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REUSE IN THE GLOBAL SOUTH

Case Studies

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EXECUTIVE SUMMARY

Reuse is a critical lever in tackling global plastics pollution and contributes to tackling other environmental challenges. Moving from single-use to reuse models presents one of the biggest opportunities to reduce plastic pollution.¹ It is estimated that moving to reuse models can reduce annual plastic leakage to the ocean by more than 20%² while also significantly reducing virgin material use, greenhouse gas (GHG) emissions, and water consumption.

Reuse can also deliver powerful economic and social benefits across the value chain. For example, collaborating with the informal sector and micro-, small-, and medium-sized enterprises (MSMEs) can improve reuse logistics while supporting livelihoods. Studies show that the reuse market is a multi-billion dollar economic opportunity,³ providing benefits to customers, and creating jobs across the value chain and at all levels,

regionally and locally, and in particular creating new market opportunities for MSMEs.⁴ For example, the case studies in this report show that reuse systems can create new vocational jobs in washing and collection of packaging, and can augment incomes of waste workers and store owners.^{6,7}

The Global South has long-standing experience of reuse which can be leveraged to accelerate the transition to a circular economy instead of increasing the waste and pollution associated with single-use models. Although Indonesia, the Philippines, and India have been identified as the fastest-developing flexible packaging markets,⁸ Global South regions have long practiced successful reuse solutions, well before they were considered sustainable. For example, India's *dabbawala* system of lunch delivery is perhaps one of the best known and established reuse systems worldwide,⁹

whilst Filipino *tingi* culture (buying goods in small, affordable quantities) originated with refilling reusable containers – such as bags or baskets – at local markets.¹⁰ Some of these practices have only fairly recently been supplanted by single-use delivery models.¹¹ Such strong foundational elements have given rise to a recent history of alternative delivery systems to support the expansion of formal reuse models.¹² For instance, Asia Pacific makes up 35% of the global market for returnable glass bottles, which was valued at USD 5.24 billion in 2022 and is expected to grow at 6% CAGR (Compound Annual Growth Rate) until 2032.¹³

Companies in the Global South are facing common challenges to scaling reuse solutions, including access to finance required for upfront infrastructure investments and regulatory restrictions on delivering certain products in reusable packaging. There is also a lack of common guidelines and standards to ensure consistency in establishing reuse across value chains. These are important because they facilitate collaboration, reduce complexity, ensure compatibility, build consumer confidence, simplify compliance, and accelerate innovation.

To address these challenges coordinated action from all stakeholders is required, including proactive integration of the informal sector. 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.¹⁴ This would provide a unified framework to guide stakeholders and accelerate progress.¹⁵ Importantly the informal sector should be included in planning processes and integrated into new systems to ensure a just transition.¹⁶

Policy is critical to create enabling conditions to drive the coordinated action required to accelerate reuse globally. To be most effective, reuse systems must be tailored to the local context, however certain universal enabling conditions can support the transition and enable countries to reap the other economic and environmental benefits associated with reuse. Three policy priorities emerge from these case studies:

- **Harmonised guidelines and regulations to support reuse** – current regulations are designed with linear systems in mind and do not readily support circular solutions. Several case studies¹⁷ point to the need to update packaging regulation to accommodate and promote reuse.
- **Setting clear definitions and targets for reuse systems** alongside targets to reduce virgin plastic use can provide the impetus for companies to drive progress. These case studies¹⁸ point out the opportunities to scale reuse that have been created by plastic reduction and reuse targets set by large brands and retailers. Reuse metrics have been developed and can serve as a starting point to set out a common way for companies to measure reuse across product ranges and geographies.¹⁹

■ **Making the economics work** – governments can implement targeted incentives to support reuse initiatives, such as tax breaks or subsidies, while simultaneously introducing disincentives for single-use packaging through taxes, levies, or outright bans. Colombia, for example, placed a 20% tax on most single-use plastics,²⁰ including packaging, containers, and wrapping. Meanwhile Brazil recently introduced a new policy to incentivise recycling and reuse, including fiscal incentives for reuse projects.²¹ Economic measures are essential to drive the adoption of reuse and discourage reliance on single-use systems.

The global plastics treaty²² offers a crucial opportunity to accelerate the transition from single-use to reusable products and systems. As negotiations have still yet to conclude, governments have the opportunity to champion an ambitious agreement that enforces global rules across the full lifecycle of plastics, and reuse is a vital part of this solution.

This report explores the possibilities for reuse in the Global South by showcasing how companies in this region have already started creating value with reuse models. Building on these foundations could avoid the negative impacts of single-use plastic applications and unlock the transformative potential of reuse in addressing plastic pollution.

WHAT IS REUSE?

Reuse refers to delivery models in which a single packaging unit achieves multiple trips or uses by the user.

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. Reuse models can generally be categorised into business-to-consumer (B2C) or business-to-business (B2B) models.

There are four B2C reuse models. They differ depending on the ownership of the packaging – i.e. whether the packaging is refilled or returned – and where the refill or return occurs.

Refill at home: Users refill their reusable container at home (e.g. with refills delivered through a subscription service).

Refill on-the-go: Users refill their reusable container away from home (e.g. at an in-store dispensing system). This is sometimes referred to as Bring Your Own (BYO).

Return from home: Packaging is picked up from home by a collection service (e.g. a logistics company).

Return on-the-go: Users return the packaging to a store or drop-off point (e.g. a deposit return machine or mailbox).

In addition to the four B2C reuse models, a wide range of B2B reuse models exist. These can range from individual companies reusing their own transport packaging, to industry-wide reuse systems based on interconnected operators managing a shared set of standardised, reusable packaging.

More information on reuse models can be found in the Ellen MacArthur Foundation publication, *Reuse – rethinking packaging*.²³

METHODOLOGY

Based on WWF's *Unpacking Reuse in the Plastic Pollution Treaty* report and 20 interviews²⁴ with Global South reuse startups and international companies operating in the region, four reuse product categories – assessed as promising for a fast transition to reuse – were chosen for concrete case studies from Global South markets:

- **Beverages**
- **On-site and takeaway food**
- **Personal, home care, and store cupboard ingredients**
- **B2B packaging**²⁵

These interviews provided an up-to-date insight into the current state of operations, challenges, and opportunities of leading reuse innovations in the Global South and were supported by desk research and existing research papers.



