RMG:
Racing against odds

INSIDE THIS ISSUE

In the fourth issue of Economic Intelligence Bangladesh (EIB), we focus on our country's largest export sector: Readymade Garments. The Business Standard in collaboration with DataSense conducted a comprehensive survey on the RMG industry, revealing the entrepreneurs' plans to overcome post-LDC hurdles by enhancing productivity with more innovations and automation. In the item on government policy support, we go back in time to see how the government supported and incentivised the growth of the industry. Furthermore, we explore how the LDC graduation may impact the RMG sector beyond 2026, where Bangladesh needs to look at factors like price negotiation capability, lead time management, and shipment failure.

Weaving the Future of Bangladesh's Apparel

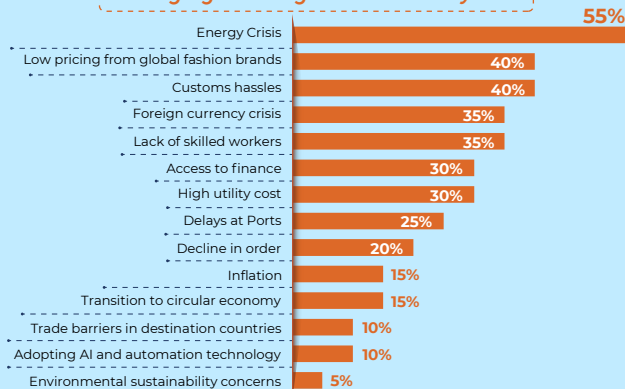Mohsin Bhuiyan, Nadeem Razzaque Rommo & Sadiq Mahmood

For the fourth issue of Economic Intelligence Bangladesh, The Business Standard in collaboration with DataSense conducted a survey of the leaders of the readymade garments (RMG) sector to assess Bangladeshi enterprises' readiness for toughened global competition after the LDC graduation expected in November 2026.

Carried out in June 2024, the survey brings together the perspective of **20 leading RMG Enterprises** collectively employing around **250,000 workers,** about half of which are female.

CHALLENGES AHEAD

Share of enterprises that anticipate these as
emerging challenges for RMG in 3 years

Challenge	Percentage
Energy Crisis	55%
Low pricing from global fashion brands	40%
Customs hassles	40%
Foreign currency crisis	35%
Lack of skilled workers	35%
Access to finance	30%
High utility cost	30%
Delays at Ports	25%
Decline in order	20%
Inflation	15%
Transition to circular economy	15%
Trade barriers in destination countries	10%
Adopting AI and automation technology	10%
Environmental sustainability concerns	5%

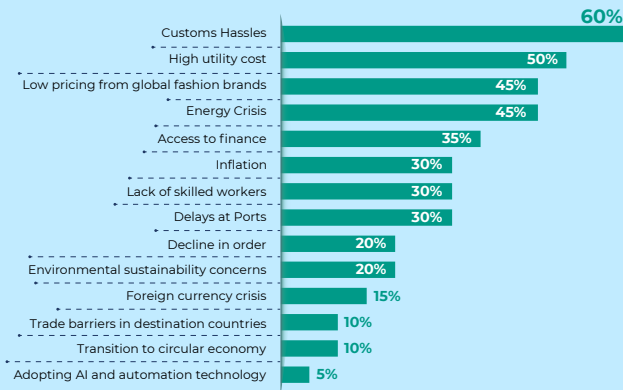**Energy Crisis is identified as the biggest hurdle ahead for business**

55%

of surveyed RMG enterprises report **Energy Crisis** will be the major challenge to overcome in 3 years

While utility costs are expected to ease, **low pricing from global fashion brands compared to competitors** is believed to be an upcoming obstacle prior to the LDC graduation.

Share of enterprises that identified the following as
current hinderances to their growth and competitiveness

Challenge	Percentage
Customs Hassles	60%
High utility cost	50%
Low pricing from global fashion brands	45%
Energy Crisis	45%
Access to finance	35%
Inflation	30%
Lack of skilled workers	30%
Delays at Ports	30%
Decline in order	20%
Environmental sustainability concerns	20%
Foreign currency crisis	15%
Trade barriers in destination countries	10%
Transition to circular economy	10%
Adopting AI and automation technology	5%

Customs hassles & high utility costs hindering growth

60%

of surveyed enterprises report that **Customs Hassles** is the leading factor causing detriments to current business endeavours.
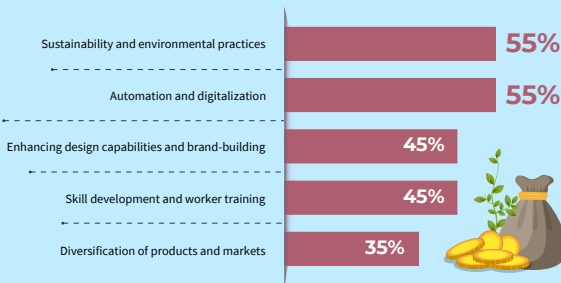
Moreover, half of the respondents also blame **high prices of gas, electricity and water** for added financial woes.

Notably, **adopting AI and automation technology,** as well as addressing **environmental sustainability concerns,** rank lower among the challenges faced by business leaders in both the short and long term.

Share of enterprises that are *investing* in the following areas

| Area	Percentage
Sustainability and environmental practices	55%
Automation and digitalization	55%
Enhancing design capabilities and brand-building	45%
Skill development and worker training	45%
Diversification of products and markets	35%

Green Innovation & Tech Advancement

55%

of surveyed enterprises are currently investing or planning to invest in **sustainability, environmental practices, and automation and digitalization** in order to stay competitive in the market.

For local manufacturers, **diversification of products and markets is a lower priority** compared to the greater emphasis on brand-building and up-skilling of workers.

Share of enterprises that are planning to prioritise the following *raw materials*

Man-made fibre **40%**
Cotton **40%**
Non-cotton **30%**
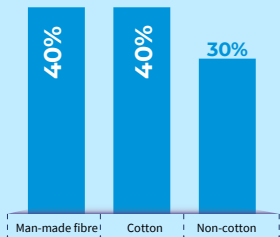
Prioritising raw materials

40%

of surveyed enterprises plan to place equal emphasis on both **man-made fibre** and **cotton** as raw materials, keeping multiple avenues open for business.

A lesser weight is designated to **non-cotton** materials such as wool, silk and linen in the near future.

Share of enterprises that view the following countries as major competitors

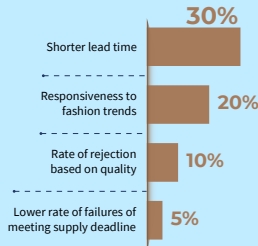| Country	
India	50%
Vietnam	50%
China	45%
Pakistan	30%
Türkiye	25%
Cambodia	10%
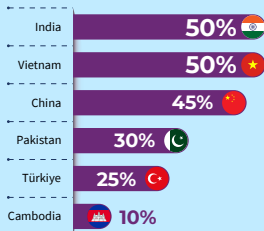
Biggest threats in terms of competition

50%

of surveyed enterprises believe **Vietnam** and **India** are our biggest competitors.

Local RMG business leaders are less worried about the advances and strides made recently by **Türkiye** and **Cambodia.**

Their strengths, our challenges?

