Making Europe transition to reusable packaging

REPORT
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About the report

This report is based on a study commissioned by Zero Waste Europe to Recycling Netwerk Benelux (RNB), as part of a European project - called the ReuSe Vanguard Project (RSVP) - which includes stakeholders from 5 European countries, namely Belgium, The Netherlands, Germany, Spain and France.

Through this report we aim to highlight the findings of the study related to the concrete packaging sectors that present the biggest potential in terms of their environmental impacts as well as the feasibility of replacing single-use by reusable packaging in the coming years.

Based on a study produced by José Potting (ed.), Bram Honig (Recycling Netwerk Benelux) & Jason Wilcox (Reloop) (Utrecht, February 2022) for Zero Waste Europe.

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Project Partners

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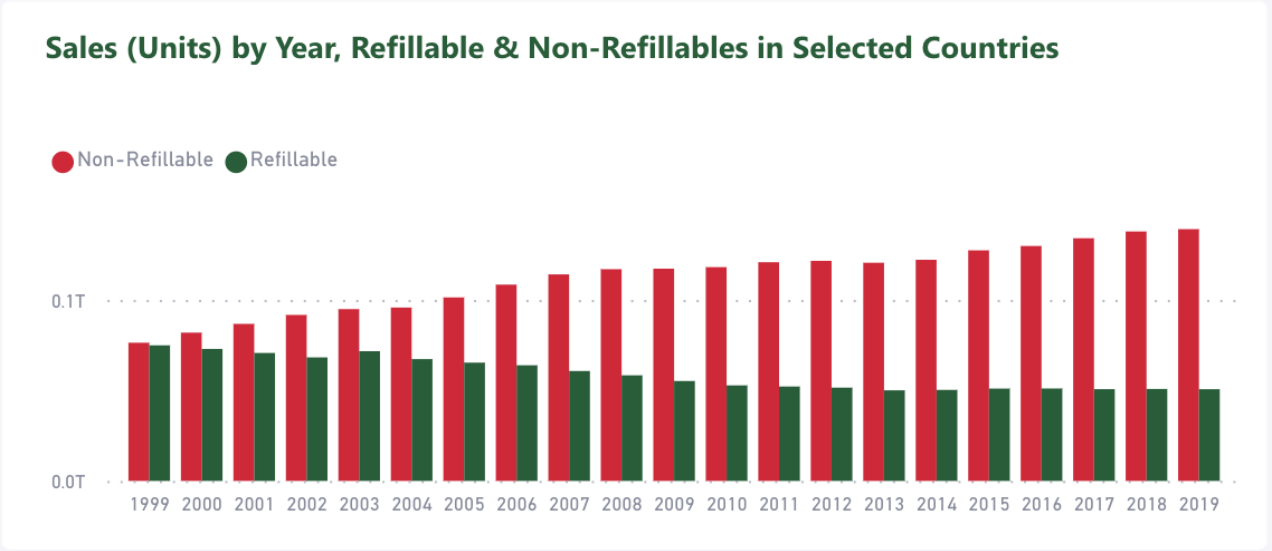
1. Introduction

Despite the proven environmental and economic benefits of reusable packaging systems,[1] Europe has seen a steady decline in the share of reusable packaging over the last decades.

Refillable beverage containers, for example, have been replaced in its majority by single-use packaging (mostly single-use plastic, cans and cartons). In Europe, sales of refillable beverage containers have dropped from 90 billion units in 2000 to 55 billion units in 2015, according to the data below:

Figure 1 - Beverage Sales: Refillable vs Non-Refillable Europe 2000-2015[2]



There are many reasons behind this drastic scenario, but most of them involve the economic factor: costs. For instance, many companies and retailers have switched to single-use packaging due to the cheaper prices and 'simpler' setup and operation compared to reuse systems (which require a higher initial investment, labour, space and take-back management). The cost-competitiveness of single-use packaging can also be explained by the externalisation of costs to society and environment, since Extended Producer Responsibility Schemes (EPR) fees cover only a fraction of collection and treatment whereas the producers working with refillable packaging must factor in the full costs of take-back and refill.[3]

[1] Rethink Plastic Alliance: *Realising Reuse.* Available at: rethinkplasticalliance.eu/wp-content/uploads/2021/07/Realising-Reuse-Final-report-July-2021.pdf
[2] Figure excludes Luxembourg and Cyprus. Source: Reloop, *What We Waste*. Available at: www.reloopplatform.org/reloop-what-we-waste-dashboard
[3] Clarissa Morawski, *The Push for Reusable Packaging*. Available at: www.reloopplatform.org/wp-content/uploads/2017/07/REUSE-MORAWSKI.pdf

As a result, the single-use trend has led to a massive increase in resource and material use, as well as an enormous and fast increase of waste volume and their related environmental impacts. In fact, single-use packaging remains highly problematic for waste management and the environment. In 2019, packaging waste generated was estimated at 177.4 kg per inhabitant in the EU.[4] As levels of packaging production and consumption continue to rise, especially for single-use applications, the current waste management systems cannot cope with the increasing amount of waste generated. The measures that were taken to try to address packaging waste have mostly been focused on recycling and have failed, with most of it either exported out of Europe or destined for low value applications. Therefore, landfilling and incineration are still the dominant approaches to managing such waste and rates of littering and environmental leakage of plastics remain unacceptable.

Not only is reuse higher in the waste hierarchy than recycling (of single-use packaging), there are a number of studies that prove that in the right situations, reusable packaging is much better than single-use packaging from an environmental standpoint.

As per right situations, it means that for reusable packaging systems to be efficient, a set of conditions need to be in place, such as: system infrastructure (e.g. drop-off networks, return logistics, washing facilities, redistribution, item tracking, incentive to return), packaging design and durability (e.g. number of cycles, 'universal' designs), employee training, systems at scale, minimum viable population density, among others.[5]

When it comes to the environmental benefits of reusable packaging over single-use, a recent study[6] has done the comparative analysis between 3 packaging types, namely: (i) take-away food and beverage containers, (ii) household cleaning packaging and (iii) e-Commerce packaging. The findings show that the reusable packaging system has nearly 12 times less environmental impact than a single-use one in the household packaging category; nearly 3 times less impact in the e-Commerce fashion category, nearly 13 times and 4 times lower environmental footprint in the take-away food and beverage containers category compared to the single-use alternative.

In fact, reusable packaging avoids the need for resource extraction and reduces energy use compared to the manufacturing of new products and recycling. However, as of today, there is no sufficient legislation on reusable packaging and the focus has been placed in developing extended producer responsibility schemes to deal with single-use packaging, and lately deposit and refund schemes.

It is remarkable that 7 years after the first European Circular Economy roadmap, reusable packaging is neither incentivised nor properly regulated at European level.

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[4] ec.europa.eu/eurostat/statistics-explained/index.php?title=Packaging_waste_statistics

[5] For further information, check: rethinkplasticalliance.eu/wp-content/uploads/2019/10/bffp_rpa_reusable_solutions_report.pdf

[6] Rethink Plastic Alliance: *Realising Reuse.* Available at: rethinkplasticalliance.eu/wp-content/uploads/2021/07/Realising-Reuse-Final-report-July-2021.pdf

Hence it all boils down to finding the right starting point for this transition and building the legal, economic and physical infrastructure that will allow for reusable packaging to become competitive and mainstream again.

This is why the study on which this report is based aims at detecting the concrete packaging sectors that present the biggest potential in terms of their environmental impacts and feasibility of, and conditions for, replacing single-use by reusable (or no) packaging in the coming years. This goal serves two objectives:

- To mobilise the forces to get this transition moving in the coming years; and
- To help structure the first attempt to legislate on packaging by starting with the packaging categories that have the biggest potential to shift to reusable.

This is a field of work in which there is a lack of data available and this is why ZWE chose to work with an iterative collaborative research together with other partners as part of a European project - called the ReuSe Vanguard Project (hereinafter 'RSVP') - which includes stakeholders from 5 European countries, namely Belgium, The Netherlands, Germany, Spain, and France. ZWE tasked Recycling Netwerk Benelux (RNB) to take lead in this iterative collaborative research. The other collaborators, besides ZWE and RNB (for Belgium and the Netherlands), were ECOS (Europe), ENVIU (the Netherlands), Deutsche Umwelthilfe (Germany), Reloop (global), Rezero (Spain), and Zero Waste France (France).

