ABSTRACT

The waste management issue in Indonesia, including Ponorogo Regency, continues to grow along with population and consumption increases. In 2023, Indonesia's population reached 278.69 million, with a national waste volume of 37.37 million tons (KLHK, 2022). In Ponorogo, despite the waste management policy through Regent Regulation Number 78 of 2018, the waste management achievement in 2023 only reached 84.53%, far below the target of 99%. This research aims to model a dynamic system simulation to improve waste management performance in Ponorogo Regency. Through the collection of primary and secondary data, the study designs a model that includes 47 variables across three subsystems: Waste Generation, Waste Management, and Waste Management Costs. The simulation results show four waste management scenarios: Business as Usual (BaU), Education Improvement, Facility Improvement, and a Combined Education-Facility approach. The Optimistic Combined scenario is selected as the best recommendation, projected to achieve 98% waste management by 2025, with high investment but positive long-term impacts. In conclusion, simultaneous improvements in facilities and public education are necessary to effectively address the waste management issues in Ponorogo, with a focus on enhancing infrastructure and increasing public participation.

Keyword: *System Modelling, Waste Management, Dynamic Systems, Simulation*