

FUZZY LOGIC APPLICATIONS IN SOLID WASTE MANAGEMENT

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ABSTRACT

The design of a solid waste management system requires the determination and analysis of its components as well as the relations among them. In many cases, however, the design process of a solid waste management system is prohibitively laborious and hindered because of ambiguous information. Information in solid waste management systems turns out to be ambiguous because of several reasons like ignorance of critical parameters due to extremely high system complexity, inaccuracy in measuring important parameters, insufficient data etc. The relatively new concepts of fuzzy set theory and fuzzy logic provide us a methodology capable to cope with such problem ambiguities. The first important goal of this paper is to reveal and systematically analyze all the reasons for applying fuzzy logic methodology in the design of solid waste management systems. Moreover, it is proposed that fuzzy expert systems offer a viable solution to such a problem. Subsequently, the second goal of this paper is to provide a critical review of all the fuzzy set theory methods and especially of the ones of fuzzy expert systems, applied to the design and analysis of solid waste management systems.