CHAPTER 3

METHODOLOGY

3.1 INTRODUCTION

This chapter describes the research methods that will be used to conduct this study. A methodology can be considered to include a variety of methods, each applicable to all aspects of the methodology. It can also be defined as the study or the description of method. The observation is based on the direct observation of events that happen at JSC Paper Mill Sdn Bhd. The flow chart in Figure 3.1 shows the steps that have been taken in doing this research.

3.2 EXPLANATION OF FLOWCHART

3.2.1 Research Background

In the field research of any organization which involved actual and real information creation and collection by the operator in the field. It can also be defined as a set of external laboratory and workplace settings information. This process involves determining accurate data on what is important, the type of methods used which includes group informal interviews, direct observation, group discussions of life, self-analysis personal files, generated analysis, and the history of life.

At this stage, the method used is to focus on the direct observation in order to collect the information in general view of the problem at the selected company. First of all, a company must be selected to make the observation and case study. An application letter was drafted and sent to JSC Paper Mill Sdn Bhd. The appointment of the company visit is done each time before visiting. During the visit, their Factory Manager and Industrial engineer briefly explained the background of the company; types of the
products produced, their main customers and how the product is produced. After the briefing, a visit to the Converting Department was held in order to get the whole picture of how the parts are produced. A few problems are highlighted by the engineer and all the problems are jotted down for analysis purpose.

![Flow Chart of the Project](image)

**Figure 3.1:** Flow Chart of the Project
3.2.2 Problem Identification

Problem identification is defined as identify the problem before trying to solve it. In other word, it is the first strategy in problem solving. First, we have to realize and accept that there is a problem. Once the problems have been identified, then the observation is done directly. The information related to the problem is collected as soon as possible to begin working on the solution.

For this step, there are a few problems detected especially at the Toilet Tissue (TT) section area where various dimensions of toilet tissue are produced. Obviously, this factory does not have any system implemented previously. When visiting this section area, it is observed that all of the workers were seems to be tackling a war with the machine. This was because they kept pushing the emergency button to stop the machine and readjust the setting. This process repeated in every three to five minutes. Besides, there was also high number of machine breakdown cases recorded. Therefore, all these factors may have led to low operation time and low profit.

3.2.3 Data Collection

Data collection is defined as data gathering and information measuring process on variables of interest, in an established systematic pattern which could answer the stated research questions, test hypotheses, and evaluate outcomes. Data collections are needed step in order to form an analysis approach that suitable with the problem occur. The method of data collection is by using Overall Equipment Effectiveness (OEE).

There are mainly two ways for retrieving OEE input data; manually or automatically. The manual data collection method consisted of a paper template, where the cause and state changes in equipment and performance are identified. Next, duration of a breakdown, total time of production and comments could be made about minor stoppages and speed losses are taken for calculation. As in this research, the data from monthly report and all data that are related to OEE are needed in order to make an analysis in the problems that occur. The method that been used to collect the data is by interviewing operators, engineers, and managers. The data were collected for 3 months which was from September 2014 until November 2014. Several data cannot be obtained due to company policy and private and confidential information.