CHAPTER 1
INTRODUCTION

1.1. Background

Competition among manufacturing industry has been intensified in recent years, every manufacturing organization contends on the ability to satisfy the growing complexed needs of its customers. The needs are not only restricted on satisfying the quantity of the market demands, but the organization, especially in the manufacturing sector, needs the commitment to provide products of higher quality with lower manufacturing costs, minimum lead time in order to satisfy the demand and to deliver maximum performance that enable the organization to gain competitive advantages from its existing competitors in the market (Surange, 2015).

Pacheco et al. (2014) comments that organization competitiveness can be enhanced through continuous improvement approach which is directly or indirectly related to waste and variable reduction. This is the main driver for today's manufacturing organization, as well as wood processing industry in Southeast Asia region as one of the major supplier of hardwood product in international market. It is important for Indonesia to sustain competitive edge of the existing visible competition in countries such as Malaysia and Vietnam that belong to the ASEAN Economic Community (AEC) market. Moreover, Vietnam and Cambodia wood processing companies are emerging in the contest for US, Europe, and India market share.

Forestry industry is considered as strategic and priority industries that need to develop in accordance with the National Industrial Development Master Plan or Rencana Induk Pembangunan Industri Nasional (RIPIN) within the period of 2015 to 2035. The export value of wood-related products in 2016 reached US$ 9.3 billion with the increase of 11 percent compared to the previous year. Plywood is one of top contributive export commodities that is commonly used in furniture and construction sites. The escalation of wood industry export is due to the verification system on wood legality or Sistem Verifikasi Legalitas Kayu (SVLK) that needs to be earned and implemented in many Indonesian wood processing companies.

PT. Asia Forestama Raya is a manufacturing company that produces wood-related products that serves local needs and export markets in USA, Middle East, Europe

and other ASEAN countries. The company mainly produces tropical hard wood products such as plywood with the thickness of 2.7 mm, 3.4 mm, 4.8 mm until 11.5 mm, and polyester. The company founded in 1974 is located in Pekanbaru, Indonesia. It has the annual production capacity of ± 68,500 m^3 for raw plywood, 10,000 m^3 for sawn timber and 2,000 m^3 for veneer.

In order to compete both in local and international market, PT. Asia Forestama Raya needs to fulfill incoming demand with competitive price. The only way to achieve these results is to develop bottom-line improvements by reducing wastes in the production process. However, management has difficulty in selecting which major lean waste that strongly influences the overall performance due to different personal views and priorities in the management team. Thus, it is important to select major lean waste due to and select the right project to achieve significant improvement.

Based on field observation, several lean wastes can be identified in the export-grade production line. First, over processing can be found in the process of veneer composing involving attaching veneers using duct tape more than needed. Second, transportation using forklift and rail cart are very common in the production floor and several batches of plywood might have been transported back and forth in the same section. Third, defect can also be found in grading station, defect affects the downgrade or even reject, defect reduces the actual monetary value of the product. Fourth, unnecessary motion by repair worker on searching for materials and tools due to poorly structured and unorganized workplace. Fifth, inventory such as face and back veneer building up in the isle due to slower in front processing and unbalanced production line.

All of these conditions have effects such as unsatisfied customer, longer delivery time, lower output per man hour, high level of rework and scrap, which increases cost for activities that does not add any value to customers that can be avoided by reducing lean waste within the process. Lean Six Sigma has been proven effective to reduce waste in small-medium enterprise (SME) and large enterprise. The success of Lean Six Sigma implementation relies on selecting project with significant outcomes using tool such as analytic hierarchy process (AHP) that is widely used for decision making for the past 20 years.

1.2.   Problems Formulation

Based on the background, the problem formulations are as follows:

a. The company has no structured method to select the major lean waste in the production process.

c. The company has difficulty in reducing major lean waste.

1.3.   Objectives

Based on the problem formulation, the objectives of this research are as follows:

a. Select major lean waste in plywood production process.

b. Reduce the major lean waste.

1.4.   Scope and Limitations

The scope and limitation of this research are as follows:

a. The focus of this research is only on export-grade plywood (3 ply) made from selected tropical hardwoods.

b. The identification does not involve financial data in PT. Asia Forestama Raya due to non-disclosure policy.

c. The research will only cover aspects that will not jeopardize production process, generate excessive financial burden, violate company's regulation and policy.

d. AHP methodology is used to select major lean waste. Followed by systematic DMAIC phase to reduce major lean waste.