CHAPTER I
INTRODUCTION

1.1 Description of Research Object

In this research, the writer chooses the objective of research in PT. Gaya Pantes Semestama. PT. Gaya Pantes Semestama located in Jalan Raya Laswi no 60 Majalaya, Kab. Bandung West Java

PT. Gaya Pantes Semestama is a middle corporate who running in the textile business. PT. Gaya Pantes Semestama Located in Jalan Raya Laswi no 60 Majalaya, Kab. Bandung West Jave. PT. Gaya Pantes Semestama producing a raw fabric or grey fabric. PT. Gaya Pantes Semestama established since 1999.

PT. Gaya Pantes Semestama has more than 150 employees who work for them. In 2017 PT. Gaya Pantes Semestama produced around 782.608 yards of grey fabric. They usually get an order from Jakarta. They target to sell their product is a retailer.

1.1.1 Vision and Mission

The vision of PT. Gaya Pantes Semestama is "Becoming a textile company that grows big and strong in national and global"

The missions of PT. Gaya Pantes Semestama are:

1. Work hard to create opportunities to grow into the best and quality companies.
2. Carry out company's activities with high ethical standards with honesty and integrity.
3. Prioritizing quality and service for customer satisfaction by referring to total quality management through increasing human resources.
4. Make a partnership with other companies
5. Develop professional employees by creating a good environment.
6. Creating work results with decent and sustainable benefits for the company.

1.1.2 Company values

The company values of PT. Gaya Pantes Semestama are:

1. Put the customer satisfaction as the priority.
2. Work professionally to produce a quality product.
3. Prioritizing work safety and focusing on developing human resources.

1.1.3 Company Culture

The Company cultures of PT. Gaya Pantes Semestama are:

1. Focus with customer
2. Discipline, honest, and integrity
3. Work hard, Creative, innovative, and independent
4. Good teamwork
5. Study and share the knowledge

