

FIFIT FITRIANTI SUPRIYANTO NPM. 22.03.4.1.1.00099. Studi Kelayakan Tekno-Ekonomi Implementasi Teknologi *Washing Plant* PT Bintang Sembilan Niaga. Pembimbing Nike Ika Nuzula, S.Si., M.T

ABSTRAK

Penelitian dilakukan untuk menganalisis kelayakan tekno-ekonomi serta optimasi produksi pada implementasi teknologi *Washing Plant* PT Bintang Sembilan Niaga. Metode yang digunakan meliputi analisis aspek teknis, finansial, dan optimasi produksi dengan pendekatan *Simple Additive Weighting* (SAW) dan *Rank Order Centroid* (ROC). Indikator kelayakan finansial menggunakan parameter *Net Present Value* (NPV), *Internal Rate of Return* (IRR), *Net Benefit Cost Ratio* (Net B/C), dan *Payback Period* (PP). Data diperoleh dari observasi, wawancara, serta dokumen perusahaan. Hasil penelitian menunjukkan bahwa secara teknis, teknologi *Washing Plant* mampu meningkatkan kualitas dan kapasitas produksi garam. Hasil optimasi menunjukkan alternatif terbaik yang meningkatkan efisiensi produksi. Secara finansial, investasi dinyatakan layak dengan NPV positif, IRR melebihi tingkat diskonto, $\text{Net B/C} > 1$, serta periode pengembalian modal yang relatif cepat. Implementasi teknologi ini berpotensi mendukung peningkatan daya saing dan swasembada garam nasional 2027.

Kata Kunci : kelayakan tekno-ekonomi, optimasi produksi, SAW, ROC, *Washing Plant*, garam

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ABSTRAC

This study was conducted to analyze the techno-economic feasibility and production optimization of implementing *Washing Plant* technology at PT Bintang Sembilan Niaga. The methods employed include technical, financial, and production optimization analyses using the *Simple Additive Weighting* (SAW) and *Rank Order Centroid* (ROC) approaches. Financial feasibility is assessed using Net Present Value (NPV), *Internal Rate of Return* (IRR), Net Benefit–Cost Ratio (Net B/C), and Payback Period (PP). Data were obtained through observation, interviews, and company documents. The results indicate that, from a technical perspective, the *Washing Plant* technology improves both the quality and production capacity of salt. The optimization analysis identifies the best alternative that enhances production efficiency. Financially, the investment is considered feasible, as indicated by a positive NPV, an IRR exceeding the discount rate, a Net B/C greater than one, and a relatively short payback period. The implementation of this technology has the potential to enhance competitiveness and support national salt self-sufficiency 2027.

Keywords: techno-economic feasibility, production optimization, SAW, ROC, *Washing Plant*