

Report On  
*Metro Knitting & Dyeing Ltd*  
*A Concern of PANAM Group*  
**Overview of Six Major Departments**

By  
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An internship report submitted to the Executive Development Center, Brac Institute of Governance and Development (BIGD), Brac University in partial fulfillment of the requirements for the degree of  
Post Graduate Diploma in Knitwear Industry Management (PGD-KIM)

Executive Development Center, BIGD  
Brac University  
March 2026

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## Declaration

It is hereby declared that

1. The internship report submitted is my/our own original work while completing degree at Brac University.
2. 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.
3. The report does not contain material that has been accepted or submitted for any other degree or diploma at a university or other institution.
4. I/We have acknowledged
5. main sources of help.

**Student's Full Name & Signature:**



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**Muhat Tabassum Maria**  
1000055611

**Academic Supervisor's Full Name & Signature:**

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**Farzana Sehrin**  
Research Coordinator  
Brac University

## Letter of Transmittal

**Farzana Sehrin**

Research Coordinator  
BIGD, Brac University  
66 Mohakhali, Dhaka-1212

Subject: Submission of Industrial Attachment Report.

Dear Madam,

It is my pleasure to submit my industrial-attachment report regarding the overview of six major departments of Metro Knitting & Dyeing Ltd., which I was appointed to by BIGD.

I have attempted my best to finish the report with the essential data and recommended proposition in as significant, compact, and comprehensive a manner as possible.

I trust that the report will meet the desires.

Sincerely yours,



---

Muhat Tabassum Maria  
1000055611  
Executive Development Center, BIGD  
Brac University  
Date: March 11, 2026

## **Non-Disclosure Agreement**

This agreement is made and entered into by and between Metro Knitting and Dyeing Ltd and the undersigned student at EDC, BIGD, Brac University.

**Student's Full Name & Signature:**



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**Muhat Tabassum Maria**

1000055611

**Industry Supervisor's Full Name & Signature:**



---

**Abu Saim Mohammad Noshir Ullah**

Manager, Compliance

Metro Knitting and Dyeing Mills Ltd. A concern of Panam Group

## **Acknowledgement**

First of all, I'd like to thank Almighty Allah for giving me the strength and patience to complete my rigorous internship period. I would like to express my gratitude to the People's Republic of Bangladesh government for arranging and financing such an industry-based program for apparel professionals. I would also like to thank the BRAC Institute of Governance and Development–BIGD for planning and conducting such a resourceful postgraduate diploma program, Brac University authority, and EDC staff for being a part of this and for their continuous support.

Hereby, I want to express gratitude to my academic supervisor, Farzana Sehrin, Research Coordinator, BIGD, Brac University, for her tremendous support and guidance throughout my internship tenure. It wouldn't be possible without her continuous nurturing and attention to my work. My internship journey at the factory wouldn't be so practical and knowledgeable without my industry supervisor, Abu Saim Mohammad Nosher Ullah (Manager, compliance). He has supported me to solve all the problems and hurdles I faced during my industry experience.

Finally, I would prefer to recognize everyone at Metro Knitting and Dyeing Mills Ltd. for their excellent cooperation, friendly attitude, and wholehearted support throughout my internship experience.

## **Executive Summary**

This report presents the 66-day internship I completed at Metro Knitting and Dyeing Mills Ltd., a concern of Panam Group, which started in 1987 as a house of ready-made garments (RMG) with their first knit composite manufacturing plant and now runs multiple apparel manufacturing plants with their textiles manufacturing, all-over printing, washing, embroidery, and logistics facilities. The group makes over 768 million garments each year and supplies big buyers like Zara, GU, Tommy Hilfiger, and many more. Metro itself produces around 6.4 million pieces a month, such as polo shirts, T-shirts, tank tops, trousers, hooded jackets & cardigans, athleisure wear, loungewear, men's & ladies' fashion wear, kids' wear, etc., while following strict global rules for quality, safety, and environment.

My internship was part of the PGD-KIM program at Brac University's BIGD. I spent time in five main areas: 16 days in Dyeing and Dyeing Finishing, 16 days in Knitting and Knitting Quality, 10 days in Printing, 10 days in Production, 7 days in Marketing and Merchandising, and 7 days in HR and Compliance. I did real tasks every day, like making reports of full dyeing processes, batch cards, and quality inspections; following up on knitting and dyeing; making sample cards; collecting samples; working on printing labs; checking all cutting panels; and leading a final audit with no fails, CSR observations, job analyses, etc.

The report links what I learned in PGD-KIM classes to factory life, such as writing clear emails to buyers, balancing lines, quality inspection with accuracy, and checking compliance. I also gave them many suggestions according to my observations and my knowledge based on my PGD course, including recommendations for improving efficiency in production processes and enhancing communication between departments. Overall, my time at Metro helped me develop strong skills in RMG and taught me to be accountable for my work, committed to stakeholders, and to adopt a sustainable approach to our environment, society, and business, which will help Bangladesh remain strong in world markets.

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## List of Acronyms

|       |                                                |
|-------|------------------------------------------------|
| BGMEA | Bangladesh Garments Manufacturing Association  |
| BSCI  | Business Social Compliance Initiative          |
| ILO   | International Labour Organization              |
| SEIP  | Skills for Employment Investment Program       |
| ETP   | Effluent Treatment Plant                       |
| MKDL  | Metro Knitting and Dyeing Mills Limited        |
| IE    | Industrial Engineering                         |
| SOP   | Standard Operating Procedure                   |
| CAP   | Corrective Action Plan                         |
| KPI   | Key Performance Indicator                      |
| SDT   | Standard Dyeing Time                           |
| SMV   | Standard Minute Value                          |
| GSM   | Grams per Square Meter                         |
| RPM   | Revolution Per Minute                          |
| SL    | Stich Length                                   |
| QC    | Quality Control                                |
| QA    | Quality Assurance                              |
| QMS   | Quality Management System                      |
| CAPA  | Corrective Action and Preventive Action        |
| ZDHC  | Zero Discharge of Hazardous Chemicals          |
| NPV   | Non-Productive Time                            |
| PQI   | Product Quality Inspection                     |
| LEED  | Leadership in Energy and Environmental Design. |

## Glossary

|               |                                                                                                                                                                                                                                             |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The 4M Method | A framework for manufacturing and root-cause analysis that helps find, classify, and resolve operational problems by evaluating four core factors: Man (personnel), Machine (equipment), Material (raw resources), and Method (procedures). |
| CAD           | The process of creating, modifying, analyzing, or optimizing 2D and 3D digital models of physical items using software is known as computer-aided design, or CAD.                                                                           |
| Tiff File     | A TIF or TIFF (Tagged Image File Format) is a high-quality, raster-based file format commonly used by photographers and designers for storing detailed images.                                                                              |
| Air Freight   | Air freight is the fast, secure, and efficient transport of goods via chartered or commercial aircraft, commonly used for time-sensitive, high-value, or perishable cargo.                                                                  |
| Sea Freight   | Sea freight (or ocean freight) is the method of transporting large quantities of goods via cargo ships, acting as a cornerstone of international trade.                                                                                     |

#### Four-Point System

The 4-Point System is an international standard for inspecting fabric quality, assigning 1–4 penalty points for defects based on size/severity. It evaluates fabric by calculating total penalty points per 100 square yards.

#### CSR

Corporate Social Responsibility (CSR) is a self-regulating business model where companies integrate social, environmental, and ethical concerns into their operations and stakeholder interactions.

#### PESTLE Analysis

PESTLE analysis is a strategic framework used to evaluate the external macro-environmental factors—Political, Economic, Sociological, Technological, Legal, and Environmental—that impact an organization. It helps businesses identify risks, uncover opportunities, and make informed, proactive decisions by understanding the wider market landscape.

# **Chapter 1**

## **About Organization**

### **1.1 Overview of the Industry**

The industry began as a trading business known as KB Traders in 1987. Panam Group started its renewed journey in 2000 as a house of export-oriented ready-made garments (RMG). They have their first knit composite manufacturing plant in Narayanganj, Bangladesh. Since then, the business has rapidly expanded to include multiple apparel manufacturing plants with their own textile manufacturing, AOP, washing, embroidery, and logistics facilities. Over time, the group has expanded to over 20,000 employees. The group is a proud member of the Bangladesh Garment Manufacturers and Exporters Association (BGMEA). They have achieved certifications like BSCI, ISO 14001, GOTS, OCS, ACCORD, and many more. Consequently, over the years, through their collaborative efforts, they have cultivated a wonderful, trustworthy relationship with all the stakeholders. These relationships are the building blocks of the company, and they look forward to harmoniously growing together in the years to come.

