

VIABILITY ANALYSIS OF A HOUSEHOLD WASTE MANAGEMENT MODEL

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The ecological consciousness has driven developed societies to explore alternatives to the growing need for energy and the consequent increase in waste production. The adjustment towards the valorization of waste and their transformation into energy, by various processes, of which anaerobic digestion is then necessary. However, so far the domain has not benefited much from a mathematical modeling approach. Our contribution consists of first building a model, where the dynamic is the evolution of both a waste stock and energy quantity, controlled by an investment strategy for the energy recovery from household waste. Afterward, applying constraints on the state of the model, and determine the biggest set of initial states where an investment and valorization sustainable policies could be made. The viability theory introduced by Aubin [1], is aligned with the conceptual framework we are looking for, thus, we sketch a viability kernel corresponding to the studies model, under the sustainable condition.

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