# Estimating consistent Physical Supply-Use Tables (PSUTs) considering data uncertainties

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In the context of decoupling resource consumption and environmental impacts from economic growth, more and more interest is devoted to comprehensive accounting of anthropogenic material flows within the economy and with the natural environment. PSUT compilation, including data mining and mass balancing, generally shows two main limitations: it requires large scale and time-consuming efforts, while the uncertainty associated with the resulting tables is most often not addressed.

This work presents a numerical-balancing method to estimate full PSUTs under conflicting information. It allows all relevant information to be used in the PSUTs estimation process, including potentially large data errors depending on the data quality. The mass balancing identities (input = output), in terms of products and activities, are used in a numerical technique which fulfills all requirements of constrained optimization techniques.

According to the theoretical framework defined in the first part of this paper, a full PSUT is estimated for France for the year 2006 as a case study. Such an approach calls for reconciliation of data from various sources of information in balancing consistent PSUTs. It reduces the time for their estimation, considering all information in the most efficient manner possible while at the same time improving their reliability. This example suggests that the numerical-balancing method provides a promising approach for estimating PSUTs under conflicting information.