as a significant constraint for the textile sector. Recent revisions in the Export Development Fund (EDF) lending policies by the Bangladesh Bank have reshaped the dynamics for several export sectors. The modified policies delineate three primary categories for EDF financing: general imports, specific industry associations like BGMEA, BKMEA, and leather exporters, and bulk imports for textile millers and yarn manufacturers. These adjustments have led to a decline in lending ceilings across these categories, with an average drop of \$5 million.

In response to the evolving needs of the EDF, the government introduced the Export Facilitation Pre-Finance (EFPF) as an alternate funding mechanism to support exports. However, the EFPF's allocation equates to merely about one-seventh of the EDF. This reconfiguration in financial mechanisms necessitates a comprehensive assessment of its broader implications on the export sector. The EDF, designed primarily to finance the short-term foreign exchange needs of exporters, is pivotal for many. However, certain segments, especially the "backward industry", are feeling the brunt of an inadequate share of these essential funds. This funding imbalance points to concerns over resource distribution and the longer-term viability of diverse sectors within the export realm.

Prominent within the export landscape, RMG factories absorb a considerable chunk of the EDF, utilising 46 per cent of the total fund. In stark contrast, the "backward industry" linked to RMG, which includes textile millers responsible for importing raw materials like cotton, synthetic fibres, and dyeing chemicals, has access to a relatively meagre portion, amounting to just 36 per cent of the fund. This disparity underscores the need for a more balanced financial support system, considering textile millers form the linchpin of the supply chain. Their access to funds, both from the EDF and EFPF, should be at least on par with that of RMG exporters to ensure a robust export ecosystem. It's crucial to understand that while short-term financing aids MMF industries in immediate costs, consistent long-term support is indispensable for technological upgrades and high-quality production. This funding gap hampers textile millers in procuring essential raw materials, posing threats to the entire RMG sector's sustainability and growth trajectory.

### **5.1.7. Extremely inadequate foreign direct investment**

The dearth of foreign direct investment (FDI) in Bangladesh's export sector has emerged as a significant constraint, impinging on its potential to flourish for a multitude of reasons. Historically, FDI has been a potent catalyst in transforming economies, fostering innovation, enhancing

productivity, and integrating nations into the global supply chain. However, Bangladesh's export sector, despite its commendable growth in areas like ready-made garments (RMG), has not been able to harness the full potential of FDI, which has subsequently limited its trajectory of diversification and sophistication.

There are several reasons why the lack of FDI has been detrimental to the export sector. Firstly, FDI often brings with it technological transfers and best practices from more developed markets. The infusion of these technologies and practices aids in increasing production efficiencies, improving product quality, and ensuring adherence to international standards. Without FDI, local industries often struggle to keep pace with global innovations and trends. Secondly, FDI typically leads to the creation of new markets and expansion of existing ones. Foreign investors not only bring capital but also networks, market linkages, and access to established distribution channels in other countries. The absence of FDI thus restricts market access for Bangladesh's exportable goods. Lastly, FDI plays a crucial role in job creation and skill development. Foreign firms often invest in training local employees, raising the overall skill level of the workforce, which in turn enhances productivity and competitiveness.

Now, when considering the man-made fibre (MMF) textile plants specifically, FDI becomes even more critical. MMF production is capital-intensive, requiring substantial initial investments in state-of-the-art machinery and technology. Local industries might not possess the financial wherewithal to make these hefty investments, but foreign investors with deeper pockets can. Beyond mere capital, the production of MMF textiles demands specialised knowledge and expertise. Foreign investors, especially those from countries with a robust MMF textile industry, can bring in this much-needed expertise, helping Bangladesh leapfrog certain developmental phases.

Furthermore, environmental sustainability is becoming a cornerstone of global textile production. Producing MMF textiles in an eco-friendly manner requires specific technologies and practices, which foreign firms are more likely to be acquainted with. By attracting FDI in the MMF sector, Bangladesh can ensure that its MMF production is not only economically viable but also environmentally sustainable. For the high-quality cotton fabrics as well as MMF textile plants, which represent the future of textiles, attracting foreign investment is not just beneficial—it might very well be imperative.

#### **5.1.8. Shortage of energy supply**

MMF textile manufacturing plants are renowned for their energy-intensive technologies. Yet, their dependence on such high-energy processes faces considerable challenges, primarily due to difficulties in obtaining consistent utility support. This problem is accentuated by the rising energy prices. This energy conundrum casts a shadow over Bangladesh's primary textile sector, with its negative ramifications resonating across the industry, leading trade leaders and industry experts to express their apprehensions.

Given the energy challenges, there are growing concerns about the sector's ability to attract new investments, potentially hampering the growth of the backward linkage industry. The uncertainty of accessing a consistent and uninterrupted supply of gas and energy raises questions about the



industry's capability to draw significant investments. As a result, the future of this pivotal sector, central to the broader textile and apparel industry, is shrouded in doubt.

Further compounding the issue, the recent surge in energy prices has jolted the RMG and textile sectors. Gas prices for captive power plants and industries have soared by 87.5 per cent, leaping from BDT 16 per cubic metre to BDT 30. This dramatic increase has been highly disruptive for the sector. A leading textile exporter in the country highlighted the severe repercussions of this rise, noting that their monthly electricity bills have surged from an average of BDT 25 to 30 crore to an astounding BDT 75 crore.

#### **5.1.9. Infrastructural Bottlenecks**

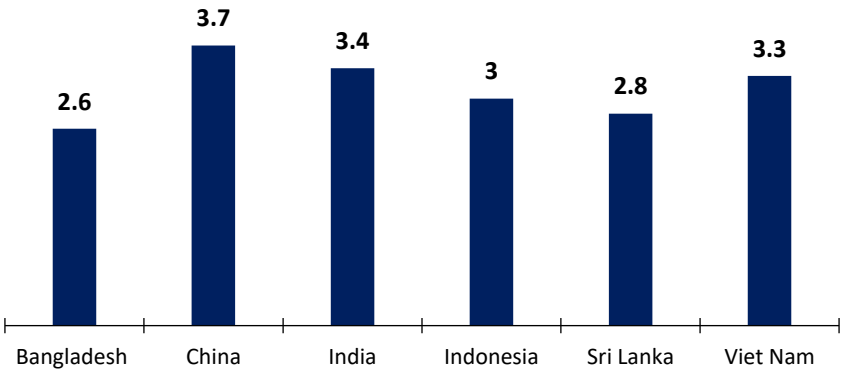
Inadequate and inefficient infrastructure poses a significant hindrance to the prompt import of vital raw materials, capital machinery, and spare parts. This challenge is complex, affecting numerous stages of the import process and spanning the entire supply chain. A notable concern is the lack of direct shipping services. Manufacturers frequently face restricted shipping choices, which complicates the task of ensuring punctual deliveries of key inputs. Relying on a limited array of shipping routes can induce delays, thus unsettling production timelines and diminishing overall efficiency. While this issue impacts various export sectors, the effects vary in intensity.

Another dimension of this problem pertains to the inefficiencies of the country's ports. As critical hubs for international trade, any operational lapses in ports can ripple throughout the trade ecosystem. The frequent bottlenecks at ports, marked by extended processing durations and overcrowding, intensify the obstacles confronting manufacturers. Importers often find themselves entangled in cumbersome bureaucratic processes and extended wait times, which obstruct the smooth transition of materials and machinery from ports to factories.

Moreover, shortcomings in the domestic transport system magnify these challenges. Once shipments overcome port-related issues, they are met with further obstacles en route to their final destinations. The absence of a robust and dependable transport infrastructure often results in delays. Manufacturers consistently face logistical hurdles as they endeavour to traverse insufficient road networks, deal with traffic jams, and find appropriate transport solutions. As evidenced by the Logistic Performance Index (LPI), Bangladesh lags behind many of its competitors (

**Figure 13).**

**Figure 13: Bangladesh's LPI score is the lowest among the major RMG and textile exporters in South and East Asia**



Source: Logistic Performance Index, World Bank.<sup>4</sup> Scores: 1 = worst, 5 = best

## 5.2. Firm-level constraints

While policy challenges undeniably pose obstacles in shifting towards MMF, it's imperative to recognise that firm-level constraints also play a pivotal role in this transition. Individual businesses often grapple with issues such as outdated technology, inadequate skill sets, and a lack of managerial know-how specific to MMF production. These internal limitations can hinder the ability of firms to adapt swiftly to market demands, innovate, and achieve production efficiencies. Addressing the firm-level constraints is also important for a successful transition to MMF-based production.

### 5.2.1. Lack of modern technology adoption

The production of MMF-based apparel necessitates the adoption of contemporary technologies. Relying on outdated methods and neglecting automation curtail the potential for achieving a global competitive advantage. Key technological challenges confronting the MMF-based RMG and textile industries include:

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<sup>4</sup> <https://lpi.worldbank.org/about>

*Outdated Machinery:* A significant hindrance is the persistent use of antiquated machinery. Numerous firms still employ equipment that is neither efficient nor aligned with current production standards, leading to increased downtime, escalating maintenance costs, and diminished efficiency. It's essential for businesses to invest in cutting-edge machinery. Embracing advanced manufacturing technologies, such as computerised knitting, digital printing, and automated cutting systems, can markedly amplify productivity and elevate product standards.

*Automation and Digitisation:* The industry's delay in adopting automation and digitisation is a conspicuous shortfall, especially when considering the paramount importance of these elements in maintaining global competitiveness. Advanced automation techniques, incorporating robotics for tasks like material handling and quality assessment, can curtail labour expenses while augmenting production speed and precision. Further, digitising production operations through tools like computer-aided design (CAD) and computer-aided manufacturing (CAM) can streamline resource use and cut down waste.

Transitioning to modern technology within the MMF-based domain is not without its hurdles, each adding layers of complexity and expense:

*i. High Initial Investment Requirements:*

- *Expensive Machinery and Equipment:* Modernisation of MMF textile plants mandates the procurement of top-tier machinery and equipment. These advanced tools carry a substantial price tag, entailing hefty initial investments. The financial strain of acquiring this machinery serves as a formidable barrier for many firms, especially smaller ones with limited capital resources.

- *Infrastructure Development Costs:* Beyond machinery, there's a need to enhance infrastructure to accommodate advanced technological integration. This encompasses ensuring consistent power supply, embedding automation frameworks, and setting up digital platforms for data oversight and process regulation, all of which inflate the financial commitment.

*ii. Limited Access to Local Technology Providers:*

- *Reliance on International Entities:* A salient issue is the dearth of domestic firms equipped to offer vital technology solutions and comprehensive manufacturing services tailored to the MMF textile sector. This dependence on foreign firms for technology dissemination, machinery procurement, spare parts, maintenance, and full-scale manufacturing solutions complicates and prolongs the technology adoption trajectory.

- *Prolonged Procurement and Increased Expenses:* Partnering with international firms often leads to longer procurement periods for technology and associated services. Such delays can hinder project schedules and induce operational setbacks. Furthermore, liaising with foreign companies frequently incurs additional expenses due to elements like fluctuating exchange rates, import duties, and service charges.

## **5.2.2. Skills gaps in top and mid-level managerial position**

The prevalent skills gap in the top and mid-level managerial positions poses a significant challenge for Bangladesh's RMG sector, a concern extensively highlighted in various studies. According to projections, employment in the RMG sector is expected to rise to approximately 7.4 million, with 67.5 per cent to 72.3 per cent of these being skilled workers (BIDS, 2017). The study specifically identifies key managerial roles, including HR, compliance, administration, and planning, as areas requiring training. Typically, factories resort to hiring foreign nationals for highly skilled and managerial positions to address these skill gaps. However, resource constraints in certain factories limit their ability to hire expatriates, leading to compromises in productivity.

The previous studies have focused on the skills gap issues among local employees compared to foreign employees, but there has been a particular emphasis on the overall industry without examining the specifics of cotton-based versus MMF-based industries. In cotton-based apparel firms, a notable shift has been observed – these companies are actively reducing their dependence on foreign employees. Instead, they are adopting strategies such as hiring more local talent and providing in-house training programs. This approach indicates a conscious effort to develop and utilise local skills in managing and running operations within the cotton-based segment of the RMG sector.

Conversely, the MMF-based industries present a different scenario. These industries still heavily rely on foreign expertise, and this is attributed to the relative novelty of the MMF sector in Bangladesh. The sophisticated knowledge and skills required in this domain seem to be lacking among the local workforce. Despite the reliance on foreign employees in top positions, stakeholders in MMF industries view this as a long-term investment. Foreign experts are seen as playing a crucial role in training local staff and transferring knowledge about sophisticated production processes, ensuring a gradual but sustainable development of local capabilities in the MMF sector.

### **Management practice-related issues in the MMF industry**

Effectively overseeing an MMF-based apparel industry to guarantee seamless production and operation demands specialised expertise and the application of contemporary management methodologies. Key management-related concerns identified within Bangladesh's MMF-based apparel industries through our research include:

- *Supply Chain Management:* Inefficiencies in supply chain management lead to delays, increased costs, and a lack of agility in responding to changing market demands. Firms need to adopt advanced supply chain management practices, including real-time tracking of inventory, demand forecasting using data analytics, and supplier relationship management. Implementing just-in-time inventory systems can minimise waste and reduce carrying costs.
- *Quality Control:* Consistent product quality is non-negotiable for international market access. Firms must establish rigorous quality control measures at every stage of production. This includes the implementation of Total Quality Management (TQM) principles, regular quality audits, and adherence to international standards such as ISO certifications. A commitment to quality assurance can enhance reputation and customer trust.

- *Sustainability Practices:* With global concerns over environmental impact and ethical labour practices, sustainability is a critical management concern. Firms should adopt eco-friendly production methods, including the use of sustainable materials and energy-efficient processes. Ethical labour practices, such as fair wages and safe working conditions, are essential to meet international standards and ensure brand integrity.

Equipping top-level and mid-level management with sufficient management skills is of paramount importance to ensure the effective utilisation of technology, human resources, and other assets within businesses. Meeting these management skill requirements is essential and imperative for propelling the industry forward. However, there is a critical shortage of well-trained and experienced top and mid-level managers in the MMF-based apparel industries (Box 3).

The study uncovered significant management skill gaps in the mid and top-level management of the MMF industries. These findings closely parallel those identified in previous World Bank studies:<sup>5</sup>

### **Top-Level Management:**

- *Market Competitions and Adaptability:* Thriving in a competitive market demands unwavering vigilance in tracking industry trends and the agility to pivot in response to evolving customer preferences. Staying one step ahead in a dynamic market is an enduring challenge.
- *Operational Mastery:* The foundation of operational success rests upon adeptness in domains such as production planning, inventory management, quality control, and process optimisation. The ultimate objective is to strike a balance between minimising production costs and maximising operational efficiency.
- *Customer-Centric Focus:* The cornerstone of meeting market demands lies in a profound understanding of customer requirements. Customisation and proactive measures to align with and exceed customer expectations are non-negotiable in the quest for competitiveness.
- *Supply Chain Wizardry:* Navigating the intricate web of supply chain dynamics, harmonising with suppliers, orchestrating seamless logistics, and deploying effective procurement strategies are intricate facets of supply chain management that top-level leaders must master.
- *Health and Safety Compliance:* A lack of knowledge concerning health and safety regulations can not only jeopardise the well-being of employees but also disrupt factory operations. Top-level managers must prioritise the implementation of robust safety measures.
- *Sustainability Stewardship:* In an era of heightened environmental consciousness, sustainability practices are paramount. This extends to areas like waste management, energy and water efficiency, and factory-wide sustainability initiatives, all of which underscore the industry's commitment to environmental responsibility.

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<sup>5</sup><https://documents1.worldbank.org/curated/en/205051468038032990/pdf/Skills-gaps-and-the-path-to-successful-skills-development-Final.pdf>

- *Human Resource Mastery:* Designing and executing comprehensive training programs for skill development, formulating effective recruitment strategies, and implementing retention initiatives constitute the bedrock of human resource management. Building a skilled and motivated workforce is instrumental in the industry's success.

