

# From single-use to reuse: A priority for the UN Plastics Treaty

## 从一次性使用到重复使用：联合国塑料条约的优先事项

***Moving from single-use to reuse is essential for achieving the goals of the UN Plastics Treaty. The Treaty has a crucial role to play in bringing reuse to scale, building on existing global momentum.***

*从一次性使用转向重复使用对于实现联合国塑料条约的目标至关重要。条约立足于当前全球发展趋势，对于推广重复使用具有关键作用。*

As part of the Ellen MacArthur Foundation's engagement to support the development of an ambitious and effective international legally binding instrument to end plastic pollution, this briefing highlights:

艾伦·麦克阿瑟基金会支持制定一项目标远大、行之有效的具有法律约束力的终止塑料污染国际文书，并为此编制本简报，要点如下：

- the need to prioritise reuse in the UN Plastics Treaty,
- 阐述了联合国塑料条约需要将“重复使用”列为优先事项的必要性
- initial considerations for policy measures to overcome current barriers to scaling reuse.
- 为了打破当前妨碍重复使用规模化发展壁垒，提出了政策措施的初步意见

This briefing looks at reuse through the lens of plastic packaging, the single biggest plastic application and source of leakage, representing around 40% of total plastic waste. Reuse models can also be widely applied beyond packaging.

本简报从塑料包装的角度出发探讨重复使用问题。包装是塑料最大的应用领域，也是塑料污染的最主要来源，塑料包装废弃物约占全球塑料废弃物总量的40%。除包装领域外，重复使用模式还可广泛应用于其他领域。

### I. Reuse is essential for achieving the goals of the UN Plastics Treaty

#### 1. 重复使用对于实现联合国塑料条约的目标至关重要

##### 1.1 Why prioritise reuse?

##### 1.1 为什么要将重复使用列为优先事项？

Moving from single-use to reuse models presents one of the biggest opportunities to reduce plastic pollution. It is estimated that moving to reuse models can provide over 20% reduction in total annual

plastic leakage to the ocean by 2040.<sup>1</sup> Studies show that the reuse market is a multi-billion dollar economic opportunity,<sup>2</sup> providing benefits to customers, and creating jobs across the value chain.

从一次性使用转向重复使用是减少塑料污染的绝佳机会。据估算，若推行重复使用模式，到 2040 年，每年流入海洋的塑料总量可减少 20% 以上。<sup>1</sup> 研究表明，重复使用可带来数十亿美元的经济效益，<sup>2</sup> 使消费者受益，并为整个价值链创造就业机会。

## 1.2 No single measure will stop plastic pollution

### 1.2 单一措施无法遏制塑料污染

Until now, many efforts to tackle plastic pollution have focused narrowly on improving waste management or clean-ups. Others have focused on bans and plastic reduction. But to significantly reduce plastic pollution in the oceans, an integrated approach is needed including upstream, midstream and downstream solutions. The most comprehensive modelling on scenarios to reduce ocean leakage suggests that no single strategy can sufficiently reduce annual plastic leakage into the oceans by 2040.<sup>3</sup> Reducing plastic pollution in the oceans requires a comprehensive and integrated set of solutions from material redesign, plastic reduction, substitution, and reuse, to recycling and disposal. Reuse is an essential component in this mix.

目前，许多试图解决塑料污染问题的行动都局限于改善废弃物管理或清理废弃物，其余的一些措施仅注重通过法令禁止使用塑料或者减少塑料使用量。但要显著减少海洋塑料污染，必须采取包括上游、中游和下游措施在内的综合性解决方案。最全面的减少海洋塑料污染的情景模型表明，到 2040 年，没有任何一种单一的策略能够显著减少每年流入海洋的塑料总量。<sup>3</sup> 减少海洋塑料污染需要一套涵盖材料重新设计、减塑、替代、重复使用、回收以及废弃物处理等各个方面的全面综合性解决方案。其中，重复使用是解决塑料污染问题的关键所在。

## 1.3 Reuse can help achieve complementary environmental goals

### 1.3 重复使用有助于实现互补性环境目标

When well implemented, reusable packaging can reduce greenhouse gas (GHG) emissions compared to single-use plastic packaging. For example, reuse schemes can decrease life cycle emissions by 65-80% when compared to emissions of single-use plastic products.<sup>4</sup> Recent modelling focusing on Europe suggests that achieving a 20% reusable packaging target in 2027 in three packaging sectors

<sup>1</sup> Pew Charitable Trusts and Systemiq. *Breaking the Plastic Wave* (2020). <https://www.pewtrusts.org/en/research-and-analysis/articles/2020/07/23/breaking-the-plastic-wave-top-findings>

<sup>1</sup> 皮尤慈善信托基金会和 SYSTEMIQ, 《力挽狂澜》 (*Breaking the Plastic Wave*) (2020 年), <https://www.pewtrusts.org/en/research-and-analysis/articles/2020/07/23/breaking-the-plastic-wave-top-findings>

<sup>2</sup> Converting 20% of plastic packaging into reuse models is estimated to be a USD 10 billion business opportunity. Source: Ellen MacArthur Foundation, *The New Plastics Economy: Catalysing action* (2017). [https://ellenmacarthurfoundation.org/the-new-plastics-economy-catalysing-action?utm\\_term=exclude&utm\\_source=exclude](https://ellenmacarthurfoundation.org/the-new-plastics-economy-catalysing-action?utm_term=exclude&utm_source=exclude)

<sup>2</sup> 据估计，将 20% 的塑料包装转化为重复使用模式将创造价值 100 亿美元的商机。来源：艾伦·麦克阿瑟基金会，《新塑料经济——催化行动》 (*The New Plastics Economy: Catalysing action*) (2017 年), [https://ellenmacarthurfoundation.org/the-new-plastics-economy-catalysing-action?utm\\_term=exclude&utm\\_source=exclude](https://ellenmacarthurfoundation.org/the-new-plastics-economy-catalysing-action?utm_term=exclude&utm_source=exclude)

<sup>3</sup> Pew Charitable Trusts and Systemiq. *Breaking the Plastic Wave* (2020). <https://www.pewtrusts.org/en/research-and-analysis/articles/2020/07/23/breaking-the-plastic-wave-top-findings>

