COLLECTORS
WASTE COLLECTION SYSTEMS ASSESSED AND GOOD PRACTICES IDENTIFIED

COLLECTORS

Work package 3

Quantification of costs and benefits

Report of LCA meta-analysis and guidance document for

LCA of waste collection systems – Executive summary

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Credits

Disclaimer

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Summary

Well-performing waste collection systems (WCS) are a key element for closing material loops and moving towards a circular economy. WCS comprise the collection and sorting of waste and thus determine the quantity and quality of waste collected. This in turn influences activities such as treatment, recycling and final disposal, and ultimately the amount of secondary materials available to substitute primary production inputs.

This report provides a methodology and thus guidance for performing life cycle assessment (LCA) studies for waste collection systems. The methodology adopts a broad systemic perspective in order to capture not only the potential environmental impacts generated by the WCS themselves, but also the consequences of quality and quantity of collected wastes for resource recovery and substitution of primary production inputs. The life cycle stages covered include the entire life cycle of the materials: primary production with possible substitution of primary through secondary materials, waste collection and sorting, as well as recycling and disposal. The use phase of products before they become waste is excluded, as it can be assumed not to change as a result of decisions at the WCS. The substitution potential of secondary materials is determined based on the assumption of a steady-state system and the limits to the recyclability of secondary materials are considered (e.g. paper cannot be recycled indefinitely, but instead always requires a certain amount of virgin fibres). If materials cannot be recycled in a closed loop (i.e. within their original application due to an oversupply), open-loop recycling is assumed.

The methodology is generic and can be applied to any European WCS to assess, for example, the environmental consequences of choices made at the collection stage. However, the data can and should be adapted for each specific WCS studied, e.g. by stakeholder consultation (interviews or questionnaires) and published data (i.e. in scientific literature or national and regional reports).

We have tested the methodology in this report using at the example of paper and packaging waste (PPW), although it could also be applied to other WCS, such as waste electrical and electronic equipment (WEEE) and construction and demolition waste (CDW). It is applied to 5 PPW cases, 5 WEEE cases and 2 CDW cases as part of Task 3.3 of the COLLECTORS project (deliverable 3.3: Report of recommendations for improvement of single systems and optimum operation conditions of waste collection systems). The methodology is consistent to ensure a fair basis for comparison between different WCS.

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