

ABSTRACT

A decline in the effectiveness of natural resource conservation hurts the environmental sustainability of Biawak Island ecotourism. This not only threatens biological resources but also reduces tourist activity, which affects the economic revenue of the destination. This condition is known as ecotourism performance decline. The sustainability of ecotourism performance is critical to preserving natural resources and economic income from tourist destinations. If this decline continues, it can seriously impact the stability of the ecosystem and the economic income of tourist destinations.

Therefore, an evaluation model and strategy are needed to improve the ecotourism performance of Biawak Island in the future. This research aims to establish an evaluation model and design strategies as a solution effort to improve the ecotourism performance of Biawak Island in the next twelve years. System-based research methods assist efforts to find solutions related to these problems. The model system integrates several cause trees to understand the issue comprehensively. This research also has a novelty in measuring ecotourism performance based on the effectiveness of natural resource conservation and economic benefits, as well as integrating educational efforts as one of the solutions to find optimal strategies.

The results showed that the Biawak Island ecotourism performance evaluation model was formed with two sub-systems of natural resource conservation and economic benefit performance and discussions related to environmental and health issues. The fifth strategy for improving ecotourism performance is optimal and sustainable, designed to increase the effectiveness of natural resource conservation and economic benefit performance. The fifth strategy can improve ecotourism performance by 95% from twelve years of simulation to current conditions, with a balance between natural resource conservation by 73.5% and economic benefits by 26.5%.

This research concludes that an optimal and sustainable evaluation model and strategy can be formed by integrating cause trees that affect ecotourism performance. The results of this study are expected to be a guideline in developing an evaluation model that also serves as a consideration in designing strategies to improve ecotourism performance in the future. Further research is needed to explore implementing this strategy's social, economic, and environmental impact

Keywords: *Ecotourism Performance, Natural Resource Performance, Economic Benefit Performance, Biawak Island, Dynamic System*