Due to limited availability of many natural resources detailed knowledge about the usage and life cycle of materials and material flows within a national economy is crucial. Material flow analysis (MFA) is about gathering, harmonizing and analyzing data on physical flows and stocks from different sources with varying qualities. Paucity of data is typical for regional material flow studies, causing considerable uncertainties of model results. An approach for the estimation of uncertainties of MFA input data was developed and applied on important consumption sectors of the Austrian plastic household 2010. The aim of this study is a systematic assessment of uncertainty of the material flows and stocks in the system.

Material flow analysis is applied for a systematic assessment of the plastic flows and stocks within Austria in the year 2010. The MFA connects the sources (primary production), the pathways (manufacturing and preparation), the intermediate (consumption) and final sinks (waste management) of plastics. The consumption sector can be subdivided into ten important subsectors.

Quantifying plastic flows within a national economy requires different sources: peer reviewed reports, unpublished reports, experts estimates, etc.

Depending on the characteristics of the data source itself (basic uncertainty) and individual quality factors (additional uncertainty) the total uncertainty (= uncertainty range) for each mass flow can be calculated.

Uncertainty ranges and therefore quality of the data sources for input mass flows differ between 9 – 20%.

Uncertainty ranges of waste management data are generally low indicating higher quality of data sources.

Stock estimates for quantitatively important sectors, e.g. Furniture, Medicine, Household, Others and Building & Construction are associated with large uncertainty ranges.