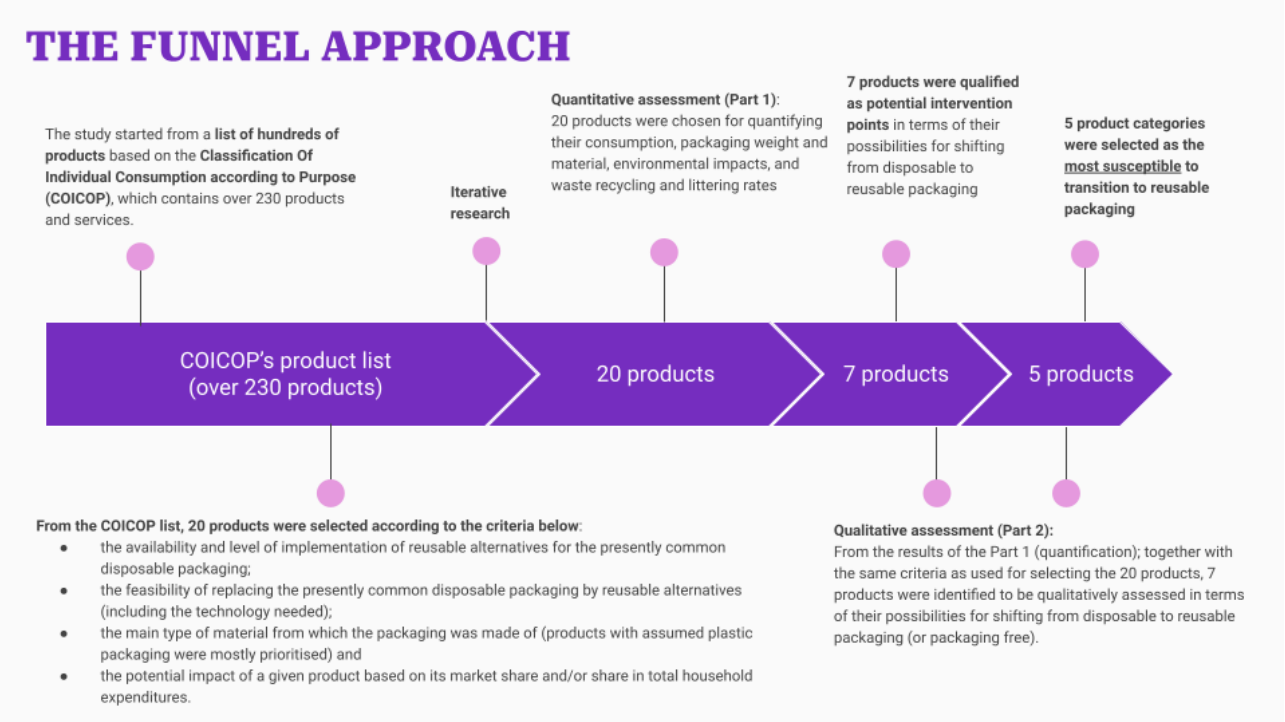
2. The methodology

There is a large number and wide range of products on the market, and many of those products are sold in different types of packaging. An example is soda drinks in cans or bottles, of which the latter are available in small and large volumes, and made from glass or plastic, and available in reusables or disposable packaging. It would have been impossible to decipher in depth the whole packaging landscape covering all products on the market. To deal with such complexity, the iterative collaborative research of this project was designed to follow a funnel approach, which helped isolate the 5 priority products for developing further plans for shifting their packaging from single-use to reusable ones.

The funnel approach started from a list of hundred of product categories (selected based on the Classification Of Individual Consumption according to Purpose (COICOP)), which contains over 230 products and services at the most detailed level (Eurostat, 2022a). This list was further narrowed down in a couple of steps according to a set of criteria until the final list of 5 most suitable products to transition, partly or completely, to reusable solutions.

These funnelling steps were at the beginning of the two parts that made up the iterative collaborative research and concluded the second part. Its process and criteria as pictured below.

Figure 2: Methodology and criteria of the 'funnel approach' used in the reference study



Detailed information on the methodology process is available at the reference study.

3. The iterative research

3.1. The Quantitative Assessment (Part 1)

In part 1 of the iterative collaborative research, **20 packaging products** have been selected, and quantified in terms of their:

- Consumption;
- The weight of their packaging and of the materials in these packaging;
- The related environmental pressures; and
- Rates of waste recycling and littering.

The quantification applies to **2019 as the base year**, and covers the **Netherlands, Belgium, Germany, France, Spain and EU28.**

As explained in the methodology section above, the 20 products were selected from a list of hundreds of products based on the Classification Of Individual Consumption according to Purpose (COICOP) and the EU's statistics division (Eurostat). The criteria to arrive at an initial list of 20 products were:

- Existence of a reusable alternative for the presently common disposable packaging of a given product or for similar products.
- Considered feasibility of replacing a presently common disposable packaging of a given product by reusable alternatives.
- Main type of material from which the packaging of a given product was expected to be made of (products with assumed plastic packaging were prioritised).
- The potential impact of a given product based on its market share and/or share in total household expenditures.

The 20 selected products were: 1 & 2) baby food in pouches & jars; 3) beer; 4) cleaning agents; 5) conserved vegetables; 6) dry food (refined further to pasta and rice); 7) fruit juices; 8) milk & milky drinks (refined to milk); 9) oils & fluid fats for cooking (refined to olive oil); 10) postal services (refined to post & packages); 11) shampoos & shower gels (refined to hair care products); 12) soda drinks; 13) grapes; 14) water (refined to carbonated water and still water); 15) wine; 16) take-away warm drinks; 17 & 18) take-away & delivery meals (refined to pizza and other meals); 19) textile washing soaps & softeners (limited to softeners); and 20) yoghurt.

For the purpose of this report, we've divided the 20 products into 4 market sectors:

- **Beverages**: Beer, soda-drinks, water (sparkling and still water), wine, fruit juices, milk & milky drinks
- **e-Commerce**: Postal services (refined to post & packages)
- **Take-away**: Take-away warm drinks, and take-away & delivery meals
- **Retail (excluding beverages)**: Baby food in pouches & jars, cleaning agents, conserved vegetables, dry food (refined further to pasta and rice), oils & fluid fats for cooking (refined to olive oil), shampoos & shower-gels (refined to hair care products), table grapes, textile washing soaps & softeners (limited to softeners), and yoghourt.

3.1.1 - Quantifying packaging consumption

For the product consumption assessment, the study used a mix of trade statistics (like from the European Union (Eurostat, 2022b) or Food and Agriculture Organisation (FAO, 2022) and data from other reliable data sources, since trade statistics usually do not provide an exact indication of product consumption.+ Moreover, they do not cover all consumer products, e.g. take-away & delivery meals.

Therefore, the study used data from trade statistics only for products for which no other or better sources could be identified. For the products with no publicly available sources (e.g. surface cleaning agents and textile soaps & softeners) their consumption was based on 'educated guesses' by a producer of surface cleaning agents.

For the quantification of the consumption, some challenges in assessing the data does not allow for precise comparison among different product categories. For instance, some data available for consumption were based on the total packaging weight, therefore they do not directly reflect consumption data. Likewise, the units for the per capita consumption differ across the selected products. Where possible, consumption was expressed in the number of packaging they are typically sold in. Else they are expressed in the quantity of product (e.g. cleaning agents and pasta & rice). In addition, confidentiality requirements on consumption data applied to some products (e.g. soda drinks & sparkling and still waters).

The findings of the quantitative assessment of the 20 selected products are described below. **The data of all products assessed and quantified in this report are of single-use packaging.** According to the reference study, the data represents the best quality currently available as packaging for most products has not been quantified before.

Further and detailed information on the consumption quantification of the selected products is available at Table 2 (sources) and Annex 1 of the study.

The data below has been colour coded according to their quality, green data being considered of good quality and red of mediocre quality.[7]

Beverage packaging:[8]

- Soda drinks:

It is estimated that around **1,056.4 ktons[9] of single-use packaging** (weight) for soda drinks were consumed in 2019 in the EU28, precisely:

  - Single-use glass bottles: 345.6 ktons (bottles < 1L: 291.3 ktons/ ≥ 1L: 50.8 ktons, metal caps: 3.5 kton)
  - Single-use aluminium cans: 149.1 ktons
  - Single-use PET bottles: 561.7 ktons (bottles < 1L: 150.2 ktons/ ≥ 1L: 367.4 ktons, caps: 44.1 kton)

- Sparkling water:

It is estimated that around **831.3 ktons of single-use packaging** (weight) for sparkling water were consumed in 2019 in the EU28, precisely:

  - Single-use glass bottles: 188.3 ktons (bottles < 1L: 154.7 ktons/ ≥ 1L: 32.4 ktons, metal caps: 1.2 kton)
  - Single-use aluminium cans: 3.2 ktons
  - Single-use PET bottles: 639.8 ktons (bottles < 1L: 251.8 ktons/ ≥ 1L: 352.5 ktons, caps: 35.5 kton)

- Still water:

It is estimated that around **779.2 ktons of single-use packaging** (weight) for still water were consumed in 2019 in the EU28, precisely:

  - Single-use glass bottles: 131.3 ktons (bottles < 1L: 92.2 ktons/ ≥ 1L: 36.8 ktons, metal caps: 2.3 kton)

[7] In the reference study the data was classified as good, reasonable, mediocre; according to the sources of the obtained data for product consumption and product packaging. Since some data for the product consumption and packaging were mixed (included good/reasonable/mediocre data), in this report, we've classified the data in two: good (only the product categories under which both product consumption and packaging were classified as good) and mediocre (for the product categories under which the data was mixed, reasonable and mediocre). According to the reference study, the data represents the best quality currently available as packaging for most products has not been quantified before. Detailed information on the classification is available in the study (p.15).