### **Mid-Level Management:**

- *Technical Proficiency:* Mid-level employees must bridge the knowledge gap when it comes to relevant technologies, machinery, and software vital to polymerisation, melt-spinning, short-staple spinning, weaving, knitting, textile processing, cutting, sewing, and production planning. Technical proficiency is a linchpin for efficient plant operations.
- *Problem-Solving Prowess:* The MMF textile manufacturing landscape is dynamic and often challenging. Mid-level staff must develop robust problem-solving skills to troubleshoot effectively, ensuring that production remains smooth and productive.
- *Independent Initiative:* Cultivating the ability to work independently is pivotal. Empowering mid-level managers to make decisions and take ownership of their roles reduces the need for constant top-level oversight, thereby fostering efficiency and agility.
- *Result-Driven Mindset:* A relentless focus on tangible outcomes is imperative. Mid-level managers must be champions of quality work to uphold and enhance the plant's productivity and competitiveness.
- *Communication Skills:* Effective communication is the glue that binds successful collaboration with colleagues and customers. Mid-level managers must bridge any communication gaps, fostering transparent and efficient interactions that fuel business growth.
- *Openness to New Experiences:* Adaptability is a prized asset. Being receptive to new responsibilities, processes, machinery, environments, and people is a hallmark of personal growth and a catalyst for innovation within the industry.

#### **Box 5: Lack of adequate local expert professionals to lead the MMF textile and RMG manufacturing plants**

In the bustling city of Chittagong, nestled on the southeastern coast of Bangladesh, a polyester factory has hummed with activity for the past two decades. However, while this factory stands as a testament to the potential of the Man-Made Fibre (MMF) industry, it remains a lone pioneer in a relatively new field.

The MMF textile and Ready-Made Garment (RMG) manufacturing sector has made strides, but a significant hurdle remains – the scarcity of local professionals equipped to lead these cutting-edge operations. The shortage of skilled experts is most acute in segments vital to the MMF industry, including continuous polymerisation plants, filament yarn manufacturing plants, short-staple fibre manufacturing plants, and weaving and woven fabric processing plants.

For a burgeoning industry aiming to compete on the global stage, this talent gap presents both challenges and opportunities. While the lack of local professionals might seem like an obstacle at first, it's also a

compelling reason to invest in education and training. The MMF industry holds the potential to transform Bangladesh's economy, offering new avenues for growth, export diversification, and job creation.

### 5.2.3. Lack of skilled workers

Lack of a skilled workforce can slow down the adoption of modern technology and the maintenance of product quality within MMF-based apparel industries. Consultations undertaken as part of our study indicate that many industries face significant challenges in recruiting highly skilled and properly trained personnel. This issue deters these industries from investing in state-of-the-art machinery and modern techniques. Specifically, obstacles in establishing a skilled workforce pipeline for MMF-based apparel industries include:

- **Training and Development:** Workforce skill development is integral to improving productivity and competitiveness. Comprehensive training programs should encompass both technical skills related to machine operation, maintenance, and troubleshooting, as well as soft skills like problem-solving, teamwork, and effective communication. Training programs can be customised to meet specific job requirements and can include certifications to validate skills.
- **Design and Innovation Skills:** Encouraging creativity and innovation among employees, particularly in design departments, can lead to the development of unique and marketable products. Fostering a culture of innovation can involve setting up design thinking workshops, innovation hubs, and cross-functional teams to brainstorm and prototype new ideas.
- **Adaptability:** The rapidly evolving nature of the industry requires a highly adaptable workforce. Workers should be encouraged to embrace continuous learning and stay up to date with emerging technologies and techniques. Cross-training employees in different aspects of the production process can enhance flexibility and responsiveness to changing market conditions.

Specifically, the following skill gaps of workers are revealed in our study:

- Insufficient expertise in operating continuous polymerisation machinery.
- Lack of proficiency in managing melt-spinning equipment.
- Limited skills in operating machinery for short-staple fibre manufacturing.
- Inadequate knowledge of false-twisting and drafting machine operations.
- Limited competence in handling ring spinning machinery for MMF yarn.
- Insufficient skills in operating vortex spinning machinery for MMF yarn.
- Lack of proficiency in air-covered MMF yarn manufacturing.

- Deficient understanding of knitting machine settings and operation, including weft and warp knitting machines.
- Insufficient skills in operating weaving looms, such as water-jet and air-jet looms.
- Limited understanding of the synthetic fibre dyeing process.
- Inadequate proficiency in various machine operations for synthetic fibre processing, including deoiling machines, round/long tube dyeing machines, stenter/heat setting machines, brush/peach machines, and printing machines.
- Insufficient competence in operating various automatic and semi-automatic cutting machines, especially for handling slippery fabrics.
- Limited skills related to operating sewing machines, such as lockstitch, flatlock, overlock, chain stitch, feed of the arm, Kansai, fusing, and embroidery machines.
- Inadequate ability to conduct quality inspections for MMF fabrics and garments.

A recent study conducted as part of the Skills for Employment Investment Program (SEIP) led by the Ministry of Finance, under the report titled "Study Report on Labour Market and Skill Gap Analysis of the Ready-Made Garment Industry in Bangladesh," has identified comparable skill gaps among workers (Ahmed et al., 2022). These identified skill gaps align with findings from another comprehensive study by the Bangladesh Institute of Development Studies (BIDS) titled "Labour Market and Skill Gap in Bangladesh." These studies collectively underscore the consistent presence of skill gaps in the workforce within the ready-made garment sector (BIDS, 2017).

The MMF-based industries can be categorised into five subsectors: Fibre production, Spinning, Fabric production (Weaving/Knitting), Fabric dyeing and finishing, and Garment production. The dynamics of technological, managerial, and skill gap constraints vary across these subsectors. Hence, we provided the subsector-wise constraints on these issues in the Annexe A11.

#### **5.2.4 Limited R&D activities**

Limited research and development (R&D) at the firm level can severely hinder technological innovation and adaptation, acting as a roadblock to staying competitive in a rapidly evolving industry. Without a dedicated focus on R&D, firms may lag in understanding and adopting the latest advancements in the MMF production process, thereby missing out on efficiency gains, product enhancements, and new market opportunities. Such stagnation can make transitioning to MMF more challenging, as the absence of innovation reduces the firm's ability to respond to global MMF demand trends, match international quality standards, and streamline production processes. In essence, a lack of robust R&D initiatives compromises a firm's agility, adaptability, and long-term growth prospects in the MMF sector.



Research and Development (R&D) in a Man-Made Fibre (MMF) production environment covers a broad spectrum of areas, each vital for the advancement and refinement of synthetic fibre production. Firstly, R&D focuses on material science to develop newer synthetic fibres with enhanced properties, such as improved strength, flexibility, or eco-friendliness. The development of sustainable fibres, like those derived from recycled materials or bio-based sources, is a growing area of interest, given the increasing global emphasis on sustainability. Further, R&D also delves into the realm of polymer chemistry, aiming to fine-tune the molecular structure of polymers used in fibre production, thereby achieving specific desired characteristics in the final product.

Another significant area of R&D within MMF production pertains to the machinery and manufacturing processes. Here, the emphasis is on enhancing efficiency, reducing waste, and integrating automation to streamline the production process. This involves researching novel spinning techniques, improving dyeing and finishing processes to retain fibre quality, and developing machinery that can handle advanced synthetic fibres without compromising their properties. Additionally, R&D teams also work on integrating digital technologies, such as IoT (Internet of Things) and AI (Artificial Intelligence), into the production process, enabling real-time monitoring, predictive maintenance, and data-driven decision-making, which collectively elevate the efficiency and output quality of MMF production.

While there are advanced firms in the industry that have emphasised and invested significantly in R&D, the majority of firms have unfortunately not given it the same level of attention. As a result, these firms are slower in adopting best practices and face the heightened risk of becoming outdated or obsolete.

### **5.2.5. Low levels of compliance and certification practices**

The absence of recognised standards and certification in Bangladesh's textile and MMF industries poses significant challenges that can hinder the sector's growth and global competitiveness. Standards and certifications act as benchmarks for product quality, safety, and sustainability, and their absence can lead to inconsistencies in production outputs. Without a uniform set of guidelines, manufacturers might adopt varied production practices, resulting in products that might not meet the expectations of international buyers. Additionally, in the global marketplace, many buyers and retailers prefer or even mandate that their suppliers comply with specific international standards. Without such certifications, Bangladeshi producers' risk being sidelined in favour of manufacturers from countries that adhere to widely recognised standards.

Furthermore, as global consumers become more conscious of sustainability and ethical production, certifications related to eco-friendly practices, ethical labour, and sustainable raw material sourcing become increasingly crucial. The lack of such certifications can make Bangladeshi products less appealing to a growing segment of the market that values sustainability and ethical production. Moreover, without standardised practices in place, the industry might miss out on opportunities for process optimisation and efficiency gains, potentially increasing production costs and reducing competitiveness. In essence, to ensure consistent product quality, appeal to a broader global market,

and keep pace with evolving industry best practices, establishing and adhering to robust standards and certifications are paramount for Bangladesh's textile and MMF sectors.

Meeting international standards for social and environmental compliance is not only an ethical imperative but also a market necessity. Investment in compliance measures involves conducting regular social and environmental audits, addressing issues, and adopting eco-friendly production processes. Obtaining recognised certifications like GOTS (Global Organic Textile Standard) and Fair Trade are mandatory for market access in many developed countries.

### **5.2.6. Inadequate market research and export strategy**

In the ever-evolving global textiles and MMF market, the ability of firms to understand market dynamics, preferences, and emerging trends is paramount for sustained growth and competitiveness. However, for many of Bangladesh's textiles and MMF units, inadequate market research and a lack of a robust export expansion strategy have become significant impediments. Without comprehensive market research, these firms often operate with limited insights into the preferences of their target demographics, the competitive landscape, and potential opportunities for diversification. This lack of understanding can result in production lines that are misaligned with market demands, leading to overproduction of undesired items and underproduction of trending or staple products.

Moreover, without a clear export expansion strategy, Bangladesh's textile and MMF firms risk stagnating in familiar markets while missing out on emerging opportunities in newer regions. Global markets are characterised by shifts in consumer preferences, regulatory changes, and evolving trade dynamics. Firms that fail to strategise their export approaches might find themselves ill-prepared to navigate these complexities, leading to missed opportunities and, in some cases, diminishing market shares. An effective export strategy would not only identify potential markets but also chart out the nuances of penetrating these markets, taking into account cultural, regulatory, and logistical challenges. Two important elements of these are

- **Market Understanding:** Deep market research is pivotal to understanding the preferences and demands of target markets. It involves analysing consumer behaviour, market trends, and competitors. Leveraging data analytics and market intelligence tools can provide actionable insights for product development and marketing strategies. However, MMF-based RMG and textile industries seriously lack these crucial capabilities.
- **Market Diversification:** Relying solely on one market can expose firms to risks associated with market fluctuations and geopolitical factors. Diversifying export destinations helps mitigate these risks and ensures a more stable revenue stream. Implementing effective market diversification strategies involves assessing market potential, building networks, and complying with export regulations. There is no or negligible effort by most RMG and textile

firms to reach out to new buyers and explore new markets. This is an essential factor for the long-term sustainability of the industry, and a lack of it hinders its growth.

In summary, the lack of comprehensive market research and an effective export strategy at the firm level can significantly hamper the growth trajectory of Bangladesh's textiles and MMF units. In a global industry where understanding market nuances and strategic planning are key determinants of success, Bangladeshi firms must place greater emphasis on these areas. Only then can they hope to compete effectively on the international stage, capitalise on emerging market opportunities, and ensure long-term sustainability and growth.

## **VI. Policy Recommendations**

Having achieved tremendous success in apparel exports, especially in cotton apparel, Bangladesh is now confronted with several factors as it seeks to diversify into MMF-based textile and apparel exports. These challenges, if not tackled strategically, could slow down the industry's growth momentum. The following section offers policy recommendations derived from research, stakeholder discussions, and on-ground factory visits undertaken as part of this project. These recommendations aim to provide a pragmatic approach to address the identified constraints while boosting MMF apparel exports.

### **6.1 Recommendations to address broad policy issues**

#### **1. Consider a dual-track growth strategy for Bangladesh's apparel sector: Consolidating cotton apparel export market dominance while expanding MMF apparel production and exports**

Bangladesh's success in cotton apparel exports has positioned it as a global leader in the sector. However, to ensure holistic growth and to mitigate risks associated with over-reliance on a single segment, the importance of diversifying into man-made fibre (MMF) apparel cannot be overemphasised. Relying heavily on cotton-based apparel exposes Bangladesh to sector-specific shocks, be it supply chain disruptions, global cotton price volatility, or changing consumer preferences. Diversifying into MMF apparel can act as a buffer against these uncertainties. MMF, with its unique properties caters to evolving global demands. However, Diversification is not about pivoting away from cotton but about embracing a wider variety of products. Thus, while strategizing for MMF growth, the foundational strength of the cotton apparel sector should also be nurtured and fortified. Aiming for abrupt policy-driven shifts could disrupt the established cotton apparel industry. Hence, a balanced approach that capitalises on the existing cotton industry's strengths while making inroads into MMF apparel should be judicious policy choice.

To implement this recommendation effectively, it may be useful to consider a phased approach. Initial steps could involve facilitating duty-free access to quality MMF raw materials and supporting investment in the backward linkage activities. Concurrently, the cotton apparel sector's momentum can be sustained through continuous improvements in production quality, strengthening supply

chains, and exploring new markets. Such a dual-track growth strategy will ensure that Bangladesh's apparel sector remains resilient, diversified, and poised for long-term success.

**2. Ensuring duty-free access to all fibres is a must for export competitiveness. Adopting a uniform fibre import policy will streamline input accessing for export production.**

A key impediment to MMF transition is the differential treatment of import duties on cotton versus other materials. While cotton enjoys duty-free import status and a streamlined customs clearance process, non-cotton materials face varied and sometimes substantial taxes. That is not all non-cotton fibres are allowed duty-free. Global buyers often specify particular fibre types for their end products. By granting duty-free import status to all fibres, including those lesser-known ones, it will be possible to cater to these specific demands effectively. This disparity in fibre import policy hampers the adoption and integration of innovative fibres like Tencel, which, despite being a refined version of Viscose, is taxed due to nomenclature differences.

The financial implications of this duty structure are clear. Factories have the potential to enhance the value of their products by blending fibres. For instance, blending Tencel with Linen can help augment domestic value added significantly without necessitating changes in investment, workforce, or utilities. Discriminatory duties on certain imported fibres thus inhibit the shift to higher value-added products, a move that could position Bangladesh advantageously in the global market.

It is essential to underscore that the current duty structure neither significantly boosts the government's revenue nor protects a domestic MMF industry, as the latter is non-existent in Bangladesh. Given the currently minimal import volumes of these special fibres, the tariff revenue is negligible. This further strengthens the argument that there is no economic rationale for maintaining these tariffs. By adopting a uniform duty-free import policy for all fibres, Bangladesh can foster innovation, meet specific global buyer demands, and capture premium prices for its textile products.

**3. Devising a strategy for fibre security for the garment industry by diversifying supply sources of both natural and man-made fibres and building domestic capacity for MMF should be given a special consideration.**

Bangladesh's overwhelming dependence on the RMG sector for export earnings exposes the country to certain vulnerabilities that are often not duly recognised. Relying heavily on a singular or limited source for vital inputs, such as fibres, makes the industry vulnerable to supply shocks, price volatility, and geopolitical tensions. For uninterrupted export growth, it is essential to safeguard fibre security.

- Owing to the inherent risks, it is crucial for Bangladesh to develop a comprehensive fibre security strategy, which includes diversifying the import sources for both cotton and MMF.
- By-products from oil refining, which are vital for synthetic fibre production, can be tapped from the expanding refinery capacity. Promoting investments in synthetic fibre factories that make use of these by-products will fortify the supply chain and decrease reliance on foreign

sources. Concurrently, there is a need for strategic investments in technology and infrastructure tailored for synthetic fibre production.

- It is essential to formulate detailed contingency plans to navigate supply chain disruptions. Such plans should clearly set out strategies to address and lessen the repercussions of unexpected events that impede fibre supplies.
- Channelling resources into research and innovation in the fibre sector can yield innovations in eco-friendly and cost-efficient fibre production. Collaborative ventures with research institutions and global partners can fast-track these initiatives.