### **About the Company**

Founded in the year 2000, Metro Knitting and Dyeing Mills Ltd. (a concern of the Panam Group) has established itself as one of the industry leaders in the composite knitwear manufacturing sector in Bangladesh. It is a highly advanced factory that employs skilled workers and has the most up-to-date machinery, which is mostly imported from Germany, the United States, Sweden, Japan, Taiwan, and Turkey. It is equipped with units for knitting, knit dyeing, washing, printing, and apparel manufacturing. To create high-quality products for the customers, 6000 additional skilled workers are managing the project. I am privileged to receive an opportunity to do my internship at the Metro Knitting and Dyeing Mills Ltd.

## **1.2 Vision & Mission**

### **Vision**

The vision of the Panam Group is to enhance societal well-being by contributing to sustainability and the national economy through the provision of quality services and the implementation of responsible industrial practices.

### **Mission**

The Group's mission is to create sustained values in the global market by expanding access to high-quality apparel for consumers that enhances their joy and satisfaction and Well-being.

## **1.3 Goals and Objectives**

### **Effective labor management practices**

The factory is devoted to practicing labor management practices and cultures that are truly effective for their laborers and staff as well, ensuring workers are motivated, skilled, and treated ethically by robust training, fair compensation, and legal compliance.

### **Sociable working environment**

They prioritize creating an inclusive atmosphere that fosters employee engagement, clear and open communication, and mutual respect.

### **Prioritized employee welfare**

To promote employee well-being, the company provides employment opportunities and special facilities for minorities and physically challenged individuals, free medical check-ups for workers and their relatives, an education scholarship program for workers and their children, and many other initiatives.

### **Cultivation of creativity and inventiveness as well as teamwork**

They have given enough space for creativity and innovations by providing individuals with the freedom to practice creative problem-solving and make decisions regarding their work without

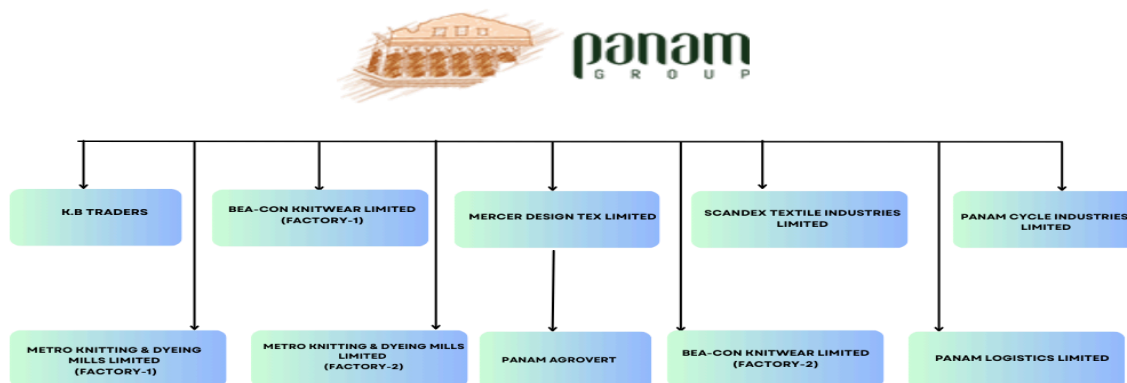
constant micromanagement. For the betterment of the teamwork culture, they imply open communication, clear roles and responsibilities, mutual trust and respect, and recognition and celebration.

### **Promoting environmental sustainability**

Metro Knitting and Dyeing Mills Ltd. works relentlessly to reduce environmental pollution due to industrialization. They use the latest technology to reduce water consumption in the production process. In the past 7 years they have managed to reduce water usage by about 50%. They organize tree plantation programs for the local community. They are going to set up two certified green factories at Ashulia and Mowna, Bangladesh. These will be equipped with the latest technologies to reduce our carbon footprint and lower pollution, such as energy-efficient machinery and waste recycling systems.

## **1.4 Organizational Structure, Organogram, Branches & Departments**

Under Panam Group, there are garment knitting and dyeing mills, logistics, agro mills, and the cycle industry. These are:



*Figure 1: Sister Concerns of PANAM Group*

## Organogram of Metro Knitting & Dyeing Mills Ltd

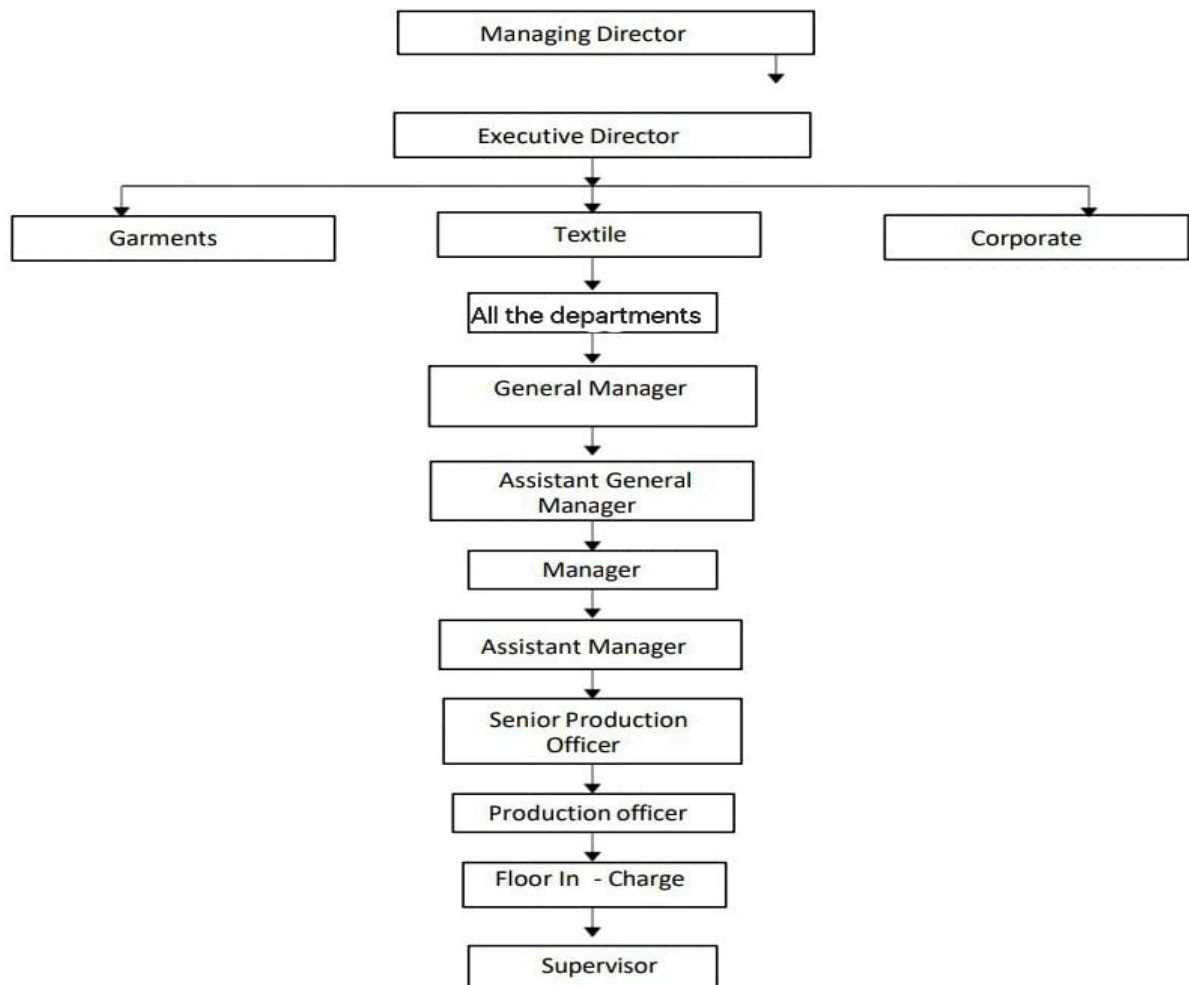


Figure 2: Organogram of Metro Knitting and Dyeing Mills Ltd.

### Departments

MKDL has more than 15 departments, relentlessly working to fulfill the company's targets. Every department is interdependent, from order taking to inventory to production planning and logistics.

|                             |
|-----------------------------|
| Knitting & Knitting Quality |
| Dyeing & Dyeing Finishing   |
| R&D                         |

|                           |
|---------------------------|
| Color Lab & QAD Lab       |
| Batch                     |
| Printing                  |
| Washing & ETP             |
| Sample                    |
| Marketing & Merchandising |
| Finance                   |
| Garments Production       |
| Fashion Studio            |
| IE                        |
| Admin, HR, Compliance     |

*Table 1: Departments of MKDL*

## **Production**

Metro Knitting & Dyeing Mills Ltd. operates as a large-scale composite unit that has a production rate of 76.8 million pieces per year.

| <b>Sector</b>     | <b>Production/Month</b> |
|-------------------|-------------------------|
| Garments          | 6.4 Million Pcs/Month   |
| Knitting          | 2,125 tons/month        |
| Dyeing            | 2,400 tons/month        |
| Yarn Dyeing       | 375 tons/month          |
| All Over Printing | 600 tons/month          |

| Sector                | Production/Month        |
|-----------------------|-------------------------|
| Screen Printing       | 3.5 Million Pcs/Month   |
| Embroidery (LOGO)     | 1 Million Pcs/Month     |
| Embroidery (APPLIQUE) | 0.4 Million Pcs/Month   |
| Narrow Fabric         | 1.5 Million Yards/Month |

Table 2: Production rate of MKDL

## Products

They provide a wide range of knit apparel products, including the following: Polo Shirts, T-Shirts, Tank Tops, Trousers, hooded jackets & Cardigans, Athleisure Wear, loungewear, Men's & ladies' fashion wear, kids' wear, etc.