<sup>3</sup> 皮尤慈善信托基金会和 SYSTEMIQ, 《力挽狂澜》 (*Breaking the Plastic Wave*) (2020 年), <https://www.pewtrusts.org/en/research-and-analysis/articles/2020/07/23/breaking-the-plastic-wave-top-findings>

<sup>4</sup> Based on the average results of LCAs a reusable HDPE bottle produces 65% less emissions than single-use HDPE, and a reusable glass bottle produces 80% less emissions than single-use glass, 70% less than single-use PET, and 57% less than single-use aluminium. Source: Reloop platform & ZeroWaste Europe. *Reusable Vs Single-use packaging* (2020) [https://zerowasteurope.eu/wp-content/uploads/2020/12/zwe\\_reloop\\_executive-summary\\_reusable-vs-single-use-packaging\\_-\\_a-review-of-environmental-impact\\_en.pdf](https://zerowasteurope.eu/wp-content/uploads/2020/12/zwe_reloop_executive-summary_reusable-vs-single-use-packaging_-_a-review-of-environmental-impact_en.pdf)

<sup>4</sup> 根据生命周期评估平均值结果，可重复使用 HDPE 塑料瓶产生的排放量比一次性 HDPE 塑料瓶低 65%，可重复使用玻璃瓶产生的排放量比一次性玻璃瓶低 80%，比一次性 PET 塑料瓶低 70%，比一次性铝罐低 57%。来源：ReLoop Platform 和欧洲零废弃 (Zero Waste Europe), 《可重复使用包装与一次性包装》 (*Reusable VS Single-use packaging*) (2020 年), [https://zerowasteurope.eu/wp-content/uploads/2020/12/zwe\\_reloop\\_executive-summary\\_reusable-vs-single-use-packaging\\_-\\_a-review-of-environmental-impact\\_en.pdf](https://zerowasteurope.eu/wp-content/uploads/2020/12/zwe_reloop_executive-summary_reusable-vs-single-use-packaging_-_a-review-of-environmental-impact_en.pdf)

(takeaways, e-commerce and household products) could result in multiple environmental benefits such as reduced water consumption (3.5 bn m<sup>3</sup>) and GHG emissions (1.3 Mt CO<sub>2</sub>-eq) compared to a business-as-usual scenario.<sup>5</sup> Reuse models also reduce the pressure on biodiversity associated with material extraction of virgin materials, processing and disposal.

与一次性塑料包装相比，如果实施得当，应用可重复使用包装能够减少温室气体排放量。例如，与一次性塑料制品产生的温室气体排放量相比，重复使用模式可将生命周期内的温室气体排放量减少 65-80%。

<sup>4</sup> 以欧洲为重心的最新模型表明，到 2027 年，在三大包装应用领域（外卖、电商和日用品）实现 20% 的可重复使用包装目标，可带来多重环境效益。例如与一切超常的情况相比，采用重复使用可减少用水量（35 亿立方米）并降低温室气体排放量（130 万吨二氧化碳当量）。<sup>5</sup> 重复使用模式还可降低与原生材料开采、加工和处理相关的生物多样性压力。

The economic and environmental success of reuse models depends on several factors like transport distance, number of reuse cycles, and material choice. Therefore reuse models need to be supported by good system design and the right policy framework to capture their benefits in full.

实现重复使用模式的经济和环境效益取决于若干因素，如运输距离、重复使用的周期数量和材料选择。因此，必须有良好的系统设计和正确的政策框架提供支持，才能使重复使用模式的效益最大化。

## II. The UN Plastics Treaty has a crucial role to play in scaling reuse

### 2. 联合国塑料条约对于推广重复使用具有关键作用

Individual countries and businesses alone cannot realise the shift to reuse at a global scale without uniform legislation applied consistently across global markets. Scaling reuse requires a globally coordinated approach to create the system and market conditions for supply chain cooperation, infrastructure harmonisation and a level economic playing field.

如果缺乏全球适用的统一法规，仅靠各个国家和企业单独行动无法在全球范围内推广重复使用模式。推广重复使用需要一套全球协调一致的方法，为促进供应链合作、通用的基础设施建设和构建公平的经济竞争环境创建适当的体系和市场条件。

The UN Plastics Treaty provides a unique opportunity to establish these enabling conditions for scaling reuse globally. To do that, the treaty negotiations must cover four key areas, outlined below.

联合国塑料条约提供了独一无二的机遇，能够为在全球范围内推广重复使用创造有利条件。为此，条约必须涵盖以下四大方面。

#### 2.1 Measures to harmonise reuse definitions and design standards

##### 2.1 旨在统一重复使用定义和设计标准的措施

Creating the required economies of scale to make reuse work, considering the importance of cross-border trade and global supply chains, requires the global harmonisation of reuse definitions and design standards. Measures can include:

鉴于跨境贸易和全球供应链的重要性，要创造让重复使用模式行之有效而所需的经济规模，必须在全球范围内统一重复使用的定义和设计标准。相关措施包括：

- Developing globally aligned definitions and design standards, to facilitate the scale up of efficient reuse systems with economically and environmentally optimised reverse logistics.
- 制定全球统一的定义和设计标准，以推广高效的重复使用系统，并在经济和环境层面优化逆向物流。

<sup>5</sup> European Environmental Bureau, *Realising Reuse* (2021). <https://eeb.org/reusable-packaging-can-bring-significant-environmental-and-economic-benefits-by-2030-report-finds/>

<sup>5</sup> 欧洲环境署，《实现重复使用》（*Realising Reuse*）（2021 年），<https://eeb.org/reusable-packaging-can-bring-significant-environmental-and-economic-benefits-by-2030-report-finds/>

- Establishing robust and comprehensive reuse metrics standards covering all reuse model types for harmonisation across industry, governments and standard-setting institutions - to facilitate credible reuse measurement and effective regulatory enforcement in practice.
- 建立健全的重复使用衡量标准，标准需涵盖所有重复使用模式，以确保行业、政府和标准制定机构之间协调统一，从而提高重复使用衡量指标的可靠性并促进监管执法有效实施。

## 2.2 Measures to establish ambitious reuse targets and reporting

### 2.2 旨在确立目标远大的重复使用目标和报告机制的措施

Tackling plastic pollution requires significant effort and ambition across all countries. Measures can include:

