INDIA PLASTICS PACT

LANDSCAPE ASSESSMENT

Reuse models in India

Managed by

Confederation of Indian Industry

CII-ITC Centre of Excellence for Sustainable Development

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Funder: UK Research and Innovation, India

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Contents

List of abbreviations

B2B	business-to-business
B2C	business-to-consumer
DRS	deposit-refund system
EMF	Ellen MacArthur Foundation
EPR	extended producer responsibility
FEMSA	Fomento Económico Mexicano, S.A.B. de C.V.
FMCG	fast moving consumer goods
FSSAI	Food Safety and Standards Authority of India
IPP	India Plastics Pact
ISO	International Organization for Standardization
NGOs	non-governmental organisations
RFID	radio frequency identification
SKU	stock keeping unit
SMEs	small and medium enterprises
SUP	single-use plastics

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Executive summary

Reuse is part of the first strategy for stakeholders to implement in the three-pronged reduce-reuse-recycle waste management hierarchy aimed at reducing environmental impact. Prevention of waste and reducing it are preferred options, followed by reuse. However, of the growing efforts to tackle plastic waste, recycling receives the most attention and investment, while reuse is the least practiced and scaled.

Establishing new reuse business models can involve developing an entire system for transport, reverse logistics, return, refilling, cleaning or reconditioning. Such systems are similar to recycling systems in that collection, transport, cleaning are required; however, in reuse, packaging is not melted or otherwise processed into new packaging, but it is cleaned and sent for refilling. In reuse systems the citizen has a crucial role to play in returning for refilling. Not many models of this kind at scale, exist today, anywhere in the world; however, the scope for selling products using the reuse model is immense, and comes with several benefits, such as reductions in greenhouse gas (GHG) emissions and reductions in plastic waste and litter.

In India, the transition to single-use packaged products for almost all fast-moving consumer goods (FMCG) sectors has been rapid and widespread, with a large penetration in rural markets of products in the personal care (shampoo, hair oil, for example), homecare (such as laundry detergents, floor cleaners) and food-and-beverages (salted snacks, sweets, confectionery for example) segments.

While the absence of standards for food products in India can slow down adoption of reuse and refill in that segment of the economy, the same does not apply to personal care or home care products. These latter two products are ripe for testing on a large scale in some areas.

In this report, a repository of reuse and refill business models in practice available in the public domain using desk research (internet searches, references in reports on plastic) was created. An attempt was made to fit the four models of business-to-customer engagement mentioned in the Ellen MacArthur Foundation's (EMF) Reuse-Rethinking packaging[1], to the examples found in both data sets.

The aim was to identify examples of practice of the reuse business model internationally and in India (that is, systematic reuse, and not examples where reuse is already being practiced in the traditional manner) which would help better understand the opportunities (in terms of product and business model), and challenges. Analysis of the two data sets (only B2C models were considered in this report) indicates that globally no single reuse and refill model dominated: 36% were return on the go; 29% refill at home; 28% refill on the go, and the remaining were return from home. In India, while the number of examples identified were fewer, most examples were refill models (refill at home and refill on the go). Compared to return models, where investment requirements are high, refill models are relatively easier to set up.

1 Ellen MacArthur Foundation. (2019). Reuse — Rethinking packaging. Available at https://emf.thirdlight.com/file/24/_A-BkCs_aXeX02_Am1z_J7vzLt/Reuse%20%E2%80%93%20rethinking%20packaging.pdf. Accessed on 10 April 2024.

The outcomes of this report would also help signatories of the India Plastics Pact progress on Target 2 (100% packaging to be reusable, recyclable, or compostable* by 2030). In the Government of India's extended producer responsibility (EPR) guidelines, brand owners are obliged to meet targets for reuse for Category I (rigid) packaging in two size ranges starting in 2025-26. Insights gained through this work will be useful in meeting those targets as well.

Case studies provide details of the challenges and potential of reuse models, as experienced by entrepreneurs in the Indian context working in rural and urban environments. Because of a large difference between urban and rural areas in terms of income and lifestyle together with variations in socio-economic status within urban areas, it is more than likely that acceptability, uptake, and scalability of the reuse model will differ. Some of the challenges cited by practitioners, include the lack of investments, absence of a level playing field, standards, definitions, and quality considerations. These are similar to the challenges mentioned by practitioners in other parts of the world, whether large businesses or small.

A just transition from single use plastic packaged goods to reuse models should ensure the livelihoods of waste workers are positively impacted through new economic opportunities. While a decline in the use of plastic packaging is desirable, job opportunities should become available to those already working in the field whose earnings depend solely on selling plastic waste and that from other kinds of material such as glass, paper, and metal.

