Report on

Building a Green Future in Textile Industry in Bangladesh:

A Focus on Sustainable Supply Chain Strategies at Square Textile Division

By

Md. Nazim Uddin Rayhan

23382002

A practicum report submitted to the BRAC Institute of Governance and Development (BIGD) in partial fulfillment of the requirements for the degree of Masters in Procurement and Supply Management (MPSM).

BRAC Institute of Governance and Development (BIGD)

BRAC University

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Declaration

It is hereby declared that, the report submitted is my own original work while completing degree at BRAC University. The report does not contain material previously published or written by a third party, except where this is appropriately cited through full and accurate referencing. The report does not contain material that has been accepted, or submitted, for any other degree or diploma at a university or other institution. I have acknowledged all main sources of help.

Student's Full Name and Signature

MD. NAZIM UDDIN RAYHAN

23382002

Academic Supervisor's Full Name and Signature

Mohammad Sirajul Islam

Sr. Academic Coordinator, BIGD, BRAC University

Letter of Transmittal

Mohammad Sirajul Islam

Sr. Academic Coordinator

BIGD, BRAC University

Subject: Submission of practicum report titled **"Building a Green Future in Textile Industry in Bangladesh: A Focus on Sustainable Supply Chain Strategies at Square Textile Division"**

Dear Sir,

I am grateful to submit herewith my report on "Building a Green Future in Textile Industry in Bangladesh: A Focus on Sustainable Supply Chain Strategies at Square Textile Division", as a partial requirement to achieve the degree of Masters in Procurement and Supply Chain Management. It is my proud privilege to work under your active supervision and guidance.

I have attempted my best to finish the report with the essential data from senior officers of directorate of Primary Education, student and teacher in prevent dropout.

I hope that the report will meet the desires.

Sincerely yours,

_____

MD. NAZIM UDDIN RAYHAN

23382002

BIGD, BRAC University

Non-Disclosure Agreement

This agreement is made and entered into by the undersigned MD. NAZIM UDDIN RAYHAN at BRAC University and the Square Textile Division. As I am currently working at the organization, I have access to the Organization's information. I agree that I will keep all the information strictly confidential and will not share it with anyone outside of the organization.

Student's Full Name and Signature

_____

MD. NAZIM UDDIN RAYHAN

23382002

Workplace Supervisor's Full Name and Signature

_____

Mr. Rajibul Kabir

Assistant General Manager (AGM)

Square Textile Division

Acknowledgement

First and foremost, all praise goes to the Almighty Allah for granting me the strength, health, and determination to successfully complete this assignment and report. Without divine guidance and blessings, none of this would have been possible. I would like to express my sincere gratitude to my academic supervisor, Mr. Mohammad Sirajul Islam, Senior Academic Coordinator, BIGD, BRAC University & workplace supervisor Mr. Rajibul Kabir, Assistant General Manager (AGM), for his continuous support, encouragement, and expert guidance throughout the preparation of this report. His insightful suggestions and valuable feedback were instrumental in shaping the structure and content of this work. This report has been developed based on my practical experience in the Procurement Raw Materials (PRM) department at SQUARE Textile Division, where I have gained a deeper understanding of the supply chain processes and strategic sourcing mechanisms. The information that I learned through this experience greatly enhanced the quality and relevance of the report. I also owe my debt of gratitude to my colleague within the SQUARE Textile Division who have graciously offered their time, experience and expertise to me. Their collaboration facilitated the task and made it more informative.

Finally, I would like to express my gratitude to the faculty and staff of my academic institution that have helped and supported me. I am still inspired in my career path by their primary teachings and ethical encouragement. Although it has been done with utmost care to make this report as accurate and as quality as possible, I must admit it is solely my responsibility in case of any errors and failures.

Executive Summary

Textile and ready-made garment (RMG) are a critical part of the economy of Bangladesh that provides more than 80 percent of the earnings as exports and provides millions of workers. Concurrently, this industry is among the most resource-intensive and ecologically demanding industries around the globe, with almost 10 percent of the global carbon emissions and 90 billion cubic meters of water a year. Bangladesh, as the second-largest exporter of RMG, faces mounting pressure from international buyers and regulatory bodies to adopt sustainable supply chain practices that align with global climate goals, particularly the United Nations Sustainable Development Goals (SDGs).

This practicum report titled "Building a Green Future in Textile Industry in Bangladesh: A Focus on Sustainable Supply Chain Strategies at Square Textile Division" explores how one of the leading textile firms in the country—Square Textile Division—has integrated sustainability into its procurement and supply chain operations.

