# CHAPTER I INTRODUCTION

## I.1 Background

Unnoyon Textile Limited, a prominent RMG Garments company, boasts a diverse product range, including T-shirts, shirts, and pants. With a deep understanding of the textile industry's production capabilities, Unnoyon Textile Limited is facing significant challenges within its production section. In pursuit of operational excellence and environmental responsibility, the company is actively seeking a sustainable solution that aligns with the principles of the green supply chain. The demand for their products necessitates a robust and efficient production system, but Unnoyon Textile Limited has encountered obstacles that hinder their production processes. These challenges may include production delays, resource constraints, and inefficiencies impacting the overall manufacturing capacity. The company acknowledges the need for a transformational approach to address these issues and enhance their production capabilities sustainably.

Sustainable supply chain management has emerged as a critical focus for companies seeking to balance their economic objectives with environmental responsibility. (Sekhari, Ratan, Rahman, Bouras, & Ouzrout, 2010). In the case of Unnoyon Textile Limited, a prominent RMG garments company, their diverse product range, including T-shirts, shirts, and pants, has led to a growing demand for efficient production processes. The waste generated during the cutting, sewing, and finishing processes at Unnoyon Textile Limited is not only detrimental to the environment but also significantly impacts the company's production efficiency and ability to meet customer deadlines. The excessive waste leads to delays on the production line, affecting the overall productivity of the company. As a result, Unnoyon Textile Limited struggles to fulfill customer orders on time and achieve its target production goals.

Table I.1 Q1 Waste Table (January, February, March)

| Process | Input Quantity (kgs) | Wastages | Output Quantity (kgs) |
|---|---|---|---|
| Cutting | 2549.11 | 4% | 2447.1456 |
| Sewing | 2447.1456 | 9% | 2226.902496 |
| Finishing | 2226.902496 | 5% | 2115.55 |

Table I.2 Q2 Waste Table (April, May, June)

| Process | Input Quantity (kgs) | Wastages | Output Quantity (kgs) |
|---|---|---|---|
| Cutting | 2480.27 | 6% | 2331.4538 |
| Sewing | 2331.4538 | 8% | 2144.937496 |
| Finishing | 2144.937496 | 3% | 2080.58 |

Table I.3 Q2 Waste Table (July, August, September)

| Process | Input Quantity (kgs) | Wastages | Output Quantity (kgs) |
|---|---|---|---|
| Cutting | 2760.8 | 7% | 2677.976 |
| Sewing | 2677.976 | 5% | 2544.0772 |
| Finishing | 2544.0772 | 7% | 2365.99 |

Table I.4 Q4 Waste Table (October, November, December)

| Process | Input Quantity (kgs) | Wastages | Output Quantity (kgs) |
|---|---|---|---|
| Cutting | 2670.8 | 6% | 2537.26 |
| Sewing | 2537.26 | 12% | 2359.6518 |
| Finishing | 2359.6518 | 6% | 2218.07 |

An important concern in the context of Unnoyon Textile Limited is on the large waste that occurs during the production operations. The information in the waste tables shows that this wastage is seen in many quarters. The information emphasizes the input amounts, wastage rates, and final output amounts for different production phases, including cutting, sewing, and finishing. The standard wastage percentages of 3% to 8% in cutting, 3% to 8% in sewing, and 2% to 5% in finishing indicate that the company is facing challenges in effectively managing their sewing and finishing processes. Sewing wastages may arise due to various reasons, such

as human errors, lack of skilled labor, and inadequate training, leading to mistakes in stitching and assembly. Additionally, inefficient operations and poor workflow management can contribute to increased sewing wastages. In the finishing stage, wastages may occur due to suboptimal ironing and pressing practices, inadequate quality inspection procedures, and improper packaging, resulting in damaged garments and rework.

To address these issues, the company can consider adopting green supply chain practices, which focus on reducing waste, improving resource efficiency, and promoting sustainability. By implementing Lean Manufacturing principles, the company can optimize its processes, minimize inefficiencies, and reduce sewing and finishing wastages. Furthermore, embracing sustainable packaging materials and eco-friendly finishing techniques can contribute to a more environmentally responsible approach to garment manufacturing. (Chakrabortty & Paul, 2011)

The consequences of wastage in cutting and sewing processes can have significant impacts on both the company and the environment. Higher sewing wastages lead to increased material costs and resource consumption, affecting the company's profitability and competitiveness. The accumulation of fabric scraps and discarded garments can also contribute to environmental pollution and waste generation, putting strain on limited natural resources. Additionally, excessive wastage can disrupt the supply chain, causing delays in production schedules and affecting delivery timelines, leading to customer dissatisfaction and potential order cancellations. From a sustainability standpoint, the company's reputation and brand image may suffer if it is perceived as being wasteful and environmentally irresponsible. Embracing more efficient cutting and sewing practices can not only improve the company's bottom line but also contribute to a greener and more socially responsible approach to garment manufacturing. (Ali & Habib, 2012)