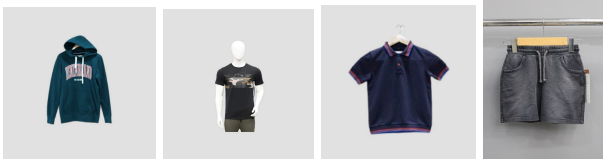
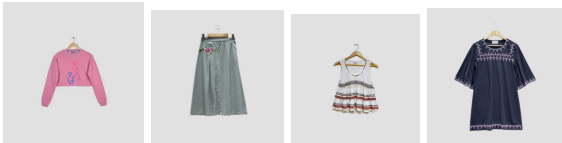
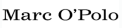
|                     |                                                                                                                                                                                                   |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Menswear</b>     | <p>T-shirts, shorts, trousers, jackets, hoodies, sweatshirts, and knit shirts.</p>                            |
| <b>Women's Wear</b> | <p>T-shirts, shorts, trousers, jackets, hoodies, sweatshirts, knit shirts, dresses, skirts, and blouses.</p>  |
| <b>Kids' Wear</b>   | <p>T-shirts, shorts, trousers, Jackets , hoodies, sweatshirts, knit shirts, and infant/toddler clothing.</p>  |

Table 3: Product range of MKDL

## Clients

GU, Pomodoro, Calvin Klein, Betty Barclay, Tommy Hilfiger, and Tom Tailor are their current biggest clients. ZARA is added to this list too. As they produce high-quality products, their client satisfaction is always higher.

| Brand Logo                                                                          | Buyer Name     | Country of Origin |
|-------------------------------------------------------------------------------------|----------------|-------------------|
|    | GU             | Japan             |
|    | Tommy Hilfiger | USA               |
|   | ZARA           | Spain             |
|  | <u>Varner</u>  | Norway            |
|  | Calzedonia     | Italy             |
|  | Promodoro      | Germany           |
|  | Tom Tailor     | Germany           |
|  | Calvin Klein   | USA               |
|  | Marubeni       | Japan             |
|  | Ascena         | USA               |

| Brand Logo                                                                        | Buyer Name    | Country of Origin |
|-----------------------------------------------------------------------------------|---------------|-------------------|
|  | New Look      | UK                |
|  | Next Sourcing | UK                |
|  | Marc 'O'Polo  | Sweden            |
|  | Ostin         | Russia            |
|  | Betty Barclay | Germany           |
|  | Takisada      | Japan             |

*Table 4: Clients of MKDL*

## Chapter 2

### Description About Task Accomplishment

As a recent graduate looking to gain extensive experience in this industry, I finished a 66-day internship. During my internship period, I was assigned to six different departments, where I acquired invaluable practical experience and information. The names of the departments are as follows:

| Department Name               | Duration       |
|-------------------------------|----------------|
| Dyeing & Dyeing Finishing     | 16 days        |
| Knitting and Knitting Quality | 16 days        |
| Printing                      | 10 days        |
| Garments Production           | 10 days        |
| Marketing and Merchandising   | 7 days         |
| Hr and Compliance             | 7 days         |
| <b>Total:</b>                 | <b>66 days</b> |

*Table 5: Internship Schedule Breakdown*

#### 2.1 Dyeing & Dyeing Finishing

Over the duration of the internship, I started in the dyeing department and ended it with dyeing and finishing in 16 days. Metro Dyeing & Knitting Mills Ltd. is known for its high-quality dyeing. There, I learned about different types of dyeing processes and the machines used in those processes. Dyeing is the process of adding colors to textile products like fibers, yarns, and fabrics. Here, they do yarn dyeing, but on a smaller scale, and mostly fabric dyeing. They have three massive dyeing floors for bulk dyeing: Beacon-1 (16 machines), Beacon-2 (8 machines), and

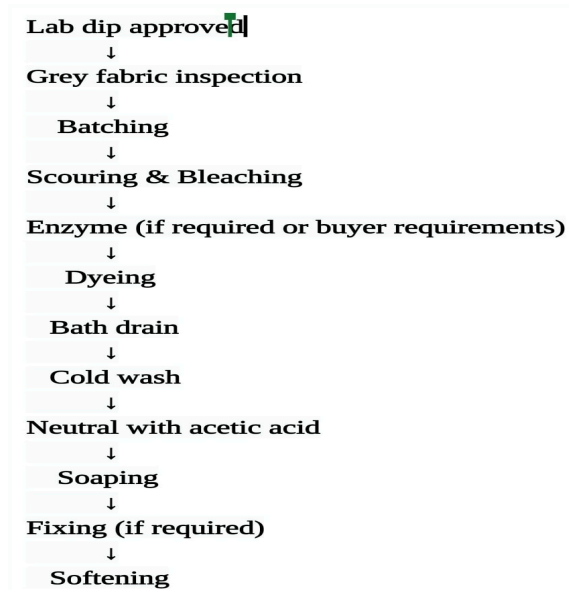
Metro (17 machines). For sample dyeing, they have two floors: Metro sample and Beacon. For dyeing finishing, they have two floors: Metro Finishing and Beacon Finishing.

### **2.1.1 Dyeing Machines and Dyeing Auxiliaries**

I have observed that they have dyeing machines from six brands: SCLAVOS (Greece), MCS (Italy), BRAZZOLI (Italy), DANITECH (Italy), FONG'S (China), and THEIES (Germany). A dyeing machine has these parts: main vessel, nozzle, reel, chemical tank, main motor, main pump, door, door lock, heat exchanger (heating, cooling), dosing motor, dosing pump, drain line, and unload reel. They use different types of dyeing auxiliaries for different stages of the coloration process. But mostly i saw these agents were used mostly, such as wetting and penetrating agents, leveling agents, dispersing agents, buffering agents, dye-fixing agents, anti-foaming agents, etc.

### **2.1.2 Task Accomplishment in Dyeing Department**

Preprocessing & Planning: In this initial phase, I focused on logistics and quality control to ensure the machine and materials are ready. Machine Allocation Planning: This is the starting point where production schedules are determined. Here I got to learn different types of layouts according to the requirements. Batch Preparation: It involves the physical preparation of the fabric. This is linked to heat setting, a process that stabilizes the fabric's shape and dimensions. I learned and made some batch cards regarding this part. Ready the Batch Nozzle: Preparing the specific dyeing machinery. The process includes quality gate checking for the given batch. Recipe Preparation: Formulating the chemical and dye mix. It includes a validation step, which is checking the given recipe in the batch card. Operators do the program selection by choosing the automated software profile on the dyeing machine. There, I learned how the programs work and how to select the correct one. While working in the dyeing section, I mostly observed different dyeing processes for different fabrics. But the overall flowchart is given below:



*Figure 3: Flowchart of Dyeing Process*

In the dyeing cycle section, the chemical treatment of the fabric often follows a dual-stage process for blended materials. Pretreatment is cleaning the fabric by scouring or bleaching to remove impurities. There are checkpoints before dyeing to make sure the fabric can soak up the dye and is pH neutral. The dyeing process leads directly into polyester dyeing, which typically requires high temperatures and disperse dyes. Cotton Dyeing is done after the polyester is colored, usually using reactive or direct dyes. Post-Processing & Finishing: Once the color is applied, the fabric must be stabilized and cleaned. After treatment is a multi-step cleaning phase consisting of neutralization, which is balancing the pH of the fabric. Soaping is removing unfixed dye to ensure colorfastness. Checking for rubbing is testing to see if the dye transfers when the fabric is rubbed (crocking testing). I checked many fabrics by rubbing tests. Fixing/softening is applying chemicals to lock the dye in and improve the hand feel of the fabric. Unloading & Documentation is the final stage that ensures the batch is tracked correctly as it exits the wet-processing area. Unloading is removing the fabric from the dyeing machine. This is accompanied by the administrative task Hang Batch Card, which is a physical tracking document. Handover & Record is the final step where the fabric is sent to the finishing department for drying and the data is entered into the register book for traceability. Some of the most important dyeing checkpoints are cycle time, reel

speed, whiteness check, absorbency, hairiness, enzyme, pH (4.5 - 4.7), leveling pH (6 - 6.5), specific gravity, shade check, and rubbing. Metro's KPI (Key Performance Indicator) is 1.90 per day. MKDL provides high-quality production but a lower batch per day. They do every batch's shade match by lightbox analysis. The lightbox has TL, F, and UV lights, which can be sourced to match according to the buyer's requirements through Metamarism.