This practicum work was done at Square Textile Division over a period of four months (February 2025 -May 2025) by relying on document review, involvement with supplier's audit, analysis of ERP data, and live observation of the day-to-day procurement operations. The results indicate that Square Textile has incorporated sustainability in its operational strategy. Over 90 percent of its sourcing of yarn and fabric is based on internationally recognized standards like Better Cotton Initiative (BCI), Global Organic Textile Standard (GOTS), Organic Content Standard (OCS), Recycled Claim Standard (RCS) and Global Recycled Standard (GRS). Moreover, Square uses high-tech digital traceability systems to track material origin and adherence to sustainability standards in real-time (SAP ERP, Trus Trace, and Textile Genesis). Not only do these steps increase transparency, but they also assist Square in acquiring

long-term agreements with international brands that have been paying an ever-increasing attention to the performance of environmental and social governance (ESG). In addition to certified procurement, Square has gone an extra mile to incorporate circular economy concepts in its operations. Reusing fabric scraps, recycling yarn, limiting water and chemical in dyeing, investing in regenerative farming methods have decreased waste and resource reliance. Moreover, Square has introduced employee-based sustainability initiatives, such as a program called Sustainability Champions, which supports behavioral change within departments and guarantees that green practices continually enhance.

While carrying out the practicum work, several challenges have been revealed. A shift to sustainable operations will involve a huge initial capital expenditure on technology, infrastructure, and renewable energy systems. The problem of supplier compliance is also not new since most local suppliers do not have the resources or comply with sustainability certification. There is also knowledge deficiency at the factory-floor level, where technical personnel are often ill-informed of why and how sustainability initiatives ought to be taken. Lastly, integrity of data across ERP systems and traceability systems is a challenge to auditing and reporting.

To address these impediments, Square has implemented a staged investment approach with initial emphasis on cost-cutting and compliance-oriented infrastructure projects including LED lighting, energy-efficient equipment and waste reduction, and incremental investment in water recycling facilities and renewable energy. Supplier training and audits are also being invested by the company to solidify its upstream network, and compliance visibility and coverage are increased through ERP-based monitoring and scorecards. To deal with the knowledge gaps among the employees, workshops, outside training sessions, and internal communication campaigns are being implemented continuously.

Concluding this practicum, it is found that sustainable supply chain strategies are not an option, but have become a strategic requirement to the long-term competitiveness of the textile industry in Bangladesh. Square Textile Division has shown that sustainability can at the same time minimize the cost of operation, enhance brand image, and maintain adherence to the worldwide buyer expectations. Its experience offers great learning to the RMG sector at large in Bangladesh, where sustainability adoption has remained unequal.

The report recommends scaling up digital traceability, strengthening supplier development programs, promoting circular economy practices, and fostering industry–government collaboration to accelerate the green transition in Bangladesh's textile sector. By doing so, not only will firms like Square Textile Division remain competitive in global markets, but Bangladesh will also reinforce its position as a responsible and sustainable sourcing destination for the future.

Keywords: Sustainable Supply Chain; Textile Industry; Green Procurement; Traceability; Circular Economy; Bangladesh RMG; ERP Integration; Supply Chain Sustainability

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List of Acronyms

BCI – Better Cotton Initiative

CMIA – Cotton Made in Africa

ERP – Enterprise Resource Planning

GOTS – Global Organic Textile Standard

GRS – Global Recycled Standard

KPI – Key Performance Indicator

MM – Materials Management (SAP module)

OCS – Organic Content Standard

PP – Production Planning (SAP module)

PRM – Procurement of Raw Materials

RCS – Recycled Claim Standard

RMG – Ready-Made Garments

ROI – Return on Investment

SAP – Systems, Applications, and Products in Data Processing

SCM – Supply Chain Management

SD – Sales and Distribution (SAP module)

SDG – Sustainable Development Goal

Chapter 1: Introduction, Organizational Overview and Practicum Objectives

1.1 Background and Context

Textiles stand as the world's biggest production sector while simultaneously creating global environmental problems. The textile manufacturing sector accounts for 10% of worldwide carbon pollutants while using 93 billion cubic meters of water yearly. Current supply chain methods rely heavily on exhaustible resources through petroleum-based synthetic fibers while creating dangerous substances during chemical production.

Efficient eco-friendly supply chains are necessary to meet sustainability targets because United Nations Sustainable Development Goal 12 (Responsible Consumption and Production) promotes sustainability alongside other environmental initiatives worldwide. A preference surge among consumers for clear environmental origin labeling in products leads the industry to quickly adopt more sustainable operational methods.

H&M Zara and Adidas along with other global brands have created sustainable benchmarks to decrease their carbon releases by implementing environmentally-friendly practices with their suppliers. Competitiveness in the textile industry demands that all companies implement sustainable supply chain strategies according to current industry trends.

Global business statistics show Bangladesh stands as the world's second-largest manufacturer of Ready-Made Garments which positions it as a central textile center. The country's successful economic growth creates major environmental problems. The Ready-Made Garment industry produces massive wastewater volumes which pollute the fundamental Buriganga river system. The combination of old manufacturing systems together with ineffective natural resource management methods and missing sustainable raw material solutions worsens environmental

damage. Timely compliance to environmental regulations becomes a top priority for international buyers who set stricter rules for their products. Bangladesh will be put at risk of losing its market dominance in Europe and North America unless it adopts sustainable supply chain. The sustainable practices of the textile industry will contribute to the innovation and economic gains.