* For compostable packaging to be included it must:

a) not leave any microplastic residue,

b) be used in a closed loop and in controlled systems with sufficient infrastructure available or fit-for-purpose applications, and,

c) be properly labelled as 'home' or 'industrial' compostable.

1 Introduction

Plastic packaging forms the largest end-use of plastic production, i.e., approximately 31% of global plastic production (380 million tonnes). Only about 14% of the plastic packaging that is produced is recycled, while 2% only, is recycled into closed-loop applications.[2] As more evidence becomes available,[3] it is becoming clear that neither one of the 'upstream' measures (pre-consumer, such as material redesign, plastic reduction, and substitution) or 'downstream' solutions (postconsumer, such as recycling and disposal) is the complete answer to managing plastic waste and pollution.

Recycling, in particular, is closely linked to the availability of infrastructure and efficiency of collection and sorting: more often than not, all that is recyclable does not end up getting recycled. In such a situation, other crucial solutions such as elimination and reuse must be examined and prioritised over recycling.

2 World Economic Forum, Ellen MacArthur Foundation and McKinsey & Company (2016). The New Plastics Economy: Rethinking the future of plastics. Available at https://www.ellenmacarthurfoundation.org/the-new-plastics-economy-rethinking-the-future-of-plastics. Accessed on 10 April 2024.

3 Ellen MacArthur Foundation and UNEP (2023). The Global Commitment Five Years In: Learnings to Accelerate Towards a Future Without Plastic Waste or Pollution. Available at The Global Commitment 5 Years In. (ellenmacarthurfoundation.org). Accessed on 10 April 2024.

Reuse is an essential but less practiced part of the waste management reduce-reuse-recycle hierarchy: it also forms part of the 'reduce' strategy. In packaging, the reuse concept (in both, business-to-business (B2B) and business-to-consumer (B2C) settings) involves replacing single-use packaging, primarily focusing on plastic packaging, with containers that can be used for the same purpose again and again, reducing waste and cutting down on the resources required, and energy consumed making new packaging. In the Indian context, as in other places across the world, the B2B reuse model is better understood and practiced.[4] This report focusses on consumer-facing (B2C) applications which pertain to refilling products or returning packaging to manufacturers.

Figure 1 Products in plastic packaging in an Indian shop selling packaged snacks *(photo credit: India Plastics Pact archives)*

4 Businesswire (August 2, 2023). KKR acquires majority stake in leading pallet pooling platform LEAP India. Available at https://www.businesswire.com/news/home/20230801401222/en/KKR-Acquires-Majority-Stake-in-Leading-Pallet-Pooling-Platform-LEAP-India. Accessed on 10 April 2024.

A 2021 study reports that if 10% to 20% of all packaging is reusable, somewhere between 7 million tonnes and 13 million tonnes of plastic packaging would become reusable, representing 45% to 90% of annual plastic waste entering oceans or 10% to 25% of annual plastic waste entering landfills.[5]

Reuse business models typically operate through a combination of refill and return: in return models the company owns the packaging, while in refill models the consumer owns the packaging. Reusable packaging can be part of a larger system in which packaging is used multiple times supported by arrangements for transport, reverse logistics, return, refilling, cleaning or reconditioning.

Why reuse and refill?

Reuse and refill have the potential to generate environmental, commercial, and social benefits. Recycling *manages* packaging waste while reuse *prevents* waste. Reuse offers the opportunity to move away from single-use plastic packaging, reduce virgin material use, keep packaging in the economy, divert waste packaging from landfill and incineration, and reduce pollution and emissions.[6]

Figure 2 Plastic waste stored at a material recovery facility in Mumbai, India *(photo credit: India Plastics Pact archives)*

5 World Economic Forum (2021). Future of Reusable Consumption Models Platform for Shaping the Future of Consumption: Insight Report. Available at https://www3.weforum.org/docs/WEF_IR_Future_of_Reusable_Consumption_2021.pdf. Accessed on 10 April 2024.

6 Global Plastics Policy Centre (2023). Making reuse a reality: A systems approach to tackling single-use plastic pollution. Available at https://plasticspolicy.port.ac.uk/research/making-reuse-reality/. Accessed on 10 April 2024.

Figure 3 Adrish zero waste organic store, Mumbai, India *(photo credit: India Plastics Pact archives)*

Apart from the environmental benefits, research in the area of re-usable packaging suggests that a transition to re-use and refill for grocery retail and hospitality and food services products could have an impact on new business models and small and medium enterprises (SMEs), and the creation of localised and more skilful and satisfying jobs.[7] Support will be required for workers whose income is tied into the current single use plastic business model, and this should be carefully managed using Just Transition principles, or mechanisms which ensure that no one is left behind.[8]

Reuse business models provide commercial operators the ability to mitigate risk against increased raw material costs[9], any future policy disincentives associated with single use plastic, and litigation[10]. Reuse systems also provide an opportunity to create a more interactive and personalised user experience with customers, and the potential to strengthen brand loyalty.