Reuse product categories	Company	Reuse model	Product	Geographies	Partnership with major brand/retailer
Beverages	Glassia >	Return-on-the-go	Water	Vietnam, Philippines	No
	Danone and Izifill >	Refill-on-the-go	Water	Indonesia	Yes
	Fresh Networks >	Refill-on-the-go	Milk	Kenya, Philippines, India	No
On-site and takeaway food	Ficus Box >	Return-on-the-go	Food and beverages	Costa Rica	No
	Vytal >	Return-on-the-go	Food and beverages	International	Yes
	Xiclo >	Return-on-the-go	Food and beverages	Colombia	No
	Infinity Box >	Return-on-the-go	Food and beverages	India	Yes
Personal, homecare, and store cupboard ingredients	Alner >	Return-on the-go; Return-from-home; Refill-on-the-go	A range of products including laundry detergent, dish soap, and cooking oil	Indonesia	Yes
	Sonke >	Refill-on-the-go	Cooking oil	South Africa, Zimbabwe	Yes
	Mercado Circular >	Refill-on-the-go	Household cleaning and personal care products including detergent, dish soap, and shampoo	Mexico, Chile	Yes
	Smartfill >	Refill-on-the-go	A range of products including shampoo, washing powder, oats, rice, sugar, and nutrition powders	South Africa, Kenya	Yes
B2B Packaging	Galaxy Pack >	B2B	Pallet covers	Colombia	Yes



FOCUS AREA ONE

BEVERAGES

Beverages has been identified as one of the applications where reuse could be scaled most rapidly,²⁶ with several existing, successful examples. The market for returnable beverages is already developed in some countries in the Global South, with existing infrastructure, business models, and consumer behaviour. In 2019, market share of water sold in reusable packaging formats reached 19% in Thailand, 13% in Guatemala, and 29% in Argentina,²⁷ compared to a global average of less than 5%. Settings that require minimal infrastructure change, investment, and consumer behaviour change offer the greatest potential for a rapid transition to reuse.²⁸

There is a significant environmental opportunity in scaling and replicating these solutions. Drinks containers represent 14% of plastics that leak into the environment.²⁹

Increasing the use of reusable packaging for beverages by 10% between now and 2030 could eliminate the need for 1 trillion bottles.³⁰ In addition, single-use sachets are commonly used in some Global South countries for beverage packaging.³¹ As these single-use containers are made from lightweight plastics which have little economic value to waste collectors, there is less incentive to collect and manage them after use, leading to higher leakage rates. For instance, it is estimated that the total surface

area of plastic water wrappers discarded daily in Nigeria exceeds the area of the entire nation.³²

Scaling reusable packaging for beverages also provides an opportunity to deliver socio-economic benefits by reducing the cost and increasing the availability of safe drinking beverages. A significant proportion of beverage packaging is used to deliver water, particularly in low- and middle-income countries where only one in three people have access to safely managed drinking water services.³³ Case studies in this report³⁴ show the potential for reuse solutions to reduce the cost to consumers of water and milk servings relative to single-use alternatives. Some startups (such as IZIFILL) offer unbranded water – purified using reverse osmosis - to decrease costs and logistics complexities and improve viability of the reuse system.

Policy measures can incentivise this shift. For example, retailers are required by law in Chile to sell soft drinks in reusable bottles,³⁵ with fines issued for non-compliance. Retailers will be obliged to dedicate 30% of shelf space to soft drinks in reusable packaging by 2026.





Reuse model: **Return-on-the-go**
 Product: **Water**
 Where: **Vietnam, Philippines**

WHAT? *Glassia*³⁶ delivers premium purified water in 450 ml reusable glass bottles with recyclable aluminium caps.

HOW? Glassia supplies luxury hotels, high-end restaurants, and selected tourism operators with drinking water in reusable packaging to serve to guests. Businesses are responsible for collecting bottles from their customers and can choose to use Glassia-owned packaging or purchase their own, which involves an upfront investment but reduces the service cost and enables companies to customise bottles with their own design or logo. Glassia then collects the bottles for washing and refilling while delivering a new set of refilled bottles. This bottle ownership model incentivises clients to maximise bottle lifespan, with each bottle typically being reused 30 times. Standardised packaging design can help make reuse more affordable by lowering storage, transport, sorting, and washing costs.³⁷

To optimise production and minimise transportation costs and environmental impact, Glassia operates within a 50 km delivery radius with strategically placed local refill sites in key tourism and business hubs under a decentralised production model. Each site uses reverse osmosis (RO) technology,³⁸ a cost-effective solution for producing high-quality drinking water.

CURRENT SCALE: Glassia currently serves over 60 businesses across Vietnam, with established presence in three strategic locations.

IMPACT: As clients typically provide guests with six to eight water bottles daily, to date, Glassia's reusable glass bottle system has eliminated the need for over six million single-use plastic bottles. An LCA assessment found that reusing Glassia bottles leads to lower impacts than single-use PET bottles.³⁹

LESSON LEARNED

- **Charging a fee if bottles are not returned can increase return rates.** Some guests keep the attractive bottles as souvenirs. A few of Glassia's clients have successfully implemented awareness campaigns, informing guests that the bottles are part of an environmental refill scheme, and charging a fee if they would like to take it. This improves return rates and maintains high reuse circulation.
- **Offering 'cleaning-as-a-service' could increase return on investment in reuse infrastructure.** Reliable and hygienic washing facilities are critical for all types of reuse companies. Glassia's investments in optimised cleaning and washing infrastructure means it can use spare capacity to provide a 'cleaning-as-a-service' model to others seeking to reuse packaging. It currently offers this service to restaurants and food service providers, and is exploring a partnership with a brewery, adding additional revenue streams for the business.

