

FACTORS INFLUENCING MUNICIPAL WASTE ARISING AND COMPOSITION

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EXTENDED ABSTRACT

Reliable information about factors that may influence municipal waste arising and composition is relevant for a variety of reasons such as planning of waste collection and treatment systems planning of waste analysis designs and forecasting future waste generation in a certain region.

Parameters often mentioned as effecting the arising and composition of municipal waste are: social factors such as age, sex, income, educational level, size and status of family; residential structure patterns such as one family houses vs. multi storey houses; waste management and organisational patterns such as source of waste (household waste/commercial waste), bin size, collection system (door-to-door-system, drop-off-system, separate collection), waste fees; seasonal variations.

The Solid Waste Analysis (SWA) – Tool project has examined existing data sets from waste analyses in order to assess the relevance some of the above-mentioned criteria on the composition of municipal waste produced. In the context of this article, the term 'waste analysis' refers to the composition of waste according to the products and materials (waste categories such as glass, plastic, paper) contained, which are determined by sampling and manual sorting. In waste analyses factors which may influence waste composition are often used as stratification criteria in order to employ a stratified random sample and to reduce sample size. By applying statistical tests it can be verified whether or not these chosen stratification criteria have a statistically significant influence on waste generation and composition and should therefore be utilised. In addition identified significant criteria can be utilised in the development and implementation of a subsequent waste management strategy, for example in waste reduction targeting campaigns or in the determination of spacial and quantitative recycling infrastructure requirements. The following tasks were elaborated in detail: Task 1: was the selection and provision of existing data sets from residual waste analyses. Task 2: was the performance of statistical analyses using bivariate and multivariate statistical procedures.

In conclusion the following parameters were found to have a significant influence, namely: residential structure; bin size (bins < 240 litres, bins > 240 litres); source of waste (residual waste from households versus residual waste from commercial activities). Conversely it was not possible to show the same significant influence on waste composition for the parameters: collection system; "availability of bio bin"; and, various social factors, which may be attributable to the limited data sets available for these stratification criteria.

Key words: waste management, waste analysis, waste composition, waste generation