Title: Computer Aided Resource Efficiency: Assessing and Communicating Environmental Impacts and Costs along the Supply Chain

Subtitle: An Approach for Decision-Making Support in Companies

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07.03.02

Abstract

Increasing complexity of production structures, globalised markets and the intense use of information and communication technologies (ICT) within that development leads back to questions of environmental impact assessment of industrial processes and products.
So far a lot of effort has been put into life-cycle assessment and the generation of data for the assessment process. However, the use of such information and data is still not very common in companies either for image reasons or reasons of lacking resources and high effort.

For companies the described complexity creates problems to make environmental and economical sound decisions and communicate them to relevant stakeholders. The weighting between financial and environmental aspects is often not even possible because of missing data and applicable instruments and methodologies for an integrated decision-making.
The method Resource Efficiency Calculation (REC) developed by the Wuppertal Institute provides such a method for the assessment of economical and environmental impacts of product covering most parts of the life cycle.

Topics addressed in the paper will be:

<u>The method Resource Efficiency Calculation</u>
The Resource Efficiency Calculation (REC) brings together data from cost accounting and environmental impact assessment. Within this approach economical and ecological assessment is combined in an information system to support a company's management in decision-making and communication. The environmental impact data used for the assessment consists of so-called MI-Values as a measure for a product's resource consumption. Material and energy data already available in a company's ERP-System can be used to conduct a material and energy flow analysis. Such an analysis serves as a basis for an REC together with cost data from the ERP-System.

<u>Applications of the method</u>
Possibilities of application for this method is manifold. It can be used for internal decision-making such as the selection of new materials as well as for external communication of environmental impact data to customers and consumers. Applications and possibilities of the method and their support by enhanced use of software (such as material flow and LCA-systems) and data from ERP-Systems is currently tested within the Project "CARE-Computeraided Resource Efficiency Calculation in medium sized enterprises". Results from case studies conducted with a computer assembly plant of Toshiba Europe, a producer of cable Muckenhaupt & Nusselt and a manufacturer for furniture Nolte Möbel will be presented.