CHAPTER I

INTRODUCTION

1.1 Background

Decision makers always take decision even every second of their life. When they make decision, there is a process in the human brain that affects the quality of decisions made. If the decision that must be made are easy, people can easily make decisions. However, if the decision to be taken is complex with large risks such as policy formulation, decision makers often need a scientific, logical and structured tools to help them in making decision.

During the past quarter of a century, there has been an increasing awareness of the vital role played by purchasing in enabling a company to be competitive. One of the most important aspects of purchasing is supplier selection. The supplier selection is the process of picking up the better supplier who capable to deliver goods/service of right quality according to the standards of an organization, at the right price, at the right place and also at the right time (Takhur & Anbanandam, 2015).

Supplier selection is one of the most important decision making problems, since selecting the right suppliers significantly reduces the purchasing cost and improves corporate competitiveness (Ghodsypour & O'Brien, 2001). Choosing the right suppliers leads to a significant reduction in purchasing costs, an enhancement of downstream customer satisfaction, and an improvement of competitiveness (Galankashi et al, 2013).

PT. Madubaru is one of the companies that engaged in agro industry field located in special region of Yogyakarta which are producing sugar (PG. Madukismo) and also spirits (PS. Madukismo). Nowadays, the total capacity of sugar production in PG.Madukismo for one day is 250 tons with the total accumulative of 40.000 tons in one year. However, the production of the sugar could be decreased due to some factors such as climate impacts, poor revitalization of sugar plantations and factories, conversion of plantation land, and use of machines that are already very old one of them is pump.

Pump is one of the machines that is used by PG. Madukismo to support their sugar production system. There are several kind of pump used for sugar production such as centrifugal pump and vacuum pump where each of the pump has different function, but in general the function of the pump is as waterway and also as a delivery of nira in the milling station, purification/evaporation station, and also cooking station. Because of the function, it can be said that pump is one of the important machines to support the sugar production in PG. Madukismo. In order to decrease the chance of production failure due the machinery problem PG.Madukismo usually do a routine maintenance.

The maintenance activity in PG. Madukismo is held for 5 months duration in one year usually the maintenance is held started from November until March before the milling season. When the maintenance activity is carried out all of the tools and production machinery will be reviewed do determine the feasibility of use, if there are a tool or a machine that can’t be used for production anymore the tools or the machine will be noted to be replaced. There are several supplier who work with PG. Madukismo especially for the pump supplier, but the problem is there is still no a fixed supplier in PG. Madukismo sometimes made the supplier not reliable enough to supply material that the company need and also there is still no method or tools used by PG. Madukismo to determine their supplier.

Thus, to solve the problem the researchers suggesting the company to use an analytical tools to selecting a supplier and the decision making will be more effective and efficient. Decision making for supplier selection process needs some criteria as a parameter that can affect the decision. One of the method that can be used for supplier selection is Analytical Hierarchy Process method (AHP).

AHP was primarily introduced by saaty in 1971, it abridges decision making by systematizing opinions, emotions, decisions, and memories into a structured environment. Once the hierarchy has been created, the decision-maker starts the prioritization process to decide the relative significance of the components in each level. The scale deployed for judgments in AHP allows the decision maker to integrate the knowledge and experience instinctively and specify how many times an element dominates another with respect to the criteria (Millet, 1998).

However since the uncertainty and vagueness of the expert's judgment sometimes becomes a problem in the real environment, the impreciseness of human's judgments can be handled through the fuzzy sets theory developed by Zadeh. Fuzzy AHP method systematically solves the selection problem that uses the concepts of fuzzy set theory and hierarchical structure analysis. Basically, Fuzzy AHP method represents the elaboration of a standard AHP method into fuzzy domain by using fuzzy numbers for calculating instead of real numbers (Ayhan, 2013).

Therefore, the researcher will analyze the rank of pump supplier in PG.Madukismo by considering the criteria and sub-criteria and providing the score of each alternatives (supplier) for the company as a consideration in the future. AHP is used in this research to determine the consistency of the expert's judgment. Fuzzy AHP is used in this research to determine the weight of each criteria and sub-criteria. Therefore, the result of this research is to determine the rank of each supplier.

1.2 Research Question

1. What is the criteria and sub-criteria that are used in PG.Maduksimo for selecting supplier?
2. What is the rank of each alternative (supplier) in PG. Madukismo?

1.3 Research Objectives

1. Determine the criteria and sub-criteria that are used in PG. Madukismo for selecting supplier.
2. Determine the ranking of the alternatives (supplier) with Fuzzy AHP method.

1.4 Research Scope

1. The study is focused on solving supplier selection problem.
2. Research is carried out using Fuzzy AHP method.
3. The object of this research is a sugar manufacturing company.

1.5 Research Benefit

1.5.1 Theoretical Benefit

The researcher expect that the result of this study can be useful for the other people in order to increase the knowledge about supplier selection and it is expected that this research can be used as a reference for academics and researchers who conducts research on the same topic in the future.

1.5.2 Practical Benefit

The results of this study are expected to help the company in determining the optimal supplier (the best supplier), most suppliers meet the selection criteria, if the company needs certain materials then certain suppliers can fulfill. Therefore supply chain management performance will get better which can provide added value to the company.

1.6 Systematical Writing

The systematical writing of this research are:

CHAPTER II LITERATURE REVIEW

This chapter is the focus to determine the current study of the related previous research. The chapter contains information about the result of related previous research and supporting literatures underlying the research.

CHAPTER III RESEARCH METHODOLOGY

This chapter consists of research methodology. In this chapter, there will be described the detailed series of the research object, system development, research design, research procedure, and data collecting, processing, and analyzing method.

CHAPTER IV DATA COLLECTING AND PROCESSING

This chapter describes the data collection and processing, analysis and result, including images and graphics obtained. This chapter is a reference for the discussion of the result that will be written in chapter V.

CHAPTER V DISCUSSION

This chapter discuss about the result of the previous chapter. It will be the core discussion in order to get a comprehensive understanding about the whole research

CHAPTER VI CONCLUSION

This chapter provides short and precise statements described in the previous chapter. A suggestion related to the current study in purpose of the advancement in the future research is given based on the limitations of the current research.

REFERENCES

APPENDIX