### **2.1.3 Dyeing finishing**

There are two types of fabric finishing after dyeing. There are two types of fabric finishing: tube fabric finish and open fabric finish. Open fabric is one layer with a selvage on each edge. Tubular fabric is double-layered and 'tubular.' 'Open finishing is used for fabrics that are slit open and processed in a flat, spread-out state. Slitting with a squeezer. The tubular fabric is cut open lengthwise while excess water is squeezed out. A stenter/dryer is the machine where the fabric is dried and stretched to a specific width to ensure dimensional stability. Tubular finishing is used for knit fabrics that remain in a circular/tube form throughout processing. The squeezer removes moisture from the tubular fabric. Dryer removes remaining moisture using tensionless drying methods. The calender uses heat and pressure rollers to flatten the tube and improve smoothness and luster; this process enhances the fabric's appearance and texture. Compacting compresses the fabric to control residual shrinkage. The final verification is done by QC (Quality Control) for weight, width, and defects. For specialized finishing, peach/brush is done, which is a mechanical treatment to create a soft, fuzzy texture (like peach skin). Stenter is a second pass in the fabric finishing process that involves further heat setting or applying chemicals to enhance the fabric's properties. Shearing is trimming off protruding fibers for a uniform surface. Compacting is reducing fabric shrinkage. For standard finishing, it goes directly to compacting after the initial drying stage. Quality control check before the fabric is cleared for shipment.

Dyeing flaws are errors occurring during the textile coloring process—such as uneven color, spots, or staining - resulting in poor, non-uniform, or inaccurate hues that often leave clothing

unsuitable or reduce its quality. While being on the QC table, some of the Dyeing faults and CAP (Connective Action Plan) that I have found are, for uneven running shade and color spots, we should do leveling wash; for crease marks and rope marks, at first we should do anti-crease wash and use softener, then recompact or restenter; for softener marks or soda ash stains, we should do enzyme or acid wash.

## **2.2 Knitting & Knitting Quality Department**

Metro is known for its high-quality knitting. Here I have observed the knitting and knitting quality departments briefly for 16 days.

### **2.2.1 Knitting Floors and Machines**

In Metro, they have seven knitting floors for bulk production. I visited each and every floor and learned about different knitting machines and their work process. They do circular knitting mostly. But they also do single jersey circular knitting machines, auto stripe, rib, interlock, woven, and fleece machines. They have flat knitting machines for collars and cuffs. Some circular knitting machines that I saw are Mayer and Cie (Germany), Pai Lung (Taiwan), Bai Yuan (China), and Lisky (Taiwan). They have fabric inspection machines as well.

### **2.2.2 Different types of knitted fabrics & production parameters**

They have enough production facilities to prepare a large range of fabrics of different types. They can produce any type of knit fabric, narrow fabric, and flat knit collars. I saw many types of fabric, such as: single and double jersey, single and double Lacoste, 1\*1 and 2\*2 rib, interlock, drop needle interlock, flat back rib, different types of fleece, feeder stripes, narrow fabric, velour, auto stripe, pointelle, lycra spacer, waffle, etc. Some of the most used parameters of knitting production are the following: i) machine diameter, ii) machine rpm, iii) number of feeders, iv) machine gauge, v) count of yarn, vi) running time, and vii) machine running efficiency. Some important equations regarding knitting are:  $SL \text{ (stitch length)} = \text{total yarn length consumed} /$

number of stitches, GSM (grams per square meter) = (fabric weight / 5.3 \* 5.3) \* 1000, yarn count = (total length \* 0.00593 / weight), and knit = SL / NE (NE = English yarn count).

### 2.2.3 Task accomplishment in Knitting department

I have observed and participated in every step from the initial order booking to grey fabric ready for production.

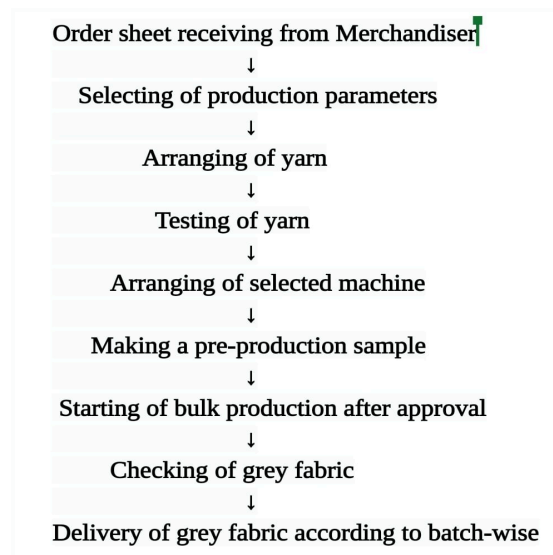


Figure 4: Flowchart of Knitting Process

To begin with, I contacted buyers for receiving bookings. Then, with the help of the knitting team, I collected sample data from R&D and got approval for garments from the merchandiser for further detailed analysis. I did fabric and sample analysis regarding that. Yarn is selected based on the Yarn Purchase Order (P.O.). Before bulk production begins, the system checks for consistency between the sample and bulk materials: If the sample yarn lot is available and matches, it moves straight to yarn allocation. If the sample and bulk yarn lots are different, a fit sample evaluation is performed. Only if this check is "OK" does the process proceed. Once the materials are cleared, the factory moves into the active knitting stages: Yarn is assigned for bulk knitting. A knitting plan is created based on the TNA (Time and Action) calendar. I learned how to make TNA accordingly. Yarn is requested from the store, machines are selected, and production starts. A small initial roll (10–15 kg) is knitted first to verify settings before running the whole batch.

Finally, I did quality checking of the produced grey fabrics, which resulted in three types of outcomes: pass or OK, Technical issues, or Reject.

#### **2.2.4 A visit at “Panam Knitex”**

During my internship at the knitting department, I had an opportunity to visit PANAM KNITEX at Jalkuri. There I saw machines that produce twill tape, drawstrings, knife tape, plastic tipping bullets, metal tipping bullets (silver), lingerie elastic, and more. Some of the machine brands were DAHU (11), TCH (2), YITAI (4), and P.T. (which stands for Beam Warping Machine, a type of yarn warping machine), as well as a spandex rubber machine. (Beam Warping Machine), a yarn warping machine, and a spandex rubber machine. Elastic polyester yarn brands were HANZHAOU and TONGKUN. There I saw some of their works too. As a textile student, collecting samples of different fabrics was important for my remembrance. Here I got some samples for collecting and learning.

#### **2.2.5 Knitting quality**

The Quality Management System (QMS) for knitting production tracks the fabric from the initial production start through two distinct inspections, online and offline, to ensure final product quality. I have done both offline and online inspections on different fabrics. Online inspection focuses on real-time quality control as the knitting begins. It ensures the raw materials and machine settings are correct before mass production. Once a new program is received, the team checks the yarn details, including the lot (batch number), count (thickness), brand (manufacturer), and stitch length (S.L.), which refers to the length of each stitch in the knitting process. A small sample is run. If it fails, the technical team intervenes to fix machine issues, ensuring that the production process can continue smoothly and meet quality standards. If the 2-meter check passes, a small roll is knitted and sent to the offline team for a more rigorous look. Offline inspection is the primary quality gate where the bulk of the fabric is evaluated. If OK, the operator

is cleared to continue running the machine, and the fabric is moved to the "Grey Store" (storage for undyed fabric). If NOT OK: The fabric enters a secondary evaluation process. When fabric fails the 4-point system check, it doesn't just get thrown away immediately; it follows a strict protocol: Holding: Fabric is placed in "Decision Pending" status. Re-checking: A responsible person re-evaluates it; trial dyeing may occur to see if defects disappear after processing. If it passes now, it goes to the storage area. If not, it is officially rejected. I have observed that rejections are held in a temporary area for one week before being moved to permanent rejection. |

#### **2.2.6 Knitting faults, 4-point system**

Some of the knitting faults that I have found while inspecting are the following:

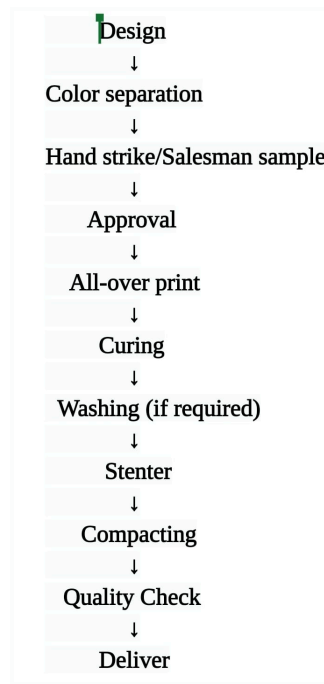
1. Hairiness, 2. Dead cotton, 3. Slub yarn, 4. Yarn count 5. Oil spot, 6. Rust stain, 7. Hole, 8. Needle line, 9. Loop turn. I have learned how the four-point system works. A 4-point system is a standardized test method for visually inspecting fabric. In this system grading is done by counting faults as points. Up to 20 points = A grade (acceptable), 21-30 points = B grade (acceptable), 31-40 points = C grade (acceptable), over 40 points = D (reject).