In addition to improved working conditions that will make Bangladesh competitive in rapidly changing global trade. Square Textile enjoys its pre-eminent status in the textile industry within the country of Bangladesh and, at the same time, it must develop significant sustainable standards of operation. Sustainable practices operation aligns with Company objectives which include maximization of operational efficiency and reduction of costs as well as appealing to eco conscious international buyers. The application of sustainable practices in Square Textile Division has had a lot of benefits. One of the most impactful results has been cost reduction since sustainable practices of sourcing yarns and fabrics are able to keep the material wastes down and save natural resources. Moreover, green practices have significantly contributed to the company brand image making it a creative and environmentally conscious supplier among international consumers. These activities have also seen Square Textile Division acquire the ability to comply with the regulations of both the home country and the international arena, which is important to the uniform operation and presence in the market. Moreover, given the growing preference of environmentally friendly suppliers globally, the sustainability of Square Textile Division is a good competitive edge.

1.2 Implementation issues concerning sustainability in factory

The idea of applying sustainability to the textile industry, especially at Square Textile Division, comes with a number of challenges. First, sustainability transition has a high initial cost since it involves significant expenditures in new technologies, staff training, and

infrastructure. Second, in cases where the access to the green resources is scarce it is usually hard to ascertain that the suppliers upstream are meeting the environmental standards, particularly in areas that have low availability of such resources. Finally, the knowledge gap in sustainable procurement and supply chain are an obstacle to implement green supply chain management.

1.2.1 Sustainability and Supply Chain

The concept of sustainability is closely connected with procurement and supply chain activities in Square Textile Division. The procurement department is critical in the process of identifying environmentally friendly raw materials like sustainable yarns, dyes, and chemicals that are environmentally friendly in terms of international environmental protocols. Strategic sourcing solutions are meant to lower carbon footprints and optimize resource use throughout the supply chain. Sustainable procurement is also characterized by evaluation of suppliers based on environmental standards and encouraging responsible activities within the upstream supply chain.

Moreover, supply chain solutions in Square Textile Division focus on waste reduction, enhanced energy efficiency in transportation and warehousing, and switching to the principles of the circular economy such as recycling and reuse. Cooperative relationship with suppliers and logistic partners assists in the provision of end-to-end sustainability. The company has not only successfully fulfilled global buyer expectations by incorporating sustainability in each step of the procurement and supply chain processes; it has also enhanced its competitive advantage and brand image

1.3 Practicum Objectives

The practicum will seek to address the sustainable supply chain strategies in the textile industry with particular focus on Square Textile Division, Bangladesh. It aims at establishing the particular approaches that the corporation has embraced in line with the international best

practices in sustainability. Additionally, the practicum will analyze the impact of these sustainable practices on key performance indicators such as environmental performance, cost efficiency, market competitiveness, and innovation. Based on the findings, the practicum will provide actionable recommendations to help scale up sustainability initiatives within the textile sector more broadly.

1.3.1 Practicum methodology and duration

Review of official documents and data, interviews with factory officials and talk to workplace supervisor and experts. I am working in Square Textile, I will use my experience and observations to elaborate the objectives of the practicum.

Workplace duration is four months from February to May 2025.

Chapter 2: Supply Chain and Procurement Management

2.1 Supply Chain Overview

The supply chain of Square Textile Division is critical to supporting the timely and sustainable procurement of yarn and fabric raw materials as inputs to downstream textile manufacturing. As part of the wider Square Group, the Textile Division has the responsibility to have a resilient and responsive procurement system integrated with international sustainability practices and market requirements.

The source operations are mainly international markets such as Pakistan, India, Vietnam, Indonesia, and China. As well as from some of the local manufacturers.

The regions are strategically chosen with an emphasis on cost-effectiveness, availability of raw materials, production quality, and aligning with sustainability initiatives. The division maintains long term relation with the suppliers in the countries in order to offer a consistent and traceable supply of quality yarn and fabric.

In a business environment where price, quality, and speed tend to be the basis of so many business decisions Square Textile Division has broken the rule and incorporated ethical sourcing and sustainability compliance into its procurement pillars. This is augmented with state-of-the-art digital technologies such as the SAP Enterprise Resource Planning (ERP) system that enhance the supply chain network with a greater level of transparency, efficiency, and real-time decision-making.

2.2 Product Purchases

Square Textile Division procurement policy concentrates on acquisition of the best quality raw materials primarily the yarn and fabric both locally and internationally. The manufacturing operations of the organization rely on such purchases, which are chosen and optimized based on a combination of factors that describe quality, sustainability, and reliability with the

vendors. Presently, Square textile division (Yarn and Gray Fabric) source the raw materials from Pakistan, India, Vietnam, Indonesia, China mostly. All of these regions provide a distinct value proposition by way of fiber quality, operational capability, and price competitiveness. Suppliers are selected by means of a strategic qualification process involving compliance, price benchmarking, and sustainability.

