

THE USE OF SYSTEM DYNAMICS TO EVALUATE THE GENERATION AND DISPOSAL OF URBAN SOLID WASTE

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ABSTRACT

The use of simulation methodology applied to issues of sustainable development is not recent. Meadows in 1972, presenting the work "Limits to Growth" started the research series which are developed by researchers until today. Based on the use of simulation plus sustainable development, this study presents a simulation model using systems dynamics methodology, which allows users and managers to evaluate and analyze scenarios about the generation and disposal of urban solid waste. The developed model takes into account the following rates and informations: rate of population natural increase (births rates and deaths rates), percentage of urban solid waste sent to each type of final disposal and the amount of waste generated per capita. The simulated scenarios take into account three distinct situations: (a) current scenario with varying rates, (b) current scenario with fixed rates, and (c) scenario with similar rates of the Netherlands. The model's validation was developed through the analysis of future scenarios for a municipality in Brazil's Southern. For the system modeling and development was used Vensim- Ventana Systems.

KEYWORDS. Simulation, System Dynamics, Waste Management.

- **Operations Research in Agriculture and Environment**