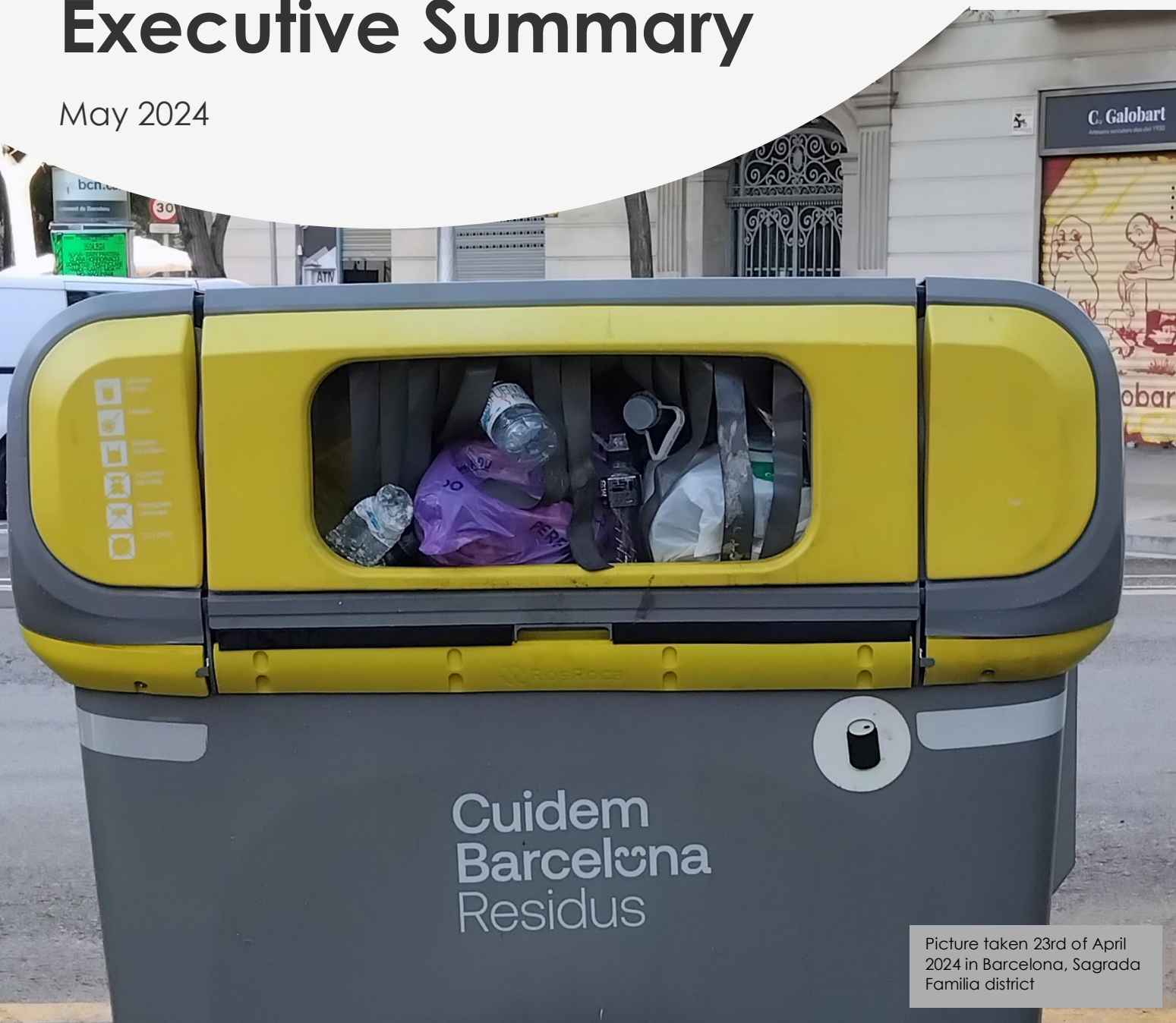


Analysis of Compliance with the Targets for the Separate Collection Rate of Plastic Beverage SUPD Bottles up to 3 Litres in Spain: Executive Summary

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Report For

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About Eunomia Research and Consulting

Eunomia are internationally recognised as experts on the circular economy, packaging, and recycling policy. We work extensively at the European level and with governments around the world on evidence-led policy design, appraisal, and evaluation.

We have extensive experience in the design and implementation requirements of the EU's Single-Use Plastic Directive and the revised Packaging and Packaging Waste Directive.

