CHAPTER I INTRODUCTION

I.1 Background

Inventory is the stock of materials stored for use to facilitate production activities or quality goods, in-process goods, and finished goods. It is generally known that inventory is an asset for a company that has an important role in the production process at the factory divided into several types such as raw material inventory for input in the production process, auxiliary materials or supplies as auxiliary in the implementation of the process production, work in process, spare part inventories as components to replace other damaged and finished goods as a ready product to be marketed to consumers. (Bahagia, 2006)

Organizing inventory is one of the company objectives that manage the goods supply in facing demand uncertainty. An excessive amount of inventory (overstock) will cause wastage, it also leads to storage cost and great care in maintaining goods. Then as well as if the amount of inventory is too small, it will cause inventory "stock out" that results in the company to fail in fulfilling customer demand. Therefore, the inventory control is important so that needs of goods can be met optimally with least risk possibility.

PT ABC is an Indonesian company that provides drilling services, integrated drilling fluids engineering and oilfield chemicals supply for oil and gas exploration. This company has contracted with some big oil and gas company in order to support the oil and gas exploration. It has some warehouse warehouses at Sidoarjo – East Java, Duri – Riau, Jambi – Sumatra and Madura – East Java. One of the active warehouse as this research object is located in Duri.

Currently, the management of inventory in PT ABC is not good enough because there is no good inventory policy such as the flawed policies for minimum or maximum stocks kept in the storehouse. The problem faced by this company is the demand identified as lumpy characteristic. The irregularity of demand and lack of inventory policies cause the overstock inventory in storehouse. As it can be seen on Figure I.1 which shows the comparison between stock and demand in 12 months.

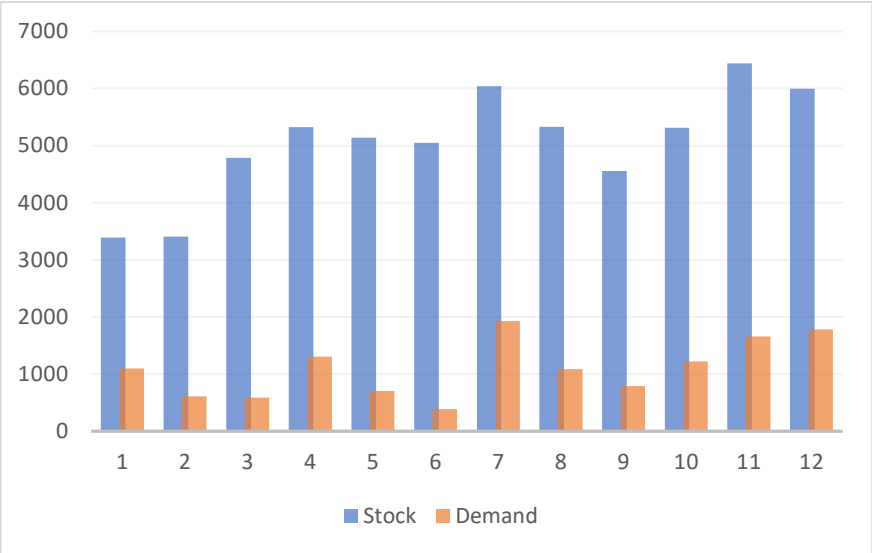

Figure I.1 Comparison between stock and demand

The Figure I.1 shows that the material kept in inventory warehouse more than the customer needs. It indicates the occurrence of excess inventory in the warehouse with a percentage difference between the amount of stock and demand can be seen on Figure I.2. Big difference number of stock and demand has caused by the demand pattern that identified as intermittent demand. This pattern then classified in to lumpy demand.