应对塑料污染需要所有国家做出重大努力并树立远大目标。相关措施包括：

- Setting binding quantitative and time-bound reuse targets with sanctions for failure - to ensure aligned responsibility for accelerated transition to scaled reuse systems.
- 设定有约束力、有时限、可量化的重复使用目标，并对未完成目标的国家进行处罚，从而确保各国为加速推广重复使用系统承担同等责任。
- Mandating consistent reporting on scaling reuse progress based on agreed definitions and measurement standards - to ensure transparency and accountability.
- 要求根据已经确定的定义和测量标准对重复使用进展进行一致的报告，以确保其透明度和可问责。

## 2.3 Measures to facilitate the establishment of harmonised infrastructure

### 2.3 旨在促进建立协调一致的基础设施的措施

Harmonised infrastructure should complement harmonised definitions and design standards to create the required economies of scale. Measures can include:

协调一致的基础设施应与统一的定义和设计标准相辅相成，以创造所需的经济规模。相关措施包括：

- Creating shared reuse infrastructure guidelines for all stakeholders across the supply chain - to ensure effective governance structures and cooperation.
- 为供应链上所有利益相关方制定可共享的重复使用基础设施指南，以确保有效的治理结构并促进合作。
- Providing capacity building and technical support for overcoming delivery barriers - to accelerate the implementation of reuse targets and infrastructure setup guidelines.
- 提供能力建设支持和技术支持，克服交付障碍，为加速实现重复使用目标和基础设施建设提供准则。

## 2.4 Measures to make the economics work

### 2.4 旨在使经济因素发挥作用的措施

While reuse represents a significant long-term macroeconomic opportunity, capturing this is not always possible for individual players as the economic playing field is currently uneven, often giving single-use models an advantage over reuse solutions. Measures can include:

虽然重复使用代表了一个重要的、长期的宏观经济机会，但由于当前经济竞争环境不平等，一次性使用模式通常比重复使用模式更具优势，因此，个体参与者并不总是能够把握这一机遇。相关措施包括：

- Establishing effective take-back systems such as deposit return schemes (DRS), setting up extended producer responsibility (EPR) systems that finance reuse infrastructure and developing guidelines for wider financial measures such as tax breaks for reuse solutions - to incentivise the widespread adoption of reuse models and investment in shared reuse infrastructure.
- 建立押金返还计划（DRS）等有效的回收系统，确立生产者责任延伸（EPR）制度为重复使用基础设施提供资金，并制定更广泛的财政措施指导方针（例如向重复使用解决方案提供税收优惠），以激励各方采取重复使用模式并对共享重复使用基础设施进行投资。

- Banning, restricting or taxing single-use applications, removing virgin plastics subsidies and setting limits for virgin plastics use - to level the playing field for reuse solutions by disincentivising single-use models.
- 禁止或限制使用一次性塑料制品或对其征税，取消原生塑料补贴，并设定原生塑料使用限制，以遏制一次性使用模式，为重复使用解决方案创造公平的竞争环境。
- Setting up funds for reuse scale up research and innovation - to support the transition to safe, affordable and efficient reuse systems.
- 设立重复使用推广研究和创新基金，为向安全、经济、高效的重复使用系统转变提供资金支持。

### III. The UN Plastics Treaty can build on existing global momentum on reuse

#### 3. 联合国塑料条约可利用当前的全球重复使用趋势

##### 3.1 Business momentum on reuse is building

##### 3.1 企业的重复使用趋势正在形成

Through the [Global Commitment](#) and [Plastics Pact Network](#) over 1000 organisations (including businesses representing over 20% of the plastic packaging market), have signed up to the [vision of building a circular economy for plastics](#), explicitly acknowledging that, wherever relevant, reuse business models for packaging should be explored as a preferred solution.

通过[新塑料经济全球承诺 \(Global Commitment\)](#) 和[塑料公约网络 \(Plastics Pact Network\)](#)，一千多个组织（总量在全球塑料包装市场中合计达 20% 以上的企业）已签署[建立塑料循环经济的愿景](#)，明确承诺在任何相关情况下，都应尝试将包装重复使用模式作为首选方案。

In 2021, nearly 60% of Global Commitment signatories had reuse models in place across seven plastic packaging sectors (apparel, beverage, cosmetics, food, households, retail and packaging producers).<sup>6</sup> The world's two largest users of plastic packaging by weight have recently set public, quantitative targets to significantly increase the share of reusable packaging solutions across their portfolios by 2030.<sup>7,8</sup> These initiatives have laid the foundations for wide-reaching voluntary cooperation, but we need to go further.

2021 年，近 60% 的全球承诺签署方在七大塑料包装应用领域（服装、饮料、化妆品、食品、日用品、零售和包装制造）确立了重复使用模式。<sup>6</sup> 全球规模最大的两家塑料包装使用商（按重量计算）近日公布了量化目标，致力于到 2030 年显著提高可重复使用包装解决方案在其产品组合中的比例。<sup>7,8</sup> 这些举措为广泛的自愿合作奠定了基础，但我们需要更进一步。

##### 3.2 Going beyond voluntary actions will be necessary to address system barriers

##### 3.2 为了破除系统性障碍，超越自愿性行动至关重要

Voluntary action alone is not enough to scale reuse at the pace required to solve the plastic pollution crisis. The latest results from the 2022 Global Commitment progress report show that overall, despite

<sup>6</sup> Ellen MacArthur Foundation, *The Global Commitment (2022)*. <https://ellenmacarthurfoundation.org/global-commitment-2022/overview>

<sup>6</sup> 艾伦·麦克阿瑟基金会，《2022 年全球承诺进展报告》（*The Global Commitment (2022)*），<https://ellenmacarthurfoundation.org/global-commitment-2022/overview>

<sup>7</sup> The Coca Cola Company, *The Coca-Cola Company Announces Industry-Leading Target for Reusable Packaging* (02 October, 2022), <https://www.coca-colacompany.com/news/coca-cola-announces-industry-leading-target-for-reusable-packaging>