**4. There should be incentives for the industries that focus on recycling PET bottles, flakes, plastic wastes, and processing petrochemicals. Furthermore, the export of crucial raw materials required for man-made fibre production should be reviewed.**

While large-scale cotton production might not be feasible due to land constraints, it is possible to focus on increasing capacity for MMF production. Existing factories that convert petrochemicals, PET bottles, and flakes into synthetic fibres should be supported and expanded. Additionally, recent government approvals for capacity expansion at Eastern Refinery Ltd. and private sector involvement in crude oil import and refining present opportunities to produce man-made synthetic fibres domestically. Promoting backward industries in fibre production, such as recycling and eco-friendly materials enhances fibre security and helps align with global sustainability trends, attracting conscientious buyers and investors. Two specific recommendations in this regard are to:

- Consider offering financial assistance or subsidies to domestic industries involved in recycling plastic bottles and waste. Such support will align with global environmental conservation efforts, ensuring sustainable practices within the country.
- Undertake a comprehensive assessment to determine whether exporting plastic waste and flakes should be limited. Also, in order to discourage export of plastic waste and PET flakes, export incentives of these products should be reviewed. By doing so, the local backward industry of the MMF sector should have easy access to raw materials.

**5. Establishing a strategic investment fund to support investment into MMF plants should be given urgent priority in order to build the domestic capacity of MMF.**

Diversifying into MMF apparel will require new investment into synthetic fibre plants. Exports using imported raw materials will not ensure competitiveness in the medium to long term, especially if Bangladesh loses trade preferences after LDC graduation. The significance of fibre security has already been mentioned above.

There exists a huge investment need for setting up new plants and technology upgradation of the existing ones for facilitating a transition toward MMF apparels. Currently, against an annual demand of 10 billion metres of fabrics (including both cotton and man-made), the local production capacity stands at 6 billion metres. This gap of 4 billion metres necessitates imports costing about \$10 billion

annually, with 1 billion metres procured from India and the majority from China. Expanded exports of MMF-based clothing items will require major domestic backward linkage capacity enhancements.

Access to finance remains a critical constraint for MMF entrepreneurs. Given the large investment need, leaving it to the private sector alone will not help. Countries such as India, which aspires to be a dominant exporter of clothing items, have set an ambitious target of \$300 billion worth of apparel export by 2047 and have set up elaborate support mechanisms for its textile sector. Under the Production Linked Incentive (PLI) Scheme for Textiles, the government of India has set up an investment support funding mechanism of Rs 10,683 crore to promote the production of MMF apparel, MMF fabrics, and technical textile products in the country. China and Vietnam have also invested heavily in their textile industries.

- Therefore, the private sector in Bangladesh needs to be supported with the investment requirements. It is now imperative to create a dedicated low-cost Strategic Investment Fund (SIF) aimed at supporting MMF-based textile plants. Securing the necessary financing for the SIF can be achieved through collaboration with development partners. Bangladesh has a history of successful partnerships with international organizations such as the World Bank and the International Finance Corporation (IFC). Leveraging their expertise and resources can contribute to the fund's viability and effectiveness.
- A portion of the SIF can also be used for short-term trade financing of the sector. Drawing lessons from the Export Development Fund (EDF), the management of SIF can be strengthened. Involvement of such agencies like the International Finance Corporation (IFC) can result in robust fund governance, risk mitigation, and efficient allocation of resources.
- Lessons can also be learnt from India's Amended Technology Fund Upgradation Scheme (ATUFS), established in 2016, which has been instrumental in encouraging technological advancement and modernisation in India's textile industry through credit-linked capital investment subsidies.
- To complement the SIF, a portion of the funds can be allocated to support research and development activities in the MMF-based textile industry. This will encourage innovation, the development of new materials, and the adoption of cutting-edge technologies, further enhancing the sector's competitiveness.
- The success of the SIF hinges on strong collaboration among the public and private sectors and development partners. Engaging industry stakeholders, associations, and private investors in the fund's governance and decision-making processes fosters a sense of ownership and ensures that the fund's activities align with industry needs.
- Ensuring the long-term sustainability of the SIF is vital. Continuous evaluation, monitoring, and adjustment of fund policies and strategies based on industry dynamics and global market trends will be necessary to maintain its effectiveness.
- It will be a timely initiative to undertake a feasibility study on how such a fund can be mobilized and managed efficiently with clearly defined outcomes.

## **6. Revamping and streamlining the duty drawback processes is crucial to ensure that exporters can easily be reimbursed for duties paid on intermediate inputs.**

Exporters cannot remain competitive without access to duty-free import of raw materials. Special bonded warehouse schemes have partially addressed this for a large number of garment exporters. However, many still face challenges, particularly when importing certain synthetic fibres. For entrepreneurs producing for both local sales and exports, leveraging the benefits of bonded warehouses isn't straightforward. In these situations, duty-drawback processes can offer a solution. Yet, the current duty drawback mechanism has significant limitations and is viewed as lengthy, complex, and costly, leading many exporters to forgo this incentive. For a dynamic, export-oriented economy, a streamlined process to reclaim duties paid on inputs used in export production is essential. This study proposes three possible ways to simplify the duty drawback process:

- Section 6.8.2 of the National Tariff Policy 2023 stipulates that manufacturers of goods for both domestic and export markets are eligible for bond facilities up to 70% of the export value for importing raw materials exclusively duty-free for export purposes. The effective implementation of this policy could facilitate exports without the need to establish a separate unit for export-oriented production.
- From other countries' experience, Duty Credit Scrips (DCS) can be introduced to allow duty-free import of raw materials for exports. DCS are tradable certificates issued by government authorities to exporters, offering a percentage of the export value as credit. These credits can offset import duties on raw materials and machinery. To support local exporters, Bangladesh could introduce a DCS scheme similar to India's Merchandise Exports from India Scheme (MEIS). Such a scheme not only simplifies the process but also ensures tangible benefits for exporters.
- Furthermore, the existing duty drawback system can be made more efficient and transparent to encourage exporters making use of it.

## **7. Modernising the customs clearance processes is crucial for enhancing export competitiveness in general, including for the MMF-based RMG and textile industries.**

Many entrepreneurs interviewed as part of this study are of the view that modernising the customs clearance processes is essential for improving their competitiveness. Leveraging digital platforms and automated systems for document submission, processing, and approval can renovate the current unnecessarily complex processes into streamlined ones. The digital transformation not only accelerates clearance procedures but also reduces the potential for errors and corruption. It promotes transparency and efficiency throughout the customs process. Consulting with key stakeholders, including exporters and industry associations, can help build an efficient system.

## **8. Bangladesh must attract FDI to foster its role as global MMF hub and capitalise on the shifting dynamics of the global value chain.**

The MMF-based industries in Bangladesh hold immense potential to establish the country as a global hub for MMF production. To realise this vision, it is vital to develop comprehensive policies that attract FDI and especially to target and encourage firms that consider relocating from China to elsewhere. The following policies could be instrumental in this endeavour:

- In light of changing global dynamics, businesses worldwide are increasingly adopting the "China Plus One" strategy. This strategy involves diversifying their supply chains by investing in promising economies alongside China. Bangladesh stands to gain from this strategy by positioning itself as a primary destination for MMF-based industries. However, attracting FDI to Bangladesh presents several challenges, including a less-than-ideal investment climate, high costs of doing business, inadequate utility supply, etc. Revamped policy initiatives should be aimed at addressing these constraints to make Bangladesh an attractive FDI destination.
- Improving business environment and incentivising MMF-related activities can also attract foreign firms.

Given the nascent nature of the MMF sector in Bangladesh, securing FDI becomes even more critical. FDI can bring about transformative effects, including increased exports, seamless integration into the global value chain (GVC), and the establishment of direct relationships with international brands and retailers. FDI-backed firms often have the leverage to negotiate higher unit prices for their export products. Collaborative ventures with foreign firms in the textile sector can also be incentivised further through the available policy options. BIDA, BEPZA, BEZA, and BHTP can play crucial roles in attracting the FDI.

### **9. Ensuring reliable power supply and removing infrastructural bottlenecks will be key for promoting the MMF sector.**

Maintaining an uninterrupted power supply, particularly for energy-intensive industries like textile units is of paramount importance. Similarly other infrastructural issues, including port inefficiencies and road congestion, prolong lead times and hinder the sector's competitiveness.

Despite commendable efforts by the government to improve the energy situation in the country, consistent power supplies remain a pressing challenge. Power outages disrupt operations, leading to suboptimal capacity utilisation. Many enterprises resort to alternative sources such as fuel or coal-powered generators, which are much more expensive than grid supplies, undermining their competitiveness. Along with improving power situations, embracing renewable energy sources should also contribute to further competitiveness of the industry as reducing the carbon footprints through green production has become an important agenda for many global brands and multinational companies. Offering incentives for adopting advanced technologies and practices to reduce energy consumption can constitute an important policy initiative.



Equally, addressing infrastructural bottlenecks, including port inefficiencies and road congestion, is crucial. Investment in improving transport systems, combined with a comprehensive transport strategy and the adoption of modern technologies for customs and cargo, can significantly enhance the MMF sector's competitiveness on the global stage.

**10. Promoting circular economy to enhance the sustainability of the textile sector through environmentally friendly and green production is crucial for industry preparedness and maintaining global competitiveness in an increasingly eco-conscious marketplace.**

The global trade landscape is transforming, driven by the increasing adoption of green and eco-friendly production methods. Embracing these approaches aligns with global sustainability objectives and grants exporters a significant competitive edge. Eco-friendly products are steadily gaining value and recognition in the marketplace, propelled by corporate and consumer demand. These products symbolise superior quality and ethical manufacturing, making them highly appealing to businesses and consumers alike.

- In response to the global trend towards sustainability, many prominent brands are mandating the use of recycled fabrics in their products. To support this shift towards a circular economy, the government can extend policy incentives to fabric producers who utilise recycled inputs such as plastic waste, flakes, and other materials integral to fibre production. Drawing on the trade policy reviews of various countries spanning over the past decade, it is evident that providing tax incentives, grants, and tax exemptions for recycling activities is a common and effective strategy.

**11. Proactive efforts to secure favourable market access after LDC graduation can significantly enhance diversification prospects into MMF products while reinforcing the strength of cotton apparel.**

Bangladesh's graduation from the category of Least Developed Countries (LDCs) must not be considered as the end of trade preferences. Rather, there are new avenues for securing market access similar to GSP, providing countries are open to assessing their preferential schemes, and there are also opportunities for strategic and proactive engagement with them. For example, the recently introduced UK's Developing Countries Trading Scheme (DCTS) offers to continue to provide duty-free market access after LDC graduation (if the double transformation in apparel production can be achieved). In the markets of Australia and Canada, preferential market access will also continue. As the European Union has not finalized its GSP regime for 2024-34, there is an opportunity for proactive engagement. A favourable post-LDC market access in the EU, where Bangladesh has a share of above 12 per cent in MMF apparel, will be a big boost, paving the way for sustaining Bangladesh's global dominance in the overall apparel sector. The examples of favourable post-LDC trade preference schemes in Australia, Canada, and the UK can be used to request and pursue similar mechanisms in India and Japan as well.

## 6.2 Recommendations to address firm-level constraints

To address the challenges facing the MMF-based RMG and textile sectors, this study proposes the following policy recommendations aimed at industry modernisation, enhanced management, workforce skilling, innovation, compliance, and market expansion:

### 12. Modernise Technology in the MMF-based RMG and Textile Industries:

#### *a. Investment Incentives:*

- Offer financial benefits such as tax reductions/tax holiday, and low interest rate loans for the firms investing in contemporary machinery and technology. Facilitate access to affordable loans or grants for technological adoption.
- Initiate Technology Investment Zones for MMF-focused industries, providing essential infrastructure, including consistent power and connectivity.

#### *b. Foster Technology Collaboration:*

- Encourage global partnerships with local industries and research bodies to enhance technology transfer. Attract international tech leaders to establish R&D centres in Bangladesh.
- Advocate for research consortia, bringing together the industry, academia, and government to drive technological innovation.

#### *c. Enhance Training and Skill Development:*

- Introduce a National Skills Development Framework tailored for MMF industries, covering both technical and soft skills.
- Champion public-private partnerships in training, with the private sector contributing to curriculum design and delivery.

### 13. The MMF-based industries in Bangladesh must enhance their management capacities, particularly at the upper and middle management levels.

In a modern MMF-based industry, managers are expected to proficiently handle numerous intricate responsibilities to ensure competitiveness. To augment managers' competencies in effectively managing diverse complex tasks, the following policies can prove highly effective.

#### *a. Supply Chain Optimisation:*

- Supply Chain Excellence Centres: Create Supply Chain Excellence Centres to disseminate best practices in supply chain management. Provide companies with access to supply chain experts, resources, and modern software tools.

- Customised Consultation: To streamline supply chain operations, offer customised consultation services to companies, particularly small and medium-sized enterprises (SMEs). Focus on areas like inventory management, demand forecasting, and supplier collaboration.

*b. Quality Control Assurance:*

- Quality Excellence Awards: Institute Quality Excellence Awards to recognise and incentivise firms that consistently achieve high-quality standards. These awards can enhance the industry's reputation and competitiveness.
- Quality Assurance Grants: Provide grants to support the implementation of quality assurance systems, including ISO certifications. Assist companies in conducting regular quality audits to meet international standards.

*c. Sustainability Initiatives:*

- Eco-Friendly Manufacturing Incentives: Offer incentives, such as tax benefits or subsidies, to companies adopting eco-friendly manufacturing practices, including the use of sustainable materials and energy-efficient processes.
- Green Certification Support: Facilitate the process of obtaining green certifications by providing guidance, financial support, and access to experts in sustainable manufacturing.

*d. Design and Innovation Support:*

- Innovation Incubators: Establish Innovation Incubators within MMF-based industries. These incubators can serve as hubs for multidisciplinary teams to collaborate on innovative product designs and production methods.
- Design Thinking Workshops: Organise regular design thinking workshops and hackathons to foster creativity and innovation. Encourage firms and establishments to experiment with new ideas and processes.

*e. Export Diversification and Market Expansion:*

- Market Access Support: Provide targeted support to companies seeking to diversify their export destinations. Offer guidance on market entry strategies, compliance requirements, and buyer networking.
- Market Intelligence Centres: Set up Market Intelligence Centres to collect and analyse data on international market trends, consumer preferences, and competitive landscapes. Disseminate this information to industry players to inform their export strategies.

**14. Enhancing workers skills is vital for success in technological adaptation and competitiveness.**

Employees form the foundation of large-scale manufacturing units. Developing a skilled workforce is essential for the growth of a competitive textile and MMF sector. The following policies can contribute to improving workers' skills:

*a. Capacity building enhancement of National Skills Development Authority (NSDA), Industry Skills Council (ISC) and training providers*

- NSDA plays a crucial role in overcoming the skills gap as it works with various organisations to address the skills gap issues (Box 4). Thus, it is crucial to strengthen its capacity further, including human resource capacity. Also, skilling up the master trainers for training the trainers is another important area NSDA can work.
- Capacity building of RMG and Textile Industry Skill Council (RTISC) to effectively coordinate and assist NSDA in introducing new skills development courses that are based on market demand.
- Also, RTISC will ensure proper and widespread implementation of the apprenticeship program. To do so, RTISC will coordinate with industry associations and NSDA.

**Box 6: Role of National Skills Development Authority (NSDA) in addressing skill gaps**

The National Skill Development Authority (NSDA) was established in 2018 under the Prime Minister's office through the National Skill Development Authority Act 2018 to meet the national and international demand for a skilled workforce. Its objectives include enhancing individual employability by certifying competencies, formulating national skill development policies, strategies, and action plans, and setting Key Performance Indicators (KPIs) for training institutes. NSDA also prepares uniform training manuals covering technical and soft skills and coordinates activities' implementation, supervision, and evaluation. There are 16 Industry Skills Councils (ISCs), including one specific to the RMG and textile sector, to coordinate between training institutes and NSDA based on sector-specific skill requirements.

As of FY23, 504 training institutes registered with NSDA, offering various skill development courses. NSDA has introduced 18 competency-based courses for occupations like quality control, fashion design, and weaving, along with 4 curriculums for the RMG and textile sector in FY23. After successfully completing and passing exams, NSDA issues certificates endorsing students' competencies. To effectively implement the competency courses, both the capacity of NSDA and training institutes need enhancement. According to a recent report by NSDA, it is evident that they are not fully equipped with adequate human resources. Additionally, modernized laboratories with qualified trainers are necessary for training institutes to properly implement competency standards.

Source: Annual Report 2022-23 (NSDA, 2023)

*b. Introduce Skill Passport:*

- Initiate the implementation of a Skills Passport system, enabling workers to record their skill development and certifications, enhancing their employability. NSDA has already initiated the

introduction of the skills passport system. Adequate support can facilitate the successful launch of the skills passport.

