ABSTRACT

An autoclave is a device used to eliminate or kill all types of microorganisms, including bacteria, viruses, and bacterial spores, that can cause infections or contamination. PT Bina Equipment Sejahtera (BES) has been a leading provider of autoclaves and other medical equipment and services in Indonesia since 2016. In line with the growth of healthcare facilities, the demand for steam sterilizer products, particularly the Autoclave MD 25L, has also increased. However, by 2024, the production capacity for the Autoclave MD 25 product has reached its maximum limit. Adjusting to the existing demand has resulted in an excessive burden on the workforce. Therefore, alternatives are needed to increase production capacity without overloading the workers.

A market analysis was conducted to determine market demand during a specified period, followed by a technical analysis to calculate production processing times until alternative scenarios were chosen for comparison. In this case, three alternatives were identified for comparison. The first alternative is the design of the company in its existing condition, the second alternative involves adding one grinding machine and additional employees, and the third alternative includes adding one bending machine and additional employees.

Subsequently, a financial analysis was performed, calculating the amount of investment, depreciation, sources of income, profit and loss, and balance sheet calculations. The feasibility analysis concluded that all three alternatives are viable, with NPVs of Rp32,889,899,692, Rp41,231,132,862, and Rp41,508,651,990, respectively. The payback periods (PBP) are 4.08 years, 3.94 years, and 3.93 years, with internal rates of return (IRR) for each alternative at 36.09%, 38.88%, and 38.97%.

Finally, an Incremental Cost Analysis was conducted. In this method, the selection was made among alternatives 1, 2, and 3 by comparing the three based on the cost differences between them. In the proposed scenario alternatives, the highest investment cost is in alternative 3, followed by alternative 2, and the smallest investment cost is in alternative 1. Iterations were first performed on alternatives 3 and 2. The ΔROR value is 89.06% with a MARR of 18.36%. The result indicates that since ΔROR > MARR, the chosen analysis is the alternative with the higher

investment cost, which is alternative 3. In the second iteration, comparing the chosen alternative 3 with alternative 1 yielded a ΔROR of 77.51% with a MARR of 18.36%. It can be concluded that since ΔROR > MARR, the selected scenario alternative is the one with the largest investment value, which is alternative 3.

Keywords: ***Incremental Cost Analysis, Feasibility Study, NPV, IRR, PBP***