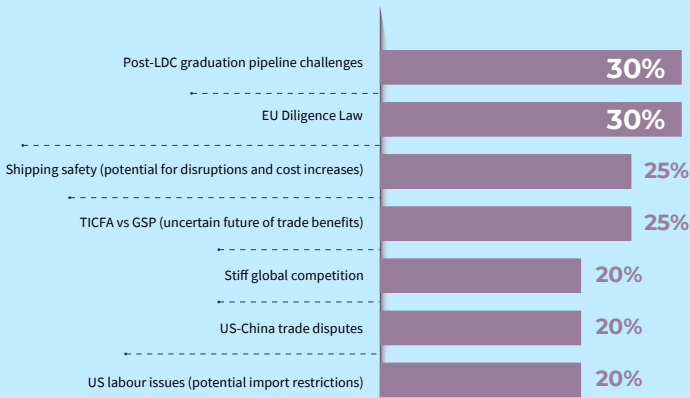| Factor	
Shorter lead time	30%
Responsiveness to fashion trends	20%
Rate of rejection based on quality	10%
Lower rate of failures of meeting supply deadline	5%

Which factors keep competitors ahead?

30%

of surveyed enterprises believe that a **shorter lead time** keeps the RMG sector in Bangladesh behind major competitors.

Local RMG leaders also credit the competitors' success to their **better responsiveness to the latest fashion trends.**

*Share of enterprises that think the following **global concerns** will affect their business*

Concern	Percentage
Post-LDC graduation pipeline challenges	30%
EU Diligence Law	30%
Shipping safety (potential for disruptions and cost increases)	25%
TICFA vs GSP (uncertain future of trade benefits)	25%
Stiff global competition	20%
US-China trade disputes	20%
US labour issues (potential import restrictions)	20%

LDC graduation brings new concerns

30%

of surveyed enterprises believe that the upcoming **LDC graduation of Bangladesh** poses concerns for their enterprises, as the **EU Diligence Law** has already seen many factories switching to green practices.

Local business leaders don't think **the US-China trade disputes** and **US labour issues** are big concerns.

Tax breaks and subsidies for technology adoption	**60%**
Port and logistics efficiency	**45%**
Investment in infrastructure and skills development programs	**40%**
Trade agreements with potential export destinations	**35%**
Simplification of trade regulations and export procedures	**30%**
Financial support for entering new export markets	**25%**

How can the govt help the industry to stay competitive post-LDC?

60%

of surveyed enterprises report that **tax breaks and subsidies for technology adoption** would be the best supports for moving forward.

In tune with the most emphasised current challenge of the industry (customs hassles), **port and logistics** efficiency are also highly sought after by local business leaders to reduce their shipment costs.

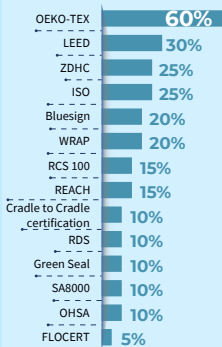## RMG industry's strategic choices for post-LDC Bangladesh

Strategy	Percentage
Enhance productivity	55%
Shift towards automation and higher-value products	45%
Use of clean energy, water conservation	35%
Increased focus on sustainability and ethical production	35%
Diversification of export basket	30%
Diversification of export market	25%
Faster turnaround times and smaller order quantities	10%
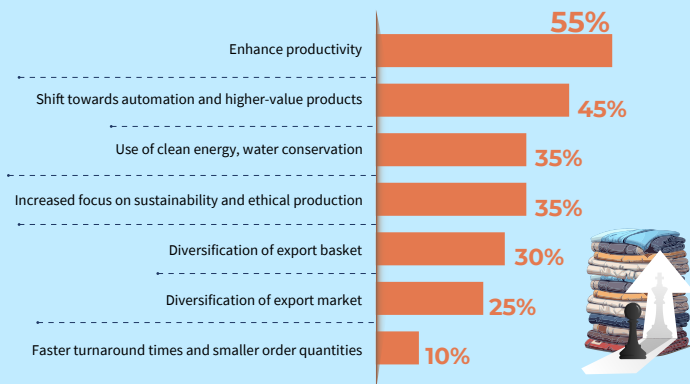
Enhanced productivity the key to future success

55%

of surveyed enterprises have plans to increase productivity to keep up with the dynamic **post-LDC market landscape** with almost half (45%) to also prioritise **shifting towards automation** and **higher-value products**

Again, local business leaders appear to place less emphasis on diversifying product baskets or export destinations.

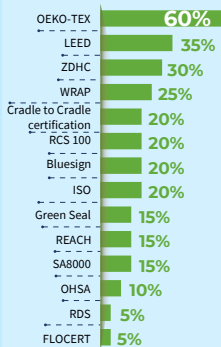## Certifications enterprises think are important to be globally competitive in near future

Certification	Percentage
OEKO-TEX	60%
LEED	30%
ZDHC	25%
ISO	25%
Bluesign	20%
WRAP	20%
RCS 100	15%
REACH	15%
Cradle to Cradle certification	10%
RDS	10%
Green Seal	10%
SA8000	10%
OHSA	10%
FLOCERT	5%

As of June 2024, 220 RMG factories of the country have achieved the recognition of the LEED certification.

Of those, 84 have achieved the highest, platinum rating, 122 have earned gold, 10 silver and 4 are certified, as reported by the BGMEA.

Most of the surveyed enterprises reported having the **OEKO-TEX** certification (that sets the international benchmark for textile safety from yarn to finished product), which they have also credit the most importance to in terms of global competitiveness.

Certification enterprises currently have

Certification	Percentage
OEKO-TEX	60%
LEED	35%
ZDHC	30%
WRAP	25%
Cradle to Cradle certification	20%
RCS 100	20%
Bluesign	20%
ISO	20%
Green Seal	15%
REACH	15%
SA8000	15%
OHSA	10%
RDS	5%
FLOCERT	5%

STRONGLY AGREE
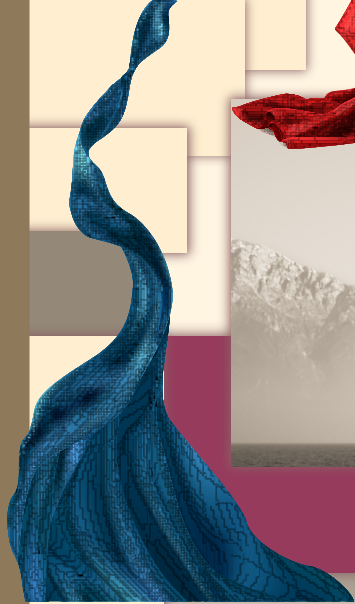**10%**

DON'T KNOW
5%

SOMEWHAT AGREE
30%

DISAGREE
55%

Majority believes tech innovations won't replace labour needs

55%

of surveyed enterprises **do not agree that adoption of new technology will result in job losses.** However, 30% of respondents are skeptical about how market dynamics will shift once automation and AI adoption reach new heights.
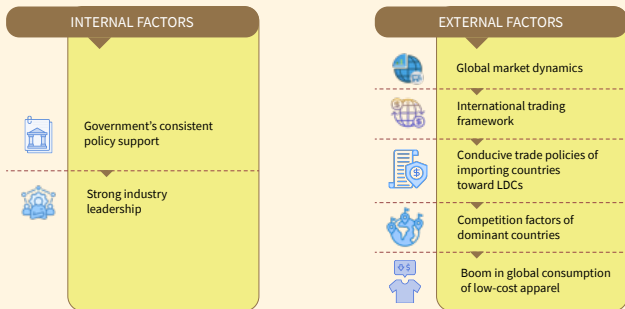
GoB Policy Support to the RMG Industry: Historical Chronology

Munzeleen Sarwar, Sadiq Mahmood

Bangladesh's ready-made garments (RMG) sector is an epitome of success for the Bangladesh economy thanks to consistent innovative policy support over the last four decades along with the leadership of the sector. The sector is considered to be at its tipping point for various factors discussed separately, it is worthwhile to look back at how the proactive policy measures and their effective implementation made RMG the **lifeline of Bangladesh's economy,** second to agriculture. It is to be noted that the success of Bangladesh's RMG sector is a combination of internal factors and external factors.