*c. Effective implementation of National Action Plan 2022-2027 for Skills Development in Bangladesh:*

- NSDA developed the National Action Plan aiming to train approximately 8.6 million individuals over the next five years(NSDA, 2022). Standardized courses related to RMG sector occupations, including export marketing, supply chain management, industrial machine operation, and import & export documentation, will be provided. The successful implementation of this plan could effectively address the sector's skills gap issue. Additionally, an impact study could be conducted to evaluate the training's effectiveness.

**15. Encouraging more R&D activities can help with faster technological adoption, product and process innovations, and creative solutions while improving overall industry competitiveness.**

Research and Development (R&D) is crucial for the global competitiveness of MMF-based products. However, Bangladesh's MMF sector currently has limited R&D endeavours. To address this, this study suggests:

*a. Innovation Initiatives:*

- Allocate government support for dedicated innovation centres, emphasising material innovation, process refinement, and design.
- Provide collaborative research grants to foster partnerships between the industry, universities, and research bodies, propelling technological advancement in the MMF sector.

*b. Encouraging Diverse Products:*

- Consider introducing R&D tax credits to incentivise research investments, thereby fostering product diversity.
- Launch Product Innovation Awards, recognising pioneering products and promoting exploration of smart textiles and sustainable fashion.

**16. Guidance and assistance in upholding compliance and obtaining certifications will help numerous manufacturing units become export-ready and integrate into the global supply chains, bolstering buyer confidence.**

Numerous MMF-based industries require support in sustaining their compliance status and obtaining the necessary certifications essential for exporting to developed country markets. The following policies can prove beneficial in assisting MMF-based industries in maintaining compliance and acquiring the required certifications:

- **Guidance Programs:** Introduce guidance programmes and resources to help companies meet international social and environmental compliance standards. Offer assistance in conducting regular audits and addressing compliance issues.
- **Compliance Certification Grants:** Introduce grants to support companies in obtaining recognised compliance certifications, such as GOTS (Global Organic Textile Standard) and Fair Trade. These certifications are critical for market access in many developed countries.

**17. Extending market research and export strategy support for MMF-based apparel products can help firms assess market prospects and enhance global competitiveness, tailor product offerings, and meet international demand.**

The market for apparel products is highly dynamic and competitive. To thrive in this competitive landscape, both cotton and MMF apparel sectors in Bangladesh must enhance their capacity for conducting market research and formulating market-specific export strategies based on research insights. To empower the firms to conduct effective market research, the following policies can be considered:

- **Assessing Market Access Conditions:** Market access conditions do change regularly. With the impending LDC graduation, understanding such access conditions has become more challenging than ever. This is one area where commissioned research and joint studies (involving public and private institutions) can inform the better and better appreciate their competitiveness with the changing circumstances.
- **Regular Market Research:** Facilitate collaboration amongst the existing research organisations to gather, analyse, and disseminate critical market intelligence. This includes consumer behaviour analysis, market trends, and competitor insights. The public and private sector cooperation can help identify the research needs and design continuous flow of research outputs and their effective dissemination.
- **Market Diversification Support:** Create specialised export promotion teams within the Export Promotion Bureau (EPB) and other existing institutions to assist companies in diversifying toward MMF apparels and their export destinations. Market assessments, buyer networking, export strategy development, promotion of specific products in specific markets, etc. could be core activities of such teams.
- **Export Promotion Initiatives:** Develop targeted export promotion initiatives, including participation in international trade fairs and exhibitions, to increase the visibility of MMF-based apparel and textiles in global markets.

**18. Firm-level constraints are best addressed when private sector entrepreneurs proactively pursue and lead in investment mobilisation, collaboration, modernisation, compliance, and global best practices adoption.**

In the rapidly evolving landscape of the textile industry, individual firms cannot solely rely on governmental support to meet all their diverse needs. While policy backing is indispensable, firms

need to be the primary drivers in assessing their unique requirements and addressing them adeptly. Recognising the finite capacity of governmental assistance and support, companies should be proactive in researching and assimilating state-of-the-art global practices, adapting them to their local context.

It is essential for textile entrepreneurs to expand their horizons and actively seek foreign direct investment, leveraging their networks and connections. Such external investments not only bring capital but also introduce firms to global benchmarks and best practices. Additionally, fostering a culture of research and development encompassing product innovation and market research is crucial. Such endeavours are highly specialised, making it challenging for external entities, including the government, to provide effective support.

Collaboration with Micro, Small, and Medium-sized Enterprises (MSMEs) can benefit the large established firms. By entering subcontracting agreements with MSMEs, firms can access specialised services and components required for MMF production, such as sourcing PET bottle waste, waste fabric, accessories, and other required services. This collaboration optimises resource utilisation, reduces production costs, and enhances operational efficiency. Additionally, it fosters skill-sharing and innovation within the industry, driving competitiveness and mutual growth between large firms and MSMEs in the MMF textile sector. Such collaboration presents significant growth opportunities for MSMEs.

Compliance for export success is a precondition, and firms must be responsible for ensuring their compliance record. By adopting a proactive approach in these areas, amongst others, firms can solidify their position in the global textile market, driving sustainable growth and competitiveness.

## VII. A Time-bound Action Plan for Promoting the Man-Made Fibre-based Apparel Exports

SL	Area of action	Proposed policy measures	Implementing agency	Timeline	Outcomes
1	Uniform fibre import policy: Allow zero duty on imports of all fibres	Allow duty free imports of all types of fibre. Effectively implement the National Tariff Policy	NBR, MoC	December 2024	Enhanced competitiveness of exporters due to the availability of raw materials at world prices.  Almost no implications for government revenue due to duty-free import of non-cotton fibres as the current imports are low.  Unaffected domestic protection due to dismantling of tariffs as there is no significant import-competing activities in MMF.
		Harmonise import policies for raw materials		December 2024	Secured access to duty-free imports of raw materials for the fibre producers located outside the economic zone.
2	Ensuring fibre security and	Diversify fibre import sources—both for cotton and non-cotton fibres	MoC, NBR, ERD, BB	Continuous	Reduced risk of uncertainty arising from supply chain shocks
		Undertaking a study to evaluate the impact of restricting the export of PET bottles, flakes, and plastic wastes to allow MMF producers easier access to domestic supplies at lower prices. Also, an assessment on revoking export incentives on PET bottles and flakes should be undertaken.		December 2024	Informed policy making with the help of the analytical study. Encouraged local production of recycling based MMF production.
		Incentivize local firms using plastic wastes for making MMF (consider it as a benefit for environmental protection)			



3.	Simplify the duty drawback process	Effectively implement the National Tariff Policy 2023 (including urgent implementation of partial bond facilities against bank guarantees)	MoC, BB, EPB, ERD	Continuous	Improve duty-draw back system for the exporters and increase competitiveness in the global market  Informed policy making with the help of the analytical study.
		Consider alternative mechanisms such as the Duty Credit Scrips (DCS) adopted by other countries. Commission a study to reform the DEDO and undertake a feasibility assessment of a scheme like DCS.		December 2024	
		Revamp the current duty-drawback system.		June 2025	
4.	Improving logistics facilities	Effective implementation of the National Single Window System for trade facilitation	NBR	December 2024	Increased overall competitiveness, leading to enhanced supply chain efficiency, reduced lead times, and cost savings.
		Enhancing port handling capacity and enhancing inland and water transportation systems	MoS, MoC	June 2026	
		Strengthen the efficiency of land ports	MoC BLPA	Continuous	
5.	Establish investment fund for MMF-based RMG and textile factory	Establish a low-cost strategic investment fund through the collaboration with development partners	BB, ERD, MoC	June 2025	Improved access to finance by MMF entrepreneurs; reduced cost of capital for long-term investment and short-term trade finance.
		Seek Foreign Direct Investment (FDI)	PMO, BIDA	Continuous	Improved access to foreign capital; technology transfer facilitated; new markets and opportunities to produce high-value complex products created; Economy benefited from the spillover effects arising from improved management practices, skills development, product standards and quality; Improved export prices received.

6	Improving business environment to attract FDI	Reducing cost of doing business	MoC, BIDA, BEZA, BEPZA	Continuous	Reduced cost of doing business; Improved export competitiveness.
		Introduce incentives for the textile sectors as in other countries (e.g., PLI in India)	MoC, BB	December 2024	Improved competitiveness of the textile sector; FDI attracted in the MMF-based textile units.
		Incentivise Ensuring uninterrupted utility supplies	MoPEMR, GTCL, WASA	Continuous	Uninterrupted production and saved costs of energy-intensive textile/MMF units; Improved competitiveness.
7	Modernise technology in MMF-based RMG and textile industry	Establish a support mechanism with low-cost funds to upgrade and invest in cutting-edge technology	BB	December 2024	Enhanced technological capabilities, increased competitiveness, and accelerated innovation.
8	Ensure reliable and sustainable power supply	Improving capacity of existing power plant	MoPEMR, BPDB, Power division	Continuous	More reliable and stable energy supply, reducing disruptions and increasing productivity
		Ensure adequate raw materials to generate power supply for uninterrupted power supply			
		Increasing investment in renewable energy generation			
9	Promote circular economy to enhance sustainability, green and eco-friendly production	Strengthening policies for circular economy model	MoF, MoC, MoFECC, NBR, BB	December 2025	Resource efficiency promoted. Reduced waste and increased competitiveness in the global market for exporting products.
		Incentivise fabric producers to use recycled inputs through tax exemption, tax incentives		December 2024	
10	Secure favourable market access after LDC graduation	Proactively engage with important trade partners to continue to receive similar preferences after LDC graduation through any available schemes for non-LDC developing countries.	MoFA, MoC	November 2026	Sustained competitiveness of garment exports, including MMF apparels from Bangladesh.

					Smooth graduation supported due to longer transition period.
		Seeking for an extended transition period in major exporting countries		December 2030	Continued access to global markets on preferential terms even after graduation from LDC status.
11.	Modernise technology in the MMF-based RMG and textile industries	Establish a MMF/textile technology investment zone	BEZA, BIDA, BEPZA, BHTPA	December, 2027	Accelerated innovation and technological advancement in the MMF based sector.
		International collaboration with major MMF producing companies	MoC, MoI, MoF, BTMA, BKMEA, BGMEA	Continuous	Enhanced knowledge sharing, technology transfer, and sustainable practices
		Develop a comprehensive national skills development framework	MoE, MoI, MoLE	December 2024	Workforce equipped with the necessary expertise and capabilities to thrive in this sector.
12.	Enhance management capacity of MMF based industries	Create supply chain excellence centres	MoC, BGMEA, BKMEA, BTMA, NSDA	Continuous	Firms' improved access to supply chain specialists, resources, and cutting-edge software tools.
		Offer customised consultation services in inventory management, demand forecasting and supplier collaboration			Businesses empowered to optimize their operations, minimize costs, and enhance their overall supply chain efficiency
		Introduce quality excellence awards and assurance grants			Manufacturers recognised and incentivised to consistently maintain high-quality standards in their products and operations, fostering a culture of excellence and competitiveness.
		Expand training in managerial skills for top and mid-level professionals by public support			Training program funded by public entities will help to meet the skills gaps.
13.	Capacity building to expand skill	Capacity building of NSDA, RTISC and Training Institute	PMO, NSDA	Continuous	Increase number of professionals, skilled trainers, and modernised laboratories

	training programmes	Enhance capacity of RTISC to assist NSDA to introduce new skill enhancing courses and collaborate with industry association for effective implementation apprenticeships program		Continuous	Preparing training manual for demanding skills courses, workers can learn more effectively due to the apprenticeships program.
		Introduce skill passport		June 2026	Employees and employers can conveniently access and monitor employee skills data.
		Effective implementation of National Action Plan 2022-2027 for Skills Development in Bangladesh and initiate an impact study to assess the effectiveness of the training.		Continuous till 2027	-Address skills gap and improve employability in the workforce -Scope to know the impact of the training
14.	Invest in R&D in MMF-based sectors	Allocate funds and grants for the establishment and operation of textile research institution	MoC, MoI	December 2024	Advanced research and development supported in the textile industry, driving innovation and competitiveness
		Encourage research and innovation within the companies through R&D tax credits and innovation awards		June 2024	Improved incentives to invest in research and development textiles and MMF sectors.
15.	Formulate policy regarding market research and export strategy	Establish dedicated market research institutes and/or support collaboration among research organisations	MoC	Continuous	Informed decision-making and strategic planning by the textile/MMF firms.
		Support participation in trade fairs and exhibitions in global markets to promote MMF-based garments and apparels	BB, MoC		Ensured global presence of Bangladesh's MMF-based apparel products, fostering greater market visibility and thereby attracting investment and business opportunities.
16	Private sector entrepreneurs should collaborate with domestic and international firms to address firm-level constraints	Seek collaboration opportunity with international firms for R&D, capital and technology.	BGMEA, BKMEA, BTMA	Continuous	Integrate with global value chain, reduce cost of production and increase access to new markets.
		Collaborate with MSMEs for specialized services and raw materials	BGMEA, BKMEA, BTMA, SME Foundation		Easy and cost efficient access to specialised services and raw materials. Such collaboration can help to create a strong MMF cluster.

17	Establishment of cross-sector committee to monitor the implementation of the recommendations	Form a committee comprising representatives from both public and private sectors to monitor progress on crucial issues such as ensuring fibre security, address environmental sustainability and expanding exports	BB, BGMEA, BKMEA, BTMA, MoC, MoF, MoI, NBR, PMO	December 2024	Facilitate collaboration between the public and private sectors to oversee the progress of the RMG and Textile sector and address any potential issues that may arise in the future.
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Notes: BB = Bangladesh Bank, BEZA = Bangladesh Economic Zones Authority, BEPZA = Bangladesh Export Processing Zone Authority, BHTPA = Bangladesh Hi-Teck Part Authority, BIDA = Bangladesh Investment Development Authority, BGMEA = Bangladesh Garment Manufacturers and Exporters Association. BKMEA = Bangladesh Knitwear Manufacturers and Exporters Association, BLPA = Bangladesh Land Port Authority, BTMA = Bangladesh Textile Mills Association, BPDB = Bangladesh Power Development Board, ERD = Economic Relations Division, EPB = Export Promotion Bureau, GTCL = Gas Transmission Company Limited, MoC = Ministry of Commerce, MoE = Ministry of Education, MoF = Ministry of Finance, MoFA = Ministry of Foreign Affairs, MoFECC = Ministry of Forest, Environment and Climate Change, MoI = Ministry of Industry, MoLE = Ministry of Labour and Employment, MoPEMR = Ministry of Power, Energy and Mineral Resources, MoS = Ministry of Shipping, NBR = National Board of Revenue, PMO = Prime Minister's Office.

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## Annexe

### Annex A1: The Revealed Comparative Analysis:

RCA is an ex-post analysis of comparative advantage. It is measured as the ratio of the product's share in the country's export relative to its share in the world's export. A country is said to have comparative advantage in a commodity if its RCA is more than one, and a comparative disadvantage if the RCA is less than 1. The Normalised RCA (NRCA) (Yu et al., 2009) converts RCAs into scale free measures of comparative advantage and thereby permits both comparisons of comparative advantage and the size of the advantage across countries.

$$RCA = \frac{X_{ij}/X_{it}}{X_{wj}/X_{wt}} = \frac{\text{Percentage of a country's overall exports that the commodity of interest represents}}{\text{Share of total world exports accounted for by the commodity in question}}$$

$$NRCA = \frac{\Delta X_{ij}}{X_w} = \left( \frac{X_{ij}}{X_{wt}} - \frac{X_{wj}X_i}{X_{wt}X_{wt}} \right)$$

Here,  $X_{ij}$  and  $X_{wj}$  are country i's export and world export of product j respectively while  $X_{it}$  and  $X_{wt}$  are country i's total export and the world total export. If the NRCA is more than zero, then it indicates comparative advantage and vice versa. The higher (or lower) the magnitude of the NRCA index, the higher (or lower) the comparative advantage (or disadvantage) of a country in that specific product. The NRCA index helps us understand how much a country's actual exports differ from what they would have exported if they only produced goods, they were good at making compared to other countries. This gives us a good idea of the country's real comparative advantage in the world market.

