



MONITORING AND CONTROL OF THE COMPOSITION OF RESIDUAL WASTE AND PAPER AND BOARD IN OTHER RECYCLABLES STREAMS



Background (REF:1)

Used paper and board is collected preferably separately from other recyclables and from residual waste. However, some paper and board ends up in wrong waste streams. The objective is to collect as much as possible through separated collection. To achieve this, it is important to perform data collection and monitoring to know what is the current separation rate.

Monitoring this rate is complex since it needs the evaluation of the composition of the materials collected through separate collection and also through the rest of waste streams.



Figure-1. Manual monitoring of co-mingled collection stream. Source: WRAP

Monitoring closely the other waste fractions and regular analysis of the composition with accurate procedures is needed to establish actions to get more material out of the other streams and into separate collection system. This monitoring needs to be complemented by strict control of the sorting efforts of users, thus enforcing separate collection of paper.

ACTION

Implementation of a methodology to monitor and analyse the quantity of paper and board in other waste streams (residual and other recyclables). Based on that, specific actions will be taken to get more recyclable/ recoverable material out of the other streams

Example of best practice implemented

Northumberland (England) waste analysis. (REF:2)



Figure-2. Manual monitoring of stream from co-mingled collection. Source: WRAP

Northumberland County Council identified the need for a waste composition analysis to assess the impact of a recent campaign to increase recycling. Waste was manually sorted. Moreover, each fraction was weighted, also calculating the contamination levels.

The results showed the need to implement an improvement plan to address the problem of low capture rates and high contamination levels.

Waste composition analysis was carried out by an external contractor. It was undertaken in June 2007 and October 2007 over the six-district council area, before and after the communications campaign. The external contractor that carried out the waste composition analysis also undertook contamination monitoring. **The KPIs used were: % Capture, % Contamination and % Committed recyclers.**

The application of this measure allowed to detect where more effort was needed to increase the collection rate. In fact, thanks to this practice, **the capture rates for paper and board increased by 2% during the period from June to October.**

Keep in mind that...

- ⚠ The residual waste analysis composition needs a carefully detailed methodology to work properly.
- ⚠ Strong attention must be paid into the moisture content of the different residual waste streams. Usually, paper and board in a co-mingled collection is overweighed as this material absorbs moisture from the other material.

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How to start? (REF: 1, 2,3)

- ▼ The Scottish Environmental Protection Agency (SEPA) has published a guidance on carrying out a household waste composition study. The main steps to follow are:

1	Waste Compositional Sampling Strategy Design	An effective WCA (Waste Composition Analysis) programme must be based on waste samples that are representative of the target area as a whole (usually a whole Local Authority). This first step considers the different sources of variation in relation to kerbside collected household waste and then describes the design of a WCA programme needed to ensure that a 'good' sample is obtained within the constraints of time and cost.
2	Waste Categorisation	The development of a suitable and clear list of waste categories is central to the successful design of a waste analysis programme. A standard could be applied.
3	Procurement	This step provides advice on procurement where local authorities will be obtaining the services of an external WCA contractor. It is assumed that local authorities will follow their own procurement processes and detail of the procurement journey has not been repeated here. The local authorities may consider the cost, key elements (timescales, insurance, estimated sort weights, flexibility...), tender assessment.
4	Operational Aspects	Include the responsibilities for local authority and WCA contractor regarding responsibility for management. Project initiation, Health & safety, staff training and supervision, communications-project team, communications- external, sort site selection, equipment, Kerbside sample collection, waste sorting and data recording.
5	Data Analysis and Reporting	The sub-steps included are consolidating and analysing data and reporting.

- ▼ WRAP (Waste and Resources Action Programme) recommends that a professional company with appropriate experience, insurance and health and safety policies is employed for this task. Although anyone can learn how to carry out a waste analysis given suitable training.



Potential benefits (REF:1)

The evaluation of the collection rates enables sorting plants to know the amount of paper for recycling available. This provides very useful information for the local authority but also for the site operator as many contracts are now designed to provide incentives for site staff to divert more waste away from landfill. Without such monitoring data, it is difficult to identify the potential to improve segregation efficiencies.

			
Increase quantities of paper for recycling which means and increase of income to municipalities	●	●	●
Stronger motivation of citizens to participate in a scheme that works			●
Cleaner areas around the containers	●		●
Ensure that the paper for recycling stays in the hands of the stakeholder responsible for the collection	●		●
Less vandalism	●	●	●



Guidance on the Methodology for Waste Composition Analysis



References:

1. WRAP (2015). Improving the Performance of Waste Diversion Schemes (2015): A Good Practice Guide to Monitoring and Evaluation. Chapter 7. Monitoring capture rates.
2. WRAP (2015). Improving the Performance of Waste Diversion Schemes: A Good Practice Guide to Monitoring and Evaluation. Annex 1
3. ZERO WASTE SCOTLAND (2015). Guidance on the Methodology for Waste Composition Analysis.