SUCCESS FACTORS OF RMG

INTERNAL FACTORS

Government's consistent policy support

Strong industry leadership

EXTERNAL FACTORS

Global market dynamics

International trading framework

Conducive trade policies of importing countries toward LDCs

Competition factors of dominant countries

Boom in global consumption of low-cost apparel

*This retrospect is a call for renewed innovation for this sector and other emerging sectors in the context of the **necessity of diversification** of Bangladesh's export basket.*

Total Export of Bangladesh (in Billion USD)

Export of RMG (in Billion USD)

% of RMG's to Total Export

DOMINANCE OF RMG EXPORTS

Staggering Export Growth

	FY84	FY90	FY95	FY00	FY05	FY10	FY15	FY20	FY21	FY22	FY23
% of RMG's to Total Export	3.89%	32.45%	64.17%	75.61%	74.15%	77.12%	81.68%	83%	81.16%	81.82%	84.58%
Total Export	0.81	1.92	3.47	5.75	8.65	16.20	31.21	33.67	38.76	52.08	55.56
Export of RMG	0.03	0.62	2.23	4.35	6.42	12.50	25.49	27.95	31.46	42.61	46.99
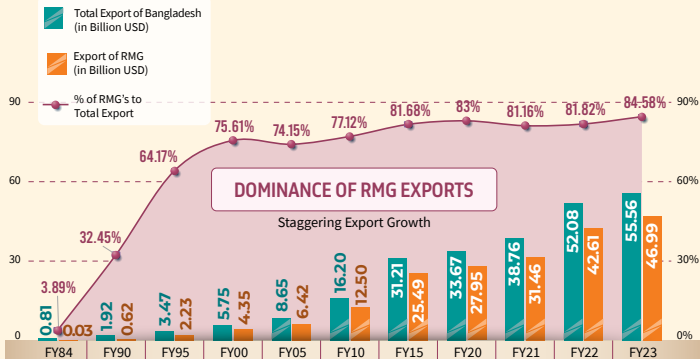
Source: BGMEA via EPB

The RMG industry dominates Bangladesh's total exports, typically accounting for **more than 80% of the earnings**, underscoring its significant contribution to **foreign exchange earnings and employment generation**

The RMG industry over the years has overtaken most of Bangladesh's export **portfolio from 50.47% in the FY91 to 84.58% in FY23.**

In the intra-RMG industry, **Knit-wear has dominated** the Total RMG exports of Bangladesh in recent years.

MAIN APPAREL ITEMS EXPORTED FROM BANGLADESH

Figures in million USD

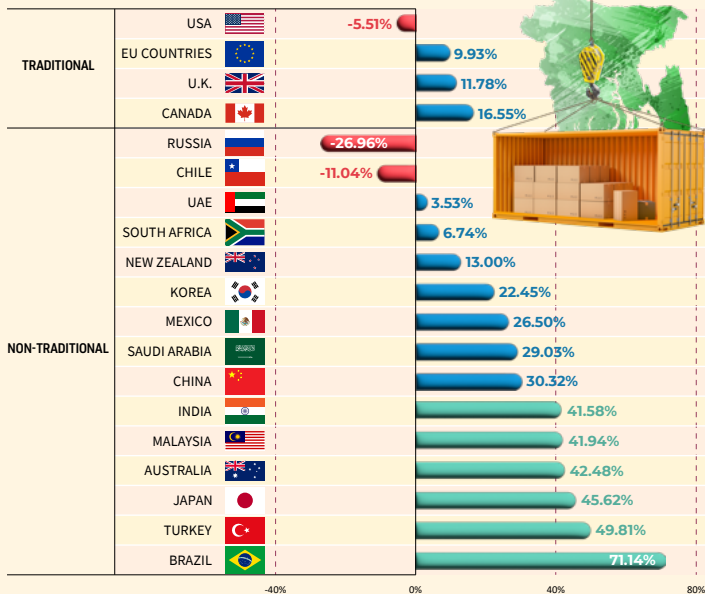**Trousers**   **T-Shirts & Knitted shirts**   **Sweaters**   **Shirts & Blouses**   **Underwear**

FY19
- Trousers: 11,755
- T-Shirts & Knitted shirts: 7,902
- Sweaters: 4,256
- Shirts & Blouses: 3,190
- Underwear: 1,640

FY20
- Trousers: 9,363
- T-Shirts & Knitted shirts: 6,274
- Sweaters: 3,598
- Shirts & Blouses: 2,450
- Underwear: 1,359

FY21
- Trousers: 10,682
- T-Shirts & Knitted shirts: 7,240
- Sweaters: 4,052
- Shirts & Blouses: 2,048
- Underwear: 1,790

FY22
- Trousers: 14,508
- T-Shirts & Knitted shirts: 9,858
- Sweaters: 5,640
- Shirts & Blouses: 2,766
- Underwear: 2,344

FY23
- Trousers: 14,953
- T-Shirts & Knitted shirts: 10,863
- Sweaters: 5,942
- Shirts & Blouses: 3,650
- Underwear: 2,370

Scale: 0 — 5,000 — 10,000 — 15,000

Trousers and **T-Shirts & Knitted Shirts** have contributed massively to the RMG export items over the years

RMG EXPORTS GROWTH IN FY23: TRADITIONAL VS NON-TRADITIONAL MARKETS

● Growing Markets   ● Declining Markets   ● Stable Markets

TRADITIONAL	USA	-5.51%	
	EU COUNTRIES	9.93%	
	U.K.	11.78%	
	CANADA	16.55%	
NON-TRADITIONAL	RUSSIA	-26.96%	
	CHILE	-11.04%	
	UAE	3.53%	
	SOUTH AFRICA	6.74%	
	NEW ZEALAND	13.00%	
	KOREA	22.45%	
	MEXICO	26.50%	
	SAUDI ARABIA	29.03%	
	CHINA	30.32%	
	INDIA	41.58%	
	MALAYSIA	41.94%	
	AUSTRALIA	42.48%	
	JAPAN	45.62%	
	TURKEY	49.81%	
	BRAZIL	71.14%	

-40%   0%   40%   80%

Source: BGMEA via EPB

In the FY23, Bangladesh has seen **negative growth** in RMG exports to USA, Russia and Chile. However, exports to new markets have grown significantly, such as **Japan, Australia and Brazil.**

Non-traditional markets can be relied upon to sustain export growth. Bangladeshi embassies must play an important role in increasing the export of goods to non-traditional markets

The Journey Began by Two Pioneers

In the early days (1970s), **Riaz Garments,** a pioneer alongside **Desh Garments,** kickstarted Bangladesh's RMG industry. Riaz garments began the journey with **export of shirts in 1978,** while Desh launched a **joint venture in 1979.** These early successes paved the way for other Bangladeshi entrepreneurs to enter the RMG sector.