### Annex A2: HS codes of cotton apparel products

Product code	Category	Product label
610120	Cotton apparel	Overcoats, car coats, capes, cloaks, anoraks, incl. ski jackets, windcheaters, wind-jackets ...
610220	Cotton apparel	Women's or girls' overcoats, car coats, capes, cloaks, anoraks, incl. ski jackets, windcheaters, ...
610322	Cotton apparel	Men's or boys' ensembles of cotton, knitted or crocheted (excl. ski ensembles and swimwear)
610332	Cotton apparel	Men's or boys' jackets and blazers of cotton, knitted or crocheted (excl. wind-jackets and ...
610342	Cotton apparel	Men's or boys' trousers, bib and brace overalls, breeches and shorts of cotton, knitted or ...
610412	Cotton apparel	Women's or girls' suits of cotton, knitted or crocheted (excluding ski overalls and swimwear)
610422	Cotton apparel	Women's or girls' ensembles of cotton, knitted or crocheted (excl. ski ensembles and swimwear)
610432	Cotton apparel	Women's or girls' jackets and blazers of cotton, knitted or crocheted (excl. wind-jackets and ...
610442	Cotton apparel	Women's or girls' dresses of cotton, knitted or crocheted (excl. petticoats)
610452	Cotton apparel	Women's or girls' skirts and divided skirts of cotton, knitted or crocheted (excl. petticoats)
610462	Cotton apparel	Women's or girls' trousers, bib and brace overalls, breeches and shorts of cotton, knitted ...
610510	Cotton apparel	Men's or boys' shirts of cotton, knitted or crocheted (excl. nightshirts, T-shirts, singlets ...
610610	Cotton apparel	Women's or girls' blouses, shirts and shirt-blouses of cotton, knitted or crocheted (excl. ...
610711	Cotton apparel	Men's or boys' underpants and briefs of cotton, knitted or crocheted

<b>610721</b>	Cotton apparel	Men's or boys' nightshirts and pyjamas of cotton, knitted or crocheted (excl. vests and singlets)
<b>610791</b>	Cotton apparel	Men's or boys' bathrobes, dressing gowns and similar articles of cotton, knitted or crocheted
<b>610821</b>	Cotton apparel	Women's or girls' briefs and panties of cotton, knitted or crocheted
<b>610831</b>	Cotton apparel	Women's or girls' nightdresses and pyjamas of cotton, knitted or crocheted (excl. T-shirts, ...
<b>610891</b>	Cotton apparel	Women's or girls' négligés, bathrobes, dressing gowns, housejackets and similar articles of ...
<b>610910</b>	Cotton apparel	T-shirts, singlets and other vests of cotton, knitted or crocheted
<b>611020</b>	Cotton apparel	Jerseys, pullovers, cardigans, waistcoats and similar articles, of cotton, knitted or crocheted ...
<b>611120</b>	Cotton apparel	Babies' garments and clothing accessories of cotton, knitted or crocheted (excl. hats)
<b>611211</b>	Cotton apparel	Track-suits of cotton, knitted or crocheted
<b>611420</b>	Cotton apparel	Special garments for professional, sporting or other purposes, n.e.s., of cotton, knitted or ...
<b>611592</b>	Cotton apparel	Full-length or knee-length stockings, socks and other hosiery, incl. stockings for varicose ...
<b>611595</b>	Cotton apparel	Full-length or knee-length stockings, socks and other hosiery, incl. footwear without applied ...
<b>611692</b>	Cotton apparel	Gloves, mittens and mitts, of cotton, knitted or crocheted (excl. impregnated, coated, covered ...
<b>620112</b>	Cotton apparel	Men's or boys' overcoats, raincoats, car coats, capes, cloaks and similar articles, of cotton ...
<b>620130</b>	Cotton apparel	Men's or boys' overcoats, car-coats, capes, cloaks, anoraks, incl. ski jackets, wind-cheaters, ...
<b>620192</b>	Cotton apparel	Men's or boys' anoraks, windcheaters, wind jackets and similar articles, of cotton (not knitted ...
<b>620212</b>	Cotton apparel	Women's or girls' overcoats, raincoats, car coats, capes, cloaks and similar articles, of cotton ...
<b>620230</b>	Cotton apparel	Women's or girls' overcoats, car-coats, capes, cloaks, anoraks, incl. ski jackets, wind-cheaters, ...
<b>620292</b>	Cotton apparel	Women's or girls' anoraks, windcheaters, wind jackets and similar articles, of cotton (not ...
<b>620322</b>	Cotton apparel	Men's or boys' ensembles of cotton (excl. knitted or crocheted, ski ensembles and swimwear)
<b>620332</b>	Cotton apparel	Men's or boys' jackets and blazers of cotton (excl. knitted or crocheted, and wind-jackets ...
<b>620342</b>	Cotton apparel	Men's or boys' trousers, bib and brace overalls, breeches and shorts, of cotton (excl. knitted ...
<b>620412</b>	Cotton apparel	Women's or girls' suits of cotton (excl. knitted or crocheted, ski overalls and swimwear)
<b>620422</b>	Cotton apparel	Women's or girls' ensembles of cotton (excl. knitted or crocheted, ski overalls and swimwear)
<b>620432</b>	Cotton apparel	Women's or girls' jackets and blazers of cotton (excl. knitted or crocheted, wind-jackets and ...
<b>620442</b>	Cotton apparel	Women's or girls' dresses of cotton (excl. knitted or crocheted and petticoats)
<b>620452</b>	Cotton apparel	Women's or girls' skirts and divided skirts of cotton (excl. knitted or crocheted and petticoats)
<b>620462</b>	Cotton apparel	Women's or girls' trousers, bib and brace overalls, breeches and shorts of cotton (excl. knitted ...
<b>620520</b>	Cotton apparel	Men's or boys' shirts of cotton (excl. knitted or crocheted, nightshirts, singlets and other ...
<b>620630</b>	Cotton apparel	Women's or girls' blouses, shirts and shirt-blouses of cotton (excl. knitted or crocheted and ...
<b>620711</b>	Cotton apparel	Men's or boys' underpants and briefs of cotton (excl. knitted or crocheted)
<b>620721</b>	Cotton apparel	Men's or boys' nightshirts and pyjamas of cotton (excl. knitted or crocheted, vests, singlets ...
<b>620791</b>	Cotton apparel	Men's or boys' singlets and other vests, bathrobes, dressing gowns and similar articles of ...
<b>620821</b>	Cotton apparel	Women's or girls' nightdresses and pyjamas of cotton (excl. knitted or crocheted, vests and ...
<b>620891</b>	Cotton apparel	Women's or girls' singlets and other vests, briefs, panties, négligés, bathrobes, dressing ...
<b>620920</b>	Cotton apparel	Babies' garments and clothing accessories of cotton (excl. knitted or crocheted and hats, napkins ...
<b>621132</b>	Cotton apparel	Men's or boys' tracksuits and other garments, n.e.s. of cotton (excl. knitted or crocheted)
<b>621142</b>	Cotton apparel	Women's or girls' tracksuits and other garments, n.e.s. of cotton (excl. knitted or crocheted)
<b>621320</b>	Cotton apparel	Handkerchiefs of cotton, of which no side exceeds 60 cm (excl. knitted or crocheted)

### Annex A3: HS codes of MMF apparel

Product code	Category	Description
610130	MMF apparel	Overcoats, car coats, capes, cloaks, anoraks, incl. ski jackets, windcheaters, wind-jackets ...
610230	MMF apparel	Women's or girls' overcoats, car coats, capes, cloaks, anoraks, incl. ski jackets, windcheaters, ...
610312	MMF apparel	Men's or boys' suits of synthetic fibres, knitted or crocheted (excluding track suits, ski ...
610323	MMF apparel	Men's or boys' ensembles of synthetic fibres, knitted or crocheted (excl. ski ensembles and ...
610333	MMF apparel	Men's or boys' jackets and blazers of synthetic fibres, knitted or crocheted (excl. wind-jackets ...
610343	MMF apparel	Men's or boys' trousers, bib and brace overalls, breeches and shorts of synthetic fibres, knitted ...
610413	MMF apparel	Women's or girls' suits of synthetic fibres, knitted or crocheted (excl. ski overalls and swimwear)
610423	MMF apparel	Women's or girls' ensembles of synthetic fibres, knitted or crocheted (excl. ski ensembles ...
610433	MMF apparel	Women's or girls' jackets and blazers of synthetic fibres, knitted or crocheted (excl. wind-jackets ...
610443	MMF apparel	Women's or girls' dresses of synthetic fibres, knitted or crocheted (excl. petticoats)
610444	MMF apparel	Women's or girls' dresses of artificial fibres, knitted or crocheted (excl. petticoats)
610453	MMF apparel	Women's or girls' skirts and divided skirts of synthetic fibres, knitted or crocheted (excl. ...
610463	MMF apparel	Women's or girls' trousers, bib and brace overalls, breeches and shorts of synthetic fibres, ...
610520	MMF apparel	Men's or boys' shirts of man-made fibres, knitted or crocheted (excl. nightshirts, T-shirts, ...
610620	MMF apparel	Women's or girls' blouses, shirts and shirt-blouses of man-made fibres, knitted or crocheted ...
610712	MMF apparel	Men's or boys' underpants and briefs of man-made fibres, knitted or crocheted
610722	MMF apparel	Men's or boys' nightshirts and pyjamas of man-made fibres, knitted or crocheted (excl. vests ...
610792	MMF apparel	Men's or boys' bathrobes, dressing gowns and similar articles of man-made fibres, knitted or ...
610811	MMF apparel	Women's or girls' slips and petticoats of man-made fibres, knitted or crocheted (excl. T-shirts ...
610822	MMF apparel	Women's or girls' briefs and panties of man-made fibres, knitted or crocheted
610832	MMF apparel	Women's or girls' nightdresses and pyjamas of man-made fibres, knitted or crocheted (excl. ...
610892	MMF apparel	Women's or girls' négligés, bathrobes, dressing gowns, housejackets and similar articles of ...
611030	MMF apparel	Jerseys, pullovers, cardigans, waistcoats and similar articles, of man-made fibres, knitted ...
611130	MMF apparel	Babies' garments and clothing accessories of synthetic fibres, knitted or crocheted (excl. ...
611212	MMF apparel	Track-suits of synthetic fibres, knitted or crocheted
611231	MMF apparel	Men's or boys' swimwear of synthetic fibres, knitted or crocheted
611241	MMF apparel	Women's or girls' swimwear of synthetic fibres, knitted or crocheted
611430	MMF apparel	Special garments for professional, sporting or other purposes, n.e.s., of man-made fibres, ...
611490	MMF apparel	Special garments for professional, sporting or other purposes, n.e.s., of textile materials, ...
611511	MMF apparel	Panty hose and tights of synthetic fibres, knitted or crocheted, measuring per single yarn ...
611512	MMF apparel	Panty hose and tights of synthetic fibres, knitted or crocheted, measuring per single yarn ...
611521	MMF apparel	Pantyhose and tights of synthetic fibres, knitted or crocheted, measuring per single yarn < ...
611522	MMF apparel	Pantyhose and tights of synthetic fibres, knitted or crocheted, measuring per single yarn >= ...

<b>611593</b>	MMF apparel	Full-length or knee-length stockings, socks and other hosiery, incl. stockings for varicose ...
<b>611596</b>	MMF apparel	Full-length or knee-length stockings, socks and other hosiery, incl. footwear without applied ...
<b>611693</b>	MMF apparel	Gloves, mittens and mitts, of synthetic fibres, knitted or crocheted (excl. impregnated, coated, ...
<b>620113</b>	MMF apparel	Men's or boys' overcoats, raincoats, car coats, capes, cloaks and similar articles, of man-made ...
<b>620140</b>	MMF apparel	Men's or boys' overcoats, car-coats, capes, cloaks, anoraks, incl. ski jackets, wind-cheaters, ...
<b>620193</b>	MMF apparel	Men's or boys' anoraks, windcheaters, wind jackets and similar articles, of man-made fibres ...
<b>620213</b>	MMF apparel	Women's or girls' overcoats, raincoats, car coats, capes, cloaks and similar articles, of man-made ...
<b>620240</b>	MMF apparel	Women's or girls' overcoats, car-coats, capes, cloaks, anoraks, incl. ski jackets, wind-cheaters, ...
<b>620293</b>	MMF apparel	Women's or girls' anoraks, windcheaters, wind jackets and similar articles, of man-made fibres ...
<b>620312</b>	MMF apparel	Men's or boys' suits of synthetic fibres (excl. knitted or crocheted, tracksuits, ski suits ...
<b>620323</b>	MMF apparel	Men's or boys' ensembles of synthetic fibres (excl. knitted or crocheted, ski ensembles and ...
<b>620333</b>	MMF apparel	Men's or boys' jackets and blazers of synthetic fibres (excl. knitted or crocheted, and wind-jackets ...
<b>620343</b>	MMF apparel	Men's or boys' trousers, bib and brace overalls, breeches and shorts of synthetic fibres (excl. ...
<b>620413</b>	MMF apparel	Women's or girls' suits of synthetic fibres (excl. knitted or crocheted, ski overalls and swimwear)
<b>620423</b>	MMF apparel	Women's or girls' ensembles of synthetic fibres (excl. knitted or crocheted, ski overalls and ...
<b>620433</b>	MMF apparel	Women's or girls' jackets and blazers of synthetic fibres (excl. knitted or crocheted, wind-jackets ...
<b>620443</b>	MMF apparel	Women's or girls' dresses of synthetic fibres (excl. knitted or crocheted and petticoats)
<b>620444</b>	MMF apparel	Women's or girls' dresses of artificial fibres (excl. knitted or crocheted and petticoats)
<b>620453</b>	MMF apparel	Women's or girls' skirts and divided skirts of synthetic fibres (excl. knitted or crocheted ...
<b>620463</b>	MMF apparel	Women's or girls' trousers, bib and brace overalls, breeches and shorts of synthetic fibres ...
<b>620530</b>	MMF apparel	Men's or boys' shirts of man-made fibres (excl. knitted or crocheted, nightshirts, singlets ...
<b>620640</b>	MMF apparel	Women's or girls' blouses, shirts and shirt-blouses of man-made fibres (excl. knitted or crocheted ...
<b>620722</b>	MMF apparel	Men's or boys' nightshirts and pyjamas of man-made fibres (excl. knitted or crocheted, vests, ...
<b>620792</b>	MMF apparel	Men's or boys' singlets and other vests, bathrobes, dressing gowns and similar articles of ...
<b>620811</b>	MMF apparel	Women's or girls' slips and petticoats of man-made fibres (excl. knitted or crocheted and vests)
<b>620822</b>	MMF apparel	Women's or girls' nightdresses and pyjamas of man-made fibres (excl. knitted or crocheted, ...
<b>620892</b>	MMF apparel	Women's or girls' singlets and other vests, briefs, panties, négligés, bathrobes, dressing ...
<b>620930</b>	MMF apparel	Babies' garments and clothing accessories of synthetic fibres (excl. knitted or crocheted and ...
<b>621010</b>	MMF apparel	Garments made up of felt or nonwovens, whether or not impregnated, coated, covered or laminated ...
<b>621040</b>	MMF apparel	Men's or boys' garments of textile fabrics, rubberised or impregnated, coated, covered or laminated ...