In terms of delivering new value to consumers, the reuse and refill model is a promising one; for example, refill models allow consumers to purchase the amount they require, or can afford, as opposed to being forced into buying amounts that are set by packaging formats. Algramo[11], a Chilean company, developed its first prototype for refill in 2013, motivated by the need to provide bulk products at small and fair prices, but able to provide only the exact amount of product the client needed or could buy. In 2021, Algramo partnered with Unilever and Nestlé, expanding its consumption model to a larger scale based on the reuse of smart packaging, with the integration of

7 Rethink Plastic (October 2022). A Just Transition to the Re-usable Packaging. Available at A-Just-Transition-to-Reusable-Packaging.pdf (rethinkplasticalliance.eu). Accessed on 10 April 2024.

8 European Commission (January 14, 2020). The Just Transition Mechanism: making sure no-one is left behind. Available at The Just Transition Mechanism (europa.eu). Accessed on 10 April 2024.

9 World Economic Forum (March 23, 2023). Why brands must make reusable packaging a commercial priority. Available at Why reusable packaging must become a commercial priority | World Economic Forum (weforum.org). Accessed on 10 April 2024.

10 ClientEarth (September 15, 2022). Plastics on trial: a briefing series on evolving liability risks related to plastics. Available at Plastics on trial: a briefing series on evolving liability risks related to plastics | ClientEarth. Accessed on 10 April 2024.

11 The name Algramo derives from the expression, 'al gramo', which actually means to buy 'per gram'. https://algramo.com/en/. More information at https://fondazionecartaeticapackaging.org/storie-di-etica/the-story-of-algramo/?lang=en.

a radio frequency identification (RFID) chip which allows to monitor the number of reuses.

Reuse and the India Plastics Pact's targets

The India Plastics Pact is an ambitious, collaborative initiative that is bringing together businesses, governments, and non-governmental organisations (NGOs) to rethink the way plastic packaging is designed, used, and reused. The Pact focuses on bringing about a transition to a circular economy in the plastic packaging sector through four ambitious time-bound targets.

Target 2 of the Pact aims for 100% of the plastic packaging to be reusable, recyclable, or compostable, and aligns with the EPR guidelines notified by the Indian Government in 2022, under the Plastic Waste Management Rules.[12] These guidelines oblige brand owners using rigid plastic packaging (Category I in the Guidelines) to meet targets for reuse from 2025-26. An enabling policy is therefore in place supporting and motivating work on reuse models in India.

It will be useful for stakeholders and India Plastics Pact signatories to understand the landscape of reuse in India as it currently stands. The report begins with an explanation of the concept of reuse and refill (Chapter 2), followed by some Indian case studies (Chapter 3), and the policy and regulatory landscape globally and in India (Chapter 4). In Chapter 5, the report highlights challenges and opportunities for expanding and promoting reuse and refill practice in the country accompanied by recommendations.

Figure 4 India Plastics Pact targets

12 Government of India (2022). Guidelines on Extended Producer Responsibility, Clause 7.4 (b), p. 26-27. Available at https://cpcb.nic.in/rules-4/. Accessed on 10 April 2024.

2 Concept of reuse and refill

What are reuse and refill?

There is no universally agreed definition of reuse at present which can hamper establishing ownership and legal responsibility within reuse and refill systems. Some definitions presented below throw light on the concept of reuse in the context of packaging and as an alternative model to single-use packaging, with a focus on plastic packaging. The reason that 'refill' and 'reuse' are often used together is that true displacement of virgin plastic packaging material takes place only when packaging is recovered and used again, and again, by refilling it. Not all products are suitable for sale in the refill mode, but many are.

The International Organization for Standardization (ISO) defines reuse as, '*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*'.[13] This definition has been adopted by most of the Plastics Pacts in different parts of the world.

13 International Organization for Standarization (n.d.). ISO 18603:2013. Packaging and the environment — Reuse. Available at https://www.iso.org/obp/ui/en/#iso:std:iso:18603:ed-1:v1:en. Accessed on 10 April 2024.