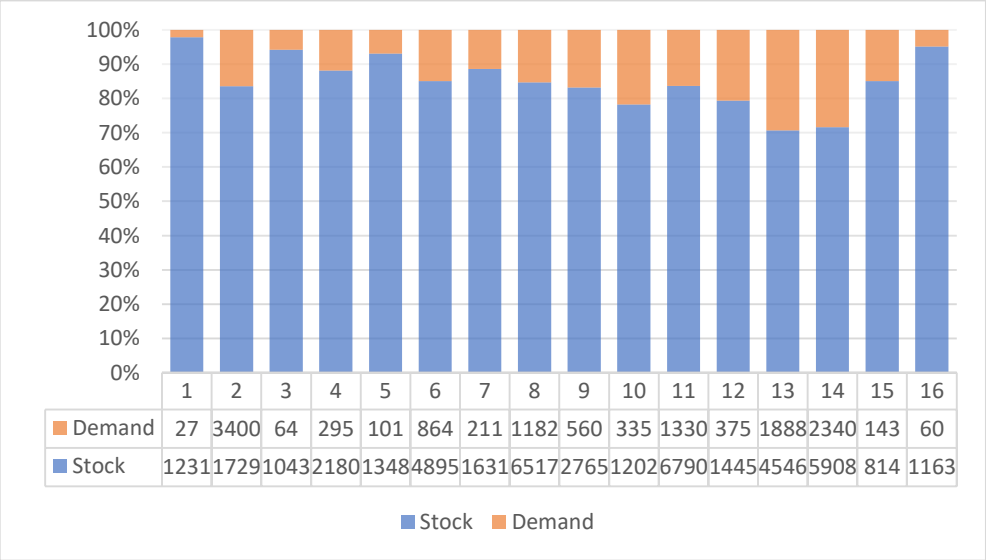

Figure I.2 Comparison between stock and demand per material

From the Figure I.2 can be seen that every material in inventory of PT ABC have faced overstock problem which is caused by the irregular demand. The company has fear of not fulfilling costumers demand. Then, it leads to have the excessive amount of material to be maintained and kept in the warehouse.

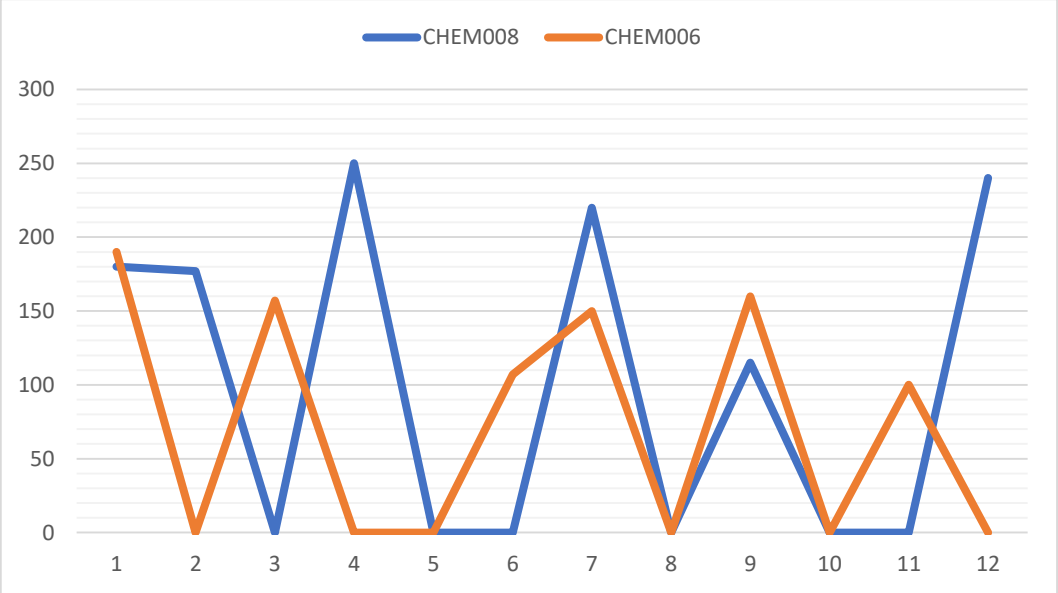

Figure I.3 Goods Example of Lumpy Demand in PT ABC

Irregular demand is identified when the demand pattern is showing the fluctuation in some periods. Lumpy demand is the condition when the demand in some periods contains zero and have significant number difference. This condition is illustrated by two types units in PT ABC in Figure I.3. This condition caused by the specific goods that PT ABC provides for its customers which is chemical for gas and oil exploration support and there is still no inventory policy to stock the goods in warehouse. The company provides the goods for limited customers, it is the main cause of why there are several items that categorized as lumpy demand.