1.1.4 Business Process

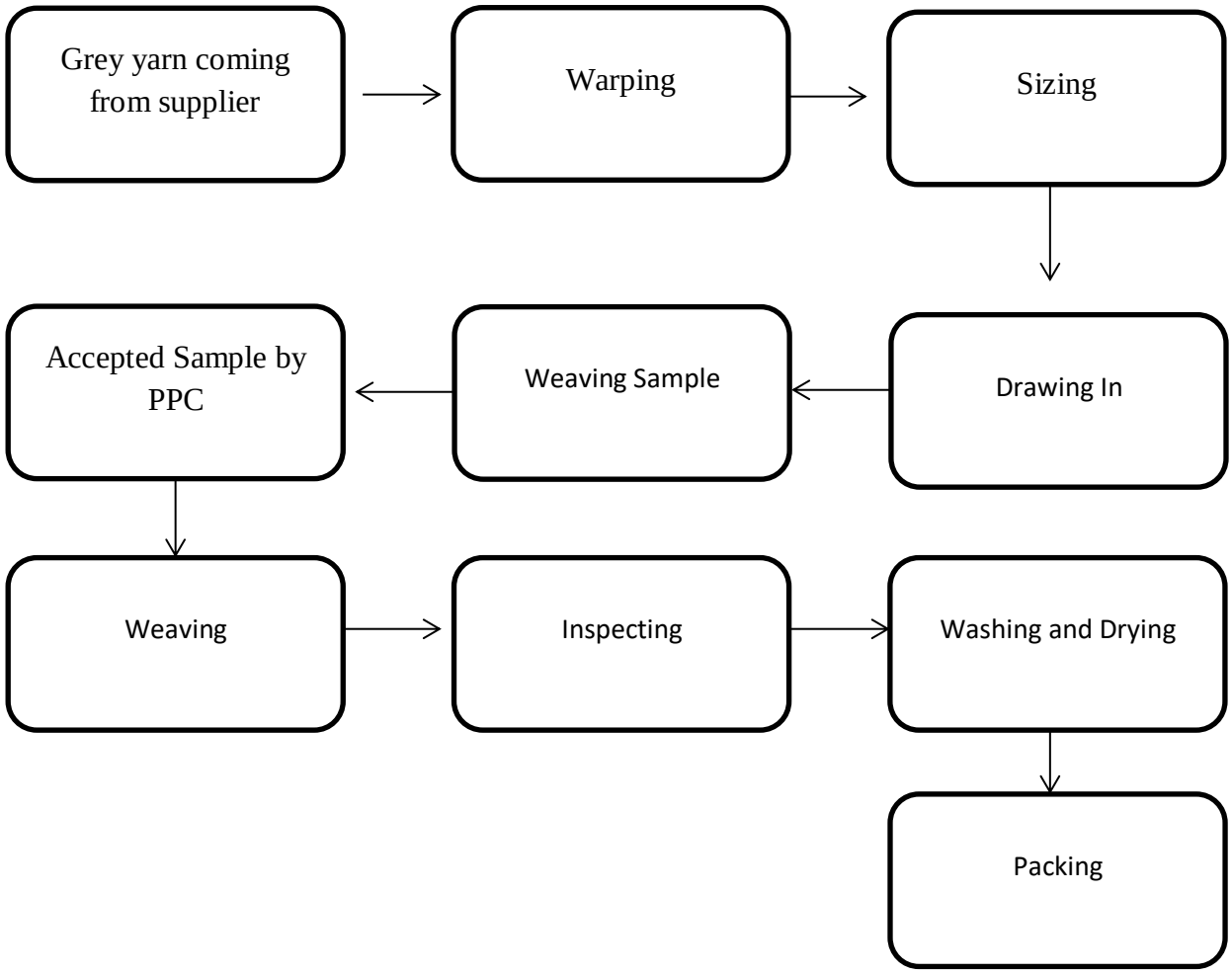

Figure 1.1 Business Process of PT. Gaya Pantes Semestama

a. Warping

Move the yarn from cones into large rolls in parallel direction with amount and length that has been decided.

b. Sizing

Giving starch (chemicals) to the thread to make it stronger so it doesn't break easily in the next process.

c. Drawing In

The threads are inserted into the dropper, gun and comb according to the type of woven fabric desired.

d. Weaving Sample

Weaving the treads into fabric as a sample

e. Accepted Sample by PPC

PPC department will see the fabric has fulfilled the requirement

f. Weaving

Weaving the treads info fabric.

g. Inspecting

The process of inspecting or providing quality grade woven fabric, the parts examined include physical quality.

h. Washing and Drying

Washing the fabric to remove the chemicals that attached on the fabric. After that, dry the fabric.

i. Packing

the fabric is ready to send.

1.2 Background

The textile industry in Indonesia has grown rapidly. According to Media Indonesia (2018), In 2017 textile industry has grown around 6% or US$12,4 billion since 2016. The textile industry trade balance also grew 1.7% in 2017. In 2016 the textile industry surplus only reached US$ 3.67 billion, in 2017 the surplus reached US$ 3.73 billion.

According to Industri.bisnis.com (2017), Ministry of Industry said the textile industry showed positive progress both in the domestic and export markets. In the first

semester of 2017, Export growth rose 1.92% compared to last year with the same period that decreased around 0,13%. The ministry of the industry expected at the end of the year the amount of export in the textile industry would be US$12,09 billion and in 2019 would be US$ 15 billion. Based on those articles, the textile industry still has a good prospect.

Majalaya has already known as the place that produces fabrics in Indonesia. Such as PT. AWS Textile, PT. Komodo Textile Mills, PT. Purnama Textile and etc. One of the companies who runs a business in textile in Majalaya is PT Gaya Pantes Semestama. Compare with other companies PT Gaya Pantes Semestama is still lagging. PT Gaya Pantes Semestama only can fulfill the demand on the domestic market otherwise other companies have fulfilled the demand for both domestic and foreign market. PT Gaya Pantes Semestama has several problem faced by them. One of the problems is a defective product. According to the data, the number of a defect in 2017 is higher than the standard that implemented by the company as seen on the table 1.1

Table 1.1

The Amount of Production and Defective Products Data at PT Gaya Pantes Semestama January 2017 – September 2018

No	Month	The Amount of Production	The Number of Defective Products	Percentage
1	January	80.500	12.647	**15,71%**
2	February	73.309	15.774	**21,51%**
3	March	76.240	16.488	**21,62%**
4	April	66.072	8.450	12,78%
5	May	64.568	13.631	**21.11%**
6	June	49.358	7.420	**15,03%**
7	July	53.258	6.976	13,09%
8	August	70.091	11.560	**16,49%**
9	September	66.350	15.418	**23,23%**
10	October	77.748	14.853	**19,10%**
11	November	60.768	12.786	**21,04%**