■ **Businesses' plastic reduction policies provide an opportunity to expand into new markets.** Many international companies have internal policies to reduce single-use plastics, opening opportunities for reusable bottle solutions in new markets. The company is exploring expansion opportunities in the Philippines, Cambodia's Siem Reap region, and Laos to serve the growing demand for sustainable water solutions.

■ **Government incentives could boost cost competitiveness.** Glassia is able to provide water in reusable glass bottles for about USD 0.05 to 0.07 more than a comparable single-use PET bottle. At scale, this modest increase can pose a barrier for price-sensitive clients. Government incentives for reuse or taxes on single-use bottles could help minimise this price differential and encourage wider market adoption of reusable bottles.





Reuse model: **Refill on-the-go**
 Product: **Water**
 Where: **Indonesia**

Danone, a leading multinational food and beverages company has promoted reusable packaging through innovative initiatives involving reusable water jugs across various countries. Almost 50% of Danone's water volumes are sold in reusable jugs – for example in Mexico and Turkey. In Indonesia, where Danone has operated for over 40 years, 70% of its AQUA water volumes are sold in reusable packaging, predominantly in 19 litre jugs. This shift has led to the avoidance of approximately 140,000 tons of plastic waste annually.

WHAT? Danone has partnered with **IZIFILL**⁴⁰, an Indonesian startup, to pilot smart water dispensers and reusable jugs to offer mineral water on-the-go in universities and food courts.

HOW? Danone has partnered with IZIFILL, an Indonesian company offering water dispenser services, to deploy smart water dispensers using AQUA reusable jugs to cater to consumer preference for branded water. Along with reducing plastic packaging and allowing access to safe water, the model has the potential to optimize cost at scale and make reuse viable. Customers scan a QR code on the water station to fill their own bottles, adjusting the measure to the required size, and can choose hot or cold water.

CURRENT SCALE: This partnership is currently being piloted with one university in Jakarta, one university in Bali, and in three food courts.

IMPACT: Since November 2023, the pilot has eliminated the need for approximately 2,300 single-use water bottles, which it intends to double within a year through promotion and awareness-raising efforts.



LESSON LEARNED

■ **Natural mineral water refills are most economical with short, efficient supply chains. Filling at source allows to maintain the superior quality of the natural mineral water.** Where the market is not close to the source or does not have existing roads to market, the costs and environmental footprint for storing and transporting natural mineral water is significantly high, especially over long distances in warm climates.

■ **Enabling infrastructure is critical to scale reuse.** This requires significant investments from all operators and therefore, a need to access funding. IZIFILL considers sourcing finance has been a key challenge when trying to scale. High CAPEX and insufficient financing for new technology is widely recognised as a barrier to developing innovative solutions and scaling reuse, especially in Indonesia due to its geographical specificity being an archipelago.

■ **Synergies between existing and new solutions.** Leveraging synergies between existing and innovative solutions, this partnership deploys IZIFILL smart water dispensers utilizing the established reusable packaging solution of Danone AQUA jugs. Such strategic synergies enhance the viability of reuse by optimizing development costs and accelerating time to market.

■ **Regulation could incentivise reuse solutions.** Indonesian regulations for mineral water require pre-filled water to leave a factory in sealed individual packaging. IZIFILL complies with this requirement by supplying water in 19-litre sealed, reusable B2B packaging units before dispensing individual servings. Policymakers may further enable scale of new delivery models by setting out clearer legal and technical guidelines for mineral water sales in reusable packaging formats, as well as endorsing and incentivising sustainable solutions.



Reuse model: **Refill on-the-go**
 Product: **Milk**
 Where: **Kenya, Philippines, India**

WHAT? *FRESH Networks*⁴¹ has developed a smart milk distribution solution to provide urban homes with access to safe and affordable milk.

HOW? FRESH Networks enables dairy companies to establish a network of smart dispensers inside small shops in low-income, underserved, urban neighbourhoods. Dairy partners use the company’s cloud and logistics technology to monitor the network and replenish dispensers as needed to provide a ready supply of safe, high-quality milk. Consumers use the self-service dispensers to fill their own containers with any volume of milk, starting from as little as 60 ml, at price points that are significantly lower than packaged products.

Embedded near-field communication (NFC) technology and sensors enable intelligent tracking of data across the supply chain, enabling dairies to make continuous efficiency and service improvements.

CURRENT SCALE: The startup – recently spun out of *KOKO Networks* – is concluding three years of R&D and pilot testing of 10 milk dispensers in Kenya, Rwanda, and India. FRESH Networks intends to deploy at least 50 dispensers with commercial partners by the end of 2025 and more than 1,000 by the end of 2027.

IMPACT: Partner dairies sell around 110 litres of milk per dispenser daily, allowing 4,000 Kenyans on low-incomes to purchase safe milk through this system at around 40-50% less than the price of comparable supermarket products. The availability of safe milk is a major issue in Kenya where around 68% of milk is sold in informal bulk formats in unregulated, untraceable, informal channels.



LESSON LEARNED

- **Costs can be reduced through iterative design and rigorous field testing.** FRESH Networks is currently preparing to launch a new and improved dispenser design that costs 62% less, reduces operating costs by 90% (e.g. by incorporating a smaller chiller compartment that is more energy efficient), and is easier to clean.
- **Cost savings could drive demand.** FRESH Networks’ refills are around half the cost of comparable supermarket products. Significant cost savings compared to pre-filled alternatives could drive demand and uptake.

THE COCA-COLA COMPANY AND REUSE IN THE GLOBAL SOUTH



Reusable formats account for 14% of Coca-Cola's total beverage volume globally. In 2023, sales of finished products served in reusable packaging increased by more than 100 million unit cases compared to 2022.⁴²

In 2018, Coca-Cola took a major step forward in packaging sustainability by introducing the *Universal Bottle with a single colour, shape, and size*. This innovative solution drives efficiency in collection, cleaning, and filling by offering multiple soft drink brands in the same reusable bottle. 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.⁴³

This approach avoids the production of 1.8 billion single-use bottles in Latin America per year,⁴⁴ while refillable bottles reduce the costs of getting products to market by 20-25%.⁴⁵ These numbers show that scaled reuse in the Global South is feasible.