Refill has been described[6] as a system to reduce waste packaging, in which consumers use their own containers multiple times either through in-store refill systems or at-home concentrate refills. The Global Plastics Policy Centre, University of Portsmouth considers reuse, '*...a comprehensive system designed for multiple circulations of reusable packaging which remains in the ownership of the reuse system and loaned to the consumer'.*[6] Two points with respect to this reuse and return model to note are:

1. 'To make reuse environmentally worthwhile, reusable packaging must be used more times than its sustainability breakeven point, after which each use of the packaging has less environmental impact than its single-use equivalent. The sustainability breakeven point is a critical measurement of the effectiveness of a reuse system and must be monitored carefully' (the World Economic Forum is currently leading a multistakeholder working group to set guidelines for standardized reuse measurement[14]).

2. 'An essential part of any reuse system is the return of the item back into circulation. The return aspect is heavily dependent on consumer behaviour, with consumer convenience at the heart of any return system.'[6]

In the EU Packaging and Packaging Waste Regulations, Article 3 (22) defines 're-use' as any operation by which reusable packaging is used again and again for the same purpose for which it was conceived. 'Refill' is an operation by which an end used fills its own container, which fulfil the packaging function, with a product of several products offered by the final distributor in the context of a commercial transaction.[15]

The Government of India's Extended Producer Responsibility Guidelines' definitions,[12] states reuse, 'means using an object or resource material again for either the same purpose or another purpose without changing the object's structure.' A brand owner using the Category I (rigid) plastic packaging has a 'minimum obligation to reuse such packaging....' This definition differs from that used elsewhere in the world.

The term, 'reuse solution' is also encountered in the literature, and is defined as, '*an activity that directly facilitates or encourages the use and circulation of reusable packaging and food ware for the same purpose for which it was created.*'[16]

The four reuse and refill models

The Ellen MacArthur Foundation identifies four different business-to-consumer (B2C) reuse and refill models with the ownership of the packaging being the main point of difference between the models. The reuse and refill model is undoubtedly a promising one, especially in terms of delivering new value to consumers in urban areas. Examples of brands delivering services in these categories are also described, both in India and globally, in Chapter 3.

14 World Economic Forum in collaboration with Kearney. (January 8, 2024). Scaling reuse models: A guide to standardized measurement. White paper. Available at https://www.weforum.org/publications/scaling-reuse-models-a-guide-to-standardized-measurement/ Accessed on 10 April 2024.

15 European Union, EUR-Lex (November 30, 2022). Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on packaging and packaging waste, amending Regulation (EU) 2019/1020 and Directive (EU) 2019/904, and repealing Directive 94/62/EC. Available Available at https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52022PC0677. Accessed on 10 April 2024.

16 Moss E., Gerken K., Youngblood K., and Jambeck J. R. (November 24, 2022). Global landscape analysis of reuse and refill solutions. Frontiers in Sustainability, Sec. Waste Management, Vol. 3 - 2022. doi: 10.3389/frsus.2022.1006702. Available at https://www.frontiersin.org/articles/10.3389/frsus.2022.1006702/full#B22. Accessed on 10 April 2024.

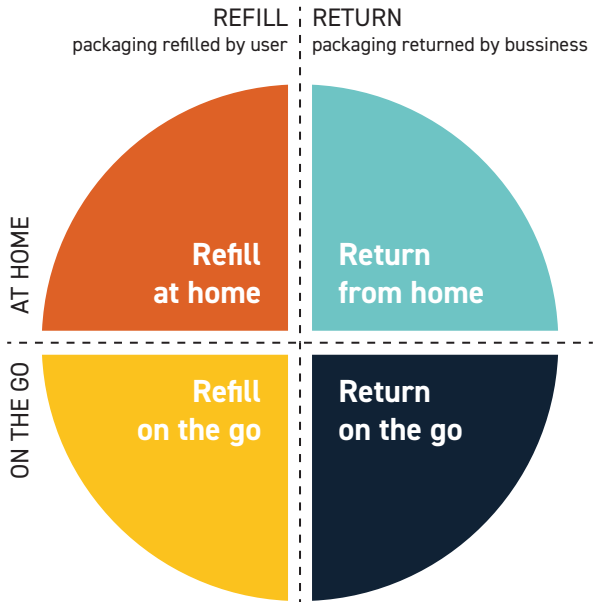

Figure 5 Reuse models as described by the Ellen MacArthur Foundation[1]

1. Refill at home

Here, refills can be delivered to the user, via existing direct-to-consumer channels such as subscription services. Users refill their reusable container at home, retain ownership of the packaging and are responsible for cleaning. This model works both online and in traditional retail. It is favourable for e-commerce brands selling compact refill products, such as personal care items, homecare products, and beverages for everyday use (it should be noted that if the refill packaging is not returned to be filled in again and again, then the model fits lightweighting and recycling strategies more closely than reuse).