No	Month	The Amount of Production	The Number of Defective Products	Percentage
12	December	44.346	7.760	**17,50%**
13	January	43.057	7.584	**17,61%**
14	February	49.635	5.726	11,53%
15	March	68.460	11.800	**17,23%**
16	April	58.120	9.500	**16,34%**
17	May	42.516	7.709	**18,13%**
18	June	0	0	0%
19	July	16.215	3.049	**18,80%**
20	August	50.267	12.932	**25,72%**
21	September	16.702	5.545	**33,19%**
	Average	**53.694**	**9.886**	**17.94%**

Source: PT Gaya Pantes Semestama

Based on table 1.1, we can see the amount of production and the amount of defective product. The amount of defective product at PT Gaya Pantes Semestama tends to fluctuate each month. PT Gaya Pantes Semestama has decided the minimum standard of defects is 15%. They set 15% as their minimum because if the percentage of defect more than 19% , they start getting lose. If the percentage is in between 15%-19% they only get little profit. That's why the set 15% to maximize the profit can they get.Based on table 1.1, the amount of defective products is higher than the standard minimum. The amount of production in January 2017- September 2018 was 53694 yards and the averages of defective products were 9.886 or 17, 94% in 21 months. In June 2018 showed there were no production. PT Gaya Pantes Semestama did not accept any order because there was an internal management problem.

In February the percentage of defective products was 11, 53%. This was the smallest percentage of defect products in the other hands in September 2018 showed the percentage of defective products was 31, 19%. The highest amount of defective products in January 2017 – September 2018. If the product is defective the quality falls to "Grade B". "Grade B" quality makes the selling price falling down. This also has an impact on

selling and the satisfaction of PT Gaya Pantes Semestama consumers. There are some causes could make a fabric called defective products, as follows:

1. Burl Mark (major)

   When a slub or extra piece of yarn is woven into the fabric, it is often removed by a "burling tool."This will usually leave an open place in the fabric, as seen on figure 1.1 :

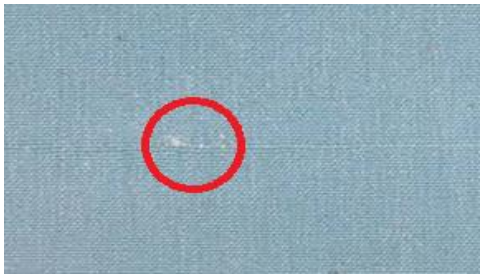

Figure 1.2 Burl Mark

Source: Cotton works Website

2. Drawbacks (major)

   Caused by excessive loom tension gradually applied by some abnormal restriction. When the restriction is removed the excess slack is woven into the fabric. Usually, the ends are broken. as seen on figure 1.2 :

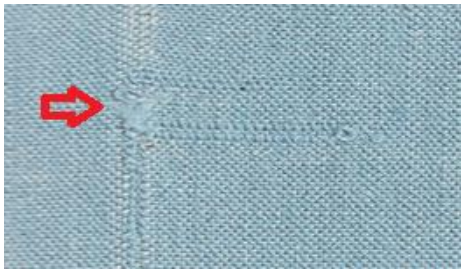

Figure 1.3. Drawback

Source: Cotton works Website

3. Dropped pick (major)

   Caused by the filling insertion mechanism on a shuttleless loom not holding the filling yarn, causing the filling yarn to be woven without tension. The filling yarn appears as "kinky". There will also be areas of "end out". as seen on figure 1.3 :

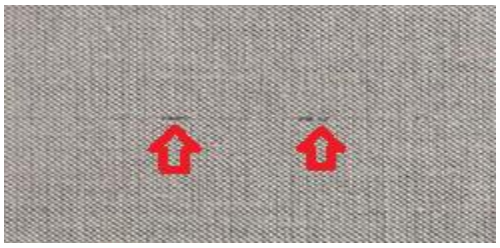

Figure 1.4 Dropped Pick

Source: Cotton works Website

4. End out (major)

   Caused by yarn breaking and loom continuing to run with the missing end. as seen on figure 1.4 :

Figure1.5 End Out

Source: Cotton works Website

5. Jerk-in (major or minor)

   Jerk-in Caused by an extra piece of filling yarn being jerked part way into the fabric by the shuttle. The defect will appear at the selvage. as seen on figure 1.5 :

