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OPTIMIZING HOUSEHOLD WASTE COLLECTION THROUGH AHP–MEA MODEL: CASE STUDY OF KUNMING, CHINA

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Abstract

The optimization of household waste collection in China is facing more complex and structural problems related to waste reduction and recycling than that of disposal. A rigorous decision-making model of matter-element analysis (MEA) combined with the analytic hierarchy process (AHP) is developed to validate the feasibility and practicality of five alternatives to separated waste collection. This model is based on a survey of residents' cognition and inclination toward the optimization of the collection of separated household waste. A case study of residential areas in Kunming, Yunnan Province, China, demonstrates that the alternative of two rough categories of household waste (i.e., kitchen waste and other waste) is preferable according to local waste management conditions and urban development status in the short term. The combined AHP–MEA model, validated by AHP hierarchy and evaluated by the MEA process, also facilitates decision-making processes with multiple-alternative evaluation problems, especially in waste management.

Key words: alternative assessment, Analytic Hierarchy Process, collection optimization, household waste, matter-element analysis

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