

## **Resource-conserving waste recovery and its consequences for recycling and landfilling**

Georg Schiller, Tamara Bimesmeier, Karin Gruhler

In most countries, construction and demolition waste (C&D waste) represents the largest waste stream in terms of volume. In developed countries in particular, great efforts are being made to recover this mass flow. In Germany, for example, a recovery rate of at least 70% is required by law. This is currently clearly exceeded. Besides recycling, the backfilling of former opencast stone and earth quarries is the most important way to recycle construction and demolition waste. At present, however, the quality requirements for the materials used along this path of recovery are being increased. This is justified by the greater need to conserve the resources "soil" and "water" which are polluted by the filling of low quality material. The consequences of this on the shift of C&D waste masses to landfilling and recycling were investigated by using the method of a continuous material flow analysis, taking the disposal structures of the federal state of Saxony in Germany as an example. C&D waste quantities were calculated based on the construction and demolition activities and the quality of waste outflows where estimated considering available waste analysis. In another module, backfilling capacities in opencast mines were empirically determined and described on the basis of license documents with regard to the newly required qualities. C&D waste quantities and disposal capacities were balanced according to the qualitatively differentiated mass flows. Results from this are presented in this contribution. As a consequence, there is a significant increase in the volume of landfill sites required, even if recycling is significantly strengthened. This requires a reconsideration of the function of pollutant ejection through landfills as an important element of resource conservation - and a critical look at the biased claim for maximum recovery rates.

**Keywords:** Recycling Recovery, landfilling, backfilling, waste qualities, soil, water