[8] The packaging consumption quantification for the straws and other packaging accessories are not included in this report. Detailed information on this is available in the Annex of the study.

[9] A kiloton or metric ton (kton) is the standard indicator base unit for mass is the kilogram. 1 kton is equal to 1,000,000 (1 million) kilograms.

- Single-use PET bottles: 646.2 ktons (bottles < 1L: 150.4 ktons/ ≥ 1L: 462.4 ktons, caps: 33.4 ktons)
- Single-use cardboard boxes: 1.7 kton

- Fruit juices, nectars and (fruit) flavoured still drinks:
  It is estimated that around **597.3 ktons of single-use packaging** (weight) for fruit juices, nectars and (fruit) flavoured still drinks were consumed in 2019 in the EU28, precisely:
  - Single-use glass bottles: 276.4 ktons (bottles < 1L: 212.1 ktons/ ≥ 1L: 57.2 ktons, metal caps: 7.11 ktons)
  - Single-use PET bottles: 125.7 ktons (bottles < 1L: 41 ktons/ ≥ 1L: 78.2 ktons, caps: 6.48 ktons)
  - Single-use HDPE bottles: 2.2 ktons (bottles < 1L: 0.9 ktons/ ≥ 1L: 1.2 kton, caps: 0.08 ktons)
  - Single-use cardboard boxes: 186.3 ktons (bottles < 1L: 39.3 ktons/ ≥ 1L: 128.6 ktons, caps: 12.6 ktons, straws: 5.8 ktons)
  - Single-use aluminium cans: 6.1 ktons
  - Single-use aluminium foil pouch: 0.6 ktons

- Beer:
  It is estimated that around **3,465.1 ktons of single-use packaging** (weight) for beer were consumed in 2019 in the EU28, precisely:
  - Single-use glass bottles: 3,117.99 ktons (bottles < 1L: 2,890.47 ktons/ ≥ 1L: 200.82 ktons, metal caps: 26.7 ktons)
  - Single-use aluminium cans: 258.6 ktons (large cans: 0.51 ktons/ small cans: 258.1 ktons)
  - Single-use PET bottles: 88.5 ktons (bottles < 1L: 24.81 ktons/ ≥ 1L: 56.77 ktons, caps: 6.9 kton)

- Wine (in single-use glass bottles):
  In the EU28 around 15 billion litres of wine were consumed in 2019, whose packaging number accounted for nearly **21.5 billion units of single-use glass bottles** (0.75L) and weight estimation accounted for **7,651.5 ktons of single-use glass** packaging material.

- Milk:

  The shares of milk sold in cardboard milk-boxes or plastic jugs are unknown. So therefore the total packaging weight has been quantified as if all milk would be for 100% in either the one or the other.

  - If 100% would be in 2 litre single-use plastic jugs: In the EU28 around 16 billion units of milk jugs would have been consumed in 2019, whose weight volume accounts for about 32.2 billion litres of milk consumption, being 805.9 ktons of PET packaging material.

  - If 100% would be in 1 litre single-use cardboard boxes: In the EU28 around 32.3 billion litres of milk would have been consumed in 2019, whose weight volume accounts for 1,018.6 ktons of cardboard boxes, being 764 ktons of cardboard packaging material, 40.7 ktons of aluminium and 213.9 ktons of HDPE.

e-Commerce packaging:

- Postal services:

  It is estimated that around **59 billion units of single-use packaging** for postal services were used in 2019 in the EU28, which corresponds to **2,848.2 ktons of packaging**, precisely:

  - Letters and promotionals sent in single-use paper envelopes: In the EU28 around 39 billion letters were sent in 2019, whose packaging weight estimation accounted for 283.5 ktons of packaging carton material.

  - Single-use plastic covers for periodicals: In the EU28 around 10.8 billion of plastic covers for periodicals were consumed in 2019, being 44.8 ktons of HDPE plastic packaging material.

  - Single-use cardboard shipping boxes: In the EU28 around 7.1 billion of cardboard boxes for e-Commerce were consumed in 2019, being 2,495.4 ktons of corrugated board packaging material.

  - Single-use plastic shipping bags: In the EU28 around 1.85 billion of plastic shipping bags were consumed in 2019, being 24.5 ktons of LDPE packaging material.

Take-away packaging:

- Take-away warm drinks (single-use) cups:

It is estimated that around **17.1 billion units of single-use packaging** for take-away warm drinks were used in 2019 in the EU28, which corresponds to **169,7 ktons of packaging,** precisely:

- Single-use polystyrene (PS) cups: In the EU28 around 6,970 million PS cups were consumed in 2019, whose weight estimation accounts for 31,9 ktons of PS packaging.
- Single-use paper cups: In the EU28 around 10,149 million paper cups were consumed in 2019, whose weight estimation accounts for 137,8 ktons of paper packaging.

- Take-away & delivery (single-use) packaging meals:
  - **For pizza in cardboard boxes:** It is estimated that around **1.4 billion units of single-use packaging for take-away pizza** were consumed in 2019 in the EU28, which corresponds to **186.5 ktons of packaging.**
  - **Other than pizza**: A wide variety of meal containers is used for packing take-away and delivery meals. The study provides the weight and material composition of three often used meal containers: PolyPropylene (PP), paper (core board), and aluminium. Since their market shares are unknown, their weights were multiplied with the total numbers of take-away and delivery meal orders other than pizza, as if 100% was packed in one or the other.
  - It is estimated that around **16.5 billion units of single-use packaging for take-away & delivery meals** (other than pizza) were used in 2019 in the EU28, which corresponds to:
    - If 100% would be in Polypropylene (PP): 519.8 ktons.
    - If 100% would be in Paper: 430.9 ktons.
    - If 100% would be in Aluminium: 125.4 ktons.

Retail packaging consumption (other than beverage and take-away):

- Baby food in single-use pouches:

The shares of baby food sold in pouches or jars are unknown. So therefore the total packaging weight has been quantified as if all baby food would be for 100% in either the one or the other.

- If 100% would be in single-use plastic pouches: In the EU28 around 1.3 billion units of baby food in plastic pouches (90g) would have been consumed in 2019, whose weight volume accounts for 112.9 ktons, including 8.7 ktons of plastic (PP) material.
- If 100% would be in single-use glass jars: In the EU28 around 564.4 millions units of baby food in glass jars (200g) would have been consumed in 2019, whose weight volume accounts for 112.9 ktons, including 70 ktons of single-use glass packaging material and 3.5 ktons of single-use metal (iron) lid.

- Cleaning agents in single-use plastic bottles:

No data about the purchased number of cleaning agents was found in publicly available sources. Therefore an 'educated guess' of the total Belgian consumption data from a producer of surface cleaning agents was used and extrapolated to the other covered countries and the EU28.

A total of near 2.7 billion litres of cleaning agents in plastic bottles would have been consumed in the EU28 in 2019, which in terms of packaging weight represents 131.5 ktons of PET bottles and 54.8 ktons of HDPE bottles.

- Conserved veggies:

Data on the consumption of conserved veggies was found available only for metal cans in Germany and France. The average consumption per capita of these countries has then been extrapolated to the other covered countries and the EU28.

- In single-use metal cans: Some cans are (partly) made of aluminium, but the majority is made of steel. They are also available in different sizes with unknown market shares. Therefore, calculations have been done with a medium size can of 400 gram content and 55% drained weight of conserved vegetables (based on canned green beans). In the EU28 around 12.8 billion of metal cans were consumed in 2019, whose packaging weight estimation accounted for 2,826.3 ktons, including 668 ktons of steel packaging.
- In single-use glass jars: Data for the total consumption of conserved vegetables in glass jars could not be found. To make a rough estimation the same volume of veggies in glass jars is calculated as an estimation: the total number of jarred veggies consumed in the EU28 in 2019 would be 15.1 billion units of 340g jars, whose weight estimation would be 2,826.3 ktons, including 2,584.5 ktons of single-use glass jars and 166.3 ktons for the iron lids.

- Hair care products in single-use plastic bottles:

  The data consumption of hair care products, the number of bottles needed to pack them, and the materials they are made of were extrapolated from the Netherlands to the other covered countries and the EU28.

  In the EU28 around 5 billion bottles of hair care products were consumed in 2019, which accounts for 1.5 billion litres consumed. As regards packaging weight, it represents 84.1 ktons of HDPE bottles and 81.4 of PET bottles each.