We have a particular interest in plastics policy, and have worked with the Commission, national governments, municipalities, business, and NGOs on plastic collection and recycling systems, in particular for PET beverage bottles.

Executive Summary

In 2019 the European Union (EU) adopted the Single-Use Plastics Directive (SUPD) that, amongst many other measures, established mandatory targets for the separate collection of single-use plastic beverage bottles of up to three litres (referred to in this report as “SUPD Bottles ”).¹ It also established associated reporting requirements and in 2021, detailed calculation rules through an implementing act (EU) 2021/1752.² These provisions of the SUPD were implemented in Spanish law through Article 59 of Law 7/2022 on separate collection of plastic bottles.³

Accurate statistics, calculated in accordance with the legislation, are therefore essential to comply with both Spanish domestic and EU legal obligations. However, stakeholders have expressed significant doubts about current calculation methodologies and source data used to inform Spain’s official statistics in this area. This report therefore provides an independent assessment of existing data sources and the preliminary calculations by Ecoembes (the PRO for lightweight packaging) on the separate collection rate for single-use plastic beverage bottles.

The findings from this analysis are concerning. Firstly, they reveal significant limitations in the current Spanish packaging and packaging waste data and monitoring processes, especially regarding transparency. As a result, it is difficult to have confidence in the reported statistics.

Secondly, the calculation methods used to determine the reported separate collection rate are not consistent with good practice in the EU, with several important factors not accounted for in the methods used. These factors make a substantial difference to the evaluation of whether Spain is deemed to be on course to meet its domestic and EU obligations on separate collection.

Thirdly and most importantly, they show that the preliminary figures presented to date over-estimate Spanish performance to a significant degree. This risks creating a false impression that separate collection is on track in Spain, when in fact it appears that urgent policy interventions are likely be required for Spain to meet its legal obligations.

¹ European Parliament, 2019, Directive (EU) 2019/904 of the European Parliament and of the Council of 5 June 2019 on the reduction of the impact of certain plastic products on the environment, <https://eur-lex.europa.eu/eli/dir/2019/904/oj>

² [Implementing decision - 2021/1752 - EN - EUR-Lex \(europa.eu\)](https://eur-lex.europa.eu/eli/dec_impl/2021/1752/oj)

³ Jefatura del Estado, 2022, Law 7/2022, of April 8, on waste and contaminated soils for a circular economy., <https://www.boe.es/buscar/act.php?id=BOE-A-2022-5809>

The analysis conducted in this report presents Eunomia's 'best estimate' calculation based on EU calculation and reporting requirements, drawing on good practice used in other major European economies.

This analysis also stress-tests the sensitivity of this best estimate to a range of alternative data sources and calculations, to rigorously examine uncertainty in the data and test whether a significantly different outcome is plausible. The best estimate available for separate collection in Spain in this study is 36% for 2021, far below the 70% target for 2023 in Spanish law, and the 77% target for 2025 in Spanish and EU law.

Taken together, these findings strongly suggest that Spain has an urgent need to undertake measures, such as a Deposit Return System, to considerably improve separate collection performance if it is to meet its legal obligations, as well a need to address significant issues with its approach to statistical analysis and reporting on separate collection of SUPD Bottles.

Approach

This study set out to provide an independent analysis of the separate collection rate reporting in Spain for single-use PET beverage bottles of up to three litres. This particular segment of single-use plastic waste is important because it is the majority of the stream that is the focus of specific Spanish and EU legislation and mandatory targets.

The analysis is tailored to the Spanish market by only assessing PET beverage bottles up to three litres ("PET SUPD Bottles"). PET makes up 94% of all SUPD Bottles placed on the market in Spain, making it a valid indicator of the total SUPD rate.⁴ Although it would be best practice to account for the remaining 6% (HDPE SUPD Bottles), there is insufficient data publicly available to do so. Additionally, Ecoembes' s reported 71.1% separate collection rate is only for PET SUPD Bottles and does not include HDPE SUPD Bottles. Therefore, assessing only PET SUPD Bottles in this assessment allows for a direct comparison to the Ecoembes reported figures, whilst still representing the majority of the SUPD bottle market, and can be done robustly using available data sources.

To frame this analysis, Eunomia conducted a review of the key legal provisions in EU and Spanish legislation relating to separate collection of single-use plastic beverage bottles. A thorough assessment of data sources was then undertaken, with a range of stakeholders engaged with in order to support cross-checking of our data sources, calculations and assumptions.

