

## ABSTRACT

One part of the integrated factory of PT. XYZ is Slab Steel Plant (SSP), which produce steel slabs in various types according to customer demand. PT. XYZ has goal to produce quality products to compete with similar companies. For real action to produce a quality product, PT. XYZ makes Quality Control Division at each production plant, including SSP. Quality Control Division will check the condition of the steel slab before distributed to consumers. Ratio slab defect with no defect in the SSP is 1:3.

Therefore, in this research using Six Sigma methods because Six Sigma is a method of improving the production process which aims to discover and reduce the causes of defects so that they can dramatically improve the failure rate to zero (zero defect). Stages in the implementation of Six Sigma is: Define, Measure, Analyze, Improve, Control (DMAIC). However, this research only reach to the Improve phase. In the Define phase to identify the factors that affect product quality characteristics of steel slab and a potential cause of CTQ defects. In the Measure phase of the performance measurements were taken at the level of output quality, then conducted an analysis of the types of defects that occur along the root cause by using a Fishbone diagram. In this Improve phase was given suggestions to minimize the incidence of repair defects in the steel slab.

Based on data for four years research that began in January 2006 until November 2009, it can be seen there are four potential CTQ, they are: chemical composition of steel slab, steel slab physical form, the physical structure of the steel slab, and cleanliness of steel slab. The average value of sigma for 4 years is 3.58. One type of defect of fifteen defects which is a defect with the highest occurrence frequency is transverse crack defects (21.71%). The cause of transverse crack defects are divided into two factors are human factor (the operator of engine field is lack the skills and knowledge), and machine factors (active cooler is not working normally, and strightener is not working properly). So given the proposal to the machine factor is PT. XYZ should examine the condition of the machine that will be used, PT. XYZ should conduct Benefit Cost Ratio analysis to compare the economic value of the costs incurred for routine maintenance cost incurred for the purchase of new machinery. For the human factor is PT. XYZ should conduct an integrated teaching to all operators, PT.XYZ should be imposed reward and punishment, and PT. XYZ should have a meeting of a certain period to discuss and input constraints related to their work.

Keywords: defects, Six Sigma, CTQ