2. Refill on the go

Here, consumer behaviour change is critical because consumers refill their reusable container away from home in a store with dispensing systems. Typically, users retain ownership of the packaging along with the responsibility of cleaning. In some cases, the user can rent or borrow a container from the vendor. This model is suitable for traditional retail stores selling groceries, personal, and homecare products. The quantity of the products, as per the user's needs, can be accommodated in this model. Retailers have to be willing to allow space for dispensing systems. Consumers will need to dedicate time for the refill and will have to be made aware of the existence of these systems and how to use them.

3. Return from home

The empty packaging is picked up from home by a collection service which a user subscribes to. The business or service provider takes care of cleaning, refilling the packaging, and redistribution. This model is suitable for e-commerce brands selling personal care, homecare, groceries, food delivery, and beverages. An essential requirement is the availability and setting up of systems to handle return logistics and reusable packaging cleaning. More often than not, such supporting infrastructure for cleaning has not been built yet; delivery infrastructure, even though it exists, has not been optimised for pick-up and return to the cleaning facility.

4. Return on the go

The packaging is returned by users at a store or drop-off point in a kiosk or deposit return machine. The service provider or business usually takes care of cleaning, refilling and redistribution of the product. This model is most widely used in the food and beverage industry, especially with traditional retail outlets. Again, consumer education and awareness are important factors, with access to infrastructure for collection being an area of investment.

Reuse and refill stakeholders

A successful reuse and refill model requires stakeholders at different parts of the value chain to collaborate. If implemented at scale, reuse systems can create job opportunities especially for waste workers already in the system, as infrastructure