Legal requirements for separate collection and reporting in the EU

The SUPD requires that Member States demonstrate that by 2025 they have achieved a separate collection rate of 77% for SUPD Bottles.

Spanish legislation not only requires that monitoring and reporting take place against SUPD targets, but additionally specifies that if a collection rate for SUPD Bottles of 70% is not achieved by 2023 then a new waste collection system in the form of a deposit return scheme (DRS) would be introduced. A DRS would see a small refundable deposit charged to consumers when drinks in plastic bottles are purchased, and returned to consumers when the empty bottle is correctly returned for subsequent recycling. DRS is widely acknowledged as the most reliable means of achieving high separate collection rates of beverage containers and Spain's law was therefore designed to ensure that sufficient action would be taken ahead of the EU target for 2025.

Both Spanish and EU law set clear requirements for the separate collection of plastic bottles up to 3 litres in size, covering both what constitutes 'separate collection' and the precise packaging items that should be included (single use beverage bottles up to 3 litres in size, including their caps and lids). The trigger point in

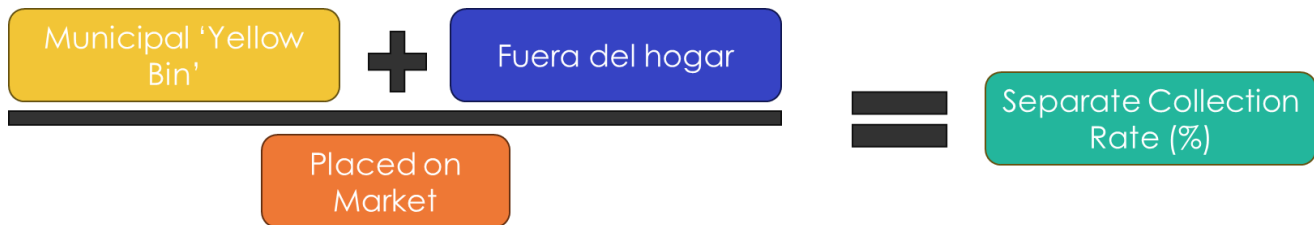
⁴ Executive Summary: Separate Collection Rate of Plastic Beverage SUPD Bottles up to 3 Litres in Spain

Spain for the implementation of DRS for plastic beverage bottles is therefore theoretically clear, relating to the non-accomplishment of the SUPD bottle collection target in 2023. The Ministry must assess and make public the status of compliance with the targets set for 2023 by 31 October 2024. The calculation of those percentages shall be carried out in accordance with the methodology set out in Implementing Decision (EU) 2021/1752.

What is clear is that **three key headline figures are needed to calculate the separate collection rate in Spain (see Figure ¡Error! No hay texto con el estilo especificado en el documento.-1).**

- The numerator (amount separately collected) is based on the weight of target materials that are collected separately. In Spain there are two routes of interest: the **municipal 'yellow bin' stream** from households and businesses, and the **private stream called 'fuera del hogar'**, or 'outside of home' which comprises collections from select venues.
- The denominator is the weight of target materials that are **placed on the market** (POM). This includes all SUPD Bottles sold to consumers in Spain, regardless of how – or if – they are collected post-consumption.

Figure ¡Error! No hay texto con el estilo especificado en el documento.-1: Components of the separate collection calculation



However, the question of how these requirements should be applied in practice to produce transparent, reliable estimates has not yet been made clear enough by the Spanish authorities.

To date, the Ministry has not implemented the methodology of the Implementing Decision (EU) 2021/1752 to enable the Autonomous Communities to report the required data, which is essential to ensure a reliable, homogeneous and reliable reporting of the objectives of Article 9 of the SUP Directive.

This report sets out a clear, transparent, and replicable approach, that complies with all available requirements, and that can be updated as new primary data becomes available to calculate the separate collection of SUPD Bottles for the financial years 2022 and 2023. In this report the calculation is provided for 2021, using the most recent available data.

Calculating the separate collection rate for PET SUPD Bottles

To date Ecoembes has reported a separate collection rate of 71.1% for 2021 for PET SUPD Bottles. **The current study identifies that this estimate is far too high, and instead arrives at a best estimate of 36%, far below the Spanish targets for 2023 and 2025.**

Calculating the amount of material placed on the market

All stakeholders agree that some PET SUPD Bottles are placed on the market in Spain without being officially reported – so-called ‘free-riding’. An estimate of these tonnages should be included in calculations of the collection rate. This study proposes 15% as a credible figure for the amount of undeclared material, according to the "Study on fraud in the field of extended producer responsibility (EPR) of household packaging in the Spanish market" commissioned by the MITERD to the consulting firm ENT (published in December 2022), which would raise the estimate of position in the market (i.e. the denominator in the calculation) up to **178 kilotonnes (kt)**, compared to the 154kt estimated by Ecoembes.⁴ Making just the one change to include this in the separate collection calculation would reduce the separate collection rate reported by Ecoembes to 62%. This is already below the 70% target for 2023 established in Law 7/2022.