LESSON LEARNED

■ **Existing production lines can be retrofitted to adapt to reuse models.** Changes to operational processes and supply chains were required to optimise refillable bottles with an investment of more than USD 500 million.⁴⁶ This included acquiring new specialised equipment to handle bottles, and adapting production lines to optimise collection, cleaning, and filling of the reusable bottles or building new lines to accommodate the new universal refillable bottles.

■ **Where available, existing infrastructure can be used for reverse logistics.** The return system is handled through the bottlers' trucks and sales force, which ensures effective collection and management of packaging.

■ **Increased customer touchpoints can improve brand loyalty.** Customers pay indirect deposits on bottles by receiving a discount on their next purchase when they return an empty bottle to a store. The reward system ensures a high return rate of above 90% and has driven a 15% higher likelihood of repurchase compared to single-use formats.

■ **Streamlining packaging design optimises operations.** Creating a universal bottle design across all brands simplifies logistics and reduces stock space. This has allowed new retail channels to accept reuse models.

FOCUS AREA TWO

ON-SITE AND TAKEAWAY FOOD

The growth of takeaway, food delivery, and dine-in has brought a corresponding rise in single-use food packaging items, many of which leak into the environment. 44% of the 12 million pieces of plastic collected in one ocean litter study were connected to take-out food products.⁴⁷ These impacts are projected to increase if we continue with business-as-usual: the disposable food packaging market in Asia-Pacific is estimated to grow at a CAGR of 8% from 2025-2030.⁴⁸

The rapid rise of convenience food across the Global South brings with it an opportunity to scale reuse at pace. For example, markets in the Global South have recently seen a surge in demand for online food delivery: between 2023 and 2024, the industry reached a 14% annual growth rate in Africa,⁴⁹ while it is projected to grow by 9% every year between 2024 and 2029 in South America.⁵⁰ Mirroring this growth with a transition to reusable packaging formats presents a huge opportunity.

Moving to reusable packaging solutions offers a promising pathway to address the rising environmental challenge of food serviceware. In addition to significantly reducing the amount of packaging that could leak into the environment, moving from single-use to reusable

cups has the potential to reduce GHG emissions by at least 70%.⁵¹ Reusable bowls reduce GHG emissions by 90% compared to single-use alternatives.⁵² Takeaway food and beverage currently sold in plastic containers for offsite consumption, and on-site single-use plastic products, such as plastic cutlery and containers used in hotels, restaurants, and venues, have been identified as promising product categories where scale can be achieved at pace.⁵³ Successful examples, such as those below, already exist in the Global South and offer potential to scale.

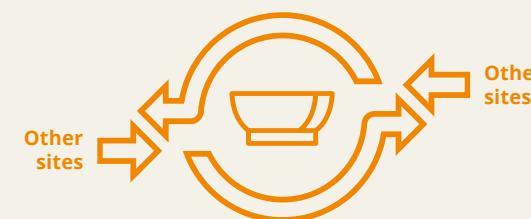
Policy measures are being introduced to drive progress in this segment, for example bans single-use packaging types. In Chile, regulation has been phasing out single-use plastics in restaurants and delivery services, whilst Colombia's Law 2232 will prohibit the introduction, commercialisation, and distribution of single-use plastic food wrapping, non-prepackaged containers, straws, and cutlery.⁵⁴ India committed to eliminate certain single-use plastic products by 2022,⁵⁵ however, implementation is lagging behind schedule.

THERE ARE TWO MAIN FORMS OF REUSABLE SERVICWARE SYSTEM:

- In a **closed-loop system**, items are used and reused in the same location, such as a single cafeteria or sports stadium.



- In an **open-loop system**, serviceware can be reused across multiple sites, for example across a city, requiring more sophisticated collection and distribution infrastructure.





Reuse model: **Return on-the-go**
 Product: **Food serviceware**
 Where: **Costa Rica**

WHAT? *Ficus Box*⁵⁶ offers reusable packaging for food and beverages for events.

HOW? Ficus Box is a reusable food serviceware and packaging solution for meal prep companies, small restaurants, school cafeterias, and events. Closed-loop events of up to 800 people, such as fairs and food markets, are currently the primary focus as collection rates can be kept high. The company provides plates and cups for food service then arranges on-site collection before washing and reusing the serviceware. Packaging units are made from durable polypropylene (PP), designed to be durable and recycled at their end of life.

To encourage uptake, clients are provided with data on cost and materials savings to support sustainability targets.

The company has recently been awarded a grant of USD 75,000 by End Plastic Pollution International Collaborative (EPPIC) to expand its solution in the events segment, with the goal of preventing approximately 6 tons of single-use waste from entering the market.

CURRENT SCALE: Around 5,000 to 6,000 food containers are reused each month.

IMPACT: Since 2020, more than 1 ton of single-use food and beverage packaging units have been avoided, mainly plates, cups, and utensils.

 **LESSON LEARNED**

- **Closed-loop systems offer the highest collection rates.** Having experimented with a number of formats, the company is now focused on semi-closed or closed ecosystems to keep reuse rates above 90%.
- **Smart technologies could optimise the circulation of reusable packaging.** The company is in the early stages of exploring smart packaging and software such as QR codes and RFID tags to provide data-driven insights into return rates and life cycles. This will enable targeted improvements to be made. Dishwashing technology could also reduce the economic and environmental costs of cleaning.
- **Reusable packaging can also reduce food waste.** Ficus Box piloted a school lunch programme using reusable packaging, allowing food

that previously cooled down quickly in thin single-use packaging to arrive warm. During the trial, students ate more, reducing food waste.

- **Clear guidelines for reuse systems would boost uptake.** Reuse systems are still underrepresented in Costa Rican national waste management strategies, which means many organisations don't yet see them as a priority. Incorporating reuse into central policy and providing consistent guidelines would elevate reuse as a key strategy for businesses and accelerate adoption.





