

# CHAPTER 1

## INTRODUCTION

### 1.1 Background

The development of economy that turn up after economic crisis brought better impact to the business growth. The changing situation does not only provide opportunity but also threats for many companies. It is not easy for the company to see the opportunity for continuous improvements in order produces the highest quality products, as efficiency and safety as possible.

Hydraulic Excavator is one of the heavy equipment products with the best demand in the machines market and very famous machine on forestry, agriculture, large contractor and mining applications. The growth on the commodity prices impacted to the hydraulic excavator machine demand. PT ABC as one of producer of heavy equipment that has experienced for more than twenty five years in Indonesia. Its products such as hydraulic excavator type 20T, track type tractor 2 and 3, Work Tools and Truck Body. In Indonesia market PT ABC facing with its competitors such as PT Komatsu Indonesia and PT Hitachi Indonesia.

Refer to the Bernstein Research (2008) the market position for key heavy equipment products such as hydraulic excavator, wheel loader, dozers, dump trucks, mini excavators, backhoe loaders and skid steer loaders found that the market leader of hydraulic excavator product from brand PT Komatsu Indonesia based on the analysis in North America, Western Europe, Japan and China as product leader and based on the internal market analysis of the family of hydraulic excavator type 20T in Asia Pacific indicated the opportunity for PT ABC become source plant for South Asia region when its facility delivering lower cost comparing with facilities group located in Japan and China.

The market demand of hydraulic excavator type 20T for South Asia mostly supplies from facilities group in Japan and China, PT ABC focused to cover Indonesia demand and when domestic market demand lower than maximum capacity of production, products from PT ABC delivered to South Asia market. The marketing activity and strategy for machines handle by Marketing Division and PT ABC responsible on the operation processes to produces machines base on

the allocation plan from World Wide Hydraulic Excavator Division at the corporate level in PT ABC.

**Table 1.1 The Hydraulic Excavator Type 20T Demand**

Year	Demand Region Base		Total	Growth (Based on the year of 2008)	PT ABC Max Production Cap
	South Asia	Indonesia			
2007	540	680	1220	-	540
2008	1011	1320	2331	91%	660
2009	683	133	816	-65%	660
2010	779	686	1465	80%	720
2011	889	778	1667	14%	1080 Plan
2012	980	1200	2180	31%	1700 Plan

Source: PT ABC Sales and Operation Planning, 2007-2012 (reprocess)

The market demand of hydraulic excavator type 20T has significant increased more than 91% on the year 2008 and impact of the global crisis in 2009 the demand decreased by 65% and started on the end of 2009 the demand signal trend to positive growth and current production capacity would not captured the domestic demand because over than 660 machines per year. Align with the profitable growth of machines demand, the management team of PT ABC plans to review and analyze the strategy in order deliver competitive product in low manufacturing cost, faster product availability in South Asia region.

### 1.2 Problem Identification

Current production process to produces hydraulic excavator from order-to-delivery processes at PT ABC does not optimize yet, especially at fabrication lines since consist complex manufacturing processes to build major component of hydraulic excavator machine, fabrication lines also as the constrain value stream at PT ABC with maximum capacity for 660 machines per year while assembly process as the next process after fabrication to assemble complete machine had production capacity higher than fabrication with maximum production capacity more than 3000 machines per year, the current processes could be improved for efficiency and effectiveness by eliminated wastes in the main value streams. The types of waste that must eliminated in order to achieve the best improvements in production processes are:

- Unused Creativity / Capability

- Inventory
- Waiting
- Transportation
- Defects
- Over Production
- Excess Motion
- Over Processing

The integration opportunity of increasing productivity and capacity started from the core processes in PT ABC that covered processes on Capacity Planning, Demand Management, Supply Chain / Material Management, Order Management, Sales and Operation Planning (S&OP), Manufacturing Engineering and Support, Manufacturing Production Execution include the fundamental production floor such as fabrication, machining, painting, assembling, painting and testing. And the last processes are Machines or Finish Good Distribution and Transportation.