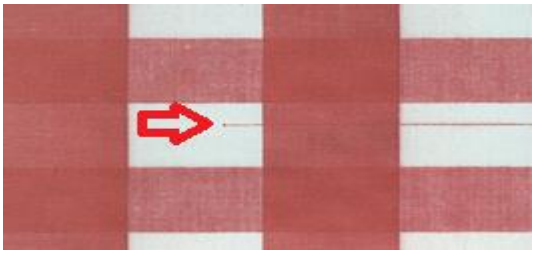

Figure 1.6 Jerk in

Source: Cotton works Website

6. Mixed yarn (major)

   The mixed yarn is a different fiber blend used on the warp frame, resulting in a streak in the fabric, as seen on figure 1.6 :

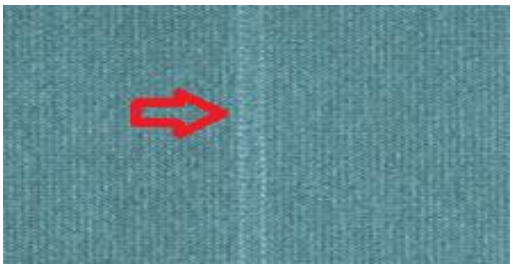

Figure1.7 Mixed Yarn

Source: Cotton works Website

7. Slub (major and minor)

   Slub refers to thick or heavy places in the yarn or flying waste yarn getting into yarn feeds during the spinning process. Slub and other inconsistencies are common in fabrics produced on vintage shuttle looms. as seen on figure 1.7 :

Figure 1.8 Slub

Source: Cotton works Website

8. Soiled Filling (major and minor)

   The soiled filling is dirty oily looking spots on the warp or filling yarns, or on packaged-dye yarn as seen on figure 1.8:

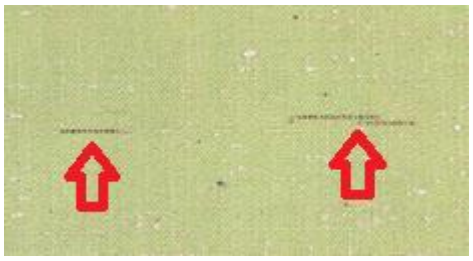

Figure 1.9 Soiled Filling

Source: Cotton works Website

9. Scrimp (major)

   Scrip is the result of fabric being folded or creased when passing through tender frames. as seen on figure 1.9 :

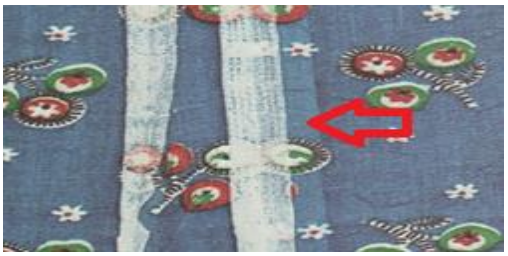

Figure 1.10 Scrimp

Source: Cotton works Website

10. Knots (minor)

    Knots are caused by tying spools of yarn together. as seen on figure 1.10 :

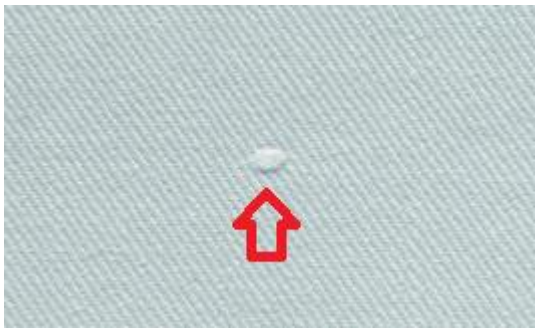

Figure 1.11 Knots

Source: Cotton works Website

PT Gaya Pantes Semestama has implemented an effort to decrease the level of defective products. They make the second inspection into each yard of defective fabric. There are some possibilities for defective products to be labeled as Grade A. However, depends on the causes of the defect.

The company makes an inspection to see the causes of defects are minor or major. Minor means the defect is not clearly visible and not affecting the result of the fabric and major a defect that is clearly visible on the fabric and affects the results of the fabric. If the pattern of the fabric is plain and the causes of the defect are minor the quality can be labeled as "grade A", the other side if the causes of the defects are major the quality of the fabric is still in "Grade B"

Based on the data in table 1.1 this inspection method is not helping much. The number of a defect in their production is still higher than the standard. So, the company needs to implement a new method to help them reduce the defect. Quality control is a method to decrease the product failure. To reduce the product failure PT Gaya Pantes Semestama should implement quality control. The aim of using quality control is to decide the best solution to reduce the level of defective products.