- Yoghurt:

  The data on the consumption of dairy products from the Netherlands were used to calculate the total yoghurt consumption in the covered countries and the EU28. The shares of yoghurt sold in cardboard milk-boxes or plastic containers are unknown. The total packaging weight has been quantified as if all yoghurt would be for 100% in either the one or the other.

  - If 100% would be in 1 litre single-use cardboard boxes: In the EU28 around 11.7 billion units of yoghurt in cardboard boxes would have been consumed in 2019, whose weight volume accounts for 371.1 ktons, being 278.3 ktons of cardboard material, 77.9 ktons of HDPE plastic lining and 14.8 ktons of aluminium lining.

  - If 100% would be in single-use plastic containers: In the EU28 around 94 billion units of yoghurt in plastic containers would have been consumed in 2019, whose weight volume accounts for 411.3 ktons of PP plastic, 250.6 ktons of coreboard overwrap, and 23.7 ktons of aluminium.

- Olive oil in single-use plastic bottles:

  In the EU28 around 2 billion plastic bottles were consumed for olive oil in 2019, whose PET packaging weight corresponds to 95.5 ktons.

- Pasta & rice - if 100% would be in single-use plastic bags:

  Both pasta and rice are available in many volumes in either cardboard boxes or plastic bags with unknown market shares. For this quantification, the study assumed that 100% of pasta and rice would be available in single-use plastic bags only.

  - Pasta: In the EU28 around 4,593.2 ktons of pasta were consumed in 2019, whose PP plastic packaging weight corresponds to 13.8 ktons.

- Rice: In the EU28 around 2,344.8 ktons of rice were consumed in 2019, whose PP plastic packaging weight corresponds to 18.1 ktons.

- Table grapes in single-use plastic clamshells:

  In the EU28 nearly 4.9 billion units of single-use plastic clamshells were consumed for table grapes in 2019, whose PET packaging weight corresponds to 97.9 ktons.

- Textile softeners in single-use plastic bottles:

  No data about the consumption of textile softeners was found in publicly available sources. Therefore an 'educated guess' of the total Belgium consumption from a producer of surface cleaning agents was used and extrapolated to the other covered countries and the EU28.

  On this basis, in the EU28, around 667 million litres of textile softeners were consumed in 2019, whose packaging weight corresponds to 32.9 ktons of PET bottles and 13.7 ktons of HDPE bottles.

From the data analysis above it is possible to identify that **the two product categories with the highest consumption rate in terms of packaging weight** (from the 20 selected product categories) **are the beverage sector** with total of 14,380.80 ktons of single-use packaging **and e-Commerce** with the total of 2, 848.2 ktons of single-use packaging consumed in 2019 in the EU28.

3.1.2 - Quantifying packaging materials (what they are made of)

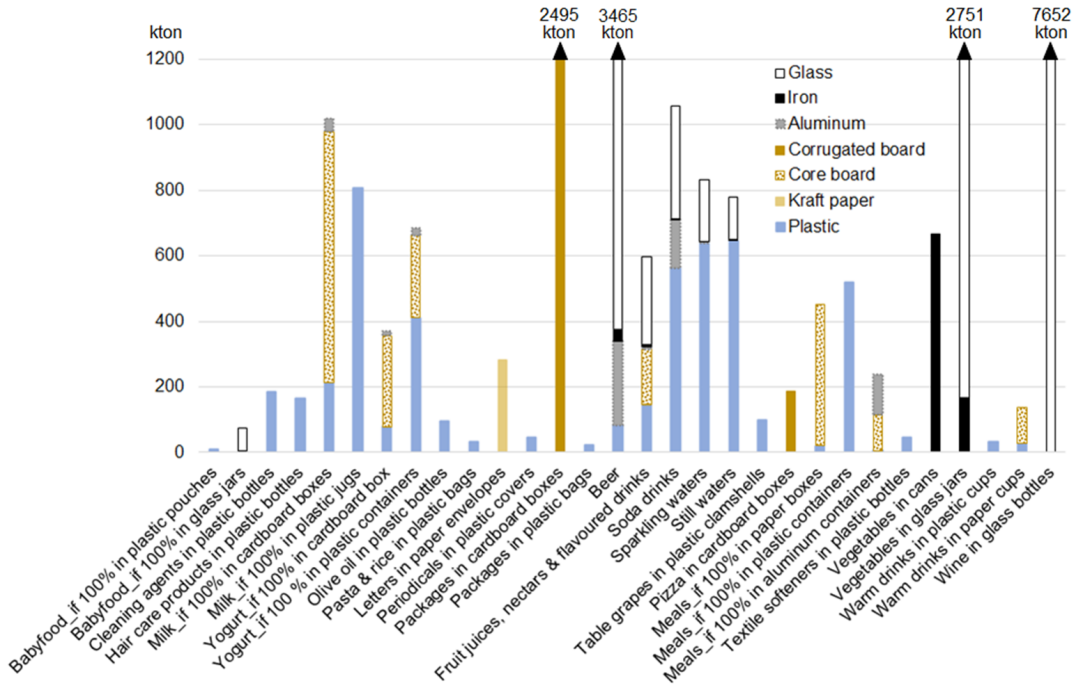
The quantified consumption described above was the basis for quantifying the weight of their disposable packaging and the materials they are made of. To this purpose, the typical or most used packaging types for the selected 20 products, and their material composition and weight have been identified. The type of packaging (e.g. bottles or bags) and their material composition have partly been derived from publicly available sources, and partly been based on self acquired and weighed packaging.

For some products, which are available in different brands but nearly similar packaging, multiple self acquired packaging have been weighted.

Remarkably this showed **a large variation in the packaging weight** for e.g. clamshells of grapes (varying from 16 to 22 grams) and for plastic covers for sending magazines by post (varying from less to 200 to over 600 grams). **This large variation indicates an evenly large improvement potential for a given packaging as the lower limit indicates a so-called 'best available technology' for reducing material use.**

Figure 3 gives an overview of the quantified weights of the packaging and their constituting materials for the selected products. The weights are accumulated over the covered countries and the EU28.

Figure 3: Overview of the weights of the packaging and their constituting materials for the selected products accumulated over the covered countries and EU28.



In 2019, the total consumption by material type (in kton) for the beverage sector in the EU28 is:

BEVERAGE PACKAGING BY MATERIAL (without milk)	TOTAL WEIGHT (in kton)
Single-use glass bottles	11,711.09
Single-use plastic bottles (PET+HDPE)	2,064.10
Single-use aluminium cans	417.00
Single-use cardboard	182.20

In 2019, the total consumption by material type (in kton) combined for the beverage (excl. milk), e-Commerce & take-away warm drinks sectors in the EU28 is:

BEVERAGE (without milk), e-COMMERCE & TAKE-AWAY DRINKS	
BY MATERIAL	TOTAL WEIGHT (in kton)
Single-use glass	11,711.09
Single-use paper	2,993.00
Single-use plastic	2,271.20
Single-use aluminium	417.00

Products with glass packaging represent by far the largest weights. A high weight is also visible for cardboard (corrugated board) shipping boxes for packages. Although plastic is the material most used for packaging, their weight is not large due to its lighter composition.

It is important to highlight that **the material weights are indicators for the resources needed to produce these materials, and not of the environmental impacts of resource extraction, production, waste management and end-of-life stage of the packaging.** The environmental impacts of packaging materials are assessed in the next section (3.1.3).

3.1.3 - Quantifying the environmental impacts

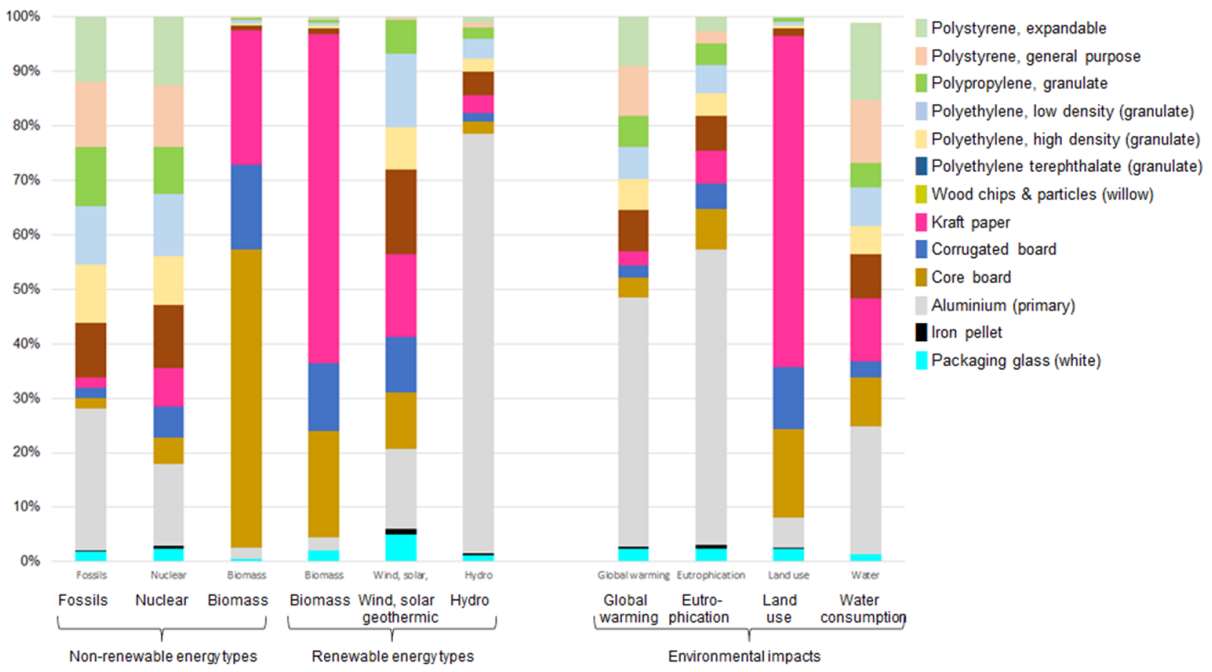
The weight of the above-mentioned packaging materials have been multiplied with conversion factors to calculate the environmental impacts of packaging, which includes renewable and non-renewable energy carriers, global warming, eutrophication, land use and water consumption.