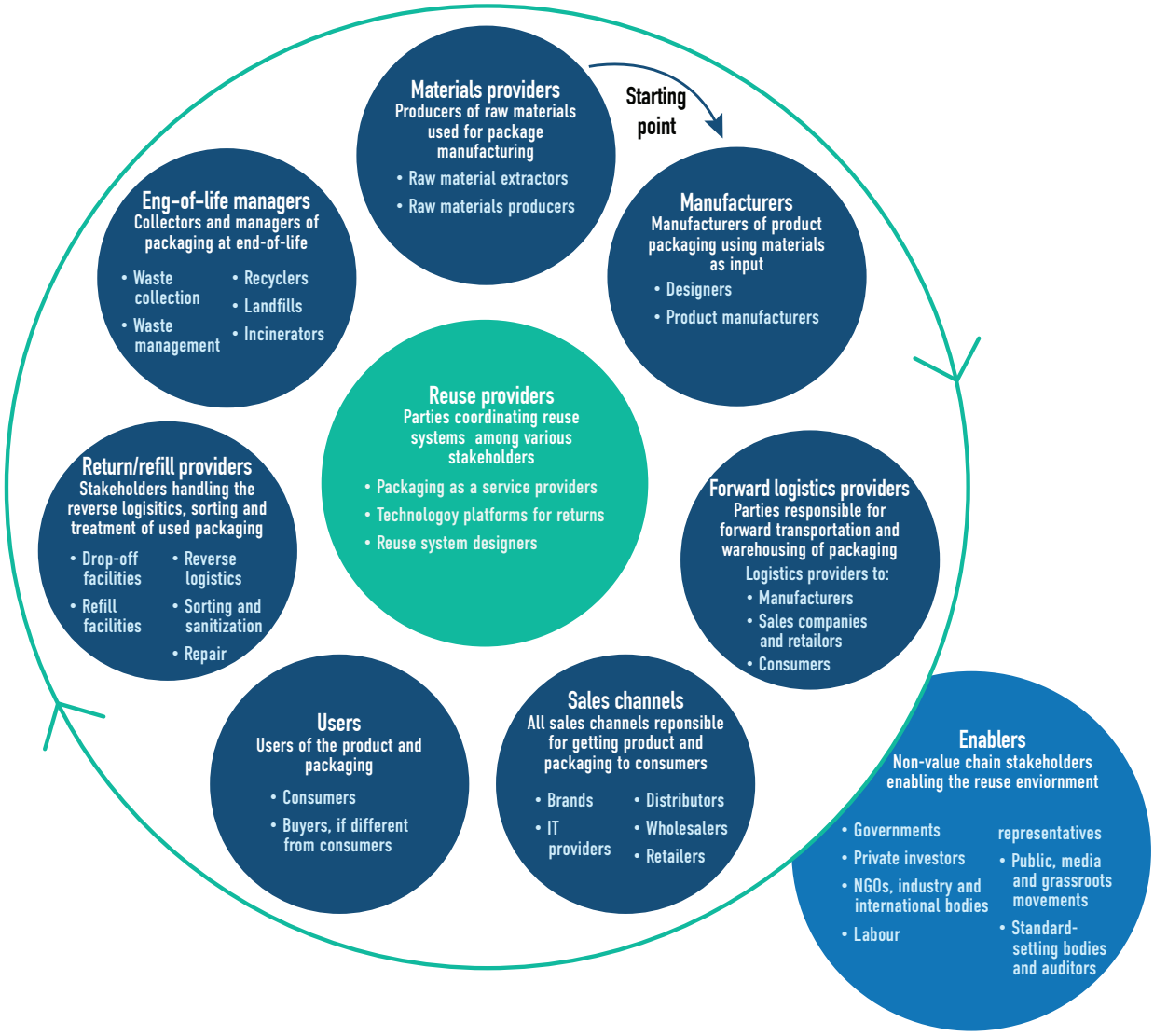

Figure 6 Stakeholders involved in the delivery of reuse and refill models[5]

for reuse such as reuse hubs, develops. Figure 6 provides a snapshot of the kinds of stakeholders needed for reuse and refill models.[5] Forward logistics providers for forward transport and warehousing of packaging serving manufacturers, consumers and sales companies/retailers along with return/refill providers, i.e., stakeholders handling the reverse logistics, sorting and treatment/cleaning of used packaging will need to be developed. The types of stakeholders that are involved in any given system will depend upon the solution itself. For instance, a system at low scale, may not involve any reverse logistics.

Benefits of reuse and refill

Reuse and refill systems tackle plastic pollution and deliver key economic, environmental, and social benefits to users and businesses.

1. Economic

Shifting to reuse and refill models can help businesses effectively cut costs on packaging, distribution, and transportation by selling their

products in refill formats or in concentrates/as solids. Reusable systems allow companies to cater to individual needs, provide personalized user experiences, optimize operations, and offer benefits through deposit and reward schemes, resulting in brand loyalty and consumer retention. Regulatory and sustainability targets are also taken care of through the models. Rent-as-service models can allow packaging to circulate in loops and derisk cost variations of single-use packaging in the event of international disruptions in oil supplies. According to an estimation by the Ellen MacArthur Foundation, replacing just 20% of single-use plastic packaging with reusable alternatives offers an opportunity worth at least USD 10 billion;[17] however, it should be acknowledged that payback on reuse systems can be slow, and initial investments may often be large.

2. Environmental

Reuse and refill packaging systems can often have a lower environmental impact than single-use systems. The higher the number of repeat cycles of a packaging, the lower the environmental impact. Benefits in environmental terms include waste prevention (often leading to clogged drains and flooding), GHG emissions reduction, reduced raw material consumption, less litter (reducing land, soil and marine pollution), reduced microplastics, for example. A recent report[18] showed that returnable plastic packaging has the potential to achieve meaningful environmental benefits compared to single use, in the System Change scenario reducing GHG emissions and water use by 35% to 70%, and material use by 45% to 75% for selected applications.

3. Social

Research in Europe suggests that reuse can create new jobs at regional and local level and develop knowledge-based, with the potential for development of professional and vocational skills for workers. [19] In countries such as India, while reuse and refill business models will cut plastic waste, they will also reduce material flows which could affect the livelihoods of large numbers of informal workers engaged in the waste management sector at different levels, as collectors, aggregators and recyclers, for example. However, such workers can be integrated into the many new job opportunities that will be created, described above. The opinion of women waste workers in Pune (detailed in Chapter 5) emphasizes the importance of integrating them into new systems designed for reuse models, from inception, so as to ensure that their livelihoods are not threatened as they learn and adapt to handling newer volumes and kinds of material.

Figure 7 Women waste workers talk about the importance of reuse models *(photo credit: Kagad, Kach, Patra Kashtakari Panchayat and SWaCH)*

17 Ellen MacArthur Foundation (2017). The New Plastics Economy: Rethinking the future of plastics and catalysing action. Available at https://ellenmacarthurfoundation.org/the-new-plastics-economy-rethinking-the-future-of-plastics-and-catalysing. Accessed on 10 April 2024.

18 Ellen MacArthur Foundation. (2023). Unlocking a reuse revolution: scaling returnable packaging. Available at https://www.ellenmacarthurfoundation.org/scaling-returnable-packaging/overview. Accessed on 10 April 2024.

19 Rethink Plastic (October 2022). A Just Transition to the Re-usable Packaging. Impact on workers. p. 15—23. Available at A-Just-Transition-to-Reusable-Packaging.pdf (rethinkplasticalliance.eu). Accessed on 10 April 2024.