### **2.3 Printing Department**

Printing is the process of putting dyes and colors on fabric in precise, localized patterns or designs, making sure the color adheres to the fiber so it can resist friction and washing. According to my internship schedule in the printing section of 10 days, I have observed and gathered knowledge about different types of prints, printing methods, printing machines, dyes, how to do quality checks for printing, and different types of printing faults. MKDL mainly does subcontract printing for AKH, Shoikat, Eppiliyon, and UNESCO.

#### **2.3.1 Flowchart of printing process**

MKDL has an elaborately well-arranged printing section. They do both screen and digital printing of many types, according to buyer demands.



*Figure 5: Flowchart of Printing process*

### **2.3.2 Different types of prints**

Some of the mostly done prints in MKDLI have been seen, and observations about them are pigment print (lower quality level), reactive print (better than pigment, excellent hand feel, expensive), discharge print (high quality, creates odor), disperse print, puff print, glitter print, digital print (expensive), sublimation print (only done in polyester), burnout print, and acid print.

### **2.3.3 Design room & engraving**

While working in the design room, I learned and did several things, including color separation using software such as Photoshop and Adobe Illustrator after receiving orders from buyers. Then, manage color profiles to match buyer requirements. Ensuring pattern repeating so that designs can be seamlessly repeated across the fabric. For digital printing, final designs are converted into required digital formats called TIFF files for printing machines.

The design is ready for engraving once the samples are delivered from the sample room. Engraving is when patterns are directly put onto a metal screen using a laser to remove top layers.

It is of two types: flatbed procedure (engraving done on a flat metal screen) and rotary procedure (screen is rotated by a rounding machine). Screens have different types of circumference size (if rotary), length size, and mesh size (number of holes per cm).

### 2.3.4 Types of printing methods and machines

I got the opportunity to see and learn about different types of printing methods and machines.

There are two types of printing methods done in MKDL: screen printing and digital printing.

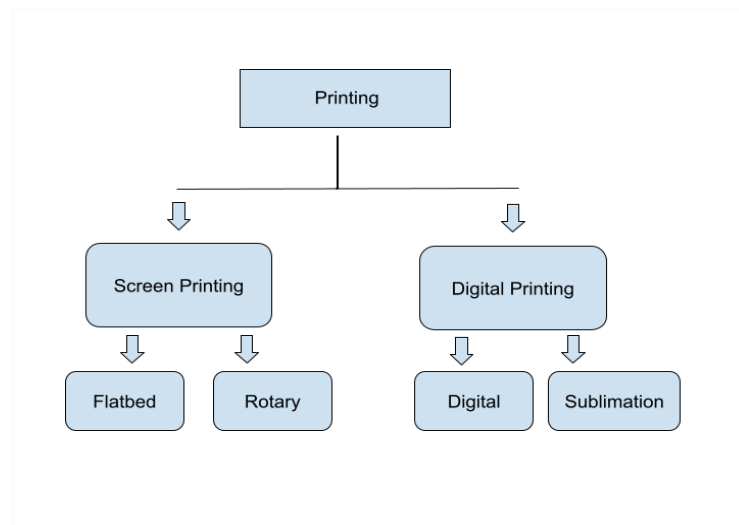


Figure 6: Types of Printing Methods

Types of printing machines and their details are given below:

| Machine     | Name     | Origin | My observation                                                                      |
|-------------|----------|--------|-------------------------------------------------------------------------------------|
| Flatbed     | KUIL     | Korea  | Produces sharp designs, lower speed and productivity, and comparatively low demand. |
| Rotary      | REGGIANI | Italy  | High coverage, higher speed, high demand.                                           |
| Sublimation | REGGIANI | Italy  | Only done on synthetic/100% polyester fabric, its                                   |

| Machine | Name | Origin | My observation              |
|---------|------|--------|-----------------------------|
|         |      |        | demand has been increasing. |

*Table 6: Types of Printing Machine*

### **2.3.5 Printing finishing**

At first, washing is done. But I have noticed that when reactive or discharge prints are washed, the extra dyes get removed. As the washing process is alkali-based, neutralizing that pH balance was done by acid. I had seen that they use a stenter machine to fix the dia. GSM, but if it could not meet the requirements, then compacting was done in the Santex machine. Sometimes, sanforizing was done too. Sometimes, special finishing like peach finish and brush was done if the buyer demanded it. Finally, grading was done based on buyer requirements. For improvement, I had done dyeing experiments as well.

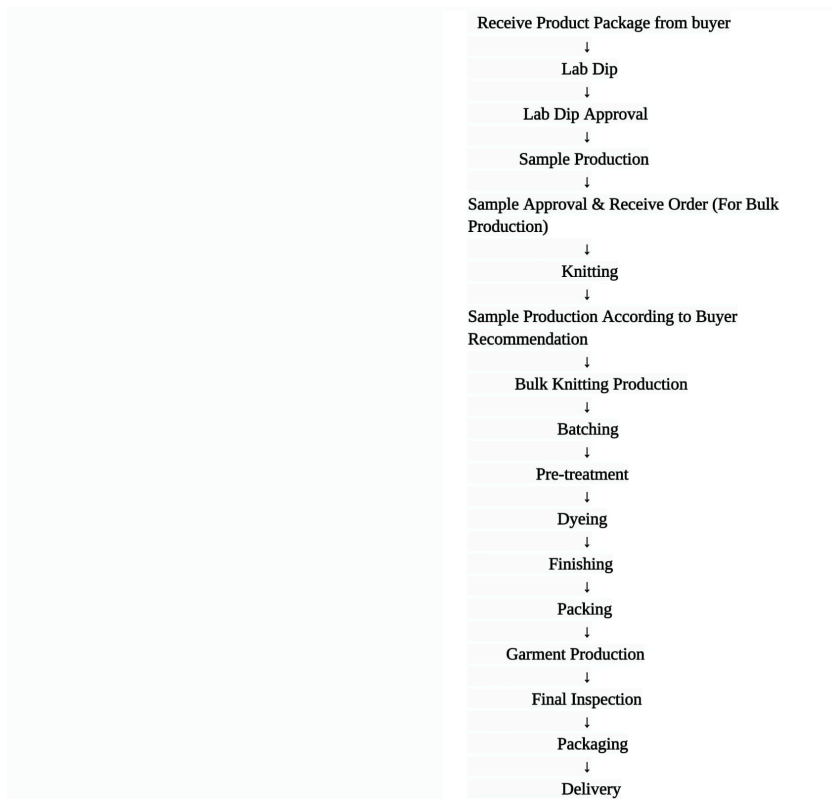
### **2.3.6 Task accomplishment in the Printing Department**

MKDL maintains strict policies regarding quality checking. As I worked on the QC table, I learned lots of quality checking rules and how to use the four-point system effectively. I have done both types of printing quality checks, which are Online printing quality check (design, repeat, color, shade, and misprint) and Offline printing quality check (Dia/GSM/shrinkage, hand feel, shade/color/design repeat, color passing, design out, print crack, design bias, and bowing; lab tests such as rubbing tests, wash appearance, perspiration, pilling, pH (phenolic yellowing test), and elastic recovery). Some of the printing faults I have observed are design outs, color bleeding, misprints, color hashing, unclear outlines, cracking, color spots, touching (when dust falls on the screen), screen tapper marks, incorrectness, uneven repeats, frame marks, stickiness, incorrect absorbency levels, double printing, and printing machine stops. Design outs, misprints, double printing, uneven repeats, and incorrectness are faults for which the tolerance level is "zero tolerance." These usually result in a total reject or "B-grade." For color bleeding, unclear outlines, cracking, and stickiness, the tolerance level is "low tolerance." For color spots, touching (dust),

frame marks, and screen tapper marks, the tolerance level is “minor tolerance.” MKDL maintains strict policies regarding quality checking. As I worked on the QC table, I learned lots of quality checking rules and how to use the four-point system effectively. Sometimes, there were many complicated new faults, which were quite challenging for me to identify for QC points. A printing unit's efficiency is determined by its RFT (Right First Time) %, which goes beyond machine speed. I have noted that if a machine stops 5 times an hour to fix "touching" or "screen tapper marks”, the real-time efficiency can drop from 85% to 60%.