<sup>7</sup> 可口可乐公司：可口可乐公司宣布行业领先的可重复使用包装目标（*The Coca-Cola Company Announces Industry-Leading Target for Reusable Packaging*）（2022 年 10 月 2 日），<https://www.coca-colacompany.com/news/coca-cola-announces-industry-leading-target-for-reusable-packaging>

<sup>8</sup> PepsiCo, *PepsiCo Introduces New Packaging Goal, Doubling Down on Scaling Reusable Packaging Options* (05 December, 2022), <https://www.pepsico.com/our-stories/press-release/pepsico-introduces-new-packaging-goal-doubling-down-on-scaling-reusable-packaging12052022>

<sup>8</sup> 百事公司：百事公司公布新的包装目标，将可重复使用包装使用率翻倍（*PepsiCo Introduces New Packaging Goal, Doubling Down on Scaling Reusable Packaging Options*）（2022 年 12 月 5 日），<https://www.pepsico.com/our-stories/press-release/pepsico-introduces-new-packaging-goal-doubling-down-on-scaling-reusable-packaging12052022>

companies conducting an increasing number of reuse pilots, those are struggling to scale. A number of system and market barriers that are slowing down progress need to be addressed.

仅靠自愿性行动不足以快速推广重复使用模式，解决塑料污染危机。《2022 年全球承诺进展报告》的最新结果显示，总体而言，尽管许多企业开展了越来越多的重复使用试点项目，但试点项目难以大规模推广。目前尚存一些阻碍进展的系统和市场障碍，需要加以解决。

### 3.3 Supporting regulation for reuse is emerging at country level, but global policy action is needed

#### 3.3 国家层面正涌现支持重复使用的法规，但全球层面的政策行动必不可少

Formal packaging reuse policies are beginning to appear and national legislation has been adopted for example in Europe, Chile and Australia.<sup>9</sup> For example, France has reuse targets of 5% by 2023 and 10% by 2027, Germany has introduced an obligation on larger restaurants and takeaway establishments to offer reusable cups and food containers. Public-private partnerships, by fostering collaboration, can also expand reuse models by reducing barriers and increasing accessibility, as demonstrated by the Ellen MacArthur Foundation's Plastics Pact Network. But to amplify current efforts and deliver industry-scale change, we need global, urgent, policy action.

正式的包装重复使用政策已开始出台，欧洲、智利和澳大利亚等地也已通过相关国家性法规。<sup>9</sup> 例如，法国的目标是到 2023 年可重复使用包装产品比例达到 5%，2027 年达到 10%；德国规定大型餐馆和外卖门店提供可重复使用的杯子和食品容器。艾伦·麦克阿瑟基金会的塑料公约网络足以证明，通过促进政府和社会资本之间的合作可以减少障碍，提高可行性，从而推广重复使用模式。但要扩大当前的努力，实现行业层面的变革，我们亟需全球性的政策行动。

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<sup>9</sup> World Economic Forum. *How national policies can accelerate the shift to a reuse economy*. (18 Jan 2022).

<https://www.weforum.org/agenda/2022/01/how-national-policies-can-accelerate-the-transition-to-a-reuse-economy/>

<sup>9</sup> 世界经济论坛：国家政策如何加快向重复使用经济转变 (*How national policies can accelerate the shift to a reuse economy*) (2022 年 1 月 18 日)，<https://www.weforum.org/agenda/2022/01/how-national-policies-can-accelerate-the-transition-to-a-reuse-economy/>

**What is reuse?**<sup>10,11</sup>

**何为重复使用?**<sup>10,11</sup>

Reuse schemes, or “packaging reuse”, refers broadly to delivery models in which a single package achieves multiple trips, rotations or uses for the same purpose for which it was originally used.

重复使用方案或“包装重复使用”广义上指的是一种交付模式，在该模式下，一个包装可以实现多次运输、周转或用于与最初用途相同的目的。

This is distinct from, and complementary to, recycling. Reuse models circulate a product or packaging as a whole, whereas recycling reprocesses the constituting materials into a new product or package. 重复使用有别于回收，并与之互补。重复使用模式将产品或包装作为整体进行循环使用，而回收则是将构成产品或包装的材料重新加工成新的产品或包装。

Reuse can be applied both in a business-to-business (B2B) and business-to-consumer (B2C) context. In B2B, reusable packaging can for example take the form of reusable pallets loaded with products or crates. In B2C, reuse and refill models are wide-ranging. They include:

重复使用可应用于企业对企业（B2B）和企业对消费者（B2C）领域。在 B2B 领域，可重复使用包装的例子包括装载产品或板条箱的可重复使用托盘。在 B2C 领域，已出现多种重复使用和重复填充模式，包括：

**Refill at home:**

**家中填充:**

Users refill a reusable container at home with refills either delivered to the door (for example, through a subscription service) or bought in a shop. Users retain ownership of the main packaging and are responsible for cleaning. 用户在家中可对可重复使用容器进行填充，填充物可通过订购服务等由商家送货上门或在商店购买。用户保留对主包装的所有权，并负责清洁。

**Refill on the go:**

**途中填充:**

Users refill the reusable packaging at a dispensing point away from home, such as in a store. Users retain ownership of the reusable packaging and are responsible for cleaning. 用户在家以外的分装点（如商店）对可重复使用包装进行填充。用户保留对可重复使用包装的所有权，并负责清洁。

**Return from home:**

**家中返还:**

Users subscribe to a delivery and collection service that allows them to return empty packaging from home. A business or service-provider then takes care of cleaning and redistribution of the packaging.

用户订购送货和回收服务，在家中返还空包装。企业或服务提供商负责空包装的清洁和再分配。



<sup>10</sup> Reuse of packaging: Operation by which packaging is refilled or used for the same purpose for which it was conceived, with or without the support of auxiliary products present on the market, enabling the packaging to be refilled - ISO 18603: 2013, Packaging and the environment - Reuse, modified.

<sup>10</sup> 包装重复使用：无论是否获得市售辅助产品支持，对包装进行重复填充或将其用于与预期相同的目的，使其得以重复填充。来源：ISO 18603:2013 包装与环境——重复使用（经改动）。

<sup>11</sup> Reusable packaging: Packaging which has been designed to accomplish or proves its abilities to accomplish a minimum number of trips and rotations in a system for reuse - ISO 18603 Packaging and the environment - Reuse, modified.