In keeping with international sustainability standards and client requirements, Square Textile Division complies with a wide range of sustainability certifications. The certifications not merely provide credibility to the product but also guarantee traceability and responsible sourcing within the supply chain. The key standards to be followed are given in Table 2.1

Table 2.1: Various certification and their focuses

Certification	**Full Form**	**Focus Areas**	**Description**
BCI	Better Cotton Initiative	Environmental & social responsibility	Ensure eco-friendly cultivation and run labor function as per compliance.
CMIA	Cotton Made in Africa	Ethical sourcing and rural development	Ensure African farmer's right with eco-friendly cultivation.
GRS	Global Recycled Standard	Recyclability and traceability of the supply chain	Ensure use of eco-friendly recycle materials.
RCS	Recycled Claim Standard	Material integrity	Ensure use of eco-friendly recycle materials.
OCS	Organic Content Standard	Organic matter monitoring	Ensure traceable organic content in product
GOTS	Global Organic Textile Standard	Organic fibers, environmental and social	Ensure organic material and production process
Regenagri	Regenerative Agriculture Standard	Soil health and biodiversity	Ensure sustainable cultivation process
PSCP	Primark's Sustainable Cotton Programme	Corporate procurement alignment	Ensure compliance during cultivation proceed

Source: Author

In above table, different types of certified sustainable cotton, fiber and raw materials are mentioned. Different types of sustainable raw materials are used as per buyer requirement. For instance, PSCP (Primark's Sustainable Cotton Programme) used as collaborative framework that inspires companies to raise the percentage of sustainable cotton in their overall purchase. This PSCP cotton are special requirement for Primark buyer only.

By focusing on such certifications first, Square Textile Division not only aligns with international standards but also proactively embraces minimizing the environmental impact of textile manufacturing. In addition, the certifications are a necessity to ensure transparency, meet client sustainability KPIs and take part in responsible international trade.

Apart from certification-based procurement, Square Textile Division is also investigating digital traceability tools like Trus Trace and Textile Genesis to raise the level of transparency in its supply chain.

Trus Trace is a real-time data platform that offers end-to-end supply chain traceability, supporting brands to trace the source of their raw materials, ensure compliance with sustainability standards, and detect areas of risk within supplier tiers.

Textile Genesis is a blockchain system created to suit the textile trade. It allows traceability of eco-friendly fibers like organic cotton or recycled polyester from source to end product in the form of "fiber coins" as digital proof of origin.

2.3 Sustainable Procurement Metrics

Procurement operations at Square Textile Division are at the center of sustainability. Nearly 90% of the raw materials procured by the division carry and meet one or more of the well-recognized sustainability certifications, elaborated upon above.

This notable achievement is a conscious change in the organization's procurement thinking away from cost-focused procurement towards value-focused and impact-focused procurement.

This change has been backed by long-term planning, supplier cooperation, and in-company capacity development to embed sustainability within all phases of the procurement process.

2.3.1 Framework for sustainability

In order to monitor and enhance sustainability performance, the division leverages a systematic framework that consists of:

- Material Categorization: Categorization of raw materials by certification (BCI, GOTS, etc.).
- Volume Tracking: Measuring aggregate tonnage of purchases that are certified versus not certified.
- Percentage Composition: On a percentage breakdown basis, with the certified material percentage at ~90%.
- Supplier sustainability scorecards: Measuring suppliers' environmental, social, and compliance performance.

The data is tracked and routinely monitored by the SAP ERP system, ensuring real-time traceability and visibility. Additionally, monthly sustainability dashboards are constructed by the division to track and facilitate continuous improvement.

2.4 Stock and Inventory Control

Accurate and efficient inventory and stock control are an integral part of Square Textile Division’s operational excellence. Due to the volume of raw material movement—especially yarn and fabric procured in various geographies—accuracy, traceability, and cost-effectiveness in controlling inventory are paramount.

In order to keep this level of complexity under control, the division utilizes SAP (Systems, Applications, and Products in Data Processing)—a top-of-the-line Enterprise Resource Planning (ERP) system. SAP serves as the computerized backbone that supports real-time

merchandise tracking, procurement integration, and production scheduling. Table 2.2 presents sustainable yarn purchase from 2021 to 2025.

Table 2.2: Sustainable yarn purchase of Square Denims Limited from 2021 to 2025

Types of sustainable Yarn	2021 (kg/m)	2022 (Kg/m)	2023 (kg/m)	2024 (kg/m)	2025 (Jan - May) (kg/m)	Grand Total (kg/m)
BCI	10.51	6.55	10.90	12.21	5.13	45.30
BCI+ Organic	0.03		0.15	0.46	0.0038	0.65
BCI+ Recycle	3.88	2.08	3.93	6.39	1.82	18.10
BCI+ Recycle+ Organic			0.38	1.05	0.146	1.58
BCI+ Recycle+ Regenarative					0.68	0.68
CMIA	0.05	0.13	0.05	0.08	0.09	0.40
Organic	0.08	0.01	0.03	0.57	0.61	1.31
Organic + Recycle			0.79	1.64	0.95	3.37
Others	6.46	1.10	1.47	1.70	0.38	11.12
Recycle	1.43	0.24	0.77	0.32	0.08	2.84
Recycle+ CMIA	0.06					0.06
Recycle+ OCA					0.35	0.35
Regenarative				0.08	0.46	0.53
Regenarative+ Recycle			0.06	0.14	0.71	0.90
Grand Total	**22.50 M Kg**	**10.12 M Kg**	**18.54 M Kg**	**24.64 M Kg**	**11.42 M Kg**	**87.21M Kg**