In the first quarter (Q1), the waste percentages for cutting, sewing, and finishing are 4%, 9%, and 8% respectively. In the second quarter (Q2), the waste percentages increased slightly for cutting (6%), sewing (8%), and finishing (10%). The third quarter (Q3) sees a 7% waste in cutting, 5% waste in sewing, and 11% waste in finishing. Finally, in the fourth quarter (Q4), the waste percentages are 6% for cutting, 12% for sewing, and 8% for finishing.

The delays in production and supply to customers have a cascading effect on the company's reputation and customer satisfaction. Customers may experience dissatisfaction due to delayed deliveries, leading to potential order cancellations or a loss of repeat business. Meeting production deadlines is crucial for the company to maintain a competitive edge in the RMG Garments industry and retain its customer base. To enhance their production efficiency and meet target goals, Unnoyon Textile Limited is eager to implement a sustainable system, particularly a green supply chain approach. By addressing the waste issues and optimizing production processes, the company can streamline its operations, reduce lead times, and improve overall productivity. A sustainable system will not only benefit the environment but also enhance the company's ability to meet customer demands, leading to increased customer satisfaction and loyalty.

Moreover, adopting a green supply chain can attract environmentally conscious customers who value sustainable practices and eco-friendly products. By aligning their production processes with green principles, Unnoyon Textile Limited can position itself as an environmentally responsible and socially conscious company, further enhancing its brand image and market competitiveness.

In conclusion, Unnoyon Textile Limited's drive to enhance their production processes and reach target production goals is motivated by the need to reduce waste, improve efficiency, and meet customer deadlines. By implementing a sustainable system, the company can address these challenges, achieve operational excellence, and contribute positively to the environment and the textile industry.

The Fishbone diagram, also known as the Ishikawa diagram, is a visual tool used to identify and understand the potential causes of a specific problem or effect. It helps teams to brainstorm and categorize various factors that could be contributing to the problem, making it easier to analyze and prioritize them. (How to use the fishbone diagram to determine data quality root causes, n.d.) By visually representing the cause-and-effect relationships, the Fishbone diagram provides a clear and organized way to explore the complexity of the problem and guide problem-solving efforts. It encourages collaboration among team members and ensures that all possible factors are considered, leading to more effective problem resolution.

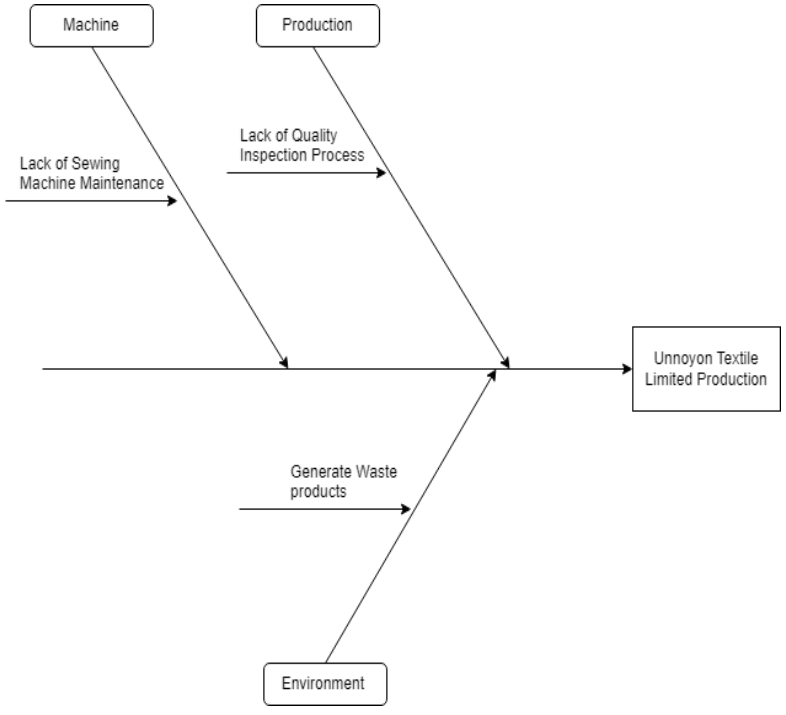


Figure I.1 Fishbone Diagram

The Fishbone diagram analysis reveals three main problem areas causing late production in Unnoyon Textile Limited's production line: lack of sustainable raw materials and production line delays in the material section, waste production in the environment section, and machine maintenance issues in the machine section. Addressing these problems can improve production efficiency and align with the company's sustainability goals.