<sup>11</sup> 可重复使用包装：设计用于或证明其有能力在重复使用系统内完成最少运输或周转次数的包装。来源：ISO 18603 包装与环境——重复使用（经改动）。

**Return on the go:****途中返还:**

Users purchase a product in a reusable container and return the packaging at a store or drop-off point after use. The packaging is either cleaned where it is returned or a business or service-provider takes care of the cleaning and redistribution.

用户购买以可重复使用容器包装的产品，使用后在商店或返还站点返还包装。包装在返还点进行清洁，或由企业或服务提供商负责清洁和再分配。

More information on reuse models: *Ellen MacArthur Foundation: [Reuse - Rethinking packaging](#)*<sup>12</sup>

欲知有关重复使用模式的更多信息，请参见艾伦·麦克阿瑟基金会 [《重复使用——对包装的反思》](#) (*Reuse - Rethinking packaging*)<sup>12</sup>

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<sup>12</sup> Ellen MacArthur Foundation, *Reuse - Rethinking Packaging* (2019). <https://ellenmacarthurfoundation.org/reuse-rethinking-packaging>

<sup>12</sup> 艾伦·麦克阿瑟基金会，《重复使用——对包装的反思》（2019年），<https://ellenmacarthurfoundation.org/reuse-rethinking-packaging>



## ANNEXES

### 附录

#### **Annex 1: Business-to-Consumer case studies for reuse**

##### **附录 1：企业对消费者重复使用案例研究**

#### **PepsiCo's SodaStream**

##### **百事公司的 SodaStream**

**Description:** Instant sparkling water

Appliance for making sparkling water at home, in reusable bottles. The sparkling water is made using water from the tap and CO<sub>2</sub> supplied in returnable cylinders. Concentrated syrups for a variety of common drink flavours are also available.

**Reuse model:** Refill-at-home

**Sector:** Beverages

**Innovation Maturity:** Scaled

**Geography:** Global

**Benefits:** Convenience Customisation Waste prevention Carbon emissions

**Links:** <https://sodastream.com/>

<https://pepsicopartners.com/navigation/sodastreamprofessional>

**描述：**即饮气泡水

在家中用可重复使用的瓶子制作气泡水的设备。气泡水用直饮水和装在可回收气瓶中的二氧化碳制成。各种常见饮料口味的浓缩糖浆也已推出。

**重复使用模式：**家中填充

**行业：**饮料

**创新成熟度：**规模化

**地域：**全球

**效益：**便利性 定制 避免产生废弃物 碳排放

**链接：**<https://sodastream.com/>

<https://pepsicopartners.com/navigation/sodastreamprofessional>

#### **CUSTOMER BENEFITS**

##### **顾客效益**

**Convenience:** Reduces space requirements and eliminates the need to travel to a store and then carry bulky, heavy bottles home (a single CO<sub>2</sub> cylinder can carbonate up to 60 L of water).

**便利性：**降低空间需求，无需再去商店将笨重的大瓶子带回家（一个二氧化碳气瓶可制作 60 升气泡水）。

**Customisation:** Accommodates users' preferences by offering a variety of flavours and control of level of carbonation.

**定制：**通过提供各种口味的浓缩糖浆和控制气泡浓度，满足用户多种喜好。

#### **ENVIRONMENTAL BENEFITS**

##### **环境效益**

**Waste prevention:** Prevents the use of single-use bottles. For example, in the year 2017 - 2018, users produced the equivalent of 6.3 billion single-use bottles worth of sparkling water in reusable bottles, at home.

**避免产生废弃物:** 避免使用一次性瓶子。例如，在 2017-2018 年，用户在家中用可重复使用瓶子制作的气泡水相当于 63 亿个一次性瓶子所灌装的气泡水。

**Carbon emissions:** SodaStream reduces the carbon emissions of sparkling water by up to 87% compared to single-use, PET-bottled sparkling water.

**碳排放:** 与一次性 PET 瓶装气泡水相比，用 SodaStream 制作气泡水可减少 87% 的碳排放量。

## INNOVATION STATUS

### 创新状态

**Scale:** Distributed through more than 90,000 individual retail stores in 46 countries, and has 15 million household users.

**规模化:** 通过 46 个国家的 9 万多家零售店销售，覆盖 1500 万户家庭。

**Investment:** SodaStream was acquired by PepsiCo in 2018 for USD 3.2 billion.

**投资:** 2018 年，百事公司以 32 亿美元的价格收购了 SodaStream。

## DEEP DIVE

### 深入阅读

How Sodastream is moving beyond 'at-home'

SodaStream 如何超越“家中制作”

SodaStream has proven to be a successful example of an at-home refill solution. In June 2020, PepsiCo announced that following successful pilots with key customers, Sodastream expanded its brand to move beyond the at-home model into 'on-the-go' - introducing the SodaStream Professional Hydration Platform allowing users to customise and digitally track their beverage intake on-the-go while cutting back on plastic bottles. It has been developed for workplaces, college campuses and airports, expanding on the SodaStream brand.

**SodaStream** 已证实是一个成功的家中填充解决方案案例。2020 年 6 月，百事公司宣布，在与关键客户进行成功试点后，**SodaStream** 将其品牌从“家中制作”模式扩展到“途中制作”模式，推出了 SodaStream 专业补水平台，让用户可以定制气泡水，以数字方式追踪自己的饮水量，同时又能减少使用塑料瓶。该平台在 SodaStream 品牌基础上开发，适用于工作场所、大学校园和机场。

## Unilever and Walmart Mexico

### 联合利华和沃尔玛墨西哥公司

**Description:** Shampoo refill stations

Refill stations for Unilever shampoo brands in ten Walmart shops in Mexico. The stations were overseen by staff to help customers dispense shampoo in 1 litre reusable aluminium bottles. The reusable bottles were sold at a one-time price and were printed with guidance on how customers should clean the bottle at home before bringing it back to refill. As the solution expands, self-service refill machines will be tested to make the refilling independent from staff oversight and provide better dosing to avoid spillage.