2.4.1 SAP-Driven Inventory Workflow

The inventory process is highly integrated within the ERP framework, where all of the material movements—be they inbound, in-process, or outbound—are tracked systematically. The main steps involved within this workflow are:

- Ordering: Based upon demand forecast and production plans, purchase orders (POs) are created within SAP.
- Goods Receipt and Quality Inspection: When received, materials are recorded in the system and subjected to a quality control process. Only accepted materials are transferred to usable inventory.
- Inventory Allocation: Materials are distributed to the production lots or stored in buffer stock depending upon the level of urgency and lead time.
- Tracking Consumption: SAP updates the inventory levels automatically when materials are consumed during production and captures consumption.
- Reporting and Alerting: SAP delivers dynamic dashboards that include aging of stock, reorder levels, and dead stock alerts.

The system guarantees real time visibility, avoids overstocking or understocking, and reinforces lean inventory practices.

2.4.2 Integration with Production and Procurement

Seamless integration between the Production Planning (PP) and the Sales and Distribution (SD) and the Material Management (MM) modules is possible due to SAP's modular design. Therefore:

- Procurement teams can access real-time stock data to plan new orders.
- Production teams are kept current with material availability to prevent downtime.

- Compliance and finance teams are helped by cost tracking via automation and audit trails.

The alignment minimizes delays, increases production effectiveness, and enhances general decision-making.

Effective inventory management also assists the division in its sustainability initiatives by:

- Reducing waste by ensuring accurate demand estimation and consumption monitoring.
- Decreasing the carbon footprint associated with expedited shipments and overstocking.
- Supporting traceability of approved materials from source to product completion.