<b>621050</b>	MMF apparel	Women's or girls' garments of textile fabrics, rubberised or impregnated, coated, covered or ...
<b>621111</b>	MMF apparel	Men's or boys' swimwear (excl. knitted or crocheted)
<b>621112</b>	MMF apparel	Women's or girls' swimwear (excl. knitted or crocheted)
<b>621133</b>	MMF apparel	Men's or boys' tracksuits and other garments, n.e.s. of man-made fibres (excl. knitted or ...
<b>621143</b>	MMF apparel	Women's or girls' tracksuits and other garments, n.e.s. of man-made fibres (excl. knitted or ...
<b>621430</b>	MMF apparel	Shawls, scarves, mufflers, mantillas, veils and similar articles of synthetic fibres (excl. ...
<b>621440</b>	MMF apparel	Shawls, scarves, mufflers, mantillas, veils and similar articles of artificial fibres (excl. ...
<b>621520</b>	MMF apparel	Ties, bow ties and cravats of man-made fibres (excl. knitted or crocheted)

#### Annex A4: HS codes of blended (cotton and other fibres) apparel items

Product code	Category	Description
<b>610190</b>	Blended apparel	Overcoats, car coats, capes, cloaks, anoraks, incl. ski jackets, windcheaters, wind-jackets ...
<b>610290</b>	Blended apparel	Women's or girls' overcoats, car coats, capes, cloaks, anoraks, incl. ski jackets, windcheaters, ...
<b>610310</b>	Blended apparel	Men's or boys' suits of textile materials, knitted or crocheted (excl. tracksuits, ski suits ...
<b>610319</b>	Blended apparel	Men's or boys' suits of textile materials, knitted or crocheted (excluding of wool or fine ...
<b>610329</b>	Blended apparel	Men's or boys' ensembles of textile materials (excl. wool, fine animal hair, cotton or synthetic ...
<b>610339</b>	Blended apparel	Men's or boys' jackets and blazers of textile materials (excl. of wool, fine animal hair, cotton ...
<b>610349</b>	Blended apparel	Men's or boys' trousers, bib and brace overalls, breeches and shorts of textile materials, ...
<b>610419</b>	Blended apparel	Women's or girls' suits of textile materials, knitted or crocheted (excl. of synthetic fibres, ...
<b>610429</b>	Blended apparel	Women's or girls' ensembles of textile materials (excl. of cotton or synthetic fibres, ski ...
<b>610439</b>	Blended apparel	Women's or girls' jackets and blazers of textile materials, knitted or crocheted (excl. of ...
<b>610449</b>	Blended apparel	Women's or girls' dresses of textile materials, knitted or crocheted (excl. of wool, fine animal ...
<b>610459</b>	Blended apparel	Women's or girls' skirts and divided skirts of textile materials, knitted or crocheted (excl. ...
<b>610469</b>	Blended apparel	Women's or girls' trousers, bib and brace overalls, breeches and shorts of textile materials, ...
<b>610590</b>	Blended apparel	Men's or boys' shirts of textile materials, knitted or crocheted (excl. of cotton or man-made ...
<b>610690</b>	Blended apparel	Women's or girls' blouses, shirts and shirt-blouses of textile materials, knitted or crocheted ...
<b>610719</b>	Blended apparel	Men's or boys' underpants and briefs of other textile materials, knitted or crocheted (excl. ...
<b>610729</b>	Blended apparel	Men's or boys' nightshirts and pyjamas of textile materials, knitted or crocheted (excl. of ...
<b>610799</b>	Blended apparel	Men's or boys' bathrobes, dressing gowns and similar articles of textile materials, knitted ...
<b>610819</b>	Blended apparel	Women's or girls' slips and petticoats of textile materials, knitted or crocheted (excl. man-made ...

<b>610829</b>	Blended apparel	Women's or girls' briefs and panties of textile materials, knitted or crocheted (excl. cotton ...
<b>610839</b>	Blended apparel	Women's or girls' nightdresses and pyjamas of textile materials, knitted or crocheted (excl. ...
<b>610899</b>	Blended apparel	Women's or girls' négligés, bathrobes, dressing gowns, housejackets and similar articles of ...
<b>610990</b>	Blended apparel	T-shirts, singlets and other vests of textile materials, knitted or crocheted (excl. cotton)
<b>611090</b>	Blended apparel	Jerseys, pullovers, cardigans, waistcoats and similar articles, of textile materials, knitted ...
<b>611190</b>	Blended apparel	Babies' garments and clothing accessories of textile materials, knitted or crocheted (excl. ...
<b>611219</b>	Blended apparel	Track-suits of textile materials, knitted or crocheted (excl. cotton or synthetic fibres)
<b>611220</b>	Blended apparel	Ski-suits, knitted or crocheted
<b>611239</b>	Blended apparel	Men's or boys' swimwear of textile materials, knitted or crocheted (excl. synthetic fibres)
<b>611249</b>	Blended apparel	Women's or girls' swimwear of textile materials, knitted or crocheted (excl. synthetic fibres)
<b>611300</b>	Blended apparel	Garments, knitted or crocheted, rubberised or impregnated, coated or covered with plastics ...
<b>611510</b>	Blended apparel	Graduated compression hosiery [e.g., stockings for varicose veins], of textile materials, knitted ...
<b>611519</b>	Blended apparel	Panty hose and tights of textile materials, knitted or crocheted (excluding of synthetic fibres ...
<b>611520</b>	Blended apparel	Women's full-length or knee-length hosiery, knitted or crocheted, measuring per single yarn ...
<b>611529</b>	Blended apparel	Pantyhose and tights of textile materials, knitted or crocheted (excl. graduated compression ...
<b>611530</b>	Blended apparel	Women's full-length or knee-length hosiery, knitted or crocheted, measuring per single yarn ...
<b>611599</b>	Blended apparel	Full-length or knee-length stockings, socks and other hosiery, incl. footwear without applied ...
<b>611610</b>	Blended apparel	Gloves, mittens and mitts, impregnated, coated, covered or laminated with plastics or rubber, ...
<b>611699</b>	Blended apparel	Gloves, mittens and mitts, of textile materials, knitted or crocheted (excl. of wool, fine ...
<b>611710</b>	Blended apparel	Shawls, scarves, mufflers, mantillas, veils and the like, knitted or crocheted
<b>611720</b>	Blended apparel	Ties, bow ties and cravats, knitted or crocheted
<b>611780</b>	Blended apparel	Ties, bow ties, cravats and other made-up clothing accessories, knitted or crocheted, n.e.s. ...
<b>611790</b>	Blended apparel	Parts of garments or clothing accessories, knitted or crocheted, n.e.s.
<b>620119</b>	Blended apparel	Men's or boys' overcoats, raincoats, car coats, capes, cloaks and similar articles, of textile ...
<b>620190</b>	Blended apparel	Men's or boys' overcoats, car-coats, capes, cloaks, anoraks, incl. ski jackets, wind-cheaters, ...
<b>620199</b>	Blended apparel	Men's or boys' anoraks, incl. ski jackets, windcheaters, wind-jackets and similar articles ...
<b>620219</b>	Blended apparel	Women's or girls' overcoats, raincoats, car coats, capes, cloaks and similar articles, of textile ...
<b>620290</b>	Blended apparel	Women's or girls' overcoats, car-coats, capes, cloaks, anoraks, incl. ski jackets, wind-cheaters, ...
<b>620299</b>	Blended apparel	Women's or girls' anoraks, incl. ski jackets, windcheaters, wind-jackets and similar articles, ...
<b>620319</b>	Blended apparel	Men's or boys' suits of textile materials (excl. of wool, fine animal hair or synthetic fibres, ...

<b>620329</b>	Blended apparel	Men's or boys' ensembles of textile materials (excl. of cotton or synthetic fibres, knitted ...
<b>620339</b>	Blended apparel	Men's or boys' jackets and blazers of textile materials (excl. of wool, fine animal hair, cotton ...
<b>620349</b>	Blended apparel	Men's or boys' trousers, bib and brace overalls, breeches and shorts of textile materials (excl. ...
<b>620419</b>	Blended apparel	Women's or girls' suits of textile materials (excl. of wool, fine animal hair, cotton or synthetic ...
<b>620429</b>	Blended apparel	Women's or girls' ensembles of textile materials (excl. of wool, fine animal hair, cotton or ...
<b>620439</b>	Blended apparel	Women's or girls' jackets and blazers of textile materials (excl. of wool, fine animal hair, ...
<b>620449</b>	Blended apparel	Women's or girls' dresses of textile materials (excl. of wool, fine animal hair, cotton or ...
<b>620459</b>	Blended apparel	Women's or girls' skirts and divided skirts of textile materials (excl. of wool, fine animal ...
<b>620469</b>	Blended apparel	Women's or girls' trousers, bib and brace overalls, breeches and shorts of textile materials ...
<b>620590</b>	Blended apparel	Men's or boys' shirts of textile materials (excl. of cotton or man-made fibres, knitted or ...
<b>620690</b>	Blended apparel	Women's or girls' blouses, shirts and shirt-blouses of textile materials (excl. of silk, silk ...
<b>620719</b>	Blended apparel	Men's or boys' underpants and briefs of textile materials (excl. cotton and knitted or crocheted)
<b>620729</b>	Blended apparel	Men's or boys' nightshirts and pyjamas of textile materials (excl. of cotton or man-made fibres, ...
<b>620799</b>	Blended apparel	Men's or boys' singlets and other vests, bathrobes and dressing gowns of textile materials ...
<b>620819</b>	Blended apparel	Women's or girls' slips and petticoats of textile materials (excl. man-made fibres, knitted ...
<b>620829</b>	Blended apparel	Women's or girls' nightdresses and pyjamas of textile materials (excl. cotton and man-made ...
<b>620899</b>	Blended apparel	Women's or girls' singlets and other vests, briefs, panties, négligés, bathrobes, dressing ...
<b>620990</b>	Blended apparel	Babies' garments and clothing accessories of textile materials (excl. of cotton or synthetic ...
<b>621020</b>	Blended apparel	Garments of the type described in heading 6201, rubberised or impregnated, coated, covered ...
<b>621030</b>	Blended apparel	Garments of the type described in heading 6202, rubberised or impregnated, coated, covered ...
<b>621120</b>	Blended apparel	Ski suits (excl. knitted or crocheted)
<b>621139</b>	Blended apparel	Men's or boys' tracksuits and other garments, n.e.s. of textile materials (excl. of cotton ...
<b>621149</b>	Blended apparel	Women's or girls' tracksuits and other garments, n.e.s. of textile materials (excl. of cotton ...
<b>621210</b>	Blended apparel	Brassieres of all types of textile materials, whether or not elasticated, incl. knitted or ...
<b>621220</b>	Blended apparel	Girdles and panty girdles of all types of textile materials, whether or not elasticated, incl. ...
<b>621230</b>	Blended apparel	Corselettes of all types of textile materials, whether or not elasticated, incl. knitted or ...
<b>621290</b>	Blended apparel	Corsets, braces, garters, suspenders and similar articles and parts thereof, incl. parts of ...
<b>621390</b>	Blended apparel	Handkerchiefs of textile materials, of which no side exceeds 60 cm (excl. of cotton, and knitted ...
<b>621490</b>	Blended apparel	Shawls, scarves, mufflers, mantillas, veils and similar articles of textile materials (excl. ...

<b>621590</b>	Blended apparel	Ties, bow ties and cravats of textile materials (excl. of silk, silk waste or man-made fibres, ...
<b>621600</b>	Blended apparel	Gloves, mittens and mitts, of all types of textile materials (excl. knitted or crocheted and ...
<b>621710</b>	Blended apparel	Made-up clothing accessories, of all types of textile materials, n.e.s. (excl. knitted or ...
<b>621790</b>	Blended apparel	Parts of garments or clothing accessories, of all types of textile materials, n.e.s. (excl. ...

#### Annex A5: HS codes of woold and silk based apparel products

Product code	Category	Description
<b>610110</b>	Wool apparel	Overcoats, car-coats, capes, cloaks, anoraks, incl. ski-jackets, wind-cheaters, wind-jackets ...
<b>610210</b>	Wool apparel	Women's or girls' overcoats, car coats, capes, cloaks, anoraks, incl. ski jackets, windcheaters, ...
<b>610311</b>	Wool apparel	Men's or boys' suits of wool or fine animal hair, knitted or crocheted (excluding track suits, ...
<b>610321</b>	Wool apparel	Men's or boys' ensembles of wool or fine animal hair, knitted or crocheted (excluding ski ensembles ...
<b>610331</b>	Wool apparel	Men's or boys' jackets and blazers of wool or fine animal hair, knitted or crocheted (excl. ...
<b>610341</b>	Wool apparel	Men's or boys' trousers, bib and brace overalls, breeches and shorts of wool or fine animal ...
<b>610411</b>	Wool apparel	Women's or girls' suits of wool or fine animal hair, knitted or crocheted (excluding ski overalls ...
<b>610421</b>	Wool apparel	Women's or girls' ensembles of wool or fine animal hair, knitted or crocheted (excluding ski ...
<b>610431</b>	Wool apparel	Women's or girls' jackets and blazers of wool or fine animal hair, knitted or crocheted (excl. ...
<b>610441</b>	Wool apparel	Women's or girls' dresses of wool or fine animal hair, knitted or crocheted (excl. petticoats)
<b>610451</b>	Wool apparel	Women's or girls' skirts and divided skirts of wool or fine animal hair, knitted or crocheted ...
<b>610461</b>	Wool apparel	Women's or girls' trousers, bib and brace overalls, breeches and shorts of wool or fine animal ...
<b>611010</b>	Wool apparel	Pullovers, cardigans etc of wool or hair, knit
<b>611011</b>	Wool apparel	Jerseys, pullovers, cardigans, waistcoats and similar articles, of wool, knitted or crocheted ...
<b>611012</b>	Wool apparel	Jerseys, pullovers, cardigans, waistcoats and similar articles, of hair of Kashmir "cashmere" ...
<b>611019</b>	Wool apparel	Jerseys, pullovers, cardigans, waistcoats and similar articles, of fine animal hair, knitted ...
<b>611110</b>	Wool apparel	Babies' garments and clothing accessories of wool or fine animal hair, knitted or crocheted ...
<b>611410</b>	Wool apparel	Special garments for professional, sporting or other purposes, n.e.s., of wool or fine animal ...
<b>611591</b>	Wool apparel	Full-length or knee-length stockings, socks and other hosiery, incl. stockings for varicose ...



<b>611594</b>	Wool apparel	Full-length or knee-length stockings, socks and other hosiery, incl. footwear without applied ...
<b>611691</b>	Wool apparel	Gloves, mittens and mitts, of wool or fine animal hair, knitted or crocheted (excl. impregnated, ...
<b>620111</b>	Wool apparel	Men's or boys' overcoats, raincoats, car coats, capes, cloaks and similar articles, of wool ...
<b>620120</b>	Wool apparel	Men's or boys' overcoats, car-coats, capes, cloaks, anoraks, incl. ski jackets, wind-cheaters, ...
<b>620191</b>	Wool apparel	Men's or boys' anoraks, incl. ski jackets, windcheaters, wind-jackets and similar articles, ...
<b>620211</b>	Wool apparel	Women's or girls' overcoats, raincoats, car coats, capes, cloaks and similar articles, of wool ...
<b>620220</b>	Wool apparel	Women's or girls' overcoats, car-coats, capes, cloaks, anoraks, incl. ski jackets, wind-cheaters, ...
<b>620291</b>	Wool apparel	Women's or girls' anoraks, incl. ski jackets, windcheaters, wind-jackets and similar articles, ...
<b>620311</b>	Wool apparel	Men's or boys' suits of wool or fine animal hair (excl. knitted or crocheted, tracksuits, ski ...
<b>620321</b>	Wool apparel	Men's or boys' ensembles of wool or fine animal hair (excluding knitted or crocheted, ski ensembles ...
<b>620331</b>	Wool apparel	Men's or boys' jackets and blazers of wool or fine animal hair (excl. knitted or crocheted, ...
<b>620341</b>	Wool apparel	Men's or boys' trousers, bib and brace overalls, breeches and shorts, of wool or fine animal ...
<b>620411</b>	Wool apparel	Women's or girls' suits of wool or fine animal hair (excl. knitted or crocheted, ski overalls ...
<b>620421</b>	Wool apparel	Women's or girls' ensembles of wool or fine animal hair (excl. knitted or crocheted, ski overalls ...
<b>620431</b>	Wool apparel	Women's or girls' jackets and blazers of wool or fine animal hair (excl. knitted or crocheted, ...
<b>620441</b>	Wool apparel	Women's or girls' dresses of wool or fine animal hair (excl. knitted or crocheted and petticoats)
<b>620451</b>	Wool apparel	Women's or girls' skirts and divided skirts of wool or fine animal hair (excl. knitted or crocheted ...
<b>620461</b>	Wool apparel	Women's or girls' trousers, bib and brace overalls, breeches and shorts of wool or fine animal ...
<b>620510</b>	Wool apparel	Men's or boys' shirts of wool or fine animal hair (excluding knitted or crocheted, nightshirts, ...
<b>620610</b>	Silk apparel	Women's or girls' blouses, shirts and shirt-blouses of silk or silk waste (excl. knitted or ...
<b>620620</b>	Wool apparel	Women's or girls' blouses, shirts and shirt-blouses of wool or fine animal hair (excl. knitted ...
<b>620910</b>	Wool apparel	Babies' garments and clothing accessories of wool or fine animal hair (excluding knitted or ...
<b>621131</b>	Wool apparel	Men's or boys' track suits and other garments, n.e.s. of wool or fine animal hair (excluding ...
<b>621141</b>	Wool apparel	Women's or girls' tracksuits and other garments, n.e.s. of wool or fine animal hair (excluding ...
<b>621310</b>	Silk apparel	Handkerchiefs of silk or silk waste, of which no side exceeds 60 cm (excluding knitted or ...
<b>621410</b>	Silk apparel	Shawls, scarves, mufflers, mantillas, veils and similar articles of silk or silk waste (excl. ...

