Challenges when Performing Economic Optimization of Waste Treatment

New investments in waste treatment facilities are needed due to a number of factors including continuously increasing waste amounts, political demands for efficient utilization of the waste resources in terms of recycling or energy production, and decommissioning of existing waste treatment facilities due to age and stricter environmental regulation. Optimization models can assist in ensuring that these investment strategies will be economically feasible.

Various economic optimization models for waste treatment have been developed which focus on different parameters. Models focusing on transport are one example but models focusing on energy production have also been developed as well as models which take into account the plants economies of scale, environmental impact, material recovery and social costs. Finally, models combining different criteria for selection of waste treatment methods in multi criteria analysis have been developed.

A thorough updated review of the existing models is presented and the main challenges and the crucial parameters to take into account when assessing the economic performance of waste treatment alternatives are identified. The review article will assist both policy makers and model developers involved in assessing economic performance of waste treatment alternatives.