1970s
Emergence of Industry vis a vis

Focus on Industrialization	Bangladesh's aspiration to become an industrial national just after liberation
Welcome to Private and Foreign investment	Restoration of policy for private and foreign investment by the new Investment Policy of 1974
Introduction of back-to-back LC	Innovation in 1978 that allowed RMG industry to import raw materials without working capital against a master LC from a buyer
Launching of Export Promotion Bureau (EPB)	Mechanism launched in 1975 for the facilitation of exports, including RMG to the global market through market research and global market participation through exhibitions
Multi-Fiber Arrangement (MFA)	Access to major destinations as an LDC providing comparative advantage (cheap labor) to Bangladeshi manufacturers, as there was a quota on other developing countries

1980s

Shift Towards Market-Driven Economy

Introduction of Export Processing Zone (EPZ)	Invitation of foreign investment with a bunch of stimuluses like duty-free import machinery and raw materials, subsidized credit facilities, bonded warehouse facilities and cash incentives.
Denationalization of textile industry	Privatization endeavor though 1982 New Industrial Policy (NPI) signaled a shift towards a market-driven economy.
Duty-free import	Facility of duty-free import of capital machineries and raw materials for export-oriented industries under the Import Policy Order (IPO) of 1981.
Impact in terms of competitiveness	Imposition of quota restrictions by the US and Canada in 1985 could not stop Bangladesh in consistently meeting these quotas and negotiated higher limits in later years.

1990s

Becoming a Trading Nation

Tariff Reform	Reduction of average tariff rates on all products from 114% in 1989 to 22% in 1999 played a positive impact on the RMG industry.
Tax holidays	Provision of tax holidays to RMG manufacturers under the Income Tax Ordinance with varying durations depending on factors such as location and export performance.
Compliance	Engagement with international institutions like ILO, UNICEF, USA for elimination of child labour.
Emergence of Knitwear	Expansion of market segments in knitwear focusing on shirts, T-shirts, trousers, sweaters, and jackets was a major boost to market consolidation thanks to government facilities.
Import substitution in textile and clothing	Export orientation as an economy was accompanied by import substitution in textile and RMG is a major feature of the transition of Bangladesh economy.
Shifting gear	Overhauling the economic engine thanks to 1900s reforms led to rapid growth of the economy.
Poverty Reduction	RMG industry played a role in rising manufacturing share in the economy, job creation, especially job creation for women and poverty reduction to 56.6% in 1990 from 74% in 1981.

2000s
Thriving by Market Diversification

Incentive for market diversification	Introduction of cash incentive package in 2010 to encourage exports to markets other than EU and North America allowing the industry to explore the non-traditional markets, facilitating the rise of export to USD 5.69 billion from USD 848 million in FY2008-09.
Compliance with labor standards	Enactment of the Bangladesh Labor Act of 2006 aiming to ensure workers' rights and improve working conditions in all industries, including RMG.
Duty-free quota free market access	Active role in WTO Agreement on Textiles and Clothing and access to major markets duty-free and quota free allowed more investment and growth of the sector. MFA (quota restriction) (1974-2005) phase out appeared to be a boon for Bangladesh, that unleashed potential due to quota restriction was possible to realize through product and market diversification.
Poverty Reduction	Steady decline in poverty, to 48.9% in 2000, and then further decline to 31.5% in 2010 through job creation.

2000s
Global Positioning

Promotion of Backward Linkage	Further reduction of import duties on raw materials and equipment in 2005 for all backward linkage industries. During FY 2006, imports of spare parts, dyes and chemicals for RMG had been zero-tariffed.
Post-MFA Action Program	The program, developed with support of development partners, allowed for a smooth transition from MFA to WTO-ATC with a USD 40 million support for retraining and re-employing laid-off garment workers.
Promotion of textile Sector	Withdrawal of import duty on textile machinery along with other items in 2008.
Support to RMG Industries to mitigate the challenge of the global financial crisis	Special package in FY 2008-09 and FY 2009-10 targeting industries which were affected by the global financial crisis.

2010s
Labour Rights & Sustainability

Extension of tax holidays	In FY2010, the government extended the tax holiday facility, in a staggered manner.
Focus on Sustainability and Compliance	Introduction of Bangladesh Accord and the Alliance for Bangladesh Worker Safety following the Rana Plaza tragedy in 2013, which resulted in the deaths of over 1,100 RMG workers, Introduction of the National Tripartite Plan of Action on Fire Safety and Structural Integrity in the RMG in 2013 to improve factory safety standards.
Launching of the Bangladesh National Sustainable Development Strategy (2010-2021)	Action plans for promoting sustainable development in the RMG industry.
Shifting to High-value segment	Incentives for high-value added RMG and garments accessories sectors in the Export Policy 2015-18. The sector continued to enjoy reduced tariff rates for importing materials and machinery, while back-to-back L/C facilities address working capital issues, particularly benefiting SMEs.
Skills and capacity Enhancement	Policy to support the training and development of RMG industry workers through Textile Policy 2017.
Renewed Preferential Market Access Arrangements	Launching of international trade agreements like WTO ATC, EU-EBA), and US tariff relief programs by active participation of Bangladesh government and civil society.

2020s
Green Transition

Pre-shipment credit	Revisiting interest rates from 6% to 2-5% to help RMG companies maintain export activities during the pandemic.
Focus on ESG	Minimum Wages Revision in 2019 and 2023.
Preferential tax regime	Introduction of a discounted tax rate for export-oriented RMG factories at 12% and 10% for green ones.
Green Transformation Fund	Discounted loans in local currency to support eco-friendly upgrades in RMG production.
Export Facilitation Fund	Easy-term pre-financing for RMG companies to import raw materials or purchase them locally.
Export Development Fund	Short-term dollar loans for RMG manufacturers to buy materials for export orders.

What are the lessons learned from the consistent policy support of the government towards the RMG sector?

Identification of global market potential, which is easy to capture given **competitive strength**	Patient support by the government despite ups and downs and believing in **'mission impossible'**	Present attractiveness for the foreign buyers and investors as **destination of investment** for manufacturing and subsequent export

Getting favorable market access thanks to **constructive economic diplomacy**	Develop **industry leadership** and its ability to impress government policy makers	Openness to **engage experts** from the private sector and think tanks in **defining sectoral policies** and strategies	Availability of appropriate **human resources**
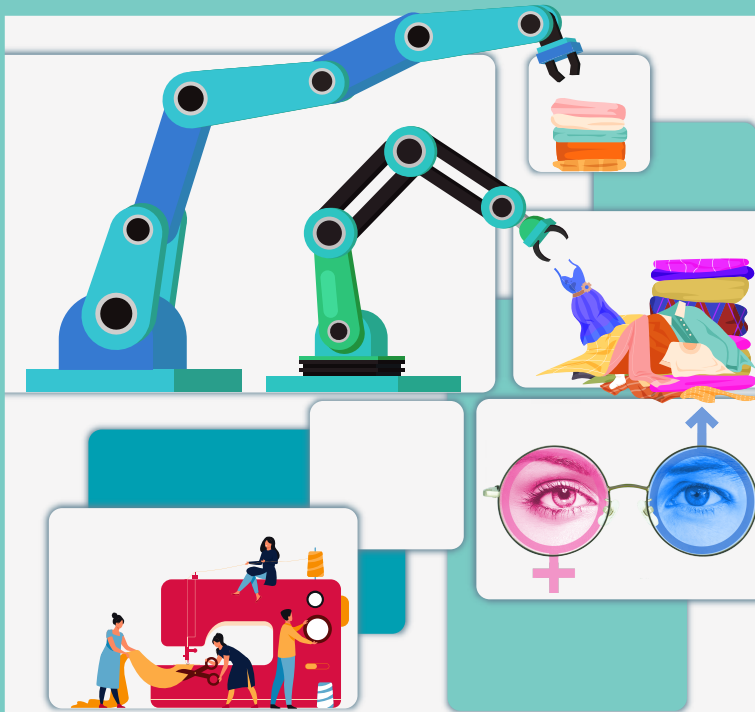
Automation in RMG sector:
Impact on Employment
through a Gender Lens