3 Reuse and refill: International and Indian case studies

Introduction

To lay out the current landscape, examples of reuse and refill solutions in India and the rest of the world were collated to create a repository using the following sources:

- Searches in reports published by international organizations (World Wildlife Fund, The Ellen MacArthur Foundation, World Economic Forum, for example), working in the area of plastic waste management.
- Google searches (keywords: *refill, reuse, reusable packaging, reuse packaging in India, reuse refill in India, reuse and refill businesses in India, reuse solutions, reuse refill startups in India, articles on reuse packaging in India, reuse and refill in South Asia, and reuse refill pilots in India*).

The repository of reuse and refill solutions was studied with respect to location ; product (food, beverage, cosmetics, for example); application (business-to-business, business-to-consumer, or both), and typology (with reference to the four B2C reuse models described by the Ellen MacArthur Foundation[18].

- 'Food and beverage' included solutions in the food, beverage, and grocery segments;
- 'Personal care' corresponded to solutions in the cosmetics, oral care, hair care, and body care segments;
- 'Home care' included solutions based on household cleaning products; and
- 'Others' corresponded to solutions operating in the transport packaging, e-commerce, pet care, segments, for example.

The reuse and refill solutions identified were summarized and analysed using the PivotTable and Filter features in Microsoft Excel to understand their distribution by application, product category and B2C reuse model (or typology). In this process, solutions operating in multiple product categories, and/or multiple reuse models, were counted once in each category and/or model: if a solution operated in both the home care and personal care categories, it was counted once in both categories (this results in totals of percentages not equalling 100).

Data and inferences from the reuse and refill repository

The subsequent sections are in three parts.

1. Description of data of solutions from outside India
2. Description of data of solutions from India
3. Inferences from both data sets (outside India and India)

Outside India

Out of the final list of 389 solutions, 22 were from India, and two (The Body Shop and Neutrogena), also offered in other countries.

Of the 369 solutions identified in countries outside India, only 54 were B2B solutions, with the remainder, 315, either B2C, or both, B2C and B2B solutions. As only an online platform for businesses to connect with local reuse networks for their products, one (Iterant, USA) of these did not fall into any of the four B2C reuse models and was excluded.

Most of the solutions were found to be operating in the Global North (Table 1). More than half of these solutions were focussed on food and beverage products (Table 2).

Table 1 Geographical distribution of reuse solutions

Region	Share (%)
North America	44
Europe	38
Asia (excluding India)	11
Africa	5
South America	4

Table 2 Distribution of reuse solution by product category

Product category	Share (%)
Food and beverage	54
Personal care	37
Home care	25

No single model dominated when the distribution of reuse solutions was studied among the four business model types: 36% were return on the go; 29% refill at home; and 28% of all reuse solutions fell into the refill on the go type. A small number of solutions, 11%, belonged to the return from home model type (Figure 4).

An examination of business model type by product showed that a little over half (57%) of the food and beverage examples belonged to the return on the go model, while refill at home was the most common for personal care and home care products, 57% and 48%, respectively.

