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DEVELOPMENT OF A MULTICRITERIA INDICATOR OF VIRTUOSITY IN WASTE MANAGEMENT ADDRESSED TO LOCAL AUTHORITIES

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Abstract

As the percentage of segregated waste, taken as individual indicator, is insufficient to measure the virtuosity of a Municipality waste management, a multicriteria indicator has been developed to broaden the horizon of the analysis of waste management performance. The aim of this study is to experiment a new and easy-to-use methodology for the evaluation of Municipalities virtuosity in waste management, built from Public Administrators to verify the responsiveness between their ideal guidelines and their real applications. The identified criteria are eight: percentage of segregated waste collection, production of unsorted waste per capita, total production of waste per capita, service costs, environmental impact of the waste collection and treatment system, traceability of Municipal Solid Waste's fate, involvement of population, citizen's convenience. Scores given to each criterion were assigned by experts in each field and then normalized [0-1]; weights were determined applying Pairwise Comparison method to Public Administrators of municipalities selected as a case study. For each Municipality, a score for each criterion is assigned and, subsequently, multiplied by the weight given to the criterion itself. The indicator provides a wide spectrum analysis, marking the state of the art, the scope for improvement and deficiencies of each area of analysis; thus to become an effective decision support tool for Administrations. This tool was, applied to a case study, returning results in terms of virtuosity far different from those obtained in terms of percentage of recycled waste alone, thus highlighting the importance of a multidisciplinary approach to the issue.

Key words: Analytic Hierarchy Process, involvement of population, Multi-Criteria Decision Analysis, Municipal Solid Waste Management, Pairwise Comparison

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