The quality product has an important position in business. The quality will be coming from a good process and following the quality standards has been made by market needs. Quality control is an activity (company management) to keeping and directing the quality of product or company's services could be maintained as planned before (Ahyari, 1992). In fact, a successful company who has good quality can survive in the market because quality control can decrease the inefficiency cost and increase the bargaining power of the company. We cannot resist the defects in production but if we were doing quality control the level of the defects would be decreased. The quality control function is to reduce the percentage of defective products. It would happen if the company doing the quality control in every stage of their production not only to know where the lack is then fixed it but also to find out the causes behind it. After that, take the actions to solve it. In quality control, there are a lot of methods can be used to finish the quality control's problems. This research would be using Statistical Process Control (SPC) tools in the production processing line and on the final product in order to reduce defects by identifying where the waste is occurring then give a suggestion for

improvement. According to the recent study (Yonatan Mangesha Awaj, 2013; Wassihun Yimer Amedie. 2013), SPC implementation is important as it could improve the process performance by reducing product variability and improves production efficiency by decreasing scrap and rework.

Quality control using Statistical Process Control (SPC) has 7 quality tools are available to help organizations to better understand and improve their processes. There are:

1. Check Sheet
2. Cause-and-Effect Sheet (Fishbone)
3. Pareto Chart
4. Scatter diagram
5. Probability Plot
6. Histogram
7. Control Charts

Based on the background, the writer interested to make a research for this problem with the title "**Quality Control Analysis Using Statistical Process Control (SPC) Method in to Reduce the Level of Defective Products at PT Gaya Pantes Semestama"**

1.3 Problems identification

Based on the background of the problem described, the writer set the problem in this study as follows:

1. What are the factors that cause the production failure at PT Gaya Pantes Semestama?
2. What are the actions should be taken by PT Gaya Pantes Semestama to reduce the production failure?

1.4 Objectives

Based on the formulation of the problem, the objectivves of this research can be prepared for:

1. To analyze the factors who affecting the defective of products at PT Gaya Pantes Semestama.

2. To find out the actions should be taken to reduce the defective products.

1.5 The Scope of the Problem

The limitations of this research were made to make sure the research will not out from the objectives. The problem limitations are:

1. The research was conducted in the period of January 2017 - September 2018.
2. The product inspected is raw fabric or gray cloth.
3. The research using Statistical Process Control (SPC) Method.

1.6 Research Significance

The problems discussed in this study are expected to benefit some parties:

1. Practitioner

This research is expected to be a scientific study and make easier to understand the theory, especially regarding quality control carried out by companies.

2. Practical

a. Company

The result of this research is expected to be implemented by companies in the quality control to decrease the defects

b. Writer

This research helps the writer to learn more about operations management, especially in quality control at the level of production in the company.

1.7 Writing Structure

Chapter 1 Introduction

In this chapter the researcher describes in general, concise, and solid about the content of the research conducted. Covers also the problems raised as phenomena that occur. This chapter covers the object of research, research background, identify problems, a period of study, and systematics writing.

Chapter 2 Literature Review

In this chapter the researcher contains a summary clearly, short, and solid about the results of literature reviews through theories appointed by researchers from books and reputable journals. The literature review is related to the topic

and problem variables. This chapter includes theoretical review, previous research, thinking framework, research hypothesis, and scope of research.

Chapter 3 Research Methods

In this chapter, the researcher confirms what method of reasoning only used in this essay. There is an approach, methods, and techniques used to collect and analyze data. This chapter includes: types of research, the operationalization of variables, population and samples, data collection techniques, and data analysis techniques

Chapter 4 Research Results and Discussion

In this chapter, the researcher describes systematically based on the results of data processing with the analysis used and software that is used as a counter-media. This chapter includes data collection, respondent characteristics, results research, and discussion of research results.

Chapter 5 Conclusions and Suggestions

In this chapter, researchers provide conclusions or threads red from the results of research that has been done with processed data that has been calculated. Then the researcher gives advice or input related to the problem under study.