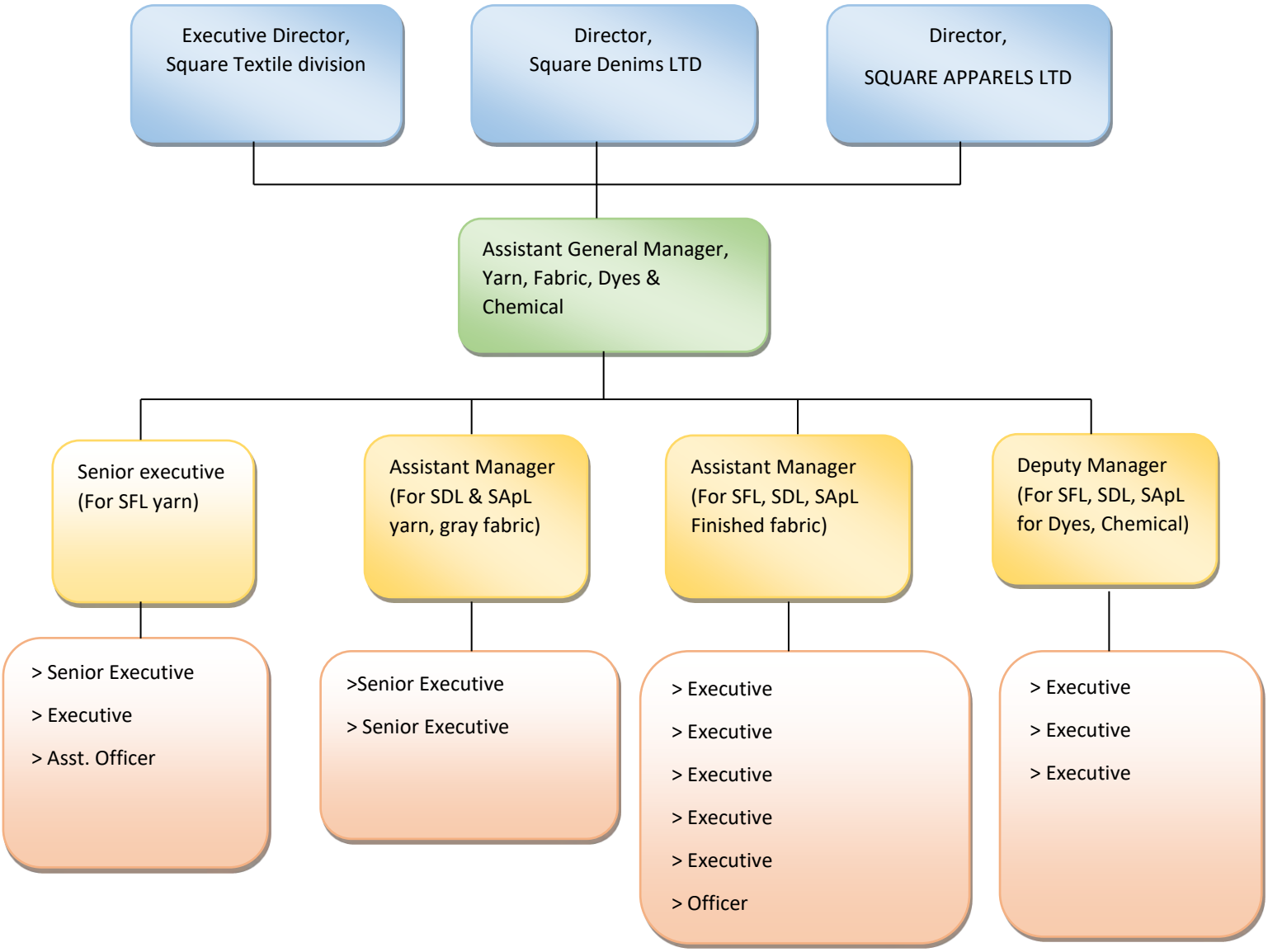
2.5 SCM team at Square Textile Division

At Square Textile Division SCM Structure (Yarn, Fabric, Dyes & Chemical), there are mainly three authorized persons for financial approval. Executive Director, Square Textile division, responsible for purchase approval of Square Fashions Limited's raw materials, Director Square Denims LTD, responsible for purchase approval of Square Denims Limited's raw materials. Director, SQUARE APPARELS LTD, responsible for purchase approval of Square Apparels Limited's raw materials.

Assistant General Manager, Yarn, Fabric, Dyes & Chemical forward approval request to three Directors as a department head of Supply Chain management team (Yarn, Fabric, Dyes & Chemical). Under his guidance, 4 persons lead four different teams. One Senior executive, responsible for Square Fashions LTD yarn sourcing and he has 3 more persons in his team. One Assistant manager, responsible for Square Denims LTD & Square Apparels Limited yarn, gray fabric sourcing and he has 2 more persons in his team. One, Assistant manager, responsible for Square Fashions LTD, Square Denims LTD & Square Apparels Limited Finished fabric sourcing and he has 6 more persons in his team. One, Deputy Manager

responsible for Square Fashions LTD, Square Denims LTD & Square Apparels Limited Dyes, Chemical sourcing and he has 3 more persons in his team.

Figure 1: Organogram of SCM in Square Textile Division.



Chapter 3: Practicum Work, Findings, and Observations

As discussed in Chapter 1, this practicum aims to examine sustainable procurement processes for sustainable manufacturing in RMG factories with particular focus on Square Textile Division. So, this chapter presents the findings and observations on key imperatives for sustainable manufacturing and contribution of supply chain management for sustainable manufacturing in Square Textile Division.

During my four-month practicum work at Square Textile Division (February 2025 – May 2025), I was actively involved with the Sustainability and Procurement Teams. My core activities were aligned with understanding, supporting, and analyzing the implementation of sustainable practices across the supply chain.

I reviewed our internal policy for procurement, supplier selection, maintain compliance. Also recheck supplier's list and reviewed their OEKO-Tex certificate validity. That Square keep in its record which used in our OEKO-Tex certificate renewal. Also, I have rechecked supplier's scope certificate validity of GOTS, OCS, GRS, RCS, Regenagri to ensure sustainable supply chain. In collaboration with the quality assurance team, I have prepared a supplier's evaluation list as per their quality performance. I have enlisted new certified material in SAP system to maintain tracking through SAP. For new Physical BCI tracking and portal operation, I have attended two online training. The company encouraged our supplier to enlist in Physical BCI and Regenagri certification system.

The details findings and observations are stated below.

3.1 Sustainability Practices Implemented at Square Denims Limited

3.1.1 Certified Procurement

Currently the Square is sourcing almost 90% sustainable yarn for Square Denims Limited as per buyer requirement and as well as, for the responsiveness of eco-friendly environment maintenance. To ensure that the company is working with the enlisted vendor who can supply sustainable and certified materials. To make the vendor enlisted, the company goes through few processes. They verify the vendors with their business registration certificate, compliance certificate (Like OEKO Tex, Higg), scope certificate (like OCS, GOTS, GRS, RCS), registered in different portal (Like BCI, CMIA, Textile Genesis, Trus Trace). The company also arranges some third-party audit at supplier's premises with buyer to ensure their process maintenance.

3.1.2 Digital Traceability Tools

It is found that the company maintains their supply chain traceability through third party portal also. They use Trus Trace for Hugo Boss, PUMA brand and use Textile Genesis for H&M & M&S brand. In Thus Trace, the company upload purchase documents invoice and packing list as purchase documents, bill of lading & truck challan as transport proof, production data as confirmation of sustainable raw materials in product. In Textile Genesis the company transfers coin to their buyer's accounts for recycle, Supima like raw materials. That coin they receive from their raw materials supplier after sustainable raw material purchase from them. They also upload production data to portal as total sustainable supply chain visibility.

3.1.3 ERP Integration for Sustainability Tracking

It is revealed that the company ensures proper sustainable raw material procurement through its SAP ERP system. As per buyer requirement marketing team create Sales Order. From sales order purchase requisition has created though ERP system. During procurement the

company purchase that particular certified material as buyer requirement. The material management team also check that material during product receive through ERP system. As that is an integrated system, everyone can check and ensure proper sustainable raw material procurement in supply chain. They also add transection certificate (TC) number with the certified materials in ERP system to ensure future tracking.