Since all conversion factors are expressed per kg of packaging material produced, **they directly show how different packaging materials compare for their per kilogram use of energy carriers, global warming, eutrophication, land use and water consumption.**

As from the table below, it is possible to see some packaging materials contribute more to the selected environmental pressures than other ones. However, it is important to reiterate that these impacts are calculated per kg of material (and not on the amount of packaging that is necessary to package a given product). For instance, 1 kg of glass is able to package one 1,5 litres, whereas 1 kg of plastic is able to package between 70 and 100 litres. Therefore, although aluminium, core board, and kraft paper stand out in Figure 4, the environmental pressures related to single-use glass are highlighted in the analyses performed in Figures 5-9.

Figure 4: Comparison of packaging materials based on their contribution, from resource extraction up to and including production of the packaging materials, to types of energy use (Cumulative Energy Demand V1.11), to eutrophication (CML-IA baseline V3.06 / EU25) and to global warming, land use and water consumption (ReCiPe 2016 Midpoint (H) V1.04 / World (2010) H)

(note that the colours for the materials in Figure 4 are different from those in Figure 3)



As per the graphics below, the pattern of the environmental pressure contributions roughly follow the pattern of their energy use. That is because energy use, or rather the emissions from the production of the energy used, are usually largely responsible for these environmental pressures. In other words, **there is often a strong correlation between the energy use for producing materials and the other environmental pressures for producing those materials** (Huijbregts et al., 2005).

The pattern of the energy use in Figure 5 and up to Figure 9 follows, for most products, to some extent the pattern of the summed packaging material weight in Figure 3 (in the section above). That is because the difference between the summed packaging materials across products is larger than the difference between the energy use for producing their packaging materials.

At the same time, the differences between the energy use for producing packaging materials moderate the strong differences in packaging weight across the products in Figure 3. For example, the weight of the glass bottles for wine is twice the weight of packaging materials for beer, but the energy use for producing their packaging materials is about the same between both products due to the relative low energy use for producing glass (16 MJ/kg) compared to that for aluminium (211 MJ/kg).

As we can see from the graphics below, whose data was extracted from the study, **the packaging categories that have the highest environmental impacts overall are: beverage packaging (beer, wine, soda and water) and e-Commerce packaging (cardboard paper).**

More specifically, from the 20 products analysed:

- Global warming (CO_2 emissions from the production phase): Beers, wine and soda drinks, respectively, are the products with the highest carbon footprint.
- Energy use (from non-renewable sources): Wine, beer, soda drinks, water (sparkling and still), respectively, have shown the highest energy consumption.

- Land use: Cardboard boxes and envelopes, as well as wine and milk in cardboard boxes, respectively, have shown the highest impacts in terms of land use.
- Eutrophication: Beer, wine, soda drinks, and cardboard boxes, respectively, have shown to contribute the most to the eutrophication process.

So, **the top 5 products as regarding their overall environmental impact** are:

1. Beers
2. Wine
3. Soda drinks
4. Water (sparkling and still)
5. Cardboard packages

Figure 5: The use of renewable and non-renewable energy carriers for the production of the materials from which the packaging for the selected products are produced.

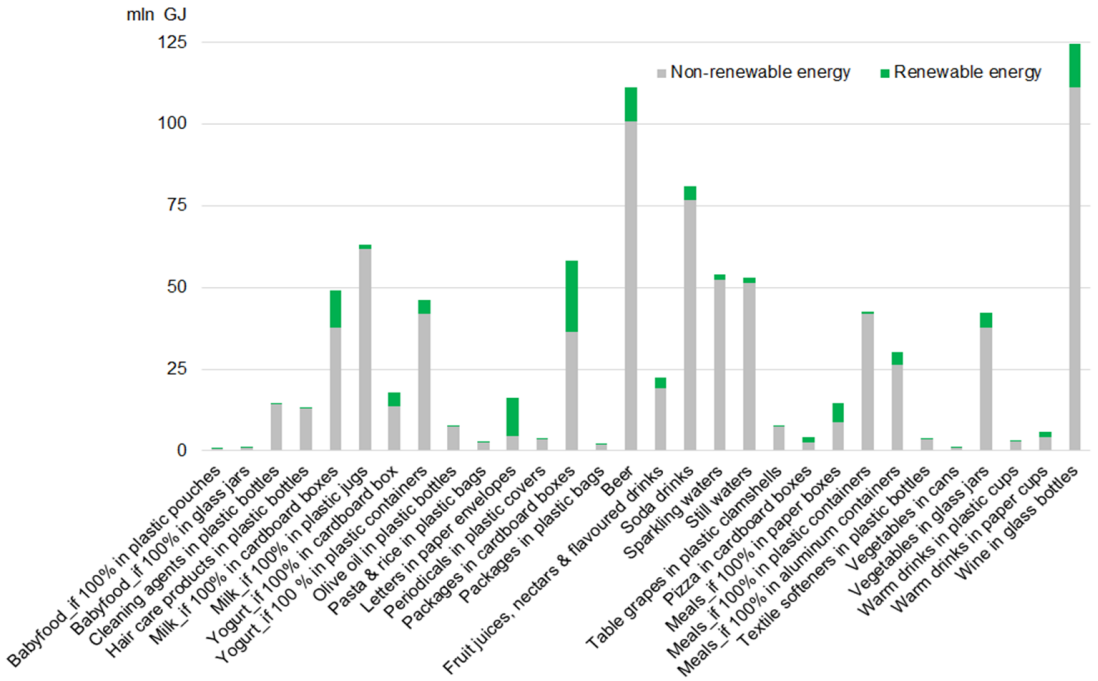


Figure 6: The contribution to global warming by the production of the materials from which the packaging for the selected products are produced

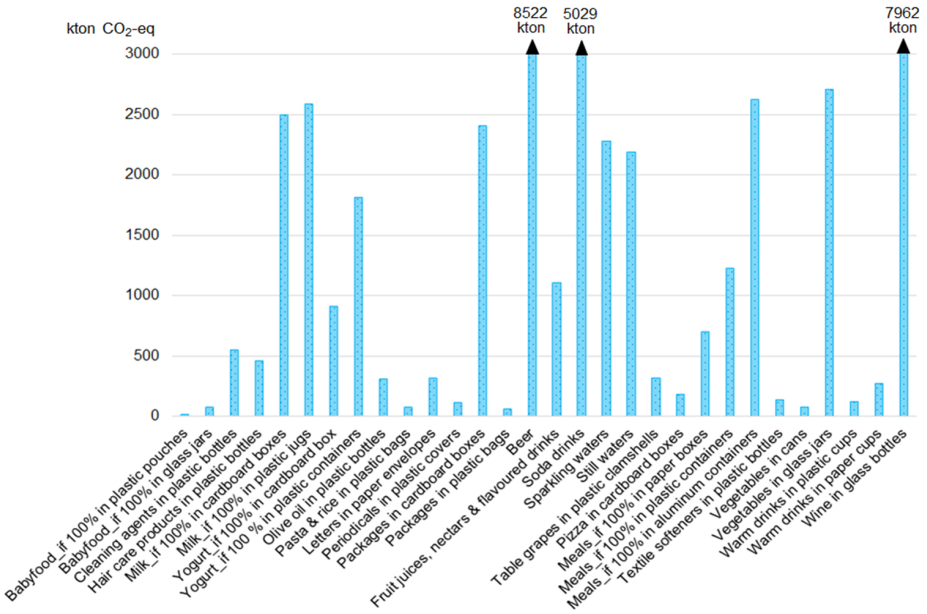


Figure 7: The contribution to eutrophication by the production of the materials from which the packaging for the selected products are produced

