

## **ABSTRACT**

*PT Perkebunan Nusantara VIII is a tea producing company that has been operating for 59 years. PT Perkebunan Nusantara VIII is the largest tea producer in West Java. The resulting product is orthodox tea that must be of high quality so as to meet customer satisfaction. Processing orthodox black tea in PT Perkebunan Nusantara VIII in each process using different machines. One of the things to note is the reliability of each machine. Sorting Room is an orthodox tea processing room useful for obtaining uniform tea particles in size, density and hygiene of laden and bone content according to established standards and which will divide the type of tea into one quality, two quality, and three quality. In the sorting chamber, the highest frequency of damage is experienced by the vibro engine. Vibro machine is a machine that serves as a fiber separator in tea. However, vibro machine is the machine that has the highest frequency of damage compared to other machines in the sorting room, it is necessary maintenance policy. The method used in this research is Risk Based Maintenance (RBM) and Life Cycle Cost (LCC). Risk Based Maintenance method is used to find how big the consequences and risks resulting from damage vibro machine. The Life Cycle Cost (LCC) method is used to determine retirement age, maintenance set crew, and to know the total life cycle cost of the vibro machine. Based on the RBM method, we get the consequence and risk value of Rp. 619,118,784.43 with a percentage of 1.31%. This risk exceeds the risk acceptance criteria of 1% in the vibro machine. Based on the LCC method, Retirement age of vibro machine is seven-year, with a maintenance crew consisting of 3 people, and minimum life cycle cost of Rp. 495,281,609.*

*Keyword : Risk Based Maintenance, Life Cycle Cost, Retirement Age, Maintenance Set Crew*