<b>621420</b>	Wool apparel	Shawls, scarves, mufflers, mantillas, veils and similar articles of wool or fine animal hair ...
<b>621510</b>	Silk apparel	Ties, bow ties and cravats of silk or silk waste (excl. knitted or crocheted)

### Annex A6: PLI Incentive Scheme in India

In order to be eligible for the PLI incentives, the applicant must be manufacturing either ITC HS lines or Technical Textile Products. The type of ITC HS lines/Technical Textile Products the manufacturer intends to produce must be specified, must be adhered to once specified, and can be changed with the prior approval of the Ministry of Textiles.

The key criteria examined during the screening process are:

1. Financial capacity of applicant
2. Relevant experience and technical capacity
3. Location of the manufacturing activity
4. Minimum investment INR 1 billion and turnover 2 billion
5. Additional direct employment in the first performance year
6. Product line

Incentives are provided to firms for five years on the basis of their incremental revenue achieved.

Source: India Briefing (India Briefing, 2023)

### Annex A7: Changes in the five-year plan that hint at a shift in the Chinese T&A industry

	<b>Actual performance 2016-2020</b>	<b>Goals for 2021-2025 14th five-year plan</b>
<b>Fibre end-use ratio</b>	40% apparel, 27% home textiles, and 37% industrial textiles by the end of 2020	38% apparel, 27% home textiles, 40% industrial textiles by the end of 2025
<b>R&amp;D spending as a percentage of revenue</b>	1%	1.3%
<b>Energy consumption per unit of industrial value added</b>	Down 25.5% cumulatively from 2016 to 2020	Down 13.5% cumulatively in the next five years
<b>CO2 emission per unit of industrial value added</b>	No mention	Down 18% cumulatively in the next five years
<b>Manufacturing of recycled textile fibre</b>	No mention; accounted for 11.3% of total textile fibre manufactured in 2015	Account for 15% of the total textile fibre manufactured

Newly mentioned  
buzzwords/areas

“Dual circulation,” “belt and road  
initiative,” “technological innovation,”  
“global,” “supply chain”

Source: Abridged from Dr. Sheng Lu’s analysis of the 14th five-year plan (Lu, 2021)

**Annex A8:**

**Table 11: Bangladesh apparel’s unit value comparison with other countries in the US market**

Exporter	USA's import in 2022 (Million USD)	Quantity of imports in 2022 (Million dozen)	Unit value (\$) (2020)	% over world's unit value (2020)	Unit value (\$) (2022)	% over world's unit value (2022)
<b>HS 6203424511: Men's cotton jeans</b>						
China	78.2	0.9	7.2	-14.2	7.5	-21.7
Pakistan	216.6	2.3	6.6	-21.5	8.0	-15.6
<b>Bangladesh</b>	<b>370.6</b>	<b>3.7</b>	<b>7.8</b>	<b>-7.1</b>	<b>8.4</b>	<b>-12.1</b>
Lesotho	45.9	0.4	8.2	-2.6	8.8	-7.9
World	1908.1	16.7	8.4	0.0	9.5	0.0
India	39.9	0.3	9.1	8.6	9.8	2.6
Egypt	129.3	1.0	9.5	13.3	10.3	8.4
Cambodia	53.5	0.4	8.9	5.8	10.4	8.8
Mexico	615.5	4.8	8.8	4.9	10.8	13.0
Vietnam	81.5	0.6	11.6	37.3	11.9	24.5
<b>HS 6203424516: Men's woven cotton trousers</b>						
<b>Bangladesh</b>	<b>748.7</b>	<b>8.3</b>	<b>7.0</b>	<b>-9.2</b>	<b>7.5</b>	<b>-12.4</b>
Pakistan	105.8	1.1	7.1	-8.0	7.8	-9.2
World	2135.2	20.8	7.7	0.0	8.6	0.0
Cambodia	89.1	0.8	8.8	14.1	8.9	3.5
India	63.3	0.6	8.4	8.9	9.5	11.3
Indonesia	123.5	1.1	8.7	13.2	9.6	11.8
Sri Lanka	39.5	0.3	8.0	3.6	9.9	15.3
Mexico	208.3	1.6	9.0	16.2	10.6	23.6
Vietnam	215.2	1.3	10.4	34.5	14.0	63.5
<b>HS 6205302070: Men's made fibre woven shirts</b>						
China	64.4	1.3	4.9	-32.2	4.2	-38.6
Egypt	4.1	0.1	4.9	-32.0	5.1	-24.8
Madagascar	4.3	0.1	5.5	-22.8	5.2	-24.5
<b>Bangladesh</b>	<b>94.9</b>	<b>1.4</b>	<b>5.4</b>	<b>-24.1</b>	<b>5.5</b>	<b>-19.5</b>
India	32.6	0.4	7.9	9.9	6.6	-3.1
World	581.1	7.1	7.2	0.0	6.8	0.0
Vietnam	92.6	1.1	6.9	-3.1	7.2	6.0
CAFTA-DR	119.8	1.2	7.8	9.7	8.3	21.6
Indonesia	33.3	0.3	8.3	16.5	8.4	22.4
Mexico	53.1	0.5	8.9	24.6	9.2	34.2
Cambodia	7.9	0.1	8.8	23.5	10.6	55.6
Jordan	1.21	0.1	11.5	61.3	11.2	64.8

<b>HS 6109100040: Women's cotton T-shirts</b>						
Exporter	USA's import in 2022 (million USD)	Quantity of imports in 2022 (million dozen)	Unit value (\$) (2020)	% over world's unit value (2020)	Unit value (\$) (2022)	% over world's unit value (2022)
Cambodia	30.8	1.4	1.8	-12.9	1.9	-16.8
<b>Bangladesh</b>	<b>73.5</b>	<b>3.1</b>	<b>1.6</b>	<b>-21.5</b>	<b>2.0</b>	<b>-10.7</b>
Pakistan	13.4	0.6	2.0	-4.3	2.0	-10.3
World	1,254.2	46.5	2.1	0.0	2.3	0.0
China	73.5	2.7	1.8	-15.3	2.3	1.8
Mexico	29.7	1.0	2.2	6.7	2.6	14.6
Indonesia	23.6	0.8	2.1	-0.5	2.6	16.4
India	54.5	1.7	2.4	12.9	2.7	19.0
Vietnam	58.5	1.7	2.9	36.8	2.8	24.8
<b>HS 6203424511: Men's cotton jeans</b>						
China	78.2	0.9	7.2	-14.2	7.5	-21.7
Pakistan	216.6	2.3	6.6	-21.5	8.0	-15.6
<b>Bangladesh</b>	<b>370.6</b>	<b>3.7</b>	<b>7.8</b>	<b>-7.1</b>	<b>8.4</b>	<b>-12.1</b>
Lesotho	45.9	0.4	8.2	-2.6	8.8	-7.9
World	1908.1	16.7	8.4	0.0	9.5	0.0
India	39.9	0.3	9.1	8.6	9.8	2.6
Egypt	129.3	1.0	9.5	13.3	10.3	8.4
Cambodia	53.5	0.4	8.9	5.8	10.4	8.8
Mexico	615.5	4.8	8.8	4.9	10.8	13.0
Vietnam	81.5	0.6	11.6	37.3	11.9	24.5
<b>HS 6203424516: Men's woven cotton trousers</b>						
<b>Bangladesh</b>	<b>748.7</b>	<b>8.3</b>	<b>7.0</b>	<b>-9.2</b>	<b>7.5</b>	<b>-12.4</b>
Pakistan	105.8	1.1	7.1	-8.0	7.8	-9.2
World	2135.2	20.8	7.7	0.0	8.6	0.0
Cambodia	89.1	0.8	8.8	14.1	8.9	3.5
India	63.3	0.6	8.4	8.9	9.5	11.3
Indonesia	123.5	1.1	8.7	13.2	9.6	11.8
Sri Lanka	39.5	0.3	8.0	3.6	9.9	15.3
Mexico	208.3	1.6	9.0	16.2	10.6	23.6
Vietnam	215.2	1.3	10.4	34.5	14.0	63.5
<b>HS 6204628011: Women's cotton jeans</b>						
China	251.7	2.7	8.0	-8.8	7.8	-18.5
<b>Bangladesh</b>	<b>317.8</b>	<b>3.2</b>	<b>7.6</b>	<b>-14.0</b>	<b>8.2</b>	<b>-13.4</b>
Egypt	83.0	0.8	8.9	1.7	8.5	-11.1
Pakistan	233.5	2.2	8.4	-4.9	9.0	-5.5
Jordan	25.3	0.2	8.1	-8.2	9.1	-3.9
World	1732.3	15.2	8.8	0.0	9.5	0.0
Cambodia	152.3	1.3	8.8	0.5	9.5	0.2
Vietnam	296.6	2.4	8.9	1.7	10.3	8.4
Indonesia	28.9	0.2	9.8	11.6	11.9	25.0

Turkey	57.4	0.3	14.2	61.1	15.9	67.2
Mexico	74.7	0.4	15.3	73.5	16.0	67.7
<b>HS 6205302070: Men's made fibre woven shirts</b>						
China	64.4	1.3	4.9	-32.2	4.2	-38.6
Egypt	4.1	0.1	4.9	-32.0	5.1	-24.8
Madagascar	4.3	0.1	5.5	-22.8	5.2	-24.5
<b>Bangladesh</b>	<b>94.9</b>	<b>1.4</b>	<b>5.4</b>	<b>-24.1</b>	<b>5.5</b>	<b>-19.5</b>
India	32.6	0.4	7.9	9.9	6.6	-3.1
World	581.1	7.1	7.2	0.0	6.8	0.0
Vietnam	92.6	1.1	6.9	-3.1	7.2	6.0
CAFTA-DR	119.8	1.2	7.8	9.7	8.3	21.6
Indonesia	33.3	0.3	8.3	16.5	8.4	22.4
Mexico	53.1	0.5	8.9	24.6	9.2	34.2
Cambodia	7.9	0.1	8.8	23.5	10.6	55.6
Jordan	1.21	0.1	11.5	61.3	11.2	64.8
<b>HS 6205202051: Men's woven cotton shirts</b>						
<b>Bangladesh</b>	<b>187.1</b>	<b>2.5</b>	<b>5.5</b>	<b>-26.5</b>	<b>6.2</b>	<b>-28.6</b>
Indonesia	52.3	0.5	7.3	-1.5	8.0	-7.2
World	600.6	5.77	7.4	0.0	8.7	0.0
Sri Lanka	39.6	0.3	8.7	16.9	10.2	18.1
India	65.6	0.5	9.4	26.6	10.4	20.4
Vietnam	119.2	0.9	8.5	14.7	11.2	28.7
Philippines	5.5	0.04	7.6	2.3	11.6	33.9
China	48.4	0.3	9.6	29.7	11.8	36.4
Madagascar	12.7	0.1	11.4	53.7	12.8	48.0
CAFTA-DR	14.7	0.1	12.2	65.2	13.0	49.7
Mauritius	2.6	0.01	11.5	55.6	15.4	78.0
<b>HS 6108210010: Women's cotton briefs and panties</b>						
Thailand	77.3	9.6	0.6	-30.7	0.67	-33.0
China	51.5	5.5	0.7	-15.9	0.78	-22.0
CAFTA-DR	43.5	2.4	0.7	-15.9	0.87	-13.0
Vietnam	254.3	15.0	0.8	-5.7	0.89	-11.0
<b>Bangladesh</b>	<b>111.3</b>	<b>9.4</b>	<b>0.9</b>	<b>-2.3</b>	<b>0.99</b>	<b>-1.0</b>
World	585.6	48.7	0.9	0.0	1.0	0.0
India	66.9	4.0	1.2	30.7	1.4	39.0
Sri Lanka	105.7	6.1	1.4	58.0	1.5	45.0
Indonesia	2.7	0.2	2.0	129.6	1.5	52.0
Cambodia	10.2	0.5	2.3	155.7	1.6	56.0
<b>HS 6108229020: Women's MMF briefs and panties</b>						
<b>Bangladesh</b>	<b>79.8</b>	<b>6.4</b>	<b>1.0</b>	<b>-20.5</b>	<b>1.0</b>	<b>-20.0</b>
China	366.1	26.8	1.1	-12.3	1.1	-12.3
Thailand	19.5	1.3	1.6	32.0	1.2	-6.2
India	27.1	1.8	1.4	10.7	1.3	-2.3
World	1011.5	65.1	1.2	0.0	1.3	0.0

Vietnam	254.3	15.0	1.3	5.7	1.4	9.2
CAFTA-DR	43.5	2.4	1.2	-4.9	1.5	14.6
Indonesia	34.5	1.8	1.3	9.8	1.6	22.3
Sri Lanka	88.5	4.4	1.7	35.3	1.7	27.7
Cambodia	6.7	0.3	1.4	10.7	1.9	43.1
<b>HS 6212109020: MMF bras (not containing lace or net or embroidery)</b>						
China	648.9	21.3	2.5	-36.5	2.5	-39.2
<b>Bangladesh</b>	<b>77.2</b>	<b>2.2</b>	<b>3.2</b>	<b>-18.0</b>	<b>3.0</b>	<b>-28.8</b>
World	2202.2	44.1	3.9	0.0	4.2	0.0
Indonesia	300.1	5.2	4.3	10.3	4.8	16.3
Cambodia	53.5	0.7	5.9	50.6	6.1	45.9
India	44.9	0.6	5.2	33.2	6.2	48.6
Thailand	68.6	0.9	5.7	46.3	6.3	52.2
Sri Lanka	202.0	2.7	6.1	55.8	6.3	52.2
CAFTA-DR	127.6	1.6	6.3	62.5	6.5	56.3
Vietnam	556.6	7.1	6.1	55.8	6.6	58.2

Source: Adopted from ITC's The Garment Costing Guide (2022) and Author calculation from OTEXA.

#### Annex A9: Market prospect analysis of cotton apparel of Bangladesh in major global markets:

*The result should be interpreted as follows:* The EU's market size for cotton apparel is around \$81 billion which is around 43 per cent of total cotton apparel import. Bangladesh is the largest cotton apparel supplier in the EU holding more than 22 per cent share. Bangladesh's export growth to the EU is around 7.5 per cent which is more than Bangladesh's overall export growth in this segments.

Country and world import share and market size	Major source countries and their market shares	Average import growth from partner country (2017-2021), %	Overall export growth of Bangladesh and other countries (2017-2021), %
<b>EU (42.8%)</b>	-Bangladesh (22.1%)	-Bangladesh (7.5%)	-China (1.0%)
<b>Market size: \$81 Bn</b>	-Türkiye (11.0%)	-Türkiye (8.2%)	-Bangladesh (6.9%)
	-China (10.8%)	-China (-1.4%)	-India (1.5%)
	-Germany (6.6%)	-Germany (8.4%)	-Vietnam (7.2%)
	-India (4.9%)	-India (1.9%)	-Indonesia (5.9%)
<b>USA (21.5%)</b>	-Vietnam (15.9%)	-Vietnam (7.1%)	-Cambodia (18.4%)
<b>Market size: \$41 Bn</b>	-China (15.3%)	-China (-6.4%)	-Türkiye (5.8%)
	-Bangladesh (13.4%)	-Bangladesh (6.8%)	-Germany (11.4%)
	-India (8.4%)	-India (8.7%)	-Italy (8.2%)
	-Indonesia (5.1%)	-Indonesia (0.1%)	-Pakistan (7.7%)
<b>UK (4.7%)</b>	-Bangladesh (21.9%)	-Bangladesh (-0.8%)	
<b>Market size: \$9 Bn</b>	-China (10.2%)	-China (-10.5%)	
	-Türkiye (10.7%)	-Türkiye (-0.9%)	
	-India (8.4%),	-India (-5.5%)	
	-Pakistan (6.3%)	-Pakistan (4.1%)	
<b>Japan (4.1%)</b>	-China (50.9%)	-China (-4.6%)	
<b>Market size: \$8 Bn</b>	-Vietnam (13.5%)	-Vietnam (4.5%),	
	-Bangladesh (9.8%)	-Bangladesh (7.5%)	
	-Cambodia (6.5%)	-Cambodia (6.7%)	

	- Italy (2.7%)	- Italy (1.1%)
<b>Canada (2.0%)</b>	-Bangladesh (21.5%)	-Bangladesh (3.7%)
	-China (19.9%)	-China (-4.3%)
<b>Market size: \$4 Bn</b>	-Cambodia (12.3%)	-Cambodia (7.7%)
	-Vietnam (9.6%)	-Vietnam (11.9%)
	-India (5.7%)	-India (5.0%)
<b>Australia (1.7%)</b>	-China (56.5%)	-China (5.3%)
	-Bangladesh (19.6%)	-Bangladesh (6.8%)
<b>Market size: \$3 Bn</b>	-India (6.2%)	-India (17.0%)
	-Vietnam (4.1%)	-Vietnam (16.5%)
	-Indonesia (1.9%)	-Indonesia (-1.8%)

Source: Author estimation based on ITC data

#### Annex A10: Bangladesh's competitors in major markets for MMF and blended textile apparel

*The result should be interpreted as follows:* The market size of MMF-based apparel in the EU is approximately \$91 billion, accounting for roughly 40 per cent of the global market size for such apparel. China leads as the primary supplier, holding a share of around 28.5 per cent, followed by Bangladesh with a 7.8 per cent share. Despite Bangladesh's relatively small share, its exports of MMF-based apparel have grown at an average rate of 12 per cent, surpassing its total exports of such products. This indicates that Bangladesh has significant potential in the EU market, with the likelihood of further export growth.