Reuse model: **Return on-the-go**
 Product: **Food serviceware**
 Where: **Worldwide, including Mexico, Dominican Republic, Ecuador**

WHAT? *Vytal*⁵⁷ operates a system for reusable food packaging and cups, leveraging technology and data.

HOW? Vytal provides food serviceware ‘as-a-service’ to restaurants, canteens, event organisers, and caterers. Food serviceware can be borrowed from participating restaurants by the consumer free-of-charge – and without a deposit – using a range of popular delivery apps or the Vytal app. Consumers log the loan using QR codes, which enable traceability, then return the serviceware to a specified return point. A fee is only payable by consumers if the items are not returned within 14 days.

Vytal offers non-branded containers and customised branded containers. Vytal’s non-branded containers have more return points – which increases convenience as branded containers need to be returned to the specific brand partner.

For the event and entertainment industry, Vytal manages collection and washing directly. However, for the food industry, like in Mexico, the company relies on restaurant partners for washing services and uses these locations as collection points.

CURRENT SCALE: Vytal is now operational in 17 countries with 700,000 app users and 7,000 restaurant partners. Major corporate partnerships include PepsiCo, KFC, Domino’s Pizza, and Uber Eats.

IMPACT: Since its inception in September 2019, Vytal has eliminated the need for 15 million single-use food serviceware units globally.



LESSON LEARNED

■ **A critical mass of washing service providers is required.** In Germany, where the company was first established, Vytal has many different professional dishwashing service providers. This allows the company to service large events without having to invest in dishwashing technology. To support the development of similar markets in the Global South, professional dishwashing services need to expand.

■ **Fast and easy onboarding of staff is key to optimise service delivery.** High staff turnover rates are common in the restaurant industry. This means regularly onboarding new employees to give them the minimum level of knowledge required to optimally promote Vytal’s services. Designing systems that are easy to operate can reduce the time and risk in onboarding new staff.

■ **Franchises enable growth.** Nine of the seventeen Vytal markets are franchises. Franchising offers a capital efficient way of scaling their model and allows entrepreneurs to capitalise on Vytal’s past learnings and major investments in its software.⁵⁸



Reuse model: **Return on-the-go**
 Product: **Food serviceware**
 Where: **Colombia**

WHAT? *Xiclo*⁵⁹ offers reusable packaging for takeaway food, and has developed a software-as-a-service (SaaS) platform to improve the efficiency of reusable packaging for food and beverages.

HOW? Currently operating in Bogota and Medellin, Colombia, Xiclo's packaging system is designed to provide a reusable solution for hot and cold food and beverages in both open- and closed-loop settings.

Xiclo works with catering partners to provide reusable packaging services for events and canteens. In these closed-loop settings, Xiclo provides reusable packaging, drop-off points, and on-site cleaning and sanitising. Each food container is projected to be used 1,000 times if treated properly.

In addition, the company provides reusable packaging for the takeaway food sector. Food takeaways can be bought from various outlets through Xiclo's app, which is delivered in durable metal containers. Customers can then return the containers – within three days – via a collection point or a doorstep collection.

The packaging service comes with an integrated SaaS platform that gives detailed tracking of each container, including when it was last used and how much water, energy, or cleaning products have been used to keep the packaging in use. This enables Xiclo to optimise use of resources, minimise loss of packaging, and ensure packaging in circulation is of a high standard.

Xiclo is currently working with the City of Bogota to replace single-use lunch items in public school meals with reusable lunch packaging. This will start in Q1 2025 and will service 5,000 meals per day. It is projected that this partnership will provide

reusable packaging for 15,000 meals per day by Q3 2025, rising to 200,000 meals per day by 2026. Xiclo is also exploring expanding the service to stadium events – for which up to 750,000 plastic bottles are estimated to be used per event.⁶⁰

CURRENT SCALE: The company currently has capacity to wash 2,500 dishes per day and employs four full-time employees and 15 part-time employees.

IMPACT: Since its founding in 2021, the company's reusable packaging has eliminated the need for 30,000 units of single-use food packaging.

 **LESSON LEARNED**

■ **Closed-loop systems offer the highest collection rates.** The company initially focused on providing serviceware for takeaway food settings. While it was successful in getting restaurants on board and achieved a 98% return rate for packaging units, the service did not achieve the 20% minimum participation level from end customers to be financially sustainable. Initially, it can be easier to achieve the necessary scale in closed- or semi-closed loop ecosystems due to the controlled environment and concentrated customer base. Given this, the company plans to maintain both operations but to focus on large-scale events and state canteens.

■ **Public partnerships could help to scale the service.** Xiclo sees potential to expand its school meal service to support governments to meet their plastic reduction commitments.





Reuse model: **Return on-the-go**
 Product: **Food serviceware**
 Where: **India**

WHAT? *Infinity Box*⁶¹ works with corporate clients to provide reusable food packaging for large-scale catering.⁶²

HOW? The company provides serviceware as-a-service to corporate customers, offering a wide array of reusable dishes, bowls, plates, and cups to reduce the cost of providing meals to their employees. A range of packaging materials and price points are available, from low-cost, polypropylene (PP) serviceware to higher quality metal and ceramic serviceware.

The company sets up dishwashing facilities either within the corporate client's office or in close proximity to enable hygienic circulation of reusable dishware. Clients include global banks, apparel companies, hospitals, and call centres.

CURRENT SCALE: Infinity Box services around 60 corporate clients from its seven operations centres (cleaning facilities) in Mumbai, Delhi, Hyderabad, and Bangalore. It currently provides washing services for about 60,000 meals per day in these four Indian cities.

IMPACT: On average, Infinity Box avoids ~70,000 single-use packaging items per day. In addition, the company provides employment for 450 workers.

