RAMBØLL

COLLECTORS
WASTE COLLECTION SYSTEMS ASSESSED AND GOOD PRACTICES IDENTIFIED

Executice Summary

- D1.1 Specification and validation of key parameters for collection systems

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Credits

Disclaimer

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Identification of parameters

The basis for the COLLECTORS project was laid through the analysis of a significant number waste collection systems throughout the EU. It was of decisive importance that the evaluation of the different systems was carried out in a consistent manner. This was the prerequisite for ensuring that the systems could be meaningfully compared afterwards. It should be noted here that the project focused on the follwoing three main waste streams:

- **Packaging and Paper waste from private households and similar sources**
  - Paper & cardboard - packaging and non-packaging;
  - Plastic packaging
  - Metal packaging
  - Glass packaging
  - Beverage composites
- **Waste Electrical and Electronic Equipment from private households and similar sources;**
- **Construction and demolition waste with a focus on wastes that are managed by public authorities.**

A list of particularly important parameters has been defined for each of these waste types. These lists of parameters can be roughly divided into two parts: general paramters and specific parameters. The first were relevant to describe the context in which a certain waste collection system is embedded. Examples are population size, area size, number of households and similar. These factors can have a major influence on the waste collection system used. The second part – specific parameters – are directly waste-related. They included parameters such as amount of waste generated per time, arising costs for households, amount ond/or number of waste fractions collected separately, and many more. The following Table 1 provides some examples of parametres that were used.

Table 1. Non-exhaustive list of parameters for the general description of the waste collection system.

Parameter name	Description
EXAMPLES OF GENERAL PARAMETERS	
Area size (in km²)	Size of area in scope.
Remoteness	Area in scope regarding its remoteness / connection to the surrounding area: mountain area, island, coastal area, inland, etc.
Population	Number of inhabitants living in the area in scope.
Population density	Number of inhabitants living in the area in scope in relation to the area size.
Type of housing	The prevalent type of housing in the area in scope: detached and semi-detached houses, multi-family houses: terraced houses, apartment buildings, housing blocks, etc.
Total number of households	The number of households in the area in scope.
EXAMPLES OF SPECIFIC PARAMETERS (FOR WASTE STREAM PAPER AND PACKAGING WASTE)	
Total municipal waste generation / collection	Total municipal waste amounts generated/collected and its composition most recent reference year. Main fractions as presented in waste statistics.
Mixed residual waste composition	Mixed residual waste composition based on sorting analysis. Share of PPW fractions in %.
Responsibility of collection	Responsibility for collection of different PPW fractions. Specification who is leading operations: public authority or private scheme. Per PPW fraction.
Separate collection of waste fractions	Applied options for separate collection of different PPW fractions and collected amounts in t and kg/capita
Capture rate (collection rate)	Relative amount of separately collected quantity of a material, for different PPW fractions (calculation based on residual waste composition / sorting analysis)

The list of parameters was elaborated in a two-step process. 300 information sources were screened that seemed promising in providing valuable input. As one may already assume, the number of possible parameters is far too extensive for an effective evaluation of the targeted number of waste collection systems. In a second step, the parameters were therefore discussed and critically examined in a panel of experts. Whether a parameter was considered for the final lists did not only rely on its relevance, but also the probability of data availability. Data availability always plays a vital role in this type of project. Experience shows that information is often not readily available or simply not collected by the authorities in charge. Still, the final list of key parameters per waste stream were comprehensive and consisted of 11 general and around 20 specific paramters (depending on the waste stream). This list provided the basis for the analysis of waste collection systems in the sub-sequent steps.

Mapping of information on waste collection systems

Before the mapping exercise could start, countries were distributed among project partners based on regional expertise and language skills. The aim was to cover both a high variety of local systems from different countries as well as systems with differing characteristics (urban, rural, island, etc.).

It included two steps:

(1) **Literature research** to collect and compile information on each local system from publicly available information sources
(2) **Consultation of competent authorities** to close potential data gaps and verify information (applied for selected systems only).

The project team was busy with this task for several months and in the end, 242 systems were examined in detail throughout the EU (see Figure 1). This number is composed of the following number of waste collection systems per waste stream: 135 systems handling paper and packaging waste, 73 systems handling waste of electrical and electronic equipment, and 34 system handling construction and demoltion waste.

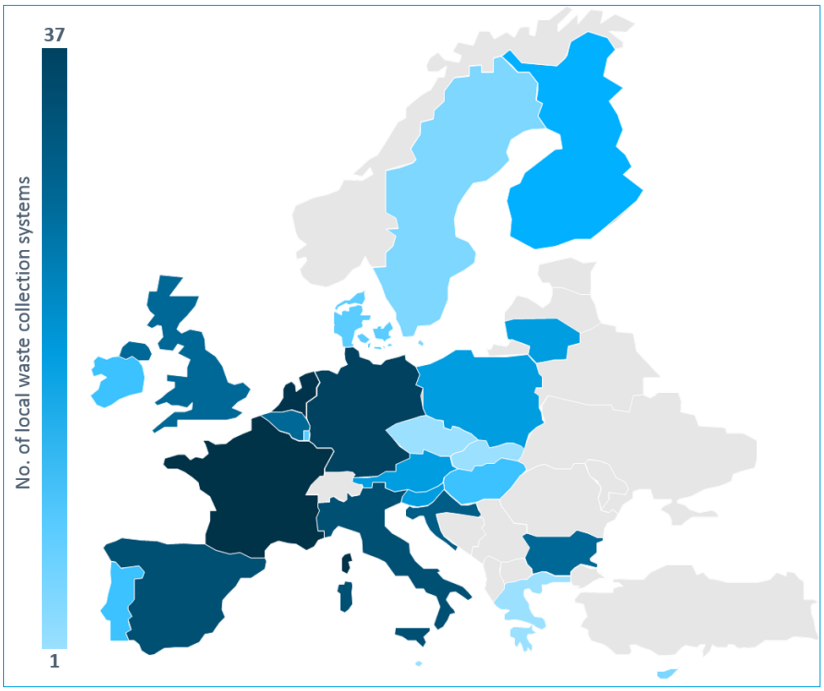

Figure 1. Number of local waste collection systems included in assessment per country

The inventory served as basis for the selection of 12 case-studies via a multi-criteria decision method (MCDM). In the next phases of the project, the 12 selected cases will be assessed by different project partners in more detail in terms of main challenges and boundary conditions, life cycle aspects, costs and benefits etc. As mentioned before, the case studies should serve as good practices for other areas and minicipalities.

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