Calculating the amount of material collected in municipal yellow bins

The number of PET SUPD Bottles collected from municipal ‘yellow bins’ are not currently measured directly, and a calculation therefore needs to be built step-by-step:

- The calculation starts by removing moisture and dirt within the plastic packaging output stream of sorting plants. This step is first based on the scope of data available.
- From this, the amount sorted into PET bales is then estimated.
- Other contamination (e.g., non-PET items) and non-bottle PET materials (e.g. PET trays) in bales need to be accounted for and removed.
- Finally, not all PET bottles are eligible for the SUPD separate collection target, so two further components must be accounted for and removed – non-beverage bottles, and beverage bottles above 3 litres.

Credible Spanish data sources exist for most of these variables. Eunomia has drawn on these data in developing its best estimate of the current separate collection rate for PET SUPD Bottles, drawing on extensive experience from across the EU to make adjustments necessary to fill all data gaps. The best estimate in this report of the amount of material eligible for inclusion in the separate collection target for SUPD Bottles is **47,000 tonnes, 16,000 tonnes less than those declared by Ecoembes.**

Calculating the amount of material collected *fuera del hogar*

Reporting of *fuera del hogar* material is not transparent, and previous published figures significantly overestimate its potential contribution to separate collection. Key problems with the data presented by Ecoembes for this fraction include:

- **The lack of data transparency**, with no published audit or detailed underlying data.
- **Unfeasibly high reported tonnages of material** relative to the better understood and analysed municipal yellow bin stream; in addition, a small number of Autonomous Communities appear to account for a very large proportion of the reported tonnage, suggesting a lack of consistency in approaches to reporting. Similarly, historic data shows unexpected jumps in performance, with no real ability to explain or interrogate changes.

⁴ MITECO, Estudio sobre el fraude en materia de responsabilidad ampliada del productor (RAP) de los envases domésticos en el mercado español, 2022, [2300623informefrauderapmaquetado_tcm30-569728.pdf \(miteco.gob.es\)](https://www.miteco.gob.es/contenedor/2300623informefrauderapmaquetado_tcm30-569728.pdf)

- Finally, given the adjustments discussed above that are required for the municipal yellow bin stream, adjustments to headline reporting to account for similar **contamination and non-target material** should also be made.

Due to the lack of detail, the data published by Ecoembes is impossible to cross-examine or verify. SUPD Bottles

Despite the difficulties in studying this flow of material, in which Ecoembes declares 47,000 tonnes, all the avenues we have explored to try to obtain estimates, place us in a range of between 9,000 and 18,000 tonnes, that is, between 38,000 and 29,000 tonnes lower than the amount Ecoembes declares, which does not have any technical proportion with the metrics of the yellow container.

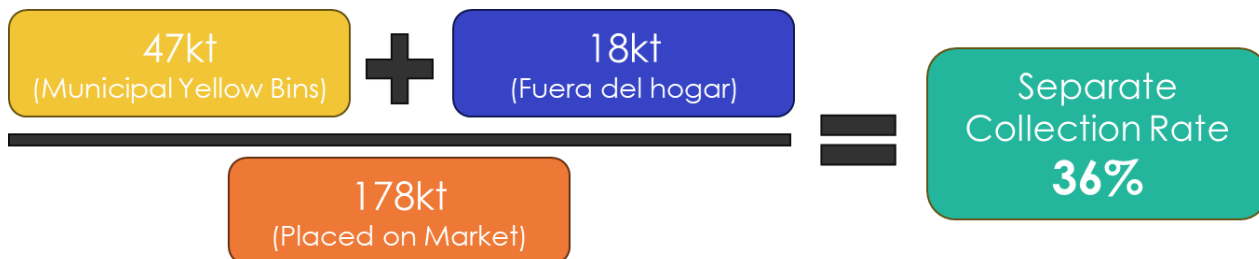
We consider the best estimate of separate collection of PET SUPD Bottles in this stream to be 18,000 tonnes. It should be noted that there is significant uncertainty in this flow and that we have opted for the most conservative figure. If we had opted for 10,000 tonnes less, the impact on the rate of separate collection of PET SUPD Bottles would be in the order of 5.6 percentage points lower, i.e. even further away from the objectives of Spain 2023 and the European Union 2025.