## **2.4 Production Department**

During my 10-day internship in the production department, I had the opportunity to do close monitoring with the production team and did some reports. I have learned how the production team handles many critical issues regarding production and also analyzed some challenges around it. I started from the warehouse and store areas to cutting, sewing, and finishing and observed the whole transformation process of raw materials turning into ready-to-sell garments. With the help of the planning, IE, and technical departments, they ensure on-time shipment with good quality and better efficiency by applying the 4M method. The garment manufacturing unit is fully equipped with modern machinery and facilities. About 15000 skilled workers produce 5.0 million pieces of finished garments per month and successfully fulfill the capacity according to their demands. The production process flow chart is given below:



*Figure 7: Flowchart of Production Department*

### 2.4.1 Cutting section

Fabric cutting is the process used in the clothing industry to precisely and correctly cut fabric from the lay and spread. It is one of the most crucial and costly aspects of production. Even a small mistake can lead to a significant loss or clothing that is not eligible. At first, fabric spreading is done manually or by using a computerized system. Equipment used in the cutting section includes cutting table, perforated paper, marker, GSM tester & cutter, electric balance, and cutting knives. As I closely observed the challenging process of quality checking, some of the most common defects that I found in this section are : Slub, Crease, missing Lycra, hole, uneven shade, low GSM, short diameter, pen mark, misprint, and dirt spot. Some suggestions of mine regarding cutting precautions are that soon after dyeing, the fabric should be relaxed for the necessary amount of time to prevent shrinking; the width of the table and the fabric's diameter should be taken into account; the knife edge should be sharp; and the fabric lay height should be lower than the machine height. The ideal lay height is between 3 and 3.5". In order to ensure that

all of the garment's components are sewn together and prevent shade variation, the separated parts are numbered after cutting. There is a greater likelihood of component mixing if a number is missing. In sorting, all components of a garment are placed together. Sorting is done according to size & color-wise when multiple colors are cut together. Once everything has been sorted and numbered, a specific number of pieces are tied together. We call this process bundling. Bundle number, style name, size number, and number of pieces are all marked on each bundle. Cuts are now prepared to be sent to the production line for sewing.

#### **2.4.2 Sewing section**

The process of creating or repairing clothing or other items with a needle and thread is called sewing. It is a stitch unit that creates a seam line or stitch line by joining two or more piles of cloth. Sewing modules at Metro Knitting & Dyeing Group are separated into multiple classes. They have 177

Garment Sewing Lines. Some of the sewing machines that I saw them using are plain sewing machines, overlock sewing machines, flatlock machines, and special sewing machines.

After receiving, sorting, and numbering bundled cut panels, the technical team adjusts machines (plain, overlock, and flatlock) and sets up the layout according to the operation bulletin. Operators sew specific parts in sequence (e.g., collar attachment, sleeve setting, side seams) to maximize efficiency by a systematic assembly line. Then they are sent to ironing tables. Finally, after being in line, the garments for end-line quality inspection are sent to the finishing section. Some sewing defects I found are broken needle, broken stitch, skip stitch, uneven stitch, wrong stitch density, and puckering. Some of the SOPs I have suggested and tried for improving these faults are substrate pre-checking, standardized color mixing, screen & frame maintenance, workplace organizers, and tension calibration.

### **2.4.3 Finishing section**

The finishing section has skilled staff and up-to-date pressing equipment. I was able to check the clothing quality very closely here, as it is in other operations, to ensure a satisfactory level of quality. This section finishes the clothes and shapes them to the buyer's specifications. Here, you can remove uncut thread, remove crease marks, lift spots, wash, brush, iron, add trims and accessories, fold, and pack. Some finishing tools or machines are: Metal detector, steam iron, defect arrow sticker, additional thread sucker machine, hangtag, and cleaning gum tape. After receiving garments from sewing, thread sucking is done. Then, ironing is done. I did primary quality checking, and if some faults or spots were found, then those pieces were sent for spot removal. According to size, order, and buyer, the garments are separated, and the pair adjustment is done. According to the card no. in the sizing area, measurement check, gate-up check, size check, price tag attachment, folding, poly, assorting, and cartoning, most of these tasks were done manually. Maintaining buyers' policies while ensuring production efficiency and on-time delivery is a challenging process in itself. The political situation, labor unrest, and stringent compliance requirements from international buyers are some of the challenges that were mostly noticeable.

## **2.5 Marketing and Merchandising**

Here at MKDL, marketing and merchandising is a team that works hand in hand and is involved in the activities for the company to promote to buyers what products or services they have to offer. It includes advertising, selling, and delivering products to consumers or buyers of different companies. Since I started my internship in the department of marketing and merchandising for 7 days, I have observed that their key responsibility starts from order placement, fulfilling the capacity of the company, marketing products by the factory, order execution till shipment, and many more.

### **2.5.1 Marketing policies of MKDL**

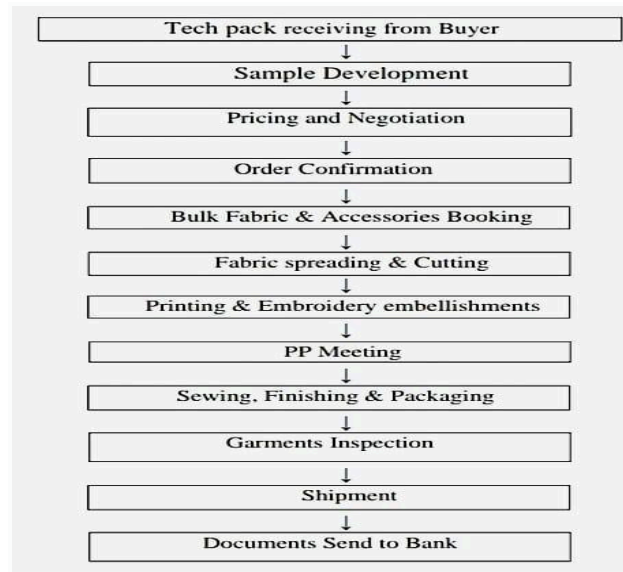
An efficient method of marketing is necessary to sell a product. A marketing strategy needs to be developed in order to accomplish the goal. In the clothing marketing industry, client service is essential. Customers interact directly with senior marketing executives, merchandisers, and other senior MKDL staff members. There are a few loyal clients in the sector. Customers place orders in a continuous flow all year long. The buying departments communicate with the marketing and merchandising teams when it comes time to fulfill orders. The rate and order quantity are established upon mutual consent.

### **2.5.2 Responsibilities of a merchandiser**

A merchandiser's responsibilities include preparing the cost sheet and interacting with the buyer. To create new promotional plans and strategies To maintain a regular & good relationship between the commercial officer & merchandiser. To take different steps by discussing with the high officials and merchandisers. It is crucial to ensure consistent communication with both the buyers and the buying houses. They aim to develop merchandising strategies that balance the company's objectives with customer expectations. They aim to clearly identify the highest-quality goods and establish contact with potential new buyers.

### **2.5.3 Task accomplishment in Merchandising Department**

After several days of observation, I have made this flowchart for the overall process of merchandising from start to finish. In reality, the process begins when the buyer places an order and stops when the buyer receives the products.



*Figure 8: Flowchart of Merchandising*

Lots of paperwork, e-mailing, and formalities have to be done in between the whole process, ensuring everything must be done accordingly on lead time. I was able to do the following tasks as a key coordinator of the merchandising team for “Promodoro” buyers throughout my internship and did each and every task under the supervision and guidance of senior merchandisers and team members. At first, I received messages from the buyers with tech packs where all the specifications about the order are given. Spec sheets and swatches were also sometimes sent by the buyers. Then I made a sample and sent it to the buyer. After getting the buyer's approval, we attempted to negotiate pricing. I booked and requisitioned yarn and fabric after receiving the order confirmation in the mail. I collaborated with the CAD team on that as well. Then I did a lab dip requisition at the color lab and gave the accessories booking. While waiting for the color lab's approval, I gave the requisition to the knitting department, according to the buyer's requirements. After attending some PP meetings and getting bulk dyeing confirmation, I sent mail to the dyeing, printing, and embroidery team for their work approval. I created trim cards and sent them to the buying house for final approval, and I also prepared a QA file with the necessary approvals and sent it to the buying house for bulk production permission. After sewing, finishing, final QC, and packing were done, I did brief garment inspections, then sent mail to the logistics team for

arranging shipment of goods from the factory. Finally, after the shipment of goods, I contacted the buyer for collecting shipping documents for receiving final documents from the bank.

### **2.5.4 Challenges of a merchandiser**

Metro Knitting & Dyeing Mills Ltd. is a 100% export-oriented industry. All the goods produced in this industry are exported to various foreign countries. Regarding that, a merchandiser has to face many challenges frequently. Some of the challenges that I have often faced were:

Fabric delays and machine breakdowns that caused delays and increased the pressure to maintain lead time. If the shipment date is missed, the buyer may demand a discount or insist on air freight, which can cost 5–10 times more than sea freight and eat all the profit. A yarn supplier might deliver fabric that is the wrong shade or has a hand-feel that the buyer rejects. I had to decide whether to reorder. This would have delayed the shipment or required processing of the fabric to fix it, which would have added cost. Buyers want the lowest price possible to stay competitive, while company wants the highest margin to cover overhead. In these situations, I found negotiation very challenging because if raw material prices like cotton or polyester spike after the order is confirmed, that means I must find ways to save money elsewhere without compromising quality. In PP meetings, sometimes, the production manager said that a certain design detail is impossible to sew efficiently at scale, but the buyer insists on that exact look. Then I had to negotiate a middle ground that satisfies the buyer's aesthetic and the factory's technical capabilities.