3.2 Challenges in Maintaining Sustainability

Despite significant progress, maintaining sustainability in textile manufacturing at Square Textile Division is not without hurdles. Based on my practicum experience and direct interaction with the procurement and sustainability teams, several challenges were observed:

3.2.1 High Initial Investment Costs

Adopting green technologies and infrastructure—such as water recycling plants, renewable energy setups, and eco-friendly dyeing units—requires substantial capital. The company has recently registered for U.S. Cotton Trust Protocol. Every certification like GRS, RCS, OCS, GOTS, Regenagri, CMIA, BCI they are paying annual renewal fees. Also in every renewal, the company goes through in an audit process. But they don't have any commitment from their buyer that, the latter will place that certified material order to the former. Many initiatives have long-term returns, but the short-term financial burden can deter aggressive expansion of sustainable practices.

3.2.2 Supplier Compliance and Monitoring

The company relies on a network of both local and international suppliers. Ensuring each supplier complies with sustainability certifications (like GOTS, OCS,GRS, RCS) is a logistical and managerial challenge. Some suppliers lack the infrastructure or willingness to transition to certified sustainable practices, posing risks to the company's entire supply chain integrity. Sometimes the company is unable to procure materials from their regular supplier due to lack of certification. Like Inditex have seven brands. For their raw material sourcing, the company

has to procure from only the buyer's approved sources. The buyer approves supplier through an audit process. Due to their approved vendor list, sometimes the square may not procure raw materials from its regular vendor, though their price and quality are competitive.

3.2.3 Limited Technical Know-How

During my practicum, I noticed a knowledge gap among some factory-level staff about sustainable manufacturing techniques. While top management and mid-level managers are well-versed in global standards, the technical workforce sometimes lacks awareness about why these practices are essential or how they should be executed consistently. For an example, for every sustainable material, the square has to maintain a minimum percentage of presence of those raw materials. Like for Regenarative certified product, the company has to ensure minimum 50% Regenarative cotton presence in product. For GOTS organic certificate, the square has to ensure minimum 75% Organic cotton and rest quantity could be recycled. But if they blend regular cotton in product, they will not get this GOTS certificate. Due to that different percentage rule of different product, some mid-level and entry-level team mates greeting confuse during order receive and also during requirement generation.

3.2.4 Data Tracking and Documentation Pressure

Managing and reporting sustainability data across the supply chain through systems like SAP and Trus Trace is complex for us. Delays or inaccuracies in entering data can are affecting certification audits, supplier evaluations, and customer reporting, thereby weakening the traceability that we aim to maintain. Due to this data maintaining we are facing may difficulties. We have to collect documents from our upstream supplier to update that data and documents in different portal like Trus Trace, Textile Genesis. But some supplier takes much time to share that data and documents. Also getting some wrong data and from supplier that we have to rechecked with other documents to make it justified and arrange correct data or documents. For

that data tracing, maintenance and upload to the portal, we are adding more members in team that also increasing our operation cost.

3.2.5 Resistance to Change

Some departments and vendors are still inclined towards conventional, cheaper methods of production. A mindset shift is still ongoing across departments when it comes to prioritizing environmental over cost considerations. Like one of the Square's major local suppliers is not Inditex approved. But due to their few departments' conventional thoughts, they are getting let to make them Inditex approved source. Also, some buyer has restriction to source raw materials from few selected country and origin. Though their quality and price are competitive, Square is unable to source from them.

3.3 Solutions to Sustainability Challenges

In response to the above obstacles, Square has taken a proactive approach to ensure its sustainability roadmap remains viable and effective. Below are some of the key initiatives undertaken:

3.3.1 Phased Investment Strategy

As due to maintenance of sustainable production process and being certified Square is increasing its cost. So, Square is trying to reduce its cost as well as trying to keep its profit in optimum level. Square is trying to source its material from foreign source in which county, sustainable raw materials are more competitive than Bangladesh. As Square are sharing raw material cost to its marketing team, it is adding upcharge with those sustainable raw materials, which Square are paying to its supplier. Square are also inspiring its production team to reuse raw materials where possible. They are also responding on that. Like they are using rope lead yarn several times in process. Also dyeing team using few washings chemical and stone several time without any quality compromise.

3.3.2 Supplier Training and Audits

Regular training programs are conducted for suppliers to educate them on international sustainability standards and certification requirements. Also, Square are arranging online and offline meeting with its supplier about Square projection of raw materials requirement, new sustainable product and certification, new compline reequipment to make them align with Square system and policy. The company also performs periodic supplier audits using a structured sustainability scorecard to ensure continued compliance.

3.3.3 Capacity Building at Factory Level

Square are arranging internal training sessions, often facilitated by external consultants or certification bodies, have been launched for production and operational staff. Also, Square arrange meeting with marketing team, planning team, production team, quality assurance team, research and development team, material management team about different sustainable raw materials and production process. That helps us to maintain its production process as well as minimizing mistake during production and distribution process. During my practicum, I observed several workshops where line managers were trained on minimizing water and chemical use in dyeing processes.