Munzeleen Sarwar, Ananya Raihan

A. LABOUR FORCE IN BANGLADESH'S RMG SECTOR AND SIGNIFICANCE IN THE ECONOMY

RMG's Contribution to National GDP in FY23

10.35%

CONTRIBUTION TO EXPORT IN FY23

USD 46991.61 MILLION (84.5%)
Increased by 10.27% compared to the last fiscal year

NO. OF RMG FACTORIES IN BANGLADESH

> 4000

LEGAL MINIMUM WAGE FOR GARMENT WORKERS

TK 12,500

FOREIGN EMPLOYMENT

Around 15% of Bangladesh RMG factories employ foreign staff (roughly 2,200 total), primarily in management and merchandising roles (ACD survey, 2020)

Total RMG Employment Figures (ACD survey, 2020)

4.22 MILLION

MALE EMPLOYMENT	FEMALE EMPLOYMENT
1.72 MILLION	2.50 MILLION

Bangladesh's RMG workforce grew modestly (1.07% annually) from 2015 to 2020 (ACD Survey 2020). While male workers saw a positive 4% increase, the female workforce dipped negatively by -0.7%.

FEWER WOMEN IN BANGLADESH GARMENT FACTORIES:

Women's share of the workforce has dropped significantly, from 80% in the 1980s to less than 66% now (BRAC & ETI, 2023).

The increasing number of skilled women workers leaving the industry is likely to impact productivity, lead to delays, and increase subcontracting risks.

The number of women leaving Bangladesh's garment industry is on the rise (51% in 2021 vs. 49% in 2015). 89% of leavers did so voluntarily.

12% females are less likely to leave if they receive training for automation (Ethical Trading Initiative, 2023).

Gender-wise Employment in RMG Sectors

Data from ACD survey 2015 and 2020

MALE
In thousands
■ 2015 ■ 2020

	KNIT	WOVEN	SWEATER	MIXED	TOTAL
2015	445	565	241	110	1,410
2020	298	924	472	146	1,722

FEMALE
In thousands
■ 2015 ■ 2020

	KNIT	WOVEN	SWEATER	MIXED	TOTAL
2015	620	1,355	278	254	2,591
2020	518	1,244	364	254	2,498
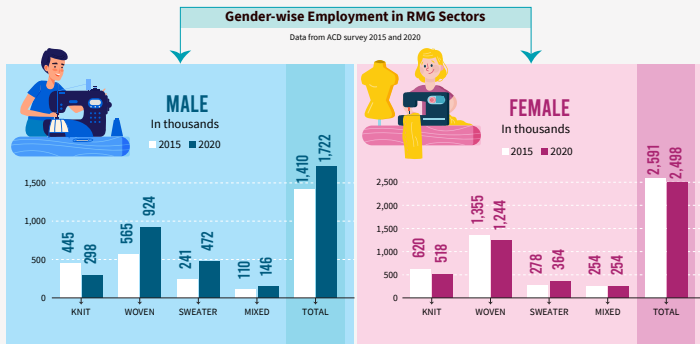
The ACD surveys (2015 vs. 2020) show a decline in female employment within the knit and woven

B. ROLE OF HUMAN LABOUR IN THE RMG INDUSTRY

Bangladesh's RMG industry thrives on its **human capital** driving efficiency, social impact, and economic growth. As it evolves, technology and innovation complement this human foundation, ensuring competitiveness and sustainability.

EMPLOYMENT GENERATION AND SKILL DEVELOPMENT
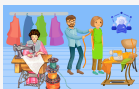
The industry's labor-intensive nature creates job opportunities at various skill levels, fostering skill development and contributing to **overall poverty reduction.**

ECONOMIC GROWTH CONTRIBUTION

The RMG sector is the **backbone of our exports,** thanks to the tireless efforts of its workers. This role of human labour translates to increased exports, foreign currency inflow, and government revenue.

SOCIAL IMPACT AND EMPOWERMENT

The RMG boom **empowered many women,** especially from rural areas, by offering financial independence, source of income, healthcare, and a path to social mobility. Before this, female labor participation was very low, according to World Bank.

C. CHALLENGES RELATED TO WORKFORCE IN RMG INDUSTRY

LACK OF SKILLED WORKFORCE	JOB CREATION	PAYMENT	INFORMAL CONTRACT	RISKS OF WOMEN IN RMG	NATURE OF WORK
Lacks up-to-date training resources and qualified instructors, setting back skilled workforce development.	Despite a massive surge in garment exports, Bangladesh's RMG industry hasn't seen a significant increase in jobs **(stuck around 3.5-4 million).**	Bangladeshi garment factories supplying British fashion brands are reportedly **underpaid (below the cost of production),** according to a joint study by the University of Aberdeen and Transform Trade. Factories often also delay months of wages and festival bonuses to the workers.	A vast majority **(92%)** of Bangladeshi garment workers **lack written contracts,** compared to neighboring countries (Pakistan: 90%, India: 65%), according to the Asia Floor Wage Alliance (2024).	▶ Fear of losing jobs due to **informality.** ▶ Difficulty finding work after 35. ▶ High prevalence of **unfair practices.** ▶ A staggering **91%** reported unsafe conditions (Global Fund End Modern Slavery, 2022)	Nearly a third **(29%)** of RMG workers stand while working. More men **(21%)** than women **(13%)** stand or sit at work (ACD survey 2020). Automation and higher wages led to higher expected output from workers (200-250 pieces per day) but ▶ **feasible output was much lower** (100-150 pieces per day, according to the Ethical Trading Initiative (2023).

D. AUTOMATION AND AI (ARTIFICIAL INTELLIGENCE) HAVE ARRIVED IN THE RMG INDUSTRY

AUTOMATION IN FABRIC INSPECTION

Invention of online automated inspection systems has mitigated the major issues related to quality control as human error has often led to inaccuracies and inefficiencies in the inspection process

FABRIC HANDLING AND CUTTING

Automated machines can now precisely spread fabric layers and cut out garment pieces with minimal waste.

PRESSING

Ironing clothes in garment factories is a tough, manual job usually done by men with high turnover. While some fancy pressing robots exist, most factories haven't adopted them.

DESIGN AND PROTOTYPING

3D scanners can help create better fitted clothes using digital models to modify garment designs and quick sampling.

SEWING

Sewing is mostly manual, but some factories use robots for speed. New robots handle specific tasks, while others aim to sew entire garments. These robots have limitations in fabric types and require special techniques. 3D sewing might be the future for complex, high-quality clothes. Example: Sewbo robot, developed by Zornow (which costs $35,000), can make a T-shirt in just 4 minutes.

USE OF RADIO-FREQUENCY IDENTIFICATION

Clothes tags with chips (RFID) can track garments real-time. This helps factories manage inventory better by streamlining supply chain management using automated sorting systems. For instance, tags on fabric bundles can show what kind of fabric it is, the style, and color.

E. ADVANTAGES OF AUTOMATION IN RMG

INCREASE IN PRODUCTIVITY

It is estimated that 40 to 70 percent of labor time can be reduced through automation.

INCREASED INVENTORY TURNOVER

Rapid production cycle of fast fashion, growing a competitive edge over other manufacturers.

REPLACEMENT OF REPETITIVE AND MONOTONOUS WORK

New machines shape, cut, and attach belt loops simultaneously, which was a slow and manual task before consisting of multiple steps, saving time, labor costs, and reducing errors.