## **2.6 HR and Compliance Department**

Human Resources (HR) is responsible for finding, hiring, evaluating, and training potential employees. Human resources departments also oversee employee benefits, pay, and terminations. It includes all managerial decisions and practices that directly affect or exert influence over the establishment's human resources or workforce. It can also be called the "heartbeat" of the organization. Compliance is the act of abiding by a certain set of laws, regulations, and moral

principles set out by international organizations, national governments, and international consumers. It guarantees the facility's safe operation, equitable treatment of employees, and reduction of its environmental impact. During my internship period in this department, which was for 7 days , I took part in the hiring and selection process as well as other HR-related tasks, CSR training sessions, and meetings.

### **2.6.1 HR policies and activities of MKDL**

The company upholds the BSCI (Business Social Compliance Initiative) standards, emphasizing equitable treatment, non-discrimination, and adhering to legal and ethical business practices. Employs a large, skilled workforce (approx. 15,000 total, with 5,276 in audited units) with a high proportion of female workers (60% in some reports), fostering significant women's employment. The company guarantees legal minimum wages and offers performance incentives to motivate staff. Strict adherence to safety standards and local laws, ensuring a safe working environment, is complemented by regular safety audits and employee feedback mechanisms to continuously improve workplace conditions. The company offers comprehensive training programs that aim to enhance technical skills, productivity, and quality control. A significant portion of the workforce (33%) has over 11 years of service, indicating long-term employment stability. These policies aim to maintain high productivity while ensuring compliance with international buyer codes of conduct.

### **2.6.2 Compliance policies and activities of MKDL**

Metro Knitting & Dyeing Mills Ltd. (MKDML) is committed to upholding stringent compliance standards to ensure ethical operations and adherence to legal requirements. The company's compliance framework encompasses social compliance, skill development, and environmental stewardship.

**Social Compliance:** MKDML emphasizes fair labor practices, safe working conditions, and the protection of workers' rights. The company has implemented comprehensive policies to prevent discrimination, child labor, and forced labor, aligning with national and international labor laws.

**Skill Development:** Recognizing the importance of employee growth, MKDML has established training centers at Beacon Knitwear Ltd. (Factory-2) and Metro Knitting & Dyeing Mills Ltd. (Factory-2) under the supervision of ILO/SEIP. These centers aim to enhance the skills of employees, ensuring they remain competitive and proficient in their roles.

**Environmental Compliance:** MKDML is dedicated to minimizing its environmental footprint. The company has set up Effluent Treatment Plants (ETPs) across its manufacturing units to purify wastewater by removing toxic materials and chemicals, ensuring pollution-free water that can be reused for multiple purposes. The current capacity of these ETPs is 200 cubic meters.

### 2.6.3 Task accomplishment in HR and Compliance Department

As an intern, all operations and actions that I have done within the HR and compliance department were coordinated and controlled under seniors' observation and support.

|                                                                                                                                                |
|------------------------------------------------------------------------------------------------------------------------------------------------|
| Monitored how the payment slips of staff members are done and made some.                                                                       |
| Supplied training and development options for new hires, including professional development, training orientation, and leadership development. |
| I actively participated in the hiring and selection processes.                                                                                 |
| Kept an eye on how the overall corporate discipline is maintained.                                                                             |
| I was responsible for the creation and updating of the organization's compensation plan.                                                       |
| Organized office orders, promotion letters, and transfer orders.                                                                               |
| Did many supervisory interviews.                                                                                                               |
| Kept track of all essential documents and files.                                                                                               |

*Table 7: Task Accomplishment in HR & Compliance Department*

While working in this department, I found it quite challenging and hectic, as people of every designation of any department come to HR with different queries and situations. Some of the challenges that I faced were dealing with staff, handling confidential data, sorting through 100+ CVs, communicating policy changes, and many more. But with the help of my kind seniors and co-interns, I overcame many challenges by maintaining discretion and ethics, negotiation , persuasion, and giving attention to detail. I also learned about professional writing with clarity.

## Chapter 3

### Critical Assessment of Internship Work

The internship experience at Panam Group's Metro Knitting and Dyeing Mills Ltd, which consisted of 66 days, offered a thorough chance to apply the theoretical knowledge gained from the Post Graduate Diploma in Knitwear Industry Management (PGD-KIM) to actual working environments.

I was able to utilize both generic and industry-specific courses in a hands-on, results-driven setting thanks to my experience in knitting and knitting quality, dyeing and dyeing finishing, printing, marketing & merchandising, production, human resources, and compliance.

#### 3.1 Application of generic and industry-specific courses during internship

During my internship, I had the chance to connect academic theory with the practical realities of the workplace. The generic courses in the PGD-KIM curriculum fostered an understanding of organizational operation, professional behavior, and communication. Overall, these generic courses improved my workplace maturity, problem-solving abilities, and adaptability-essential qualities for thriving in a fast-paced clothing manufacturing industry. The PGD-KIM program's industry-specific coursework connected theoretical ideas with real-world industrial application. Each was reflected through direct engagement in the relevant departments during my internship. By connecting knowledge to quantifiable industrial outcomes, each course prepared me to comprehend and participate in comprehensive textile procedures.

Throughout my internship, I applied these lessons in various ways.

**KIM 101 – HR Skills and Competencies:** This course has developed my understanding of the theoretical and general aspects of HR in the readymade garment industry. I learned different types of HR skills and practices and action plans for individual leadership, employee motivation, compliance, and labor welfare. Employee recruitment system, employee feedback, conflict

resolution, ways of negotiation, employee motivation, culture of organization, and many other topics. Throughout my internship, I saw how MKDL used its HR and compliance systems to uphold worker safety, disciplinary actions, and handling of complaint procedures. Despite having the required equipment and workforce, I saw a major bottleneck in the production department, where real output often fell behind the scheduled amount. Seeing this as a lack of clear communication and employee motivation, with the cooperation of the floor supervisor, I set up a quick meeting. I explained the clear connection between efficiency goals and the organization's incentive structure using the negotiation and communication strategies we studied in class. I observed a quantifiable boost in daily output from multiple lines by attending to their concerns and building a transparent culture and got approval and recruited some more workers in line for inspections through MKDL's recruitment process. These experiences showed me that empathy and taking necessary actions on time where needed are driving forces rather than soft skills and proved that HR is the foundation of employee retention in the high-pressure RMG industry. From this course, I have also learned how to develop positive connections with each of my co-interns and different levels of the management body.

**KIM 102 – Analytical Skills and Competencies:** My job required a lot of analytical thinking, particularly in the supply chain, quality management, and operational efficiency sectors. I used analytical reasoning in efficiency tracking, KPI sheet making, Non-Productive Time (NPT) research, line-balancing review, and Standard Minute Value (SMV) computations. I initially was reluctant to analytically think about many aspects, inquire, and give my suggestions to experienced operators and in-charges because I was an intern, but the course's strong analytical base gave me the confidence I required. During my working days in the sewing section, I was standing by the overlook station, and I noticed the operator spends a lot of time just reaching for the next piece. If we moved the bundle 10 inches closer, we could shave off a few seconds per garment, and thankfully they were open-minded enough to take my suggestions. These

experiences improved my ability to approach difficult problems with systematic, fact-based reasoning rather than guesswork.

**KIM 103 – Communication Skills:** During my internship, I came to realize the tremendous importance of KIM 103 – Communication Skills. Communication skills are the most important abilities in this clothing industry. Along with learning how to communicate both internally and externally inside a company, I also learned how to display something to clients or internal workers. I also became more confident in my capacity to convey information during cross-functional meetings and KPI reviews, as well as to interact with managers and team leaders. While working in the merchandising department, a single unclear message can delay a 50,000-piece shipment, so the precision I gained was immediately practical. I drafted 20 buyer follow-up emails during my internship, including one to NEXT buyers that clarified trim arrival details and prevented a three-day hold-up. Also sorted a proposal into a 35-second pitch for the senior merchandiser and a five-minute training session for the CSR, ensuring smooth adoption across the team. My email writing, CV presentation, verbal delivery, and general professional presence all significantly improved as a result of KIM 103, transforming me from a recent graduate intern into a calm, capable communicator prepared for difficulties in the real world.

**KIM 104 – Business Operational Skills:** This course really helped me to learn a lot about the entire business process and how it functions. I learned how several departments, such as merchandising, knitting, dyeing, printing, and production, need to work together and communicate in order to properly finish an order. There are lots of strategic business decisions needed to be taken to run the whole industry in each and every step. Business operation skill course helped me learn about this and how to make decisions more effectively. As I have done market research in this course and learned many business strategies and analyses, I have enough confidence to give meaningful advice in meetings that I attended during my internship. I was given a task to make a PESTLE analysis report on MKDL, which I was able to do successfully.