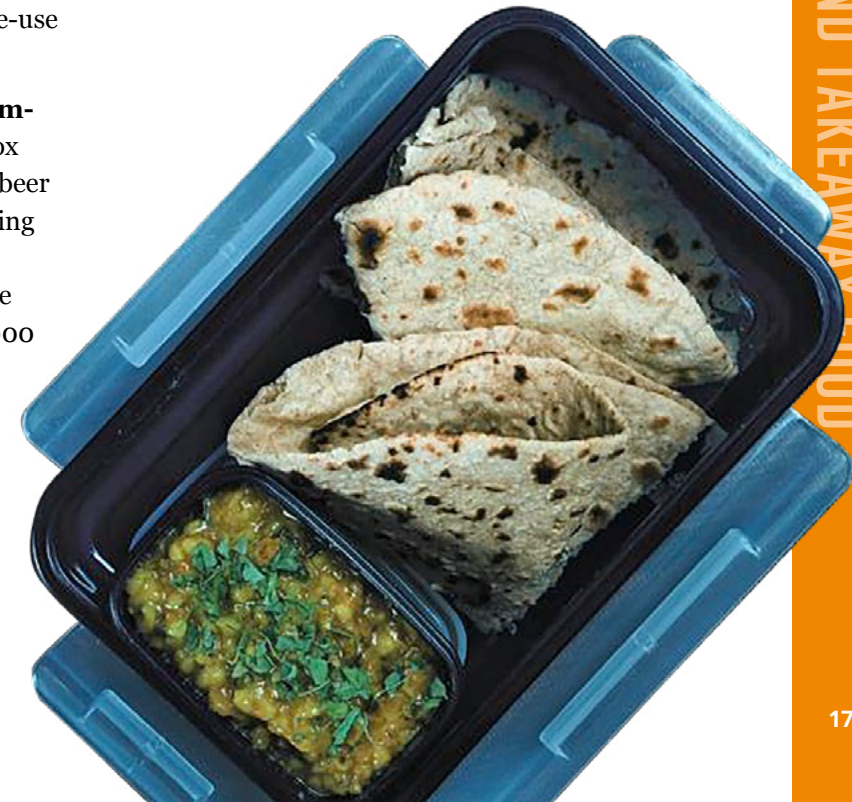
Conditions are safer and more secure than those available in the informal sector and Infinity Box estimates its wages are 30-50% higher.

LESSON LEARNED

■ **Different marketing strategies are effective for different types of organisations.**

Global companies with scope 3 emission goals express greatest interest in the service, seeing two forms of value in the service: emission and cost reductions. These companies are willing to make operational changes to traditional service models required to implement the service. Companies without a strong interest in sustainability are less willing to implement required operational changes and request greater cost reductions over single-use alternatives.

■ **Offering cleaning services to other companies can maximise revenue.** Infinity Box leverages its dishwashing technology to clean beer bottles for a partner company, currently washing 150,000 to 200,000 beer bottles per day. The growth of its cleaning infrastructure means the company anticipates being able to wash 450,000 beer bottles per day by early 2025.





FOCUS AREA THREE

HOME, PERSONAL CARE, AND STORE CUPBOARD INGREDIENTS

In the Global South, home, personal care, and food products are often sold in flexible packaging. This is the fastest growing type of plastic packaging. Currently, 146 billion plastic sachets are used per year to deliver personal care and home care products in South East Asia, utilising their high functional properties, low weight, and cost-effectiveness.⁶³ When introduced in the 1980s, single-portion sachets were seen as a way to penetrate the rural market by offering affordable, branded products to households with limited disposable income.⁶⁴ As consumer spending power rises, so too will demand for flexible packaging used in food, healthcare, and cosmetics.⁶⁵

Flexible packaging is also the most challenging plastic packaging category from a waste and pollution perspective, particularly in regions dependent on informal waste collection. While informal waste pickers play a hugely important role in these regions, the low value of small-format flexibles can lead to low collection rates. As such, small-format flexibles have a much higher likelihood of being mismanaged and ending up in nature. Even if collected, flexible plastics are hard to recycle.⁶⁶ If business continues as usual, it

is estimated that 40 trillion flexible plastic packaging items will have cumulatively entered the ocean by 2040.⁶⁷



40 TRILLION
flexible plastic packaging
items will have cumulatively
entered the ocean by 2040, if
business continues as usual

Scaling reuse models for home, personal care, and food products is critical to tackle this environmental challenge. Analysis conducted in Europe found that a reusable detergent bottle had 12 times less environmental impact than a typical single-use bottle.⁶⁸ At a global scale, it is estimated that replacing 50% of plastic packaging in the food and beverage sector with reusable alternatives by 2030 could decrease resource usage by 27.1 million tons.⁶⁹

Existing reuse systems have shown promise in delivering inclusive economic benefits.

Refill systems enable consumers to buy desired quantities of products – maintaining low cost and portion control benefits of single-serve sachets. Case studies also point to the potential of reuse systems to reduce prices for consumers and to provide income opportunities for waste pickers. Momentum has gathered for reuse systems for home care and personal care products in particular. Several FMCGs have partnered with startups in the Global South to trial refill solutions, while many companies are also offering own-brand refill products. An existing culture of refill-on-the-go in the Global South can enable a rapid transition.

Policy is critical in unlocking the potential of reuse for these product categories.

Hygiene and safety regulations and guidance are often directed at single-use systems – for example, assuming that all packaging comes from, and is filled by, the manufacturer. This can deter companies from developing reuse for food products, and in some countries also presents barriers for personal care products. Some case studies point to uncertainty and complexity around regulation leading to

increased administrative costs and slower scaling.⁷⁰ Developing permits, licenses and guidelines specifically for reuse could accelerate progress, protect consumer safety, and enable inclusive participation.⁷¹ Furthermore, reuse systems for home, personal care, and food tend to be focused in urban centres, limiting access for rural and underserved communities. Public-private partnerships could play an important role in expanding infrastructure to these areas, alongside further accelerating infrastructure in urban centres.⁷²





Reuse model: **Return on-the-go, Return from home, Refill on-the-go**
 Product: **Home & personal care, Food products**
 Where: **Indonesia**

WHAT? *Alner*⁷³ is a distributor and a retail company focused on home care, personal care, and basic food staples sold in refillable containers.

