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PROMETHHEE Multicriteria Analysis for Evaluation of Recycling Strategies in Malaysia

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Abstract

At present, the per capita generation of solid waste in Malaysia varies from 0.45 to 2kg/day depending on the economic status of an area. In general, the per capita generation rate is about 1kg/day. Even though 17,000 tonnes/day of solid waste is being generated, only 5 per cent is being recycled. If this particular scenario continues without appropriate mitigation, Malaysia will be facing a serious problem in municipal solid waste management. Hence, the government has targeted 22 per cent of waste to be recycled by 2020. Various strategies have been formulated in achieving this figure. In Malaysia, research is being done vastly on recycling but very few related to multicriteria. As a first step, we propose here an evaluation of various recycling strategies and ranking them based on multicriteria to provide an insight on increasing the recycling activities among residents. Since values of alternatives are imprecise, ambiguous and/or uncertain, the multicriteria outranking analysis is particularly useful in order to facilitate further detailed consideration. The problem of the selection or the ranking of alternatives submitted to a multicriteria evaluation is not an easy problem economically or mathematically. We propose a modified PROMETHHEE analysis for treating multicriteria problems.

Introduction

The rapid growth in the urban population due to rural-urban migration and natural growth as well as changing consumption patterns contributed to an increase in the generation and composition of solid