The demand pattern condition of PT ABC makes the company to order goods in big numbers in order to avoid any restocking unfulfilled demand. It leads to the condition where inventory cost becomes high and the demand value has significant difference gap.

Based on the problems experienced by PT ABC that there is overstock then it leads to the swelling costs in the inventory while the cost incurred for the demand is smaller. Good inventory management also considers several things to reduce costs for the procurement process such as ordering cost, holding cost, and stock out cost. (Bahagia, 2006) It is required by PT ABC to minimize the problems by doing good inventory planning. To improve the management of inventory control system in PT ABC, it is necessary to optimize the maximum inventory and minimum supply in order to minimize inventory cost in the right period of time to reorder the goods. Therefore, considering the lumpy demand of material that inventory control will be conducted using Periodic Review System that aims to minimize the overstock and inventory cost incurred by the company and as an alternative proposed inventory plan in the future.

The system of inventory policy is found that there are two most suitable policies such as Periodic Review System (T,r,R) and Periodic Review System (T,R). in order to find the most optimal solution for a better condition in PT ABC, this research will so evaluate and selection among the chosen methods. Furthermore, the results will be compared to find out which is the better solution to be proposed in PT ABC.

I.2 Problem Formulation

According to the research background which has been explained then the formulated problem as the research object is how to find the proper inventory policy in order to minimize total inventory cost in PT ABC?

I.3 Research Objective

As for the research objective based on the problem formulation is to find the proper inventory policy in order to minimize total inventory cost in PT ABC.

I.4 Research Constraint

In order for this research does not deviate from the intended purpose, making it easier to get the necessary data and information, the authors set the boundaries as follows:

1. The used data is historical which obtained from January – December 2016.
2. The calculation is done for the inventory goods that is kept in Duri-Riau Warehouse of PT ABC.
3. The price is assumed always constant and ignores the increasing or decreasing prices.
4. The expiry date of goods are not consideration in research process.
5. The research only done for goods that active from January – December 2016
6. The research is not until implementing stage, but only until the proposal stage.

I.5 Research Benefit

There are several benefit that is hoped will be useful after this research is done:

1. This research is useful as a consideration of the company in determining the future inventory policy so that the company can reduce the risk of overstock and minimize total inventory cost.
2. For the student, this research can be a useful material knowledge in broaden the understanding of inventory management in supply chain application especially managing the goods in supplier company.

I.6 Research Systematics

This research is described with writing systematics as follows:

BAB I Preface

In this chapter contains descriptions of background research, problem formulation, research objectives, research limits, research benefits, and systematics of writing.

BAB II Literature Review

In this chapter contains literature relevant to the problems studied and also discussed the results of previous research.

BAB III Research Methodology

This chapter describes detailed research steps including: formulating research problems, formulating hypotheses, and developing research models, identifying and operationalizing research variables, designing data collection and processing, conducting instrument tests, designing data processing analysis.

BAB IV Data Collection and Processing

In this chapter, the general data object of the study and other supporting data obtained through various processes such as interviews, testing and observation of data acquisition of the study object. Data processing is done in accordance with the methods that have been conceptualized in Chapter III and then analyzed to be proposed as an improvement solution.

BAB V Analytical

In this chapter, an analysis of data processing and proposed improvements has been made in the previous chapter. In this chapter will also be analyzed the comparison of actual conditions and proposed conditions given.

BAB VI Finality

In this chapter will be given conclusions on the results of research and put forward suggestions for the object of study as a remedial solution and as input for future research in the future.