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# APPLICATION AND EFFICIENCY OF PACKAGING WASTE COLLECTION PRACTICES IN KOCAELI, TURKEY

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## Abstract

The aim of this study was to evaluate the results of an urban pilot project on separate collection of packaging wastes. The project has been performed in a developed and industrialized city of Turkey, Kocaeli with the aim of collecting packaging wastes generated in residents, public offices and other business offices. The project was carried out according to packaging waste management plans developed by sub-municipalities in coordination with Kocaeli Metropolitan Municipality. Total monthly collected packaging waste amounts have increased from 423.75 ton to 2891.16 ton during a 2-year period. Despite the increase in collected packaging waste amounts, collection efficiencies could not exceed 50% throughout the project. This can be explained by the absence of law enforcement in Packaging and Packaging Waste Control Act about separate collection of packaging wastes. The project was carried out by volunteers. Results of the study showed that collection efficiencies exhibited differences between the regions as a result of varying socio-economic conditions, number of distributed collection equipments and intensity of educational activities. In the paper, impacts of various socio-economic conditions and educational activities were also evaluated statistically by bivariate correlation analysis. Remarkable positive correlations were determined for the relationships between the quantity of distributed collection equipments and the collected packaging waste amounts. Educational activities were also found be effective with $R^2$ values higher than 0.60. Population density and educational status of the regions have exhibited lower positive correlations explained by $R^2$ values of 0.007 and 0.184.

*Key words:* Bivariate correlation, collection efficiency, Kocaeli, packaging waste, separate collection