

A HIGH-SPATIAL-RESOLUTION ESTIMATION OF PRODUCED QUANTITIES OF URBAN SOLID WASTES

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ABSTRACT

The registration of spatial qualitative and quantitative characteristics of solid waste production in urban areas is an important factor for the optimization of waste management, since it facilitates the rationalization and optimization of the location of collection bins. The related Geographic Information System presented here, is developed for the municipality of Kalamaria in Thessaloniki, Greece. It concerns mainly the registration (in a building-scale) of the domestic and non-domestic waste producers (e.g. households, offices, shops, etc), the recording of the existing collection bins, as well as additional information for the waste collection system (e.g. bin age, waste quantities per collection area, etc). Focusing in the accurate determination of produced waste quantities for each building, waste producers are individually identified and the overall quantity for each building is then calculated. This calculation is based on performed field surveys, performed with customized protocols and suitable questionnaires. During the research, a significant differentiation in the composition of solid wastes among the various waste producers was observed and registered. The above electronic registration in digital maps was proved to be a useful foundation, beyond the rationalization of waste collection, for the improved planning of recycling projects, especially the ones based on source separation.