**Reuse model:** Refill-on-the-go

**Sector:** Personal care

**Innovation Maturity:** Pilot

**Geography:** Mexico

**Benefits:** Affordability Customisation Waste prevention

**Links:** <https://www.unilever.com/news/news-and-features/Feature-article/2020/shampoo-refill-stations-prove-popular-with-mexican-consumers.html>

**描述:** 洗发水填充站

墨西哥 10 家沃尔玛超市的联合利华洗发水填充站。填充站设有工作人员负责监督，帮助顾客将洗发水分装到可重复使用的 1 升装铝瓶中。可重复使用瓶子以一次性价格出售，并印有使用说明，指导顾客如何清洁瓶子，然后拿到填充站填充洗发水。随着解决方案的推广，将对自助填充机器进行测试，使填充操作不再需要工作人员监督，并提供更合适的填充量以免溢出。

**重复使用模式:** 途中填充

**行业:** 个人护理

**创新成熟度:** 试点

**地域:** 墨西哥

**效益:** 经济实惠 定制 避免产生废弃物

**链接:** <https://www.unilever.com/news/news-and-features/Feature-article/2020/shampoo-refill-stations-prove-popular-with-mexican-consumers.html>

## CUSTOMER BENEFITS

### 顾客效益

**Affordability:** The refill shampoo is priced 16% lower than the equivalent in single-use packaging.

**经济实惠:** 填充型洗发水的定价比一次性包装洗发水低 16%。

**Customisation:** Customers pay per weight and choose a desired quantity.

**定制:** 顾客按重量付费，并按需购买。

## ENVIRONMENTAL BENEFITS

### 环境效益

**Waste prevention:** Over the three month pilot period, more than 3,000 single-use shampoo bottles, equivalent to 126 kg of plastic, were eliminated.

**避免产生废弃物:** 在为期三个月的试点期间，淘汰了 3000 多个一次性洗发水瓶（相当于 126 公斤塑料）。

## Huidu's ZerO Box

### 灰度环保的 ZerO Box 环保循环箱

**Description:** Reusable e-commerce boxes

Reusable boxes for e-commerce deliveries rented out on a monthly, yearly or one-time basis. The box is made from a light-weight plastic material, sealed without tape, and is fitted with an RFID tag to track its location. The box is either opened and directly returned when the product is delivered, returned at the time of a subsequent delivery, or returned to drop-off stations. Depending on the rental model, Huidu or the company renting the box take care of the washing.

**Reuse model:** Return-from-home

**Sector:** E-commerce transport

**Innovation Maturity:** Scale-up

**Geography:** China

**Benefits:** Affordability Convenience Waste prevention Carbon emissions

**Link:** <https://huidugroup.cn/recycle>

<https://jdcorporateblog.com/jd-com-launches-new-reusable-package-initiative/>

**描述:** 可重复使用的电商循环配送箱

可重复使用的电商配送箱，按月、按年或一次性出租。箱子由轻质塑料材料制成，不使用胶带密封，并附有 RFID 标签以追踪位置。箱子可在产品送达时打开并直接返还，或在下一次送货时返还，也可还至返还站点。根据租赁模式的不同，由灰度环保或租赁公司负责清洁。

**重复使用模式：**家中返还

**行业：**电子商务运输

**创新成熟度：**规模化

**地域：**中国

**效益：**经济实惠 便利性 避免产生废弃物 碳排放

**链接：**<https://huidugroup.cn/recycle>

<https://jdcorporateblog.com/jd-com-launches-new-reusable-package-initiative/>

## CUSTOMER BENEFITS

### 顾客效益

**Affordability:** Although the production cost of a ZerO Box is about twice that of a standard cardboard box, Huidu is able to offer a box rental at a price below the single-use alternative, because each box is rented out multiple times. Using ZerO Box can save 30% on a cost-per-use basis compared to traditional shipping boxes. One of China's largest online retailers, JD.com, has partnered with ZerO Box after estimating that they could save approximately USD 4.5 million annually if just 10% of their orders came in a ZerO Box.

**经济实惠：**尽管环保循环箱的生产成本约为标准纸箱的两倍，但由于每个箱子都可多次出租，灰度环保能够以低于一次性包装箱价格的成本提供租赁服务。与传统配送箱相比，每次使用 ZerO Box 环保循环箱可节省 30% 的成本。中国在线零售巨头京东估算，只要其订单中有 10% 使用 ZerO Box 环保循环箱，每年便可节省约 450 万美元，因此已与 ZerO Box 建立合作关系。

**Convenience:** The patented design can be flat-packed after use, making for easy storage and returns.

**便利性：**环保箱拥有专利设计，可在使用后展平，便于存放和返还。

## ENVIRONMENTAL BENEFITS

### 环境效益

**Waste prevention:** A box can be reused up to 14 times and it is estimated that over 18 million single-use boxes have been eliminated since 2018. As a specific example, JD.com expects to have eliminated 7.2 million single-use boxes from its supply chain by the end of 2020 (having started using the boxes in 2018).

**避免产生废弃物：**一个环保箱最多可以重复使用 14 次。据估计，自 2018 年以来，已淘汰超过 1800 万个一次性包装箱。例如，京东预计，到 2020 年底将从其供应链上淘汰 720 万个一次性包装箱（京东已于 2018 年起使用环保箱）。

**Carbon emissions:** Companies using ZerO Box have collectively reduced carbon emissions by 50 tonnes since 2018.

**碳排放：**自 2018 年以来，使用 ZerO Box 环保循环箱的公司合计减少了 50 吨碳排放量。

## INNOVATION STATUS

### 创新状态

**Scale:** More than 2 million ZerO Boxes are currently in circulation. The company has more than 20 operation centres across China that manage the reuse logistics.

**规模化：**目前正在使用的 ZerO Box 环保循环箱已超过 200 万个。灰度环保公司在中国设有 20 多个运营中心，负责管理重复使用物流工作。

**Investment:** A USD 14 million series A funding round was completed in 2019.

**投资：**2019 年完成了 1400 万美元的 A 轮融资。

**Partnerships:** The company has cooperation partnerships with over 200 businesses, including JD Logistics, Cainiao, Suning Logistics, China Post, and Vipshop.