By adopting SCOR Racetrack, Unnoyon Textile Limited can streamline its supply chain management and address the identified problems effectively. SCOR's structured approach allows the company to assess and optimize every stage of the supply chain, from sourcing sustainable raw materials to efficient production and timely delivery to customers. (Akkucuk, 2016) SWOT analysis within the pre-SCOR stage enables Unnoyon Textile Limited to gain valuable insights into its strengths, weaknesses, opportunities, and threats. This assessment will help the company prioritize areas for improvement and devise strategies that align with its business objectives.

Furthermore, incorporating lean management methods and 5S Kaizen strategy will lead to a more organized and efficient workplace. Lean principles focus on minimizing waste, improving productivity, and enhancing overall quality. By implementing 5S Kaizen, the company will promote workplace cleanliness, organization, and employee engagement, resulting in a smoother production process. (Myerson, 2012)

Overall, the combination of SCOR Racetrack 12.0, SWOT analysis, lean management, and 5S Kaizen will empower Unnoyon Textile Limited to optimize its production line, increase operational efficiency, meet customer demands promptly, and achieve its target production goals. Embracing a sustainable and environmentally responsible approach will position the company as a leader in the RMG Garments industry and strengthen its competitive edge in the market.

## I.2 Alternative solutions

Table I.4 Alternative solutions

| No | Root Causes | Alternative solutions |
|---|---|---|
| 1 | Lack of Production Standard Schedule Activities | Implementing standard schedule activities for production processes |
| 2 | Hard to Find Sustainable Raw Material | Implementing a material planning system to ensure availability |
| 3 | Lack of Maintenance Planning | Implementing maintenance planning for machinery and equipment |
| 4 | Lack of Consistent Layout | Implementing a consistent and organized layout for production |

## I.3 Problem Formulation

1. Based on the SCOR 12.0 Racetrack assessment, which aspect of supply chain management performance requires improvement at Unnoyon Textile Limited?
2. What suggestions can be proposed to enhance the performance of green supply chain management at Unnoyon Textile Limited?

## I.4 Purpose

1.This research is intended to advance knowledge of the SCOR Racetrack model for evaluating the implementation of green supply chains in Unnoyon Textile Limited.

2.Determine the priority based on company performance results. Ensuring workable solutions with the results.

## I.5 Benefits of Final Project

1.Reduced environmental impact: Through rigorous analysis and data-driven insights, this research will reveal which materials are the most detrimental to our environment and provide recommendations on how to reduce their usage. By identifying these materials,

we can shift our focus to more sustainable alternatives and take a step towards an eco-friendlier future.

2. Cost savings: Implementing sustainable practices throughout the supply chain can lead to cost savings for Unnoyon Textile Limited, such as reducing waste and energy consumption, and improving operational efficiency.
3. Reduced time in production: After the implementation of machine maintenance, the production time will be reduced.

### I.6 Writing Systematics

**CHAPTER I INTRODUCTION**

Chapter I Introduction introduces Unnoyon Textile Limited's challenges, explores remedies, outlines project's purpose and benefits, and provides writing structure overview.

**CHAPTER II THEORETICAL BASIS**

Covers essential theories: Supply Chain Management, Green Supply Chain, Textile Industry's Supply Chain, Advantages, SCOR framework, and SCOR Racetrack. Also discusses the choice of a standard design framework.

**CHAPTER III METHODOLOGY OF RESEARCH**

This chapter outlines the research methodology. **Problem Solving Systematics** is detailed, emphasizing structured analysis. It further covers Limitation and Assumption, ensuring transparency. Identification of Integrated Components highlights key elements. Lastly, Final Project Completion Time sets the timeline for project execution, ensuring comprehensive exploration.

**CHAPTER IV DATA COLLECTION AND PROCESSING**

Covers Pre-SCOR Steps, including company profile, product, production system, and price list. Establishing the Scope encompasses global aspects, SWOT analysis, supply chain documentation, and scope definition. Setting up the Supply Chain involves data collection, benchmarking, and threat analysis. Lastly, Enhancing Project Effectiveness addresses issue grouping.

**CHAPTER V PREPARE FOR AN EXECUTION**

Covers Improvement Project Charter, Readiness Check, Prioritization Matrix, and Result Prediction. Also discusses Improvement Suggestions including machine maintenance and lean management.

**CHAPTER VI CONCLUSION AND SUGGESTION**

Final step, identify identification of a reliable answer. Or providing ways to solve these issues in the future. After measuring the performance, provide solutions based on the analyzed results.