ACHIEVING MANUFACTURING CONSISTENCY

Minimizing product and batch variability leading to higher quality standards and a reduction in the need for rework activities.

PERFORMING JOBS BEYOND HUMAN CAPABILITY

Juki offers sewing machines that are capable of automatically sewing buttons and creating buttonholes.

REDUCTION OF DIRECT HUMAN LABOR COSTS AND OVERHEADS

In some cases, automation has reduced the number of laborers by almost 50-60% and in some cases up to 90%

AI CAN HELP IN PREDICTING THE FABRIC PROPERTIES AND FABRIC FAULT DETECTION

A new method breaks down the fabric image into "cartoon" (smooth areas) and "texture". Defects show up clearly in the texture, allowing for easy detection and classification based on size, shape, and intensity.

Sources: McKinsey, Royale International, Fibre2Fashion, Textile Focus and Textile Today

F. CHALLENGES OF ADOPTION OF AUTOMATION IN BANGLADESH'S RMG

LAGGING ADOPTION

About **62%** of the RMG workers in Bangladesh operate machines at work (ACD Survey 2020).

Financial payback on automation is around five years in Bangladesh (in comparison to around 1.5 years in China). Competitors are way ahead:

India with SewBot technology

Vietnam with Cobots for repetitive tasks. Global brands like Uniqlo are implementing robotic cutting technology in Vietnam.

China with smart clothing, manufacturing and robotic arms.

LIMITED INVESTMENT

The high upfront costs of advanced technologies like 3D printing and Augmented.

FOCUS ON LOW COST

Traditionally focused on being a **low-cost producer,** might lead to hesitation in adopting expensive automation solutions.

SKILLS GAP IN AUTOMATION

Workers lack expertise due to continuous advancements in machinery. While 68% of RMG workers received training, **nearly half (44%)** had only 1 day, and just 13% trained for 6 months.

Automation is also not strategically planned; new machines are acquired based on immediate needs.

Sources: ACD Survey 2020, Centre for Policy Dialogue, RMG Bangladesh International, Fibre2Fashion, Textile Focus and Textile Today, Leading in the Digital Age: The Perspectives of the Readymade Garments Sector of Bangladesh, Mohammad Alam Tareque et al., (2020), Swiss EP, LightCastle

G. AUTOMATION IN BANGLADESH'S RMG

Automated Knitting and Yarn Management: A few examples

MOHAMMADI GROUP'S knitting process is fully automated.

Envoy Textiles, a denim manufacturer, leverages robotics to boost production and product quality for effective yarn management.

Precision Dyeing and Chemical Dispensing:

DBL GROUP has adopted automated systems for dyeing and chemical dispensing, ensuring accurate use and minimizing waste. In the sewing lines, they use energy-efficient servo motors rather than conventional clutch motors and an Eco Booster, a cutting-edge heat recovery device that cleans itself automatically. They also use AutoDosing for controlled measures of chemicals to achieve optimum results.

AI-powered Fabric Optimization:

BEXIMCO GROUP utilizes ThreadSol software with AI to optimize fabric utilization, reducing waste.

Advanced Printing Technology:

ROBINTEX GROUP, a German-Bangladesh joint venture, boasts the world's fastest single-pass digital printing machine for high-quality AOP printing, which has reduced lead time by 2-3 weeks, and the company can ship orders within 4-5 weeks.

Productivity:

TEAM GROUP, with their LEED-certified factory implemented a semi-automated production line. This approach has resulted in a significant boost of 10-15% in productivity, time management, and cost-effectiveness.

MASCO KNITTING, part of the Masco Group, utilizes a combination of advanced software-supported circular and rib-knit machines. This ensures their production capabilities remain up-to-date and meet the ever-changing demands of the industry.

Sources:
LightCastle, Centre for Policy Dialogue, Textile Excellence, ICE Business Times, Textile Today, Company reports

According to World Bank data, the number of new jobs added by the garment and textile industry has fallen to **60,000 a year, from over 300,000 annually** between 2003 and 2010 (Wall Street Journal). In Bangladesh, the pace of **job creation has fallen too.** According to BBS, total employment in the manufacturing sector fell from **9.5 million in 2013 to 8.6 million in 2016,** shrinking the employment by 1 million despite adding more than 450 billion BDT output.

One significant factor that slowed down job creation is the automation of **low-skilled repetitive and dangerous jobs** in the ready-made garments (RMG) sector, according to ILO.

Rising wages for low-skilled workers **incentivize automation.** Bangladesh's dependence on RMG makes this a major concern, as the industry **might not always absorb the same number of workers,** according to ADB.
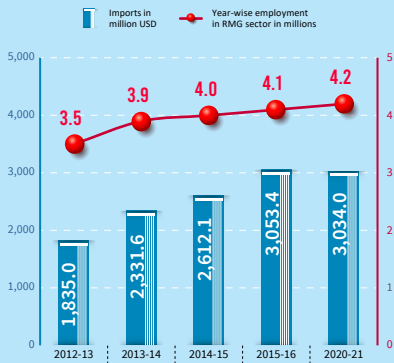
POSSIBLE NUMBER OF JOB LOSS BY 2041 IN RMG SECTORS

OCCUPATIONS	POSSIBLE NUMBER OF JOB LOSS BY 2041
Sewing operators who operate single needle lockstitch machine, double needle lockstitch machine, single and double needle chain stitch machine, Sewing Machine Mechanic **(Level 1):** Skills which can be acquired with short modular and focused intervention and thereby enhancing the employability of those with minimal education.	**500,000**
Floor Supervisor, Pattern Maker **(Level 2):** Skills which require technical training inputs, knowledge of complex operations and machinery, skills of supervision, floor supervisor, pattern maker fall under this category.	**10,000**
Pattern Making for Knitwear, Quality Control, Production Planner, Merchandiser **(Level 3):** Skills which require long drawn preparation as demonstrated by the acquisition of degrees and involve highly technical capabilities.	**10,000**
Fashion Designer, CAD-CAM Operator, Portfolio Developer, Production Planner and Controller **(Level 4):** Skills which are highly specialized and require research and design.	**5,000**

Source: - A2i PROGRAMME, GOVERNMENT OF BANGLADESH, 2019
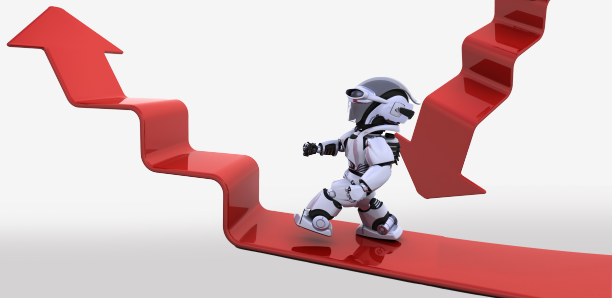
CAPITAL MACHINERY IMPORTS VS. EMPLOYMENT

Imports in million USD

Year-wise employment in RMG sector in millions

Year	Imports in million USD	Employment in millions
2012-13	1,835.0	3.5
2013-14	2,331.6	3.9
2014-15	2,612.1	4.0
2015-16	3,053.4	4.1
2020-21	3,034.0	4.2

Despite the % of total exports of RMG jumping from 79.61% in 2012 to 81.16% in 2020, the employment figures in the RMG industry have been **stagnant around 3.4-4 million.**

We observe **more output in the industry, but less recruitment** in employment as the growth may be driven by automation and more capital machinery imports.