HOW? Alner offers home care, personal care, and food and beverages, predominantly through return on-the-go and return-from-home models. Recently, the company also partnered with Unilever Indonesia, funded by TRANSFORM, to pilot the sale of laundry detergent, dish soap, and floor cleaner products through its refill-on-the-go model.

For the return model, customers buy products online. Packaging can be then returned via a wide network of micro-distributors, reverse vending machines, or from home during their next delivery. Cash is redeemed when packaging is returned. The company cleans and sanitises the returned packaging in its cleaning facility, refills it, and reintroduces it to the market. Return-from-home is the most popular service, making up 50% of sales. Packaging is tracked via QR codes, and is durable enough to be used 20 times.

The refill-on-the-go model provides Unilever-branded products – supplied in returnable B2B containers –

and own branded products in dispensers situated at micro-distributors’ stores, including waste banks,⁷⁴ women’s community groups, and small family-owned neighbourhood stores. Sales of branded products and unbranded products are approximately even.

CURRENT SCALE: Alner currently has 1,000 micro-distributors selling its products, serving approximately 5,000 refills per month to around 3,500 active monthly users.

IMPACT: Since 2020, Alner’s reusable packaging has eliminated the need for more than 1.2 million single-use packaging items, with the top packaging items refilled 13 times so far.

 **LESSON LEARNED**

■ **Partnering with FMCG players can bring significant scaling opportunities.** Alongside its work with Unilever, Alner has been piloting a returnable packaging system with other major brands. These partnerships can open up major market opportunities.

■ **Collaborating with the informal sector can improve the return system while also improving livelihoods.** For example, waste pickers often recognise Alner’s reusable packaging in the recycling stream and return it for a deposit. Alner also involves waste pickers as salespeople for its reusable products, who combine delivering and collecting reusable packaging with their usual home-to-home waste collection services.

This provides an additional income stream for waste pickers. Furthermore, the service offers revenue opportunities and increased customer loyalty for micro-distributors providing sales points. Alner estimates that the service provided additional revenue of around USD 100–200 per sales point on average in 2021/22.

■ **Regulation could accelerate adoption of reuse.** Alner points to the potential for Extended Producer Responsibility (EPR) legislation to encourage more brands to adopt reuse, whilst cleaning standards for reusable packaging could simplify and speed up implementation. Alner has invested resources to navigate regulatory requirements.

■ **Positive framing can boost consumer uptake.** Alner has rephrased the concept of a packaging deposit, referring to it as cash back. The company reports that this messaging resonates better with customers and increases adoption.





Reuse model: **Refill on-the-go**
 Product: **Cooking oil, water**
 Where: **South Africa, Zimbabwe**

WHAT? *Sonke*⁷⁵ dispenses cooking oil via refill-on-the-go vending machines.

HOW? Via its network of dispensers, Sonke sells cooking oil, including its own brand SunQueen. Consumers can bring containers to buy directly in selected supermarkets – the company is currently piloting a refill scheme with major South African retailer, Shoprite.

The company uses the same system to sell dish-washing liquid and will be piloting refill-on-the-go models for water, in partnership with Manzi, in 2025, offering refill water subscriptions for 10% of the cost of water in single-use packaging.⁷⁶ Innovative payment methods are being trialled, for example, radio-frequency identification (RFID) technology will allow customers to pay for water subscriptions with metro cards.

CURRENT SCALE: Sonke currently delivers 50,000 to 70,000 litres of cooking oil to market each month.

IMPACT: Since July 2020, Sonke's reuse offer has eliminated the need for over 2.5 million single-use plastic bottles in South Africa. In Zimbabwe the company has eliminated the need for 500,000 single-use packaging units since early 2023.

LESSON LEARNED

- **A consistent power supply is critical for modern, digitised infrastructure.** Sonke's dispensers are modern, interconnected, and require power supply. In areas with intermittent power supply, this can be a challenge.
- **Cooking oil was a more economically viable entry point than home care products.** Sonke initially provided a reusable packaging solution for home care products, but pivoted to focus mainly on cooking oil due to the much higher volume of consumption and resulting economic viability.
- **Global policies which define the basic principles, guidelines, and targets per product group can set the direction of travel and increase investment opportunities** for reuse startups by enabling greater consistency, trust, and awareness across the value chain.





Reuse model: **Return on-the-go,**
 Product: **Home & personal care**
 Where: **Mexico, Chile**

WHAT? *Mercado Circular*⁷⁷ develops refill solutions for consumer products. The company is part of the Demaria group, a well-known Chilean national brand focused on cleaning products.

HOW? Mercado Circular offers a range of reuse services, including customised refill machines, tracking software, and operational support.

The vast majority of Mercado Circular’s work is focused on providing refill dispensers for EcoCarga cleaning products (also part of the Demaria group). Dispenser machines are sited in strategic locations including supermarkets, neighbourhood stores, malls, metros, parks, and city halls. Customers refill their own containers (refill-on-the-go) at prices 10-30% lower than equivalent supermarket products. The company highlights that these savings are possible because packaging typically accounts for 30-40% of a product’s cost.

Mercado Circular is also looking to extend its service to other product categories – such as beverages and pet food – and corporate partners. For example, it conducted a successful pilot with Procter & Gamble personal care products, selling Head & Shoulders, Pantene, and Herbal Essences branded hair care products at Sam’s Club (Walmart) in the Santa Fe community of Mexico City between 2023 to 2024.

CURRENT SCALE: To date, 150,000 families use Mercado Circular’s refill dispensers.

IMPACT: Mercado Circular has eliminated the need for over 1.3 million single-use packaging units, equivalent to 221 tons of plastic. EcoCarga estimates that the average Chilean family using its products will save USD 150 per year.