As a student from a science background, I did not have much knowledge about business. But after completing this course, now I surely have a good grasp on this area.

**KIM 201 – Introduction to Garments Industry:** To work in any sector, one must have enough introductory knowledge about it. This course has given me the whole garment industry knowledge and the opportunity to learn more in-depth information about various aspects of the industry. The learning from this course has greatly assisted me in reducing mistakes and identifying mistakes at the last minute so that we may take the appropriate action to address the problem as soon as it arises and correct it. While working in merchandising and printing departments, I was able to follow up on the supplier's operating procedures, such as trims and accessories, and sub-contractual client requirement charts and sheets, thanks to this course. Additionally, I monitored manufacturing to make sure that the customer receives the correct quality goods on time.

**KIM 203—Production Management & Merchandising:** The lessons of production management and merchandising really helped me to learn more about the detailed work process of production management as well as merchandising. It also enabled me to understand from the supplier's end to the buyer's end. From merchandising, I learned a lot about merchandising work procedure, costing, product development, order placement, delivery timetables, and forecasting, as well as new fashion trends. While I worked in the merchandising department, I realized that following up on current fashion trends is very important since, as a merchandiser, I have to keep myself updated on the latest fashion so that I can develop trending products for buyers. I applied what I had learned in the production management part of the course with my teammates. There are many opportunities for us to work on when we share our knowledge. This gave us a lot more control over production, which allowed us to provide the customer with better service.

**KIM 204 – Quality Management & Supply Chain Management:** Throughout my entire internship, I have encountered unavoidable processes of quality management. The most important thing to the customer is quality, which is also essential for us to deliver. From this course on quality management, I have learned about the certification a knitwear industry should have, how to spot and fix real problems on the factory floor, and the rules of fabric quality checking. I have done quite a lot of quality checking of lots of fabric batches as well as joined the CAPA process during internal Quality System (QS) and Product Quality Inspection (PQI) audits, in-line audits that keep products up to buyer standards. I also have observed MKDL has many remarkable certifications, and they abide by compliance very precisely. All that I have learned from supply chain management has helped me to understand MKDL's internal and external supply chain and their operational dynamics.

### **3.2 Suggestion for industry improvement**

Based on my thorough exposure across multiple departments, I observed several areas where Metro Knitting and Dyeing Mills Ltd. may increase its operational efficiency, coordination, and competitiveness:

**Fabric utilization:** Fabric is a significant and costly commodity for the garment business, and the efficiency of fabric use depends on the marker efficiency of cutting. Their marking efficiency is marginally lower than that of other local firms. They can make improvements in this area to reduce the cost of raw materials. Cutting the fabric head ends to assess fabric quality is another way to cut down on fabric waste. To reduce fabric waste while maintaining the required level of fabric quality, they may want to think about shrinking the head ends. By doing this, the factory may support sustainable production methods and reduce the cost of raw materials.

**Quality assurance:** Like many other companies in Bangladesh, MKDL similarly struggles with their clients seeking excellent quality but being unwilling to pay higher rates owing to fierce market competition. They can come to fair agreements with their buyers by maintaining buyer

expectation quality and on-time delivery. Consistent product quality and customer satisfaction can be guaranteed by regular internal audits and updated training programs on quality standards and compliance.

**Cutting efficiency:** MKDL's cutting department is instructed to follow a specific Standard Operating Procedure (SOP). However, a lack of trimming has led to mishaps on the production floor. A cutting schedule is created every day, but occasionally the schedule is thrown off because fabric and other raw materials are not readily available. In order to increase their efficiency, the cutting team attempts to hide this by creating an advanced cut. But this might result in errors and production delays. For example, the sewing floor experienced a three-hour delay due to a misplaced cut bundle. During my internship, I discovered that in order to prevent similar situations in the future, the cutting department needs to adhere to the precise timeline and action plan (TnA).

**Sustainability and waste optimization:** Water meter issues and machine maintenance delays lead to inefficiencies, causing occasional water and chemical waste. ETP performance is poor, leading to untreated or partially treated water discharge, contributing to water pollution. No waste segregation, energy-saving systems, or renewable utility integration (e.g., solar, efficient lighting). Absence of LEED or green certifications reflects a lack of environmental responsibility. Lack of commitment to sustainable dyeing or utilities increases the company's environmental footprint.

**Issues regarding production:** Limited skilled manpower in specialized areas such as color matching and recipe development can slow approvals and production. As everything in the finishing department is done manually, it consumes more time. Gas supply instability disrupts dyeing and finishing operations, impacting production schedules.

**Supply chain & inventory management:** By increasing real-time visibility across production, warehouse, and 20 procurement processes, lead times would be reduced and coordination would be improved. Many raw supplies, including fabric, trims, and accessories, can occasionally be

found in the warehouse after being left there for a long time. When determining the raw material requirements for a certain order, merchandisers can fail to account for these commodities, which results in the business buying new raw materials needlessly. To avoid overstocking or understocking raw materials, the business might think about putting in place a system to monitor inventory levels.

### **3.3 Learning for Self-improvement**

My internship experience in multiple departments has given me a thorough understanding of industrial operations and chances for personal growth. My technical, analytical, and professional skills were greatly enhanced during my life-changing internship at Metro Knitting & Dyeing Ltd. This coursework has improved my professional skills in addition to providing me with technical knowledge about my subjects. Moving across five areas needed agility and openness to new learning.

I developed the capacity to swiftly understand departmental goals, integrate into team operations, and contribute constructively under time restrictions. Comprehending line balancing, SMV, and marker efficiency strengthened the technical rigor needed for clothing manufacture. This gave me valuable insight into how diverse functions work together to reach organizational goals and knowledge about the importance of sustainability in the textile and apparel industry in addition to the course material. In addition to highlighting the necessity of ongoing improvement in achieving operational excellence, my participation in Lean and Six Sigma initiatives provided me with practical expertise using structured problem-solving methods. In a business setting, I learned how to effectively follow up, accurately document procedures, and communicate precisely. Exposure to fast-paced working scenarios also drove home how vital it is to plan ahead, be flexible, and respond to altering priorities while maintaining consistency in quality and accuracy. Familiarity with industrial discipline, punctuality, and compliance culture boosted my professional ethics, and my skill to adapt to numerous business cultures was improved by exposure to worldwide

collaboration and diverse work methods. The organization's expectations of its employees, including myself, and vice versa, were understood through my understanding of the recruitment process, job descriptions, job analysis, and employee training for both new and existing employees. I developed the capacity to swiftly understand departmental goals, integrate into team operations, and contribute constructively under time restrictions. Overall, I am glad of the chance to attend this course and the priceless knowledge and skills I have received. It has given me a solid base for both professional and personal growth, providing me the abilities, self-assurance, and perspective I need to flourish in the manufacturing and industrial sectors.

## **Chapter 4**

### **Conclusion**

During my 66 days of internship, working in a variety of Metro Knitting & Dyeing Mills Ltd. departments throughout that time period has given me knowledge and experience, as has learning about different departmental operations. As a student hoping to get into this field, I was able to obtain a thorough understanding of the several departments involved in the production process, which was quite helpful. I got the chance to work in a number of areas during my internship at MKDL, including Dyeing & dyeing finishing, Knitting & knitting quality, Printing, Garments production, Marketing& Merchandising and HR & Compliance. The factory has clear goals, such as delivering on time, with no delays, and with few defects. It was a great chance to work with different parts of the organization and learn about their different roles and what drives them.

Throughout the internship, I was able to put my academic skills to use in real-world situations, particularly in areas like production planning, process optimization, and quality control. Through this experience, I have acquired the information and practical abilities necessary to succeed in this industry, and I am confident in my ability to contribute significantly to the field. I made trim cards, learned the operation of dyeing software, used quality checks to catch defects early, used merchandising skills to follow orders from start to finish, participated in the recruitment process, and applied my HR skills and knowledge of compliance in various situations.

Overall, this experience has been a beneficial educational opportunity that has broadened my industrial perspective, increased my technical proficiency, and given me important knowledge and abilities that will greatly improve my performance in the RMG industry. Now that I know the entire process, from yarn to shipment, I am comfortable handling challenges, managing groups,

and advancing the sector. I'm excited to be a part of this fascinating and dynamic sector as it continues to grow and change.

I am immensely grateful that Brac University has offered this worthwhile internship as an integral part of the PGD-KIM curriculum. Thanks to this experience, I was able to get insightful knowledge about how many departments collaborate to ensure efficacy, quality, and client satisfaction. I discovered that effective communication, forward planning, and quick problem-solving are key components of RMG success.

## References

1. Metro Knitting & Dyeing Mills Ltd./2021/ <https://www.metrokd.com/>
2. Panam Group/2021/ <https://panamgroupbd.com/>