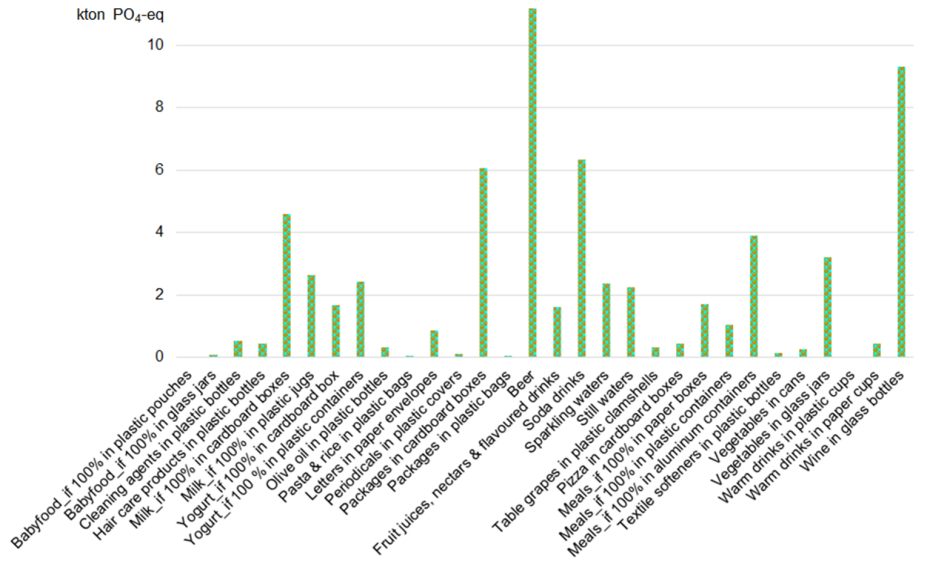


Figure 8: Land use for the production of the materials from which the packaging for the selected products are produced

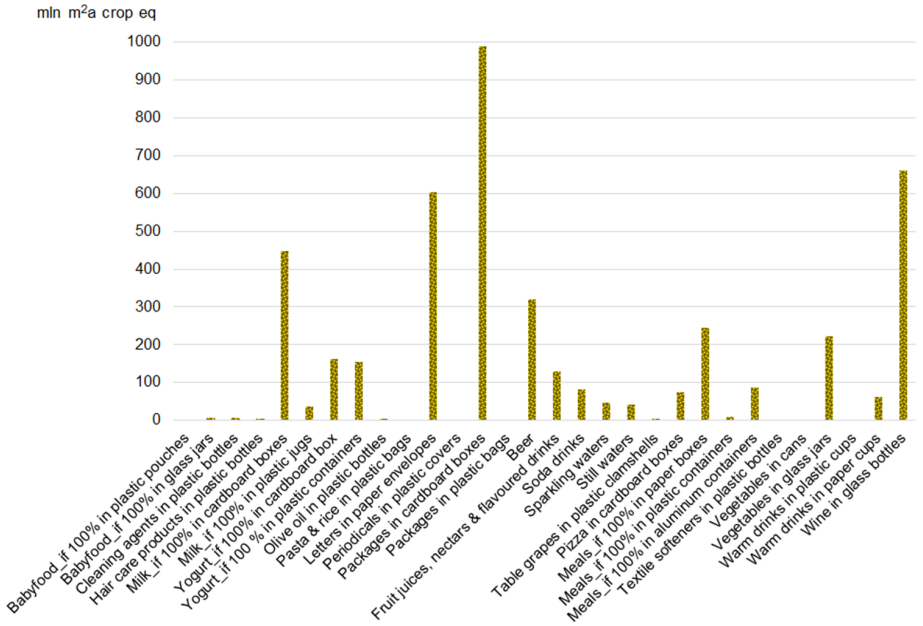
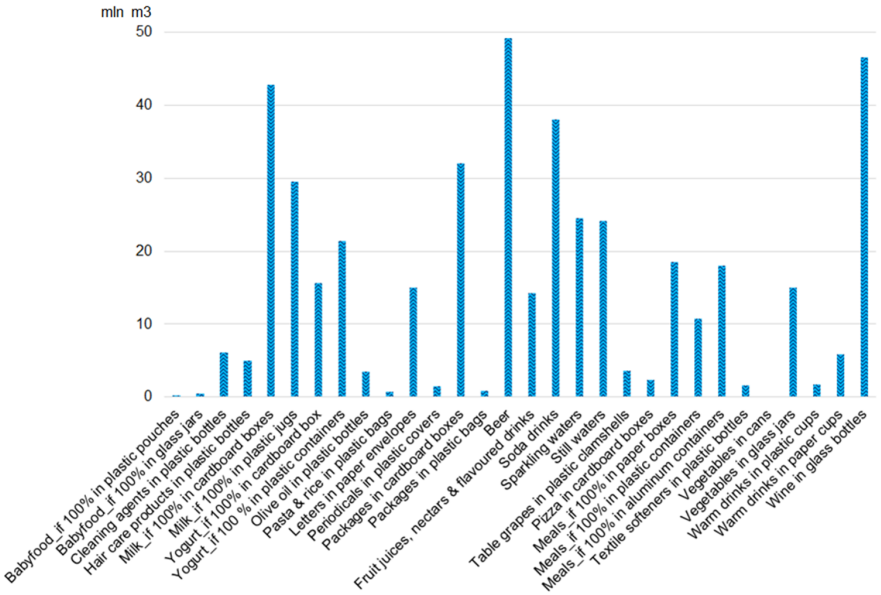


Figure 9: Water use for the production of the materials from which the packaging for the selected products are produced



3.1.4 - Identifying recycling and littering rates of packaging

Most statistics available on the recyclability of packaging are inaccurate and differ greatly between countries according to their recycling capacity and calculation method. The recycling rates commonly used in Europe are provided by Eurostat (2022d). However, it does provide a EU28 rate, and the country rates provided in EuroStat are a result of each country's own calculation method (e.g: by weight of the

separated collected packaging - that is, without excluding losses of sorting and cleaning). According to Eurostat (2022d), the average recycling rates of for the materials below in the Netherlands, Belgium, Germany, France and Spain are the following:

- Glass: 89%
- Metal: 85.8%
- Paper and cardboard: 84.2%
- Wood: 55.3%
- Plastic: 45.3%

However, just because the packaging was separated-collected for recycling, it does not mean it will be recycled and turned into new packaging. For instance, according to a report on the Life Cycle Assessment of food packaging,[10] the format, flexibility or multilayer food packaging products implies the existence of waste management infrastructures equipped to deal with these products, which is unlikely to be the case in practice.

The above mentioned report provides an example of the recycling of aseptic cartons, which contains multilayers of plastic and aluminium. Within the study analysed (Meneses, Pasqualino and Castells (2012)), they've assumed 100% recycling of aseptic cartons, although the separation of the different layers was, and is still, clearly not a widespread practice. Similarly, the Quantis (2015) study on coffee assumed capsule packaging recycling to be at average North American residential rates, although there was no indication that the selected packaging is actually recyclable. According to the report, coffee capsules are acknowledged to be particularly challenging for recyclers due to their small format, multi-material composition, and the fact that the coffee grounds within are not recyclable, a necessity for a separate waste stream (France 24, 2017).

A material's recyclability depends on its ability to reacquire the properties it had in its virgin/original state after being recycled. Therefore, the greater the mix of materials within the packaging, the lower the overall quality the recycled material becomes. Currently, most single-use packaging placed in the EU market is made out of complex materials; involving different materials or polymers, layers, and there are many different types that should not be recycled together. Moreover, food leftovers in single-use plastic packaging can also undermine its recyclability.