Source
Imports of Capital Machinery: BB

NUMBER OF WORKERS VIS-À-VIS IMPORT OF MACHINERIES IN MILLION USD

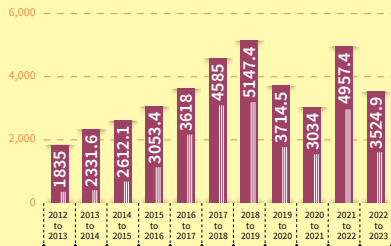|	2012-13	2013-14	2014-15	2015-16	2020-21
	1,907	1,672	1,531	1,343	1,384
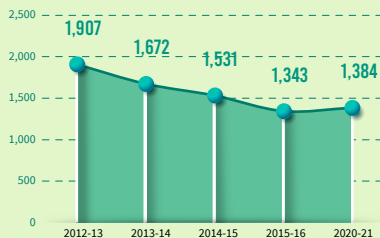
A decreasing ratio of workers vis-a-vis capital machinery import shows that the RMG industry is likely to be becoming **less labour-intensive** over the years. The need for **official employment figures** over more years of the RMG industry is still crucial in understanding the trends

IMPORT OF MACHINERY AND NUMBER OF JOBS PER MILLION USD RATIO

After dividing the RMG Employment Data in Millions by Capital Machinery Imports, the ratio can help us deduce whether the industry is becoming more labour-intensive or capital-intensive.

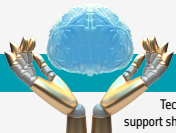## CAPITAL MACHINERY IMPORTS (IN MILLION USD)

2012 to 2013	2013 to 2014	2014 to 2015	2015 to 2016	2016 to 2017	2017 to 2018	2018 to 2019	2019 to 2020	2020 to 2021	2021 to 2022	2022 to 2023
1835	2331.6	2612.1	3053.4	361.8	4585	5147.4	3714.5	3034	4957.4	3524.9

On another note, **a decline in capital equipment imports means a decline in new investment** in the industry. It brings down industrial production and hits the employment sector hard.

When there is no increase in industrial investment, **no new employment** will be generated

Source
Bangladesh Bank

Research shows that capital machinery import and private sector credit can significantly **promote industrial output growth.**

Sources: RMG Bangladesh, BGMEA, Bangladesh Bank, Prothom Alo, Hoque, Md. (2017). Capital Machinery Import and Industrial Output Growth in Bangladesh: A Co integration Analysis. XLII. 95-121., Rahman, Md & Habibullah, Md & Masum, Md. (2017). Readymade Garment Industry in Bangladesh: Growth, Contribution and Challenges. IOSR Journal of Economics and Finance. 08. 01-07. 10.9790/5933-0803010107.

J. PREDICTIONS FOR THE ROLE OF HUMAN LABOR AND AI

Technology adoption and upgradation will need to be incentivised and encouraged. Additionally, support should be provided for the development of robust backward linkages in the non-cotton apparel sector.

While automation may lead to job losses, it can also create new opportunities.	Machines will require operators, repair technicians, and maintenance personnel.	New job titles that will emerge include "bot trainer," "bot farmer," and "bot curator".	Higher-order skill jobs will continue to be performed by humans, and workers can acquire these skills to earn higher wages.

The Bangladeshi government's Skills for Employment Investment Program (SEIP) aims to enhance Technical and Vocational Education Training (TVET) and Technical Training Centers (TTC) infrastructure to prepare workers for automation.

WHAT'S AHEAD?

Data Analytics and Forecasting: Analyze data from various sources, including sales trends, customer preferences, and production efficiency, to optimize decision-making processes.	Sustainable Practices: Automated cutting systems can minimize fabric wastage, while energy-efficient machinery and processes contribute to reducing the environmental footprint of garment production.	E-commerce Integration: Enabling efficient order processing, inventory management, and fulfillment for e-commerce retailers.

Sources: Centre for Policy Dialogue (CPD), Deloitte

K. DEFEMINIZATION DUE TO AUTOMATION

Economists Sheba Tejani and William Milberg identified a global defeminization trend due to industrial upgradation. Their research shows that capital intensity in production, as evidenced by shifts in labour productivity, is negatively and significantly related to shifts in the female share of employment in manufacturing.

WOMEN IN REPETITIVE TASKS ARE PARTICULARLY VULNERABLE, WHILE NEW JOBS CREATED MIGHT FAVOR MEN WITH TECHNICAL SKILLS.

A study by CPD found automation in garment factories is reducing female worker participation (from 64% in 2015 to 60.8% in 2016). Factory owners see them as less suited for new machinery. Female workers are proportionally less knowledgeable about operating different machines compared with their male counterparts, according to the study prepared by surveying 193 garment enterprises and 2,123 workers. Except single needle and double needle machines, female workers are behind male workers in operating machines.

ETI study also found that the percentage of women workers decreased in cutting and sewing processes, whilst the average number of machines increased.

0.5%	of managers in RMG enterprises are female (Grade I)	of HR managers in RMG enterprises are female (Grade II) **9.3%**

(CPD, 2018)

BELAYET HOSSAIN

*Chairman at
Eurotex Knitwear ltd.*

*Over the past four years, we've embraced **automation in 30% of our processes**, achieving greater efficiency without a single layoff. Our philosophy? **Reskilling, not replacement.** By investing in continuous training for our employees, we empower them to **adapt and thrive alongside automation.** In fact, automation creates opportunities for us to build capacity and take on more complex tasks.*

SHAMS MAHMUD

*Director, BGMEA &
Managing Director,
Shasha Garments Ltd.*

*While automation's impact on overall employment hasn't been significant yet, it has **affected the sweater industry.** The upcoming years are likely to see a **disruption with the rise of process automation** and Enterprise Resource Planning (ERP) software adoption. These advancements will streamline corporate tasks, **potentially leading to job losses in administrative and data entry roles.***

*Our current curriculum training for RMG workers, based on UK textbooks, focuses heavily on machinery. However, leading competitors in Turkey and India prioritize understanding cotton properties and **invest heavily in R&D.** This **outdated approach** puts us at a disadvantage.*

*We need a **radical overhaul of the curriculum** to focus not just on machinery but in-depth knowledge of cotton, along with increased investment in R&D to **compete effectively** in the global market.*

Industry

cing AI, ESG

Ananya Raihan

FACTORIES STARTING ESG COMPLIANCE BUT NOT GETTING DIVIDENDS

Fatullah Apparels Limited, a knitwear factory with about 500 workers, located at Jalkuri in Narayanganj, outskirts of Dhaka, received platinum rating of LEED (Leadership in Energy and Environmental Design) certification, the world's most widely used green building rating system under United States Green Building Council (USGBC) on September 7, 2022. The chief executive officer of the factory, Fazlee Shamim Ehsan, claimed that the factory is the highest rated (97 points out of 110) in terms of USGBC's lead certified knitwear garment factory.

> " I grew up in a natural environment since childhood, which inspired me to build my workplace environmentally friendly surrounded by trees - such an aspiration has always been in me. That is why we have invested in building this eco-friendly factory.

FAZLEE SHAMIM EHSAN
CEO of Fatullah Apparels Limited

However, my factory does not really fulfill all the conditions of ESG. Environmental and social issues are reported in International Standards. We maintain the governance issue as per labour act, but it is not yet at the reporting stage.

In a normal factory where the temperature is higher than outside, this factory is at least two degrees cooler than the temperature outside in the shade.

Factory workers are happy. However, a section of workers wants to leave the factory to even another normal factory for better wages as they offer more overtime duty than us. We can't offer more overtime duty more than 10 hours a week due to comply international standard.