LESSON LEARNED

- **Working with local brands increases consumer options and boosts competitiveness.** National brands can offer reuse solutions alongside FMCG brands and as such can increase competition in the market.
- **Updated regulation could expand geographic and product scope.** The sale of products in bulk is restricted in Chile, stemming from legislation from the 1950-60s. However, Mercado Circular points out that technological developments since then have transformed the traceability and safety of bulk products. This is not an issue in Mexico, which has no such bans.⁷⁸





Reuse model: **Refill on-the-go**
 Product: **Home & personal care, Food products**
 Where: **South Africa, Kenya, Bangladesh**

WHAT? *Smartfill*⁷⁹ develops low cost dispensers for dry goods such as detergent, oats, sugar, and rice.

HOW? The company started as a corporate social investment project, initiated by retailer partner Smollan and developed by digital transformation agency DY/DX. The project aimed to get more affordable food into underserved, low-income communities in South Africa. Today, it works with multinational and national FMCG brands – including pilots with Unilever and Tiger Brands, the largest food manufacturer in Africa – to sell a range of products in underserved informal settlement communities at low prices. Smartfill provides low-cost, Internet of Things (IoT) dispensers where customers bring their own containers and can help lower the cost of essentials by removing the cost of packaging – ingredients provided by Smartfill machines enable meals to be bought for under USD 0.25. The dispensers connect to a stock management platform which gives retailers control over logistics and marketing.

CURRENT SCALE: The company currently has 28 active dispensers in small, usually family-owned neighbourhood stores. Each dispenser has the potential to provide about 2,000 transactions per

month in a small store and 5,000 transactions in a large store. They are currently operational in South Africa, Kenya, and Bangladesh.

IMPACT: In 2023, its dispensers provided approximately 15,000 transactions. This totalled just over four tons of products and offset the need for about 166 kg of single-use packaging.



LESSON LEARNED

■ **Local companies have the agility and market knowledge to reach remote communities.** Smartfill has logistics connections, coupled with near real-time sales data to make logistics and product delivery more cost effective, secure, and food safe.

■ **Tracking technology embedded within reuse systems can enable FMCGs to guarantee that products are not counterfeited.** Counterfeits make up 2.5% of global trade⁸⁰ and are a recognised and costly problem, particularly in this category.⁸¹ This could act as a further incentive for FMCGs to engage in reuse systems.

■ **Dispenser technology and infrastructure capacity offers opportunities to serve B2B clients.** By being an early mover in reuse solution, Smartfill has developed expertise in dispenser technology and low-cost, last mile logistics in townships. These capabilities are sought by other reuse companies and FMCGs, offering a B2B expansion opportunity.



FOCUS AREA FOUR

B2B PACKAGING

Reusable packaging for B2B settings offer a viable and convenient alternative to single use. Transport packaging is often reused within an individual company, but reuse also happens at industry-wide scales with reuse systems built on interconnected operators managing a shared set of standardised, reusable packaging. For example, one company alone – CHEP – has 30 million reusable pallets in circulation in Latin America.⁸² Brands and retailers can shift to reuse systems with minimal risk or investment: reusable B2B packaging and infrastructure is offered as a ‘service’, removing the need for businesses to be responsible for the reuse system.

Many companies have already succeeded in innovating upstream to create viable B2B reuse models, demonstrating the scalability and benefits of reusable packaging for pallets, crates, foldable boxes, drums, and various alternatives to flexible pallet wraps. The market for returnable packaging, valued at USD 40 billion in 2019, is predicted to grow fastest in Asia Pacific.⁸³

Given the wide availability of well-functioning reuse alternatives in many regions, policy measures to further incentivise or mandate adoption have been ambitious. For example, in the EU, Packaging and Packaging Waste Regulation (PPWR) will require companies to use only reusable packaging when transporting between sites of the same or linked economic operators for certain formats of packaging. In Colombia, legislation has been introduced to place a tax on single-use plastics used to pack or bottle goods.⁸⁴



Reuse model: **B2B packaging**
 Product: **Pallet covers**
 Where: **Colombia**

WHAT? *Galaxy Pack*⁸⁵ develops customised, reusable pallet covers to protect goods in transit

HOW? Galaxy Pack is based in Bogota, Colombia and has been operational since 2020. In response to Colombian legislation which set a tax on single-use plastic as of April 2024⁸⁶ – which the company says is equivalent to around 20% in most use cases – Galaxy Pack developed a reusable plastic mesh pallet cover to meet the needs of its corporate partners, including clients such as LATAM airlines, DHL, L'Oréal, Mercado Libre, and Cencosud (Latin America's third largest retailer). These cost between USD 100 and 150, compared to USD 1⁸⁷ for a single-use wrap. However the reusable covers can be used 2,500 times and are designed to be easily refurbished at low cost, extending the lifespan to up to 3,000 uses. This provides a total savings of USD 2,275 over the five-year lifespan of the cover.

There are other benefits. Galaxy Pack's pallet covers are safer and quicker for employees to handle and designed for breathability, which reduces mould and other microbials. In addition, anti-microbial protection can be added to the pallet covers as required, which lasts for many uses. This is significantly cheaper than a single-use application of anti-microbial protection.

CURRENT SCALE: The company has over 2,800 reusable pallet covers in use – 80% in Colombia and the remaining 20% in other South American markets. After four years in operation, more than 90% of Galaxy Pack's reusable pallet covers were still in use.

IMPACT: Galaxy Pack's reusable covers have collectively been estimated to have eliminated the need for 167 tons of single-use pallet wrap. Its largest corporate client, LATAM Airlines Chile, has around 500 reusable pallet covers in operation, which alone eliminates the need for approximately 80 tons of single-use pallet wrap per year. Galaxy Pack estimates that a reusable pallet cover avoids 1,026 kg of CO₂e.⁸⁸

LESSON LEARNED

■ **A strong economic case is vital to overcoming any resistance to the initial investment.** Pallet wrap is commonly used worldwide as a low-cost way to protect cargo in transit: A reusable pallet cover is significantly more expensive, but offers long-term economic and environmental benefits.

■ **Reusable pallet covers are most suited to closed-loop intra-company supply chains.** Businesses moving large amounts of cargo between two locations will quickly recover investments in reusable pallet covers. Reusable pallet covers are optimal when they do not need to be shipped back (without being used) to a central location.



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