Furthermore, current recycling statistics do not take into account the inappropriate disposal and littering. **These statistics tend to assume that 100% collection of waste streams go to landfill, incineration or recycling. This is at odds with reality, where a substantial fraction of packaging ends up in the terrestrial and marine environment or are exported to third countries.** In fact, there is a big

[10] Rethink Plastic Alliance, Zero Waste Europe, Friends of the Earth Europe, *Justifying Plastic Pollution: The shortcomings of Life Cycle Assessments in Food Packaging Policy.* Available at: zerowasteeurope.eu/wp-content/uploads/2019/11/zero_waste_europe_report_justifying-plastic-pollution_the-shortcomings-of-lcas-in-food-packaging-policy_FoEE.pdf

gap between plastic put in the market and plastic collected and it is estimated that one third of plastic packaging destined for recycling is shipped outside of EU territory.[11]

3.2. Conclusion of the Quantitative Assessment (Part 1)

From part 1 of the iterative collaborative research and quantification of the selected 20 packaging products in terms of their consumption, their material and weight, the related environmental impacts, and rates of waste recycling and littering, it is possible to conclude that:

- **Packaging Consumption**:[12]
    - In 2019, a total of **14,380.8 kton of single-use beverage packaging materials (glass, aluminium, carton and PET) were consumed in the EU28** for the beverage sector (soda, beer, water, juice and wine sector - excluding milk) - these being:
        - Wine: 7,651.5 ktons
        - Beer: 3,465.1 ktons
        - Soda: 1,056.4 ktons
        - Still water: 779.3 ktons
        - Sparkling water: 831.3 ktons
        - Juices: 597.3 ktons
    - In 2019, a total of **58,790 million units of packaging, including cardboard, paper and plastic, were used in the postal services sector in the EU28**, which accounts for approximately **2,848.2 ktons of packaging.**
    - In 2019, a total of **17,119 million units of take-away packaging for warm drinks were consumed in the EU28**, including polystyrene and paper cups, which accounts for approximately **169.7 ktons** of packaging.
    - In 2019, a total of **16,936.4 million units of packaging for take-away meals (including pizza)** were consumed in 2019 in the EU28, which corresponds to **1,262.6 ktons** of packaging.
- **Packaging material and weight**: Although plastic is the material most used for packaging, their weight is not large due to its lighter composition. Products with glass packaging represent by far the largest weights, followed by cardboard (corrugated board) packaging, plastic and aluminium, respectively. **The material weights are indicators for the resources needed to**

[11] European Court of Auditors, October 2020. Review No 04/2020: EU action to tackle the issue of plastic waste. Available at: www.eca.europa.eu/Lists/ECADocuments/RW20_04/RW_Plastic_waste_EN.pdf
[12] Please note that products of the retail sector were not included since they are mostly of mediocre quality.

produce these materials, but not of the environmental impacts related to the resource extraction, production, and end-of-life of packaging.

- **Packaging Environmental Impact:** The packaging categories that have the **highest environmental impacts** (energy, land and water use, eutrophication and CO_2 emissions) are: the **beverage packaging** (soda, beer, water, juice and wine sector) and **cardboard paper (corrugated) packaging for shipping boxes.**
- **Packaging recycling and littering rates**: Most statistics available on the recyclability of packaging are inaccurate and differ greatly between countries according to their recycling capacity and calculation method. Although EuroStat presents higher recycling rates for some packaging materials types, they do not reflect the reality of what is being actually recycled, since:
    - The calculation method for recycling differ country by country;
    - The most common calculation method is by weight of the separated collected packaging - that is, without excluding losses of sorting and cleaning which are proven to be high;
    - A separate collection for recycling does not mean that the packaging is going to be effectively recycled - in fact, one third of plastic packaging destined for recycling is shipped outside of EU territory to developing countries without recycling capacity;
    - Most single-use packaging placed in the EU market is made out of complex materials (e.g. layers, different materials and polymers); which implies the existence of waste management infrastructures equipped to deal with these products (and at reasonable distances), which is not the case in practice;
    - Current recycling statistics do not take into account the inappropriate disposal and littering.

4. The final 5 product categories most susceptible to transition to reusable packaging

4.1 - The Qualitative assessment (Part 2)

The first part of the iterative collaborative research, as described in part 3.1 above, has selected and quantified 20 products in terms of: (i) their consumption; (ii) their packaging weight and materials; (iii) their related environmental pressures; and (iv) their waste recycling and littering rates.

From the results of this first part (quantification); together with the same criteria as used for selecting the 20 products in the first part (point 3.1 above), 7 products were identified to be qualitatively assessed in terms of their possibilities for shifting from disposable to reusable packaging (or packaging-free). The approach for this second part took the following steps:

- Identifying 7 products qualifying as potential intervention points in terms of their possibilities for shifting from disposable to reusable packaging (or packaging-free).
- Qualitative assessing prospects to shift from disposable to reusable (or none) packaging.
- Identification of the final 5 product categories most susceptible to transition to reusable packaging.

The 5 final priority products selected were: Soda-drinks & (sparkling) water; Wine; e-Commerce (cardboard packaging); Take-away & delivery drinks; and Take-away & delivery meals.

Although the quantitative results for beer in terms of their packaging consumption and environmental impacts were very significant, the reason for not prioritising beer in the qualitative assessment is because beers already have well-established and relatively well-functioning reuse packaging systems in Europe. In contrast, refilling systems for wine are not yet known although they have a great potential.

On the other hand, although take-away packaging for delivery of meals and drinks were not among the packaging categories with the highest environmental impact from the results of the study, there are other various factors that make these products a key intervention point to the transition towards reuse packaging, such as its large and growing consumption, its iconic nature, its high litterability and the fact that alternatives are already available in the market at small scale.

These 5 final products will be going through a further development stage with the participant stakeholders within their respective countries within the RSVP project, whose reference study aims to support/provide guidance.

More detail on the criteria of the qualitative assessment can be found in the reference study.

For the purposes of this report, the following criteria were considered as most relevant for each of the 5 priority products, and their analysis are provided below:

- Importance of the product/packaging;
- Availability and level of implementation;
- Feasibility and technology needed;
- Readiness to shift to reusables.

A summary of the qualitative analysis of the selected 5 product categories are described below.

- **Soda-drinks & (sparkling) water:**
    - Importance of the product/packaging: The market size of the sector is enormous. In 2019, among the EU27, over 50 billion containers of water and nearly 40 billion containers of soda drinks were sold. In both categories, much of what could be replaced by refillables is PET bottles.[13] Another important aspect of this sector is the fact that, a decade ago, it had a great refillable share, although it has dropped dramatically with the arrival of single-use packaging: from 2009 to 2019, refillable market share in the water market fell from 27% to 22%. Over the same time, in the carbonates category, it fell from 26% to 17%.[14]
    - Availability and level of implementation: Reusable options for both types of beverages can already be found in almost every country in the EU 27. Refillable glass bottles are the most common but refillable PET is also used. 12 of the 27 countries show a refillable market share greater than 10% for soda drinks. 10 countries have at least 10% market share in the still waters category. Taking the example of Germany, where large-scale systems are in place, over 6 billion refillable glass bottles and over 3 billion refillable PET are sold yearly just in the water category. In carbonates, Germans purchase over 2 billion refillable PET and over 1 billion refillable glass units per year.[15]
    - Feasibility and technology needed: Although these systems can operate with a low level of technology, specifically manual labour, transport, and washing machines, more

[13] GlobalData, www.globaldata.com
[14] Reloop dashboard (unpublished)
[15] Reloop dashboard (unpublished) and GlobalData, www.globaldata.com

recent technology such as RVMs (Reverse Vending Machines) have already been developed and are undergoing constant improvement, which makes the process even more convenient and user-friendly for the consumer.

- Readiness to shift to reusables: The beverage sector –beer, water and sodas mainly- is one of the most developed when it comes to refillable packaging. As stated above reusable options for both types of beverages can already be found in almost every country in the EU27. Although the refillable share of the market has dropped significantly over the last decade, the beverage sector already has the 'know-how', as well as the whole infrastructure of collection, washing, refill and delivery, which should operate within DRS systems. Many refillable solutions for the sector already exist in many Member States, such as Germany[16] and France.[17] Also, big companies such as Coca-Cola have also announced a refillable target to be achieved by 2030.[18]

- **Take-away & delivery meals and drinks**
  - Importance of the product/packaging: Take-away food and beverages are a rapidly growing sector. In the EU, annual use of take-away containers was estimated to exceed 19 billion and 33 billion units for food and beverage containers respectively in 2019[19] and it is highly likely that the pandemic only increased these figures. In addition, littering is one of the major issues with take-away packaging for food and drinks. Also, both food and beverages containers feature on the top ten list of single-use plastics most commonly found on European beaches.[20] Consequently, the costs related to collection, street cleaning and disposal of this category are significant.

Furthermore, a recent report[21] has done a comparative analysis between a reusable take-away box and cup, compared to typical single-use ones. The reuse systems modelled were reusable polypropylene boxes and cups managed by a company serving multiple restaurants, this included 100 cycles for the box and 132 cycles for the cup, as well as a 10% loss rate. The LCA analysis showed that the reusable containers and cups have 13 times and 4 times lower environmental footprint compared to the single-use alternative.