Separate collection rate of PET SUPD Bottles

Using the data and methodology outlined above to calculate the denominator and numerator for the separate collection rate calculation, **this study's best estimate for the separate collection rate in Spain is 36% for 2021** – well below the 2023 target of 70%.

This methodology is repeatable once 2022 and 2023 data are available. The approach is also repeatable for HDPE SUPD Bottles, again when data is available. This research has not identified clear reasons to expect a significant improvement in collection for 2022 and 2023.

Figure ¡Error! No hay texto con el estilo especificado en el documento. **-2 Best Estimate of Separate Collection Rate**



This result has been obtained with a very rigorous and conservative methodology. In this way, sources or hypotheses with less traceability and representativeness have been discarded.

We wanted to take advantage of the extensive research work carried out to explore other alternative scenarios. Thus, by changing some assumptions for the calculation of the contribution to the numerator of the "municipal yellow bin", estimates of 31%, 33%, 34% and 37% were obtained. In an extreme scenario, combining all the sources and hypotheses that would yield the highest index, 40% has been obtained.

This study assumes free-riding at 15%, using a Spanish source. It is widely accepted that free-riding takes place, perhaps even to a greater extent than shown. However, even if free-riding is ignored, the other elements of the preferred calculation here would mean the separate collection rate being achieved was still only 42%, far below the 70% target.

Scope for data improvement

There is a need to improve primary data for all SUPD Bottles – but better data will not change conclusions.

Placed on market data should account for free-riding as described above and some EU countries have well developed research methods for better estimating this. Understanding of the municipal yellow bin stream would be significantly improved by more detailed, frequent, and standardised compositional data analysis on inputs and outputs at sorting plants. Currently neither MITERD nor Autonomous Communities have an agreed comprehensive approach for this. This must also fully align with the legal requirements specifying 'separate collection'. A better understanding of composition in relation to SUPD Bottles would also help sense-check placed on market data and the extent free-riding. Finally, the *fuera del hogar* data must be opened up so that it can be cross-examined and assessed in a comparable way to municipal yellow bin collections.

These limitations apply to 2021 data and will not have been resolved in time for the 2022 and 2023 data that is expected soon. However, just as we have been able to calculate 2021, we are in a position to calculate 2022 and 2023.

In light of this, it will be a significant challenge for MITERD to arrive at a robust estimate for separate collection of SUPD Bottles for 2022 (due in early 2024) or 2023 (due later in 2024). It is clear that they will not be able to adopt the Ecoembes data for the numerator, as they are currently communicated. As for the denominator, MITERD must apply a criterion of prudence, according to the report commissioned by its own ministry to ENT in 2022, applying a correction of 15% in what is put on the market to account for free riding.

However, in the interim, it is possible to conclude that the separate collection rate of SUPD Bottles will miss the 2023 target by a very significant margin.

Key findings and Recommendations

In the light of this work, we are in a position to estimate that Spain is very unlikely to have met its own mandatory separate collection target (70%) for SUPD Bottles in 2023. This study shows performance in 2021 against this target was only around 36%.

While there are limitations in the data available in Spain to calculate the separate collection rate of SUPD Bottles, they do not limit our ability to reach to conclude that the target is currently being missed by a wide margin. These data limitations should however suggest that Spain's ability to report a robust and precise separate collection rate to the EU (a requirement from 2024 onwards) should be viewed with caution.

As analysed in this report, Spain's 2023 target of 70% separate collection seems certain to be missed.

This scenario coincides with the scenario of the well-known MITERD report carried out by TRAGSATEC, which already stated in 2022 that with the current system it is not possible to meet the targets of separate collection of SUPD Bottles. This conclusion led Spanish legislation to set an intermediate target in 2023, so that, if it is not met, an DRS would be put in place within two years, to ensure compliance with the target of 77% separate collection of SUPD Bottles in 2025.

A DRS is the only change to collection systems that would enable Spain to move rapidly from a collection rate of 36% in 2021, to the target of 77% set for 2025.

In addition, the implementation of a DRS will eliminate the difficulty of reporting to the European Union because it is the most reliable and transparent system, which allows for more detailed statistics, since both marketed and returned packaging are counted at the level of individual packaging items.