合作伙伴关系：灰度环保公司已与京东物流、菜鸟、苏宁物流、中国邮政和唯品会等 200 多家企业建立了合作伙伴关系。

## The Coca Cola Company's Universal Bottle

### 可口可乐公司的通用瓶

**Description:** A shared design for multiple brands

A reusable PET bottle which is standardised across multiple soda brands in Latin America, introduced by Coca-Cola in 2018. Users return empty bottles to retailers who store them and then give them back to Coca-Cola upon delivery of a new order.

Coca-Cola takes the multi-branded mix of bottles back to a bottling facility where paper labels are washed off and bottles are cleaned, refilled, and rebranded with a fresh label.

**Reuse model:** Return-on-the-go

**Sector:** Beverages

**Innovation Maturity:** Scaled

**Geography:** Latin America

**Benefits:** Affordability Waste prevention Carbon emissions Water use

**Links:** <https://www.coca-colacompany.com/content/dam/journey/us/en/reports/coca-cola-world-without-waste-report-2019.pdf>

**描述:** 多品牌共享设计

可口可乐公司于 2018 年推出的一种可重复使用 PET 瓶，已成为拉丁美洲多个碳酸饮料品牌的标准化产品。用户可将空瓶返还给零售商，由零售商存储，然后在新订单配送时将其返还给可口可乐公司。

可口可乐公司将多个品牌的瓶子送回装瓶厂，由装瓶厂负责洗掉纸质标签，清洗瓶身，重新填充饮料，并打上新的品牌标签。

**重复使用模式:** 途中返还

**行业:** 饮料

**创新成熟度:** 规模化

**地域:** 拉丁美洲

**效益:** 经济实惠 避免产生废弃物 碳排放 用水

**链接:** <https://www.coca-colacompany.com/content/dam/journey/us/en/reports/coca-cola-world-without-waste-report-2019.pdf>

### CUSTOMER BENEFITS

#### 顾客效益

**Affordability:** Creating a universal bottle design across all brands simplifies logistics and reduces stock space. This has enabled reduced pricing.

**经济实惠:** 针对所有品牌设计通用瓶，可简化物流，减少库存空间，从而降低定价。

### ENVIRONMENTAL BENEFITS

#### 环境效益

**Waste prevention:** Avoids the production of 1.8 billion single-use bottles in Latin America per year.

**避免产生废弃物:** 拉丁美洲每年可减少生产 18 亿个一次性瓶子。

**Carbon emissions:** Greenhouse gas emissions can be reduced by up to 47% compared to single-use PET bottles, taking into account bottle production, increased transport and water use during washing.

**碳排放:** 考虑到瓶子的生产、运输量增加和清洗过程中用水量增加，通用瓶可比一次性 PET 瓶减少多达 47% 的温室气体排放量。

**Water use:** Even with washing factored in, the reuse model reduces water use by 45% compared to single-use PET bottles, because the major water footprint comes from the production of new bottles.

用水：即使将清洗用水考虑在内，与一次性 PET 瓶相比，重复使用模式也可减少 45% 的用水量，因为水足迹主要来自于新瓶子的生产过程。

## INNOVATION STATUS

### 创新状态

**Scale:** The universal bottle initiative is part of a greater strategy for Coca-Cola Latin America to increase the share of reusable packaging (both glass and PET). As of 2020, reusable bottles (glass and PET) represent 27% of sales and were the fastest growing packaging format in 2018 and 2019. The universal PET bottle is being piloted in South Africa and in 2020 Coca-Cola will launch a universal design of the reusable glass bottle as well.

**规模化：**通用瓶倡议是可口可乐拉丁美洲公司为提高可重复使用包装（玻璃瓶和 PET 瓶）比例而执行的更广泛战略的组成部分。截至 2020 年，可重复使用瓶子（玻璃瓶和 PET 瓶）占销售额的 27%，是 2018 年和 2019 年增长最快的包装形式。可口可乐公司正在南非对通用 PET 瓶开展试点，并将于 2020 年推出可重复使用玻璃瓶的通用设计。

**Investment:** Coca-Cola Latin America has invested more than USD 500 million in expanding the reuse infrastructure (bottle cleaning, labelling, refilling) to accommodate the universal bottle.

**投资：**可口可乐拉丁美洲公司已斥资超过 5 亿美元，用于扩大通用瓶重复使用所需的基础设施（瓶子清洁、贴标签、填充等工作）。

## **Annex 2: Business-to-Business case study for reuse**

### **附录 2：企业对企业重复使用案例研究**

## REUSA-WRAPPS

**Description:** Reusable pallet wrap

Reusable pallet wrap made from sturdy, breathable, mesh material secured with straps (solid material versions also available). The wrap is easily strapped around a loaded pallet and can be used both for delivery operations and storage at distribution centres.

Innovation Maturity: Scaled

**Geography:** USA

**Benefits:** Cost Savings Superior packaging Waste prevention

**Links:** <https://www.reusawraps.com/>

**描述：**可重复使用的托盘包装

可重复使用的托盘包装由坚固透气的网状材料制成，并使用绑带固定（也有固体材料制成的托盘包装）。这种包装可以很容易地捆绑在装载托盘上，既可用于发货作业，也可用于在配送中心存放货物。

**创新成熟度：**规模化

**地域：**美国

**效益：**节约成本 一流包装 避免产生废弃物

**链接：** <https://www.reusawraps.com/>

## BUSINESS BENEFITS

### 商业效益

**Cost savings:** Estimated to cut pallet wrapping costs by up to 40% and typically pays for itself in less than a year. The cost savings are achieved through reductions in material usage (reusable wraps eliminate single-use pallet wrap), product damage (unlike single-use wrap, the reusable wraps can't be overtightened), and packing times (reusable wraps are easier to use and more ergonomic). For example, one beer distributor saves approximately USD 75,000 per year using REUSA-WRAPPS cart covers.

节约成本：预计可减少高达 40% 的托盘包装成本，且通常不到一年就能收回成本。通过减少材料使用量（可重复使用包装取代一次性托盘包装）、产品损耗（与一次性包装不同，可重复使用包装不能过度紧固）和包装时间（可重复使用包装更易于使用，更符合人体工程学），可以节约成本。例如，某啤酒经销商使用 REUSA-WRAPs 推车盖，每年可节省约 7.5 万美元。

**Superior packaging:** The reusable wraps are breathable and can be designed with a range of custom functionalities including document pockets, fire retardancy, insulation, RFID tags and locks. Compared to single-use pallet wrap, the reusable solution makes it easier to remove one item from the pallet at a time and then re-secure.