I did not get anything special except 'thanks' from the buyers for setting up green factories by making big investments. My factory does not get extra price than other normal factories.

IOT INSTALLATION INCREASES TEAM GROUP'S PRODUCTION UP TO 12%

The Team Group, a leading apparel maker in the country, has managed to increase its production up to 12% with "Nidle" a smart factory solution for apparel manufacturing shop-floor operation.

Using IoT-based this smart solution, factories can track, optimise, and digitise their operations in a real-time dashboard, from any location, to enhance efficiency and quality, and reduce production waste.

The solution also developed by the team group's sister concern, Intellier Ltd, the next-generation IT Solution Provider, brings "Smart Factory Solutions" using groundbreaking 4.0 IR technologies to address the challenge of the apparel industry.

Nidle offers cutting-edge technology solutions to integrate Man, Machine and Process towards improving productivity, quality, timeliness, transparency and control.

It measures the performance of every operation and the operator of a sewing line through the IoT devices attached to the machines. It makes real-time monitoring of production performance possible.

Through Nidle, target versus actual performance is visible to workers and managers. Real-time tracking of quality, rejection and re-works helps improve quality performance and wastage control.

The Team Group first piloted Nidle in its LEED Platinum-rated outerwear manufacturing unit 4A Yarn Dyeing Ltd in 2020. Nidle contributed to increasing the efficiency of 4A Yarn Dyeing Ltd by 10% to 12%. Subsequently, Team has also been implementing the solution among other apparel concerns of the group, said Abdullah Hil Rakib, managing director of Team Group.

Saeed Ahmed, COO at Inellier Ltd said Talking with out of the team group Chattogram based Yunusco group's factory also installed the Nidle to improve their productivity and another three apparel factories are in the pipeline to procure this smart factory solution.

He further said every day, our team are working on developments including algorithms, AI and machine learning to get the best result.

> "Factories in Bangladesh usually follow manual systems for assessing the productivity of workers. As a result, supervisors have the scope to manipulate the productivity data of workers and they often get involved in nepotism to determine workers' salary grades."

ABDULLAH HIL RAKIB
Managing Director of Team Group

"Moreover, the manual data shared by supervisors does not provide any in-depth line-wise information, which is a major hurdle for a factory in achieving optimum production and quality targets on time," he said.

By digitising the process, Nidle has solved the said problems while improving the productivity, efficiency and transparency of the apparel factories of the Team Group, said the managing director.

Production managers and industrial engineers strive to achieve line-wise productivity targets while maintaining quality and it becomes difficult for them to achieve the targets due to a lack of real-time information.

Aminul Islam, Production manager at 4A Yarn Dyeing Ltd said that this solution also helps them to reduce time wastage which also helps them to meet their lead time.

He further mentioned that quantifying the reduce of wastage vale is difficult as it depends on the value of products.

Aminul Islam said this solution has no effects on their employment number but it also secures their jobs and makes them skilled through identity their lacking and needs of trainings.

The factory employed about 7500 people.

Why LDC Graduation in 2026 is Different from MFA Phaseout in 2005 for RMG Sector

Dr. Ananya Raihan

Bangladesh has been enjoying **preferential market access** to major global markets. As Bangladesh is graduating from LDC, the preferential treatment will be **lost after 2026,** in certain cases after 2029.
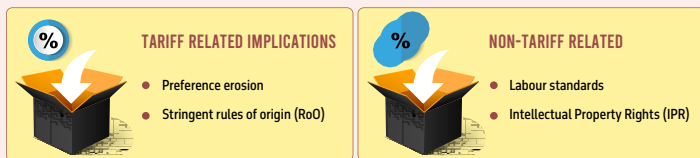
Many argue that Bangladesh successfully **overcame** the phase out of **multi-fiber arrangement (MFA) in 2005**. The inherent strength Bangladesh gained in early 2000s allowed Bangladesh to grow faster and Bangladesh became the **second largest supplier of RMG** in the global market. In the same vein, Bangladesh will be able to overcome the **implications of LDC graduation** smoothly.

This confidence is important, however, there is need for **thread-bearing analysis** considering both internal and external factors.

The RMG sector accounts for more than four-fifths of Bangladesh's total global export earnings and the apparel products face tariff peaks in almost all key markets of Bangladesh. The major impact will come from **preference erosion in tariff.**

Tariffs facing Bangladesh's apparels are, on average, about **12 percent** in the EU and **16-18 percent** in Canada.

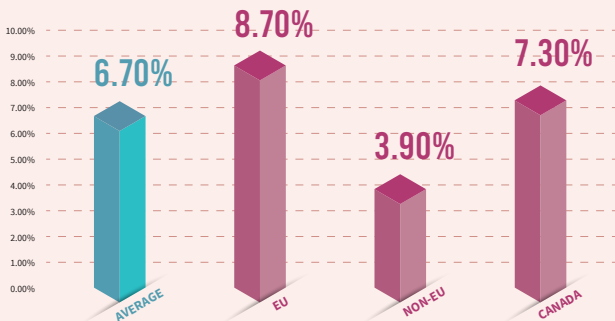## Implications of Preference Erosion

TARIFF RELATED IMPLICATIONS

- Preference erosion
- Stringent rules of origin (RoO)

NON-TARIFF RELATED

- Labour standards
- Intellectual Property Rights (IPR)

PREFERENCE EROSION
Average Tariff to be Imposed on Bangladeshi RMG Products in Major markets

	AVERAGE	EU	NON-EU	CANADA
	6.70%	8.70%	3.90%	7.30%

This preference erosion will have two potential outcomes:

Rise in price of Bangladeshi products absorbing this tariff without reduction of demand	Pressure for cost reduction will force many firms to exit the market.

It is also anticipated that compliance, especially in labour and environment standards will deteriorate.

It is interesting to note that irrespective of preferential market access, Bangladeshi products' prices are on decline, whereas the prices of the same Vietnamese products are either rising or stable. Moreover, the prices of the same products are higher from Vietnamese origin.

Price Decline of Bangladeshi Products vs Rise for Vietnamese Products

ITEM	REFERENCE YEAR	BANGLADESH	VIETNAM
Price of 100 kilograms of cotton fiber T-shirt	2020	Declined by 1%	3% increase
		1,091.5 Euro	2,157.9 Euro
Price of 100 kg of women or girls' cotton fiber pullover	2020	Declined 7%	Stable
		1,329.5 Euro	2157.8 Euro
Price of 100 kg of man-made fiber pullovers for women and girls	2020	Declined 6%	3% increase
		1,319.4 Euro	1,906.2 Euro
Price of a dozen of T-shirts made from cotton	2019	Decline 20%	Decline 17%
		17.99 USD	31.9 USD
Price of a dozen of sweaters and pullovers	2020	Declined 2%	Stable
		39.31 USD	46.9 USD
Price of a dozen of trousers for women and girls made from cotton fiber	2019	12%	Decline 6%
		64.17 USD	84.6 USD

Bangladesh needs to look at price negotiation capability, lead time management, shipment failure and other factors.

VIETNAM–JAPAN

Economic Partnership Agreement

VIETNAM–CHILE

Free Trade Agreement

VIETNAM–KOREA

Free Trade Agreement

VIETNAM–EURASIAN ECONOMIC UNION
Free Trade Agreement

ASEAN AGREEMENTS:

ASEAN–INDIA
Free Trade Agreement

ASEAN–AUSTRALIA–NEW ZEALAND
Free Trade Agreement

*Bangladesh has a very **limited number** of bi-lateral, regional or multilateral market access.*