

Multicriteria Modelling on Recycling of Municipal Solid Waste in Subang Jaya

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ABSTRACT Recycling is a relatively new exercise in Malaysia. Even though recycling has been introduced years back, lack of public awareness caused a slowdown in the progress of the recycling exercise. Lack of sufficient recycling facilities or the inappropriateness of the facilities' location contributed further to the slowdown. Presently, about 19,000 tonnes (approaching 20,000 tonnes) of solid waste is being discarded daily. The Ministry of Housing and Local Government sets a recycling goal to be 22% by 2020. The collection rate of recyclables in Subang Jaya is estimated to be 0.43% in 2004. The main purpose of this paper is to study the success of recycling exercise in Subang Jaya, Malaysia. In this paper, to achieve the goal in Subang Jaya, we formulate and analyze various strategies to increase the awareness among the residents and to increase the existing facilities. Evaluating various alternatives inherently involve qualitative criteria and imprecise data. In such cases, the outranking analysis has been frequently used. Therefore, we employ the outranking analysis and use a new exploitation procedure based on eigenvector using the "weighted" in- and out- preference flows of each alternative from outranking relation in a PROMETHEE context.

ABSTRAK Kitar Semula boleh dianggap sebagai suatu aktiviti yang agak baru bagi masyarakat Malaysia. Walaupun kitar semula telah diperkenalkan beberapa tahun dahulu, kekurangan kesedaran di kalangan masyarakat telah melambatkan kemajuan dalam aktiviti kitar semula. Selain daripada itu, kekurangan dan ketidaksesuaian lokasi kemudahan kitar semula turut melambatkan kemajuan program ini. Jumlah sisa pepejal harian yang dihasilkan oleh masyarakat ialah sebanyak 19,000 tan (menghampiri 20,000 tan). Sasaran kitar semula yang telah ditetapkan oleh Kementerian Perumahan dan Kerajaan Tempatan sebelum 2020 ialah 22%. Anggaran kutipan barangan kitar semula di Subang Jaya pada tahun 2004 ialah 0.43%. Objektif kertas kerja ini adalah untuk melihat kejayaan program kitar semula di Subang Jaya, Malaysia. Untuk mencapai sasaran kitar semula di Subang Jaya, di dalam kertas kerja ini, kami telah membuat dan menganalisa beberapa strategi untuk meningkatkan kesedaran kitar semula di kalangan masyarakat dan meningkatkan jumlah kemudahan kitar semula yang sedia ada. Penilaian pelbagai alternatif melibatkan kriteria yang kualitatif dan data-data yang tidak tepat. Dalam keadaan yang sedemikian, analisa 'outranking' sering digunakan. Maka, kami menggunakan analisa 'outranking' dan kaedah eksploitasi yang baru berasaskan 'eigenvector' dalam konteks PROMETHEE.

(Recycling, multicriteria decision making, recycling facilities, outranking relation)

INTRODUCTION

National recycling program was launched by the Ministry of Housing and Local Government on the 11th of November 2001. The program is to promote and educate society on the need to

practice a recycling culture, the 3R concept of 'Reduce', 'Reuse' and 'Recycle' in daily life. In accordance to this, all local authorities were instructed to implement recycling programs in order to achieve government recycling target of 22% by the year 2020.