一流包装：这种可重复使用的包装具有透气性，可以设计一系列定制功能，包括文件袋、防火、绝缘、RFID 标签和锁定装置。与一次性托盘包装相比，采用可重复使用解决方案能够更容易地从托盘上取下物品，然后重新固定。

## ENVIRONMENTAL BENEFITS

### 环境效益

**Waste prevention:** Each wrap lasts approximately three years with regular use and can eliminate an estimated 450 kg of single-use pallet wrap during its lifetime. For example, a small wholesale produce distributor reports preventing the use of 45 tonnes of single-use pallet wrap per year through using REUSA- WRAPS.

避免产生废弃物：每个包装在正常使用情况下大约可使用三年，预计在其整个使用周期内可淘汰 450 公斤一次性托盘包装。例如，某小型农产品批发经销商表示，通过使用 REUSA-WRAPs，每年可减少使用 45 吨一次性托盘包装。

## INNOVATION STATUS

### 创新状态

**Scale:** Used by companies such as Toyota, MillerCoors, Anheuser- Busch, Ashley Furniture, and Martin Brower. The reusable wraps have been sold to businesses globally.

**规模化:** 丰田、米勒康胜（MillerCoors）、安海斯-布希（Anheuser-Busch）、爱室丽家居（Ashley Furniture）和马丁·布劳尔（Martin Brower）等公司都在使用 REUSA-WRAPs 包装。这种可重复使用的包装已出售给全球各地的多家企业。

## CHEP a Brambles Company

### 布兰堡（Brambles）旗下公司集保（CHEP）

**Description:** Cross-industry B2B packaging platform

A global B2B supply chain logistics ‘share-and-reuse’ system of tertiary and secondary packaging.

**Innovation Maturity:** Scaled

**Geography:** Global

**Benefits:** Optimised operations Cost Savings Superior packagingData Waste prevention Carbon emissions

**Links:** <https://www.chep.com/uk/en/consumer-goods>

**描述:** 跨行业 B2B 包装平台

全球 B2B 供应链物流三级和二级包装“共享和重复使用”系统。

**创新成熟度:** 规模化

**地域:** 全球

**效益:** 优化运营 节约成本 一流包装 数据 避免产生废弃物 碳排放

**链接:** <https://www.chep.com/uk/en/consumer-goods>

## BUSINESS BENEFITS

### 商业效益

**Optimised operations:** CHEP's standard sizes for crates and pallets have set an industry standard and enable simplified and optimised logistics.

优化运营：集保的板条箱和托盘标准尺寸树立了行业标准，简化并优化了物流。

**Cost savings:** CHEP's network scale and visibility allows it to reduce transport distances and cut costs for businesses through facilitating efficient and collaborative solutions. Using the CHEP platform also reduces capital expenditure for businesses and makes it easier to meet seasonal peaks and troughs in packaging demand without needing to pay for storage and ownership of buffer stock. Overall cost savings compared to single-use alternatives can be from 10 to 70%.

节约成本：集保的网络规模和可见性使其能够通过推广高效的协作解决方案缩短运输距离，降低企业成本。使用集保平台还可减少企业的资本支出，更容易满足包装需求的季节性峰值和谷值，而无需为缓冲库存的存储和所有权付费。与一次性替代品相比，总体成本可节省 10% 至 70%。

**Superior packaging:** The reusable pallets and crates are of higher quality than single-use alternatives. This reduces product damage and improves production line efficiency.

一流包装：可重复使用托盘和板条箱的质量优于一次性替代品，可减少产品损耗，提高生产线效率。

**Data:** By using its end-to-end supply chain solutions and digital technology, CHEP can enhance customer's visibility of their supply chain so they can make more informed decisions.

数据：通过使用端到端供应链解决方案和数字技术，集保可使客户更清楚地了解其供应链状况，从而做出更加明智的决策。

## ENVIRONMENTAL BENEFITS

### 环境效益

**Waste prevention:** CHEP products have an extended product life to reduce waste. For example, considering wooden pallets — a CHEP pallet will last up to ten times longer than a standard wood pallet equivalent meaning CHEP uses three times less wood and generates one quarter of the waste compared to non-reuse systems. In 2019, use of Bramble's platforms prevented the need to log 1.7 million trees.

避免产生废弃物：集保产品的使用寿命更长，可减少废弃物。例如，集保木制托盘的使用寿命最高可达到同等标准木制托盘使用寿命的 10 倍，这意味着与非重复使用系统相比，集保系统使用的木材量可减少三分之一，且仅产生四分之一的废弃物。2019 年，使用布兰堡平台避免了 170 万棵树木遭砍伐。

**Carbon emissions:** The CHEP system minimises transport distances compared to systems that are not collaborative across industry. This can halve CO2 emissions. In 2019, use of Bramble's platforms prevented 2 million tonnes of CO2 from being generated.

碳排放：与非跨行业协作的系统相比，集保系统可最大限度地缩短运输距离，减少一半的二氧化碳排放量。2019 年，使用布兰堡平台避免了 200 万吨二氧化碳的产生。

## INNOVATION STATUS

### 创新状态

**Scale:** For over 60 years, CHEP has operated share and reuse systems in practice, in various supply chains. CHEP now operates in 60 countries with 750 service centres and 510,000 delivery points. In Europe alone, CHEP issues more than 330 million pallets, containers and crates.

规模化：60 多年来，集保已在各种供应链实践中运行共享和重复使用系统。目前，集保在 60 个国家设有 750 个服务中心和 51 万个配送点。仅在欧洲，集保就推出了超过 3.3 亿个托盘、容器和板条箱。



Partnerships: Through launching the Zero Waste World collaboration programme, Brambles has committed to applying its proven know-how of running reusable packaging models to help prevent waste beyond its core activities.

合作伙伴关系：通过推出“零废弃物世界”（Zero Waste World）合作计划，布兰堡致力于运用其在可重复使用包装模式方面的专业知识，防止其核心活动以外的其他活动产生废弃物。