They are also the packaging items most sold in the HORECA sector, with a high waste generation and mainly not recyclable. A range of mixed and complex materials are used for single-use take-away packaging including PET, PP, aluminium, paper lids, waxed papers, and bio based plastics, and their

[16] www.fritz-kola.com/en
[17] commande.jeanbouteille.fr
[18] www.coca-colacompany.com/news/coca-cola-announces-industry-leading-target-for-reusable-packaging
[19] Nabu, *Disposable tableware and take-away packaging*. Available at: www.nabu.de/imperia/md/content/nabude/abfallpolitik/2018_nabu_disposables_summary.pdf
[20] Addamo, A., Laroche, P. and Hanke, G., *Top Marine Beach Litter Items in Europe*, EUR 29249 EN, Publications Office of the European Union, Luxembourg, *publications.jrc.ec.europa.eu/repository/handle/JRC108181*
[21] Rethink Plastic Alliance: *Realising Reuse.* Available at: rethinkplasticalliance.eu/wp-content/uploads/2021/07/Realising-Reuse-Final-report-July-2021.pdf

contact with food makes the recycling process even harder. Therefore reuse systems are a cornerstone.[22]

- Availability and level of implementation: Reusable packaging for take-away food is largely existing and growing within the EU, yet under different business formats (e.g. packaging designs and materials, ownership, logistics and incentives to return).[23] Reusable systems for the Horeca sector are already implemented in various regions across the EU.
- Feasibility and technology needed: Logistics has been identified as the most complex element to develop effectively. This includes, for instance, the use of reverse vending machines/bring back points and deposit schemes. Asset tracking technology - such as RFID tags inside containers and/or QR or barcodes - is beneficial to gather data on usage and help control quality and lifespan. These technologies are largely piloted across the EU. Also, high-quality washing facilities and well-designed DRS, transport and storage systems are already implemented in some sectors, which are proven to meet health requirements.[24]
- Readiness to shift to reusables: Many businesses are already implemented and in operation across various Member States, effectively establishing reuse systems for take-away beverages and meals, such as ReCircle, ReCup/Rebowl, BillyCup, ClubZero, SwapBox, Bûmerang, Vytal, TakeCup! and many others. This could lead the way for similar systems attached to the HORECA sector as well.

- **e-Commerce**
  - Importance of the product/packaging: e-Commerce has been growing in recent years, indications show that the sector grew by 31% from 2019 to 2020. COVID-19 accelerated the adoption of online retail across European countries, tripling the annual e-Commerce growth rate and in line with long-term trends. In 2020, the 10 billion B2C parcel volume was reached.[25]
  - Availability and level of implementation: There are certainly reusable packages available that could replace single-use e- commerce packaging, since there are already several companies providing this service. However, the level of implementation is still lower, since it is competing against single-use packaging.

[22] Circular Economy Portugal & Rethink Plastic Alliance: *Making the business case for packaging reuse system*, Methodology, available at: rethinkplasticalliance.eu/wp-content/uploads/2021/07/Packaging-Reuse-Study_Methodology_finalJuly2021corr.pdf
[23] Circular Economy Portugal & Rethink Plastic Alliance: Making the business case for packaging reuse system, available at: rethinkplasticalliance.eu/wp-content/uploads/2021/07/Packaging-Reuse-Study_Methodology_finalJuly2021corr.pdf
[24] Rethink Plastic Alliance, *Moving away from single-use*. Available at: rethinkplasticalliance.eu/wp-content/uploads/2019/10/2019_10_10_rpa_bffp_sup_guide.pdf
[25] Last Mille Experts, *Out-of-home delivery in Europe 2021 PUDO and parcel lockers*, 2021. [Online]. Available at: shipinroom.upidoag.ch/wp-content/uploads/2021/04/LME_UPIDO_OOH_Europe_2021.pdf

- Feasibility and technology needed: The technology exists. It is a relatively low-tech solution but it is currently not cost competitive.
- Readiness to shift to reusables: There are currently several companies providing this service. InPost, RePack or Opopop are three examples.

- **Wine**
  - Importance of the product/packaging: In the wine industry, single-use glass is heavily used for packaging. According to a recent study[26] on the life cycle assessment (LCA) of different packaging materials, single-use glass has the greatest environmental impacts compared to other packaging materials (i.e. PET, aluminium, and beverage carton).
  - Availability and level of implementation: Returnable wine bottles are currently mainly used in B2B applications, i.e. in the hotel and catering sectors mainly. B2C applications exist across the EU but they are less developed for the moment. In these applications, the 75cl glass bottle is relatively standardised in its size and presents an advantage to larger scale applications.[27]
  - Feasibility and technology needed: The needed technology generally exists and its development/implementation is facilitated by similar existing reuse systems for glass beer bottles and glass water bottles.[28]
  - Readiness to shift to reusables: a few refilling systems for the wine sector have been effectively implemented at regional/national level across the EU. These include mainly wine regions, but not exclusively. Projects implemented on a larger scale include the Region of Styria in Austria, reWINE in Catalonia, Réseau Consigne in France, Varga Winery in Hungary and PALPA in Finland. Most of these projects focus on B2B or a combination of B2B/B2C. Some of the projects mentioned have or are considering introducing a standard bottle with a unique design, making it easy for consumers to recognise.

[26] Reloop Platform and Zero Waste Europe, *Reusable vs Single-Use Packaging - a review of environmental impacts (Executive Summary)*. [Online] Available at: zerowasteeurope.eu/wp-content/uploads/2020/12/zwe_reloop_executive-summary_reusable-vs-single-use-packaging_-a-review-of-environmental-impact_ en.pdf
[27] Emballages et Logistique. www.conseil-emballage.org
[28] ReWine Project, Catalonia, Spain. *Methodological Guide to Implement the Project ReWine in other Regions*. Available at: www.rewine.cat/sites/default/files/paragraphs/link-item/file/209/d.b5.2_methodological_guide_life-rewine_v1.0.pdf

5. Conclusions

This study has managed to put together the evidence available and create a reasonable overview about the packaging market in Europe, analysing the packaging categories with the highest environmental impact as well as those having the most potential to start transitioning to reusable packaging.

For the purpose of this report, taking into account the quantitative and qualitative results of the reference study for the beverage sector, it can be argued that for this sector, as a whole, it is possible to envisage a change towards reusable packaging which would come with significant environmental benefits.

Although the retail sector was not included in the analysis of this report, due to the lack of good quality data on their packaging, it is a very relevant sector to intervene and measures to support the transition towards circular packaging in retail should as well be included. For instance, consumers must have the right to shop their groceries as much as possible in bulk in supermarkets. And this should be foremost for fruits & vegetables, but not limited to it. In fact, by supporting the transition towards reusable packaging for the beverage sector and take-away (for instance through refilling stations), it is already an entry step towards less, and more sustainable packaging in the retail sector. Once the infrastructure needed to kick-off reuse systems is in place, the rest of packaging suitable for refill should equally follow (e.g. cleaning agents, oils, dry food, etc.).

Looking at the quantitative and qualitative results of this study **two conclusions can be drawn:**

- First, from a materials perspective, **the current European legislation is putting a justifiable focus on reducing plastic pollution, yet in environmental terms there are other materials which have even greater environmental impact (even when they are collected and recycled) and they are not targeted by the prevention or reuse agenda.** For many applications in Europe, using reusable packaging would significantly reduce the environmental impact.
- Second, from **a packaging category perspective it can be argued that the sectors of beverage (especially beer, wine, soda drinks, water), take-away food and drinks and e-Commerce have potential to increase their reuse rates in the coming years** and should be seriously considered as targets for legislative action.

Currently there are systems and pilots more or less developed in most of these product categories and many EU member states and local authorities are starting to intervene to provide such legal frameworks and economic incentives.

Nevertheless **it would be much more effective, especially for those European countries lagging behind, if for the upcoming revision of the Packaging and Packaging Waste Directive the EU would include the necessary definitions, targets and incentives necessary to provide legal certainty to the above-identified priority packaging categories to start getting back to reusable packaging.**

Legislation that could be enacted to provide direction, vision and legal certainty for the reintroduction of reusable packaging for beverage, e-Commerce and take away would be:

- **Putting a cap on single-use packaging:**
    - A 50% reduction (by units) on the amount of single-use packaging for the beverage, e-Commerce and take-away food and beverage sector by 2030.
- **Setting reuse targets:**
    - Sector-specific reuse targets or dedicated targets by packaging types are one of the key elements that can help this transition.
- **Economic incentives to support the transition:**
    - EPR schemes should dedicate a minimum of 10% of budget to promote refillables and finance reuse infrastructure
    - Any single-use packaging should pay a minimum fee of 10 cents per unit.
- **Supporting the reuse alternatives:**
    - Refillable alternatives to single-use packaging should be made available by any restaurant, cafe or shop selling food or drinks to consume on the go;
    - Any retailer selling fresh produce, drinks and non-hazardous cleaning products should accept that consumers bring their own container (dully washed packaging)
- **Supporting the implementation of refill/reuse systems:**
    - Deposit-return schemes for refill/reuse: A common denominator of most successful collection systems is that all of them include a deposit return scheme (DRS) for guaranteeing the return of the packaging for reuse. Therefore, Member States should be encouraged to implement DRS beyond beverage packaging and to incorporate reuse/refill within the system where possible.
    - Define essential requirements for pool systems: Well-managed pool systems are a key element for success for reusable packaging and providing guidelines about how they should be set-up and operated would save time and effort going forward.

Further detail on the policy recommendations are available here.