Country and world import share and market size	Major source countries and their market shares	Average import growth from partner country (2017-2021), %	Overall export growth of Bangladesh and other countries (2017-2021), %
<b>EU (40.0%)</b>	-China (28.5%)	-Bangladesh (11.8%)	-China (2.9%)
	-Bangladesh (7.8%)	-Türkiye (6.5%)	-Bangladesh (9.3%)
<b>Market size: \$91 Bn</b>	-Türkiye (6.4%)	-China (2.9%)	-India (-3.5%)
	-Germany (6.2%)	-Germany (7.8%)	-Vietnam (5.6%)
	-Italy (5.0%)	-Italy (4.2%)	-Indonesia (3.4%)
<b>USA (19.8%)</b>	-China (34.0%)	-Vietnam (6.6%)	-Cambodia (-2.2%)
	-Vietnam (19.0%)	-China (-2.5%)	-Türkiye (3.8%)
<b>Market size: \$45 Bn</b>	-Indonesia (5.1%)	-Bangladesh (11.2%)	-Germany (9.7%)
	-Bangladesh (4.1%)	-Indonesia (-2.3%)	-Italy (4.9%)
	-Cambodia (3.6%)	-Cambodia (10.5)	-Spain (5.3%)
<b>UK (4.8%)</b>	-China (32.1%)	-Bangladesh (-0.4%)	-Cambodia (-2.2)
	-Bangladesh (9.7%)	-China (-0.4%)	
<b>Market size: \$11 Bn</b>	-Türkiye (6.9%)	-Türkiye (-3.1%)	
	-Italy (5.9%)	-Italy (6.0%)	
	-Spain (4.0%)	-Spain (2.7%)	
<b>Japan (4.1%)</b>	-China (63.4%)	-China (-2.7%)	
	-Vietnam (15.4%)	-Vietnam (2.9%),	
<b>Market size: \$8 Bn</b>	-Bangladesh (2.6%)	-Bangladesh (5.4%)	
	-Cambodia (3.8%)	-Cambodia (9.0%)	
	-Indonesia (3.6%)	-Indonesia (-0.6%)	
	-Myanmar (3.6%)	-Myanmar (4.9%)	

<b>Canada (2.5%)</b>	-China (40.2%)	-Bangladesh (8%)
	-Vietnam (14.8%)	-China (-0.8)
<b>Market size: \$6 Bn</b>	-Cambodia (10.2%)	-Cambodia (9.1%)
	-Bangladesh (8.3%)	-Vietnam (14.3%)
	-USA (2.9%)	-USA (-4.6%)
<b>Australia (1.7%)</b>	-China (68.6%)	-China (3.6%)
	-Vietnam (6.9%)	-Bangladesh (7.2%)
<b>Market size: \$4 Bn</b>	-Indonesia (4.7%)	-India (4.4%)
	-Bangladesh (3.8%)	-Vietnam (16.4%)
	-India (2.1%)	-Indonesia (9.9%)

Source: Author estimation based on ITC data

## Annex A11: A Summary of discussions during factory visits

The MMF industries have been categorised based on various activities performed at different value chains to better understand the industry-specific technology, management, and skill gaps.

### Fibre Production:

#### Technology Gaps:

- Higher initial investment is required to set up the MMF fibre manufacturing plants with the required technologies. The local investor had to rely on foreign companies for technology and turnkey manufacturing services.
- To run the operation, process engineers for continuous polymerisation and melt-spinning line operation. Currently, there are textile engineers, chemical engineers, applied chemistry and polymer engineering graduates are mostly serving as process engineers without much know-how in the process;
- Maintenance is the key to effectively running the continuous polymerisation line and melt-spinning line machinery. There is a lack of maintenance support throughout the operations. Therefore, an extensive ecosystem is important to support the MMF operation, particularly focusing on spare parts and machine repair services;
- The operations are highly energy intensive and require continuous and consistent electricity and steam supply, which is often problematic; .
- Infrastructure to load, unload, transport, and store the imported raw materials is inadequate, particularly when liquid raw materials, such as MEG, need to be transported.

#### Management Gaps:

Top-level Management	Mid-level Management
<ul style="list-style-type: none"> <li>• <b>Managing market competitions</b></li> <li>• <b>Operational management</b></li> <li>• <b>Customer services</b></li> <li>• <b>Supply chain management</b></li> <li>• <b>Human resource management</b></li> </ul>	<ul style="list-style-type: none"> <li>• Technical knowledge</li> <li>• Problem-solving</li> <li>• Ability to work independently</li> <li>• Result-oriented mindset</li> <li>• Openness to new experiences</li> <li>• Ability to communicate</li> </ul>

#### Worker Skill Gaps:



- Maintenance of the machinery of the continuous polymerisation, melt-spinning line, staple fibre production line, and continuous polymerisation line.
- Operation of the machinery of the melt-spinning line staple fibre production line.

**Spinning:**

**Technology Gaps:**

- Dependency on technology foreign suppliers for required man-made staple fibres such as PET, Viscose, etc.,
- A suitable business ecosystem spare parts and machine repair services are required
- Lack of local research and development support to solve processes and product-related issues required to meet customer demand
- Managing waste reduction in spinning processes and increasing efficiency with the existing machinery is often difficult.
- High energy costs make operation difficult for the energy-intensive industry.

**Management Gaps:**

Top-level Management	Mid-level Management
<ul style="list-style-type: none"> <li>• <b>Managing market competitions</b></li> <li>• <b>Operational management</b></li> <li>• <b>Supply chain management</b></li> <li>• <b>Human resource management</b></li> <li>• <b>Sustainability and environmental management</b></li> </ul>	<ul style="list-style-type: none"> <li>• Technical knowledge</li> <li>• Problem-solving</li> <li>• Ability to work independently</li> <li>• Result-oriented mindset</li> <li>• Openness to new experiences</li> </ul>

**Worker Skill Gaps:**

- Maintenance of the ring and vortex machines, simplex and carding machines, false-twisting and drafting machines,
- Settings/operation of the ring and vortex machines, simplex and carding machines, false-twisting and drafting machines, and air-covered MMF yarn manufacturing machines.

**Fabric production (weaving/knitting)**

**Technology Gaps:**

- Lack of expert engineers required for weaving/knitting 100% man-made fibre yarns;
- Difficulties in weaving/knitting recycled PET yarns with expected quality parameters with the existing weaving/knitting machines;
- Lack of local research and development support to solve processes and product-related issues required to meet customer demand;
- Lack of local research and development support to solve processes and product-related issues required to meet customer demand;

- Managing waste reduction in weaving and knitting processes and increasing efficiency with the existing machinery is often difficult;
- High energy cost makes the operation difficult for the energy-intensive industry.

**Management Gaps:**

Top-level Management	Mid-level Management
<ul style="list-style-type: none"> <li>• <b>Managing market competitions</b></li> <li>• <b>Operational management</b></li> <li>• <b>Supply chain management</b></li> <li>• <b>Customer services</b></li> <li>• <b>Human resource management</b></li> </ul>	<ul style="list-style-type: none"> <li>• Technical knowledge</li> <li>• Problem-solving</li> <li>• Ability to work independently</li> <li>• Result-oriented mindset</li> </ul>

**Worker Skill Gaps:**

- Settings/operation Warp and weft knitting machine, waterjet and airjet loom
- Maintenance of warp and weft knitting machine, waterjet and airjet loom.

**Fabric Dyeing and Finishing**

**Technology Gaps:**

- Higher initial investment is required to set up dyeing and finishing machines for processing man-made fibre-based fabrics, which is different from the predominantly cotton-based Bangladeshi processing industry;
- Process engineers required for dyeing and finishing of 100% man-made fabrics, especially polyamide, are very few;
- Dependency on foreign companies for dyes, chemicals, technology, and spare parts services;
- Inadequate research and development support to solve processes and product-related issues required to meet customer demand.

**Management Gaps:**

Top-level Management	Mid-level Management
<ul style="list-style-type: none"> <li>• <b>Operational management</b></li> <li>• <b>Supply chain management</b></li> <li>• <b>Customer services</b></li> <li>• <b>Human resource management</b></li> <li>• <b>Health and safety compliance</b></li> <li>• <b>Sustainability and environmental management</b></li> </ul>	<ul style="list-style-type: none"> <li>• Technical knowledge</li> <li>• Problem-solving</li> <li>• Ability to work independently</li> <li>• Result-oriented mindset</li> <li>• Openness to new experiences</li> </ul>

**Worker Skill Gaps:**

- Maintenance and operations of the deoiling machine, round/long tube dyeing machine, stenter/heat-setting machine, brush/peach machine, and printing machine.

## Garment Production

### Technology Gaps:

- Maintaining good efficiency of the workers to manufacture MMF-based garments is difficult.
- Dependency on foreign companies for machinery and spare parts services.
- Managing waste reduction in production processes
- High energy costs and increases in worker wages make the operation difficult for the energy and labour-intensive industry.

### Management Gaps:

Top-level Management	Mid-level Management
<ul style="list-style-type: none"> <li>• <b>Managing market competitions</b></li> <li>• <b>Operational management</b></li> <li>• <b>Customer services</b></li> <li>• <b>Supply chain management</b></li> <li>• <b>Human resource management</b></li> </ul>	<ul style="list-style-type: none"> <li>• Technical knowledge</li> <li>• Problem-solving</li> <li>• Ability to work independently</li> <li>• Result-oriented mindset</li> <li>• Openness to new experiences</li> <li>• Ability to communicate</li> </ul>

### Worker Skill Gaps:

- Various automatic and semi-automatic cutting machines have slight variations due to slippery fabrics, leading to puckering.
- Operation of lockstitch, flatlock, overlock machine, chain stitch machine, feed of the arm machine, Kansai, fusing, and embroidery machines.
- Quality inspection for MMF fabrics and garments.

Maintenance of various automatic and semi-automatic cutting, sewing, and finishing machines

### Appendix A12: Key Informant Interviewees

Name	Designation	Factory Name & Address
Mr. Faruque Hassan	President	BGMEA
Mr. Md. Shafiul Quader Sazzad	Sr. Manager (HR, Admin & Compliance)	Modern Poly Industries Ltd., Chattagram, Bangladesh.
Mr. Mohammad Nazim Uddin	Manager (Quality, Assurance & Packing)	Modern Poly Industries Ltd., Chattagram, Bangladesh.
Ms. Supriya Sarkar	Deputy Plant Head	Modern Poly Industries Ltd., Chattagram, Bangladesh
Mr. Karthikeyan Periasamy	Head of CP	Modern Syntex Ltd., Mirsrai EPZ, Chattagram, Bangladesh.
Mr. Shihab Uddin	Process-Engineer	Modern Syntex Ltd., Mirsrai EPZ, Chattagram, Bangladesh.
Mr. Md. Rafiqul Islam	General Manager - Processing & Quality	Zaber & Zubair Fabrics Ltd., Gazipur, Dhaka, Bangladesh.
Mr. Kayes Kawser	General Manager-HR, Admin	Zaber & Zubair Fabrics Ltd., Gazipur, Dhaka, Bangladesh.
Mr. Shakil Ahammed	AGM Merchandising	Snowtex Outerwear Ltd., Dhamrai, Dhaka, Bangladesh.
Mr. Sumon Debnath	AGM Industrial Production	Snowtex Outerwear Ltd., Dhamrai, Dhaka, Bangladesh.

<b>Mr. Mahbubur Rahman</b>	Project Coordinator	Snowtex Group, Mirpur DOHS, Dhaka, Bangladesh.
<b>Mr. MD. Shamimul Haque</b>	Chief Production Officer	Matin Spinning Mills Ltd, Kashimpur, Gazipur, Dhaka, Bangladesh.
<b>Mr. Moidul Islam</b>	AGM Quality Control	Matin Spinning Mills Ltd, Kashimpur, Gazipur, Dhaka, Bangladesh.
<b>Mr. Zahid Al Islam</b>	Executive, Quality Control	Matin Spinning Mills Ltd, Kashimpur, Gazipur, Dhaka, Bangladesh.
<b>Mr. Mahbubul Hasan</b>	Managing Director	Maliha Poly Tex Fibre Industry Ltd., Sakhipur, Tangail, Bangladesh.
<b>Mr. Syed Nurul Islam</b>	CEO	Well Fabrics
<b>Mr. Md. Monir Hossain</b>	Managing Director	Fariha Spinning Mills
<b>Mr. Md. Azahar Khan</b>	Chairman	Mithela Textile Industries Ltd
<b>Mr. Md Khorshed Alam</b>	Chairman	Little Star Spinning Mills Limited
<b>Mr. Rashed Mosharraf</b>	Executive Director	Zaber & Zubair Fabrics Limited
<b>Mr. Fazlul Hoque</b>	Managing Director	Israaq Spinning Mills
<b>Mr. Ataur Rahman</b>	Head of yarn and cotton sourcing	Envoy Textiles Ltd.
<b>Mr. Munir Hossain</b>	Center in Charge (Manger, Training)	Odyssey Craft Ltd
<b>Mr. Md. Ariful Islam</b>	Dept. Manager   HR & Compliance	Hameem Denim
<b>Mr. Jahangir Alam</b>	AGM, Planning & Industrial Engineering	Reedisha Knitex Ltd
<b>Mr. Md. Atiqul Islam Apu</b>	AGM (HR & Compliance)	Aboni Knit
<b>Mr. Md.Abdul Sattar</b>	SR. Manager (IE & Planning)	Trust Knitwear Industry
<b>Mr. Md. Alauddin</b>	Manager	Masco Knit
<b>Mr. MD. Abdul Kalam Shamsuddin Kawsar</b>	Executive Director	NRN
<b>Mr. Hassan Mahmud</b>	Sr. Compliance Officer	Russel Garments
<b>Mr. Syed Tarekul Islam</b>	Sr. Manager	Knit Asia
<b>Mr. Harun ur Rashid</b>	Head of Production	Viyellatex Group

#### Appendix A13: FGD participants list

<b>Sector</b>	<b>Date of FGD</b>	<b>Participants name</b>	<b>Designation &amp; Institution</b>
<b>BTMA</b>	18 July 2023	Mr Mohammad Ali Khokon	President, BTMA
		Mr Mansoor Ahmed	Secretary, BTMA
		Mr Engr. Razeeb Haider	Director, BTMA
		Mr Muhammad Ziaur Rahman	Joint Secretary General. BTMA
		<b>BKMEA</b>	14 June 2023
Mr Md. Akhter Hossain Apurbo	Vice President, BKMEA		
Mr. Fazlee Shamim Ehsan	Vice President, BKMEA		
Mr Borhan Uddin Shohag	Assistant Secretary, BKMEA		
Ms Farjana Yasmin	Sr. Asst. Secretary		
Ms Mahmuda Akter	Former Secretary, BKMEA		
Mr Md. Sajid Hossain	Sr. Asst. Secretary, BKMEA		