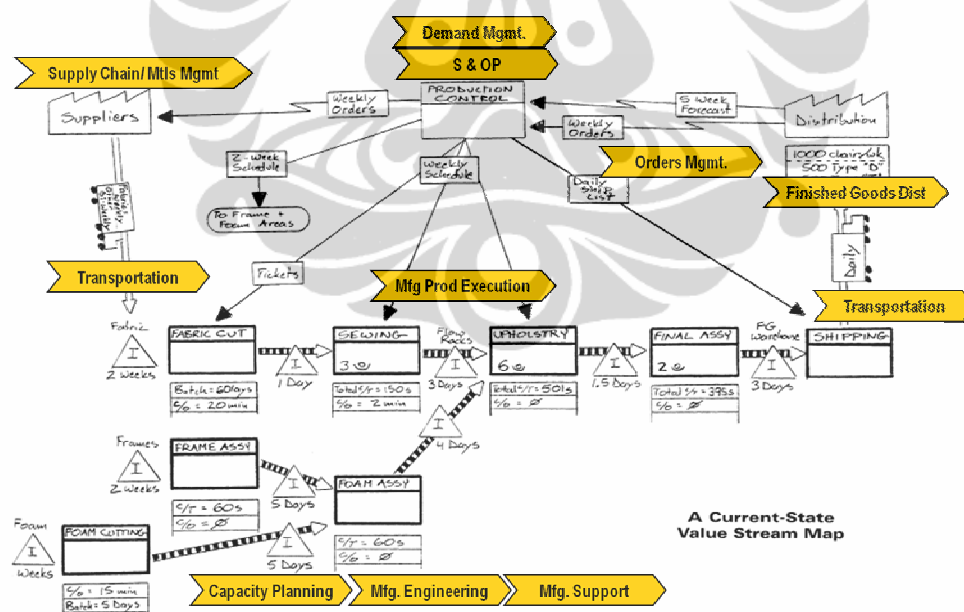


Figure 1.1 Value Stream Impact

Source : PT ABC Core processes overview, version 5.0, 2008

This final report explores the business process improvement study to increase the production capacity from value stream mapping of hydraulic excavator type 20T specially at the manufacturing execution side, after the processes optimization achieved the final report would be supported to capital investment decision for PT ABC's management related with increasing the production allocation for 2011 and after, and provide the recommendation to support the investment decision of PT ABC can gain a positive return or negative.

Based on to the current regulation of business trade in ASEAN region, the machines product from PT ABC explores to get the competitive advantage from economic integration within the ASEAN countries that have made significant progress in the lowering of intra-regional tariff through the Common Effective Preferential Tariff (CEPT) scheme for ASEAN Free Trade Area (AFTA).

### **1.3 The Objectives of the Research**

The objectives of the final report are:

- a. To increase 10% production capacity for the major fabricated components of hydraulic excavator type 20 ton on fabrication lines with lowest capital investment.
- b. Support management decision related with the investment strategy at PT ABC to produce 1700 machines for domestic and South East market.

The key variables and information to support with achieving the objectives of the final report from PT ABC as follows:

- PT ABC ready to run the production as allocation machines production for 1080 machines / year on 2011 then 1700 machines / year started on 2012.
- Improve the current productivity at hydraulic excavator fabrication processes by eliminating the non added value activities in the flow of processes and reduce wastes.

- Reducing the inventory level to support with improvement on the cycle efficiency for 15% improvement at fabrication area to support future state planning.
- Understanding the detail current processes to identify the problems to support future improvement.
- PT ABC strategy for hydraulic excavator product distribution to South East Asia countries.
- ASEAN-FTA regulations.
- Maximum budget plan for the capital investment is US\$ 4 Millions.

#### **1.4 The Method of Research**

The method is done by using descriptive and analytical method emphasizing on the problem solving that is the following steps:

- Data collection from the process observation.
- Data classification.
- Analysis and interpretation.

#### **1.5 Outline of the Final Project**

This final report is presented in five chapters, where each chapter has its own emphasis as follows:

Chapter 1: Introduction

This chapter contains the background of company's problem statements, problem identification, the objectives of the research, and the method of research.

Chapter 2: The Theoretical Background

This chapter contains the relevant theory used to do analyzed, calculation and problem solving and decision.

Chapter 3: The Company's and Business Profile

In this chapter contains the market situation for heavy equipment, competitive landscape, opportunities business in ASEAN region, detail structure of product and local contents, company history and the management program to support excellence process produces hydraulic excavator at PT ABC.

Chapter 4: The Analysis and Discussion

This chapter will discuss the process improvements from the current state processes and production capacity level in fabrication to develop desired future state processes to achieve the objectives of company stated in the chapter 1.

#### Chapter 5: Conclusion and Recommendation

This chapter will summarize the result of final report and proposed to the management of PT ABC included the investment return results simulation that determined additional capital feasible or not to the future business