3.3.4 System Automation and Integration

Square continue to enhance its ERP and traceability platforms. SAP dashboards are being fine-tuned to auto-generate alerts for non-compliance, and tools like Textile Genesis are increasingly integrated to create a digital “fiber passport” for each batch of materials. Square use its SAP system to maintain proper raw materials procurement, receive and store by material management team, use that raw material in production process with tracking to ensure the use of sustainable raw materials in its process.

3.3.5 Sustainability Champions Program

To instill a sense of ownership, Square has launched a "Sustainability Champions" initiative where employees from each department are chosen as green ambassadors. Their job is to promote environmentally friendly behaviors and monitor sustainable practices within their own teams. From it procurement department, Square have dedicated members to ensure sustainable raw material sourcing and maintain procurement process as per compliance.

3.4 Critical Reflections

In this current global environmental and economic situation, sustainable supply chain is not only a marketing strategy for Square Textile division. That is global demand from the aspect of CSR (Corporate Social Responsibility). With the multiple digital tools (like SAP, Trus Trace, Textile Genesis), Square are not only ensuring Square sustainable martial use in Square production process, but also make it transparently visible to Square buyer. The supplier training and third-party audit system helps us to promote sustainability across the value chain.

Not all are departments are equally engaged with new types of sustainable materials and that material's production procedure as they are not directly connected with buyer and supplier. So sometimes creates some confusion in system. Due to that some process delay may occur during operational procedure. Few parts of organization are not easily adopting changes in operational procedure and polices.

Though we are tracking our material's supply chain through SAP, Textile genesis (for H&M, M&S), Trus Trace (For HUGO BOSS, PUMA), we have to review documents manually, before upload data and documents in portal. Top management, executive level staff mostly align with policy for sustainable materials. But entry level staff and worker still not have clarity reading this policy and procedure. They also have lack of interest regarding that new policy. We are

reusing our wastage fabrics and yarns in our process. But still have a scope to expand that reuse capability in process.

Due to work in procurement team and sustainable sourcing I have gained practical knowledge of global textile regarding sustainable raw materials and certifications. Also gained knowledge about policies and production procured as per international standard. As sustainable supply chain is a continuous process and new things are adding regularly, in am trying to updated myself with regular training, meeting with buyer and supplier and other articles. To ensure data for online base portal (like Trus Trace, Textile genesis) we are now more enhanced our knowledge with our supplier's raw materials details.

Chapter 4: Conclusion and Recommendations

4.1 Conclusion

This report examined the implementation of sustainable supply chain strategies in Square Textile Division, within the broader context of Bangladesh's textile industry. The practicum highlighted that sustainability is a core driver of competitiveness, compliance, and corporate responsibility in the modern textile trade.

Square Textile has made notable progress by embedding sustainability within procurement, supply chain management, and production systems. Its reliance on certified raw materials, adoption of SAP and blockchain-based traceability tools, and commitment to circular economy initiatives demonstrate a forward-looking approach that aligns with global best practices.

However, challenges remain in terms of supplier compliance, technical expertise, data management, and financial investment. Addressing these gaps is essential for long-term resilience and market leadership.

Overall, Square Textile Division serves as a case study for how Bangladeshi firms can navigate the sustainability transition while retaining competitiveness in the global apparel value chain.

4.2 Recommendations

4.2.1 Strengthen Supplier Development Programs

We have to arrange more workshop and training for our supplier as they are our strategic business partner as well as part of supply chain. As its costly to implementation of sustainable production process, get certification and procure sustainable raw materials we may offer long term contracts to our supplier.

4.2.2 Enhance Digital Traceability Systems

We have to continuously update our SAP system to maintain our sustainable raw materials sourcing, production process and make it align with third party traceability tools like Textile genesis, Trus Trace etc. Automation non commence alerts system are reducing dependency on manual verification as well as mistake in production.

4.2.3 Promote Circular Economy Practices

Have to promote more to our buyer for re-use of pre consumer material such as wastage yarn and fabric generated in production process, re-use of post-consumer textiles which are generated after consumer use. Water and chemical re-use should increase through more research and development. Also have to increase use of more biodegradable materials in production process.

4.2.4 Phased Green Investment Strategy

Textile industry should focus more on green energy, energy efficient machineries, Eco friendly Light and fans. Also, may go with innovative plant design that will reduce use of light at daylight and reduction of air-condition use.

4.2.5 Build Workforce Sustainability Capacity

More training for entry level executives and staff will improve system efficiency and make it easy to understand the importance of sustainable supply chain and production process. That will make operation smother and confusion will reduce.

4.2.6 Policy and Industry Collaboration

Governments and industry policy maker should engage more for sustainable green industry development. Such as waver in tax for use of sustainable green factories, easy loan polices for green energy such as solar system, wind mill etc., recycle plant establishment (effluent treatment plant). That will encourage industry to adopt sustainable production process in operation.

4.2.7Global Market Alignment

With the mindset of continuous change adoption, textile industry of Bangladesh will be more acceptable for Europe and American market. That will make us more compatible at global industry. Considering the global environment situation, its high time to adopt sustainable supply chain for all industry. That is our responsibility to keep our earth live for future generation.