

COLLECTORS



Work package 3

Quantification of costs and benefits

Deliverable 3.3 - Executive Summary - Report of
recommendations for improvement of single systems and
optimum operation conditions of waste collection systems

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Credits

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Summary

This report provides the environmental assessments of 12 case studies on waste collection in Europe, including 5 paper and packaging waste (PPW) cases, 5 waste electrical and electronic equipment (WEEE) cases and 2 construction and demolition waste (CDW) cases. The report applies the Life Cycle Assessment (LCA) methodology presented in D3.1 to the 12 case studies as part of Work Package 3 (Task 3.3) of the COLLECTORS project. We adopt a broad systemic perspective to capture not only the potential environmental impacts generated by the waste collection systems (WCS) themselves, but also the consequences of quality and quantity of collected wastes for resource recovery and substitution of primary resources. Thus, the model covers the life cycle of the materials used in paper and packaging, electrical and electronic, and construction products: i.e. primary production, waste collection and sorting, as well as recycling and disposal. We also include closed and open-loop recycling as options to close material loops and substitute primary materials through recycled materials. The substitution potential of secondary materials is determined based on the assumption of a steady-state system and the limits to the recyclability of materials (e.g. paper cannot be recycled indefinitely, but instead always requires a certain amount of virgin fibres). The use phase of products is excluded, as it can be assumed not to change as a result of decisions at the WCS. Data was provided by stakeholders (interviews and questionnaires) and published data (i.e. scientific literature, national and regional reports, and a life cycle inventory database).

We find that there is a substantial potential to reduce the environmental impacts for all materials covered in this report through a better management of waste streams. The key to this is efficiency along the waste management chain, i.e. high capture rates, as well as high sorting and recycling efficiencies. In addition to increasing the quantities of waste, attention should be given to high value recycling, which is closely linked to quality considerations in the collection, sorting and recycling of wastes, but also ideally to product design. Individual results and recommendations for the 12 case studies are provided in the report, although these results should be interpreted with some caution as local data was only available from the collection stage and thus the lifecycle perspective that is provided in this report relies on average data for upstream and downstream lifecycle stages.

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