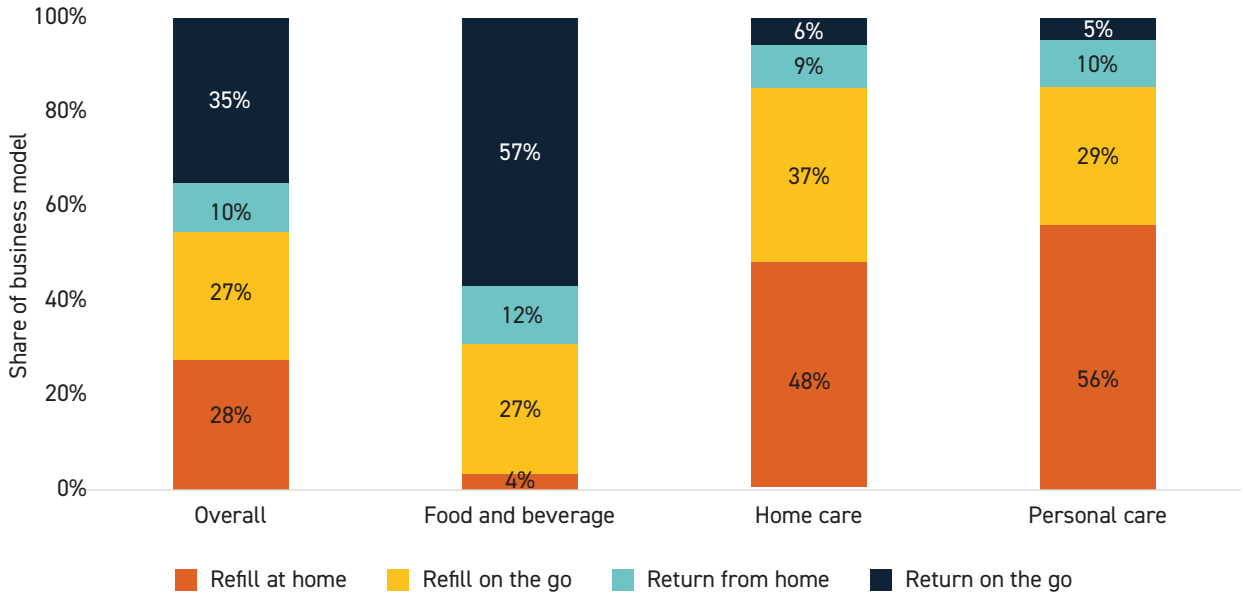

Figure 8 Distribution of reuse model by product category for all geographies

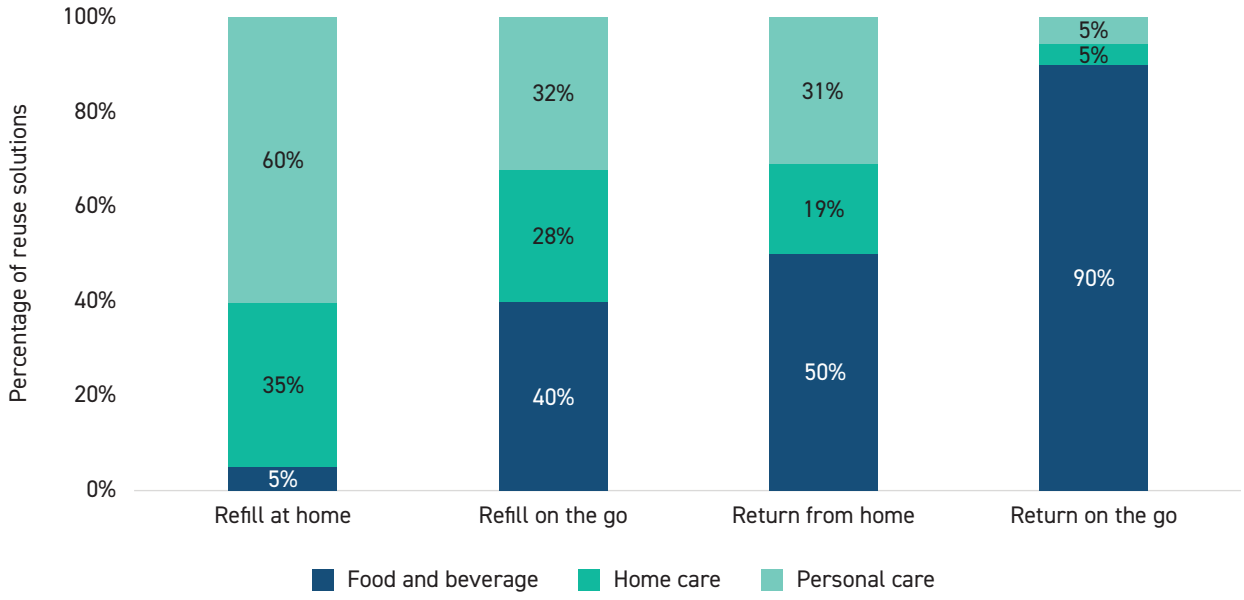

Figure 9 Distribution of products by reuse model

To examine whether any of the four business models seemed to be more popular than others in one of the three product categories, the distribution of business model by product was studied (Figure 5). Most examples, 90%, of the return on the go model were associated with food and beverage products. For return from home and refill on the go, the highest number of examples related to food and beverage products (50%), followed by personal care products (40%). More than half, 60%, of refill at home solutions related to personal care products, while 35% of refill at home solutions were in the home care product category.

Within India

The reuse and refill system in India is still developing: many solutions have been recently introduced but these have mostly been trialled in major urban centres (Mumbai, Delhi-NCR, Bengaluru, for example). Of 22 solutions identified in India, seven were offered in the B2B mode (transport packaging, e-commerce and food sectors).

Of the remaining 15, which are B2C applications, most were offered in personal care, 53%, followed by home care, 40%, and food and beverage, 27%. The distribution of model by product is as follows:

- Food and beverage: refill at home (one example), refill on the go (one example) and return from home (three examples)
- Home care: refill at home (one example) and refill on the go (five examples)
- Personal care: refill at home (four examples), refill on the go (three examples) and return on the go (one example).

With respect to reuse model, the largest number of solutions are in the refill on the go (seven), followed by refill at home (five), return from home (three) and return on the go (one). The distribution of product by model is as follows:

- Refill at home: food and beverage (one example), home care (one example) and personal care (four examples)
- Refill on the go: food and beverage (one example), home care (five examples) and personal care (three examples)
- Return from home: food and beverage (three examples)
- Return on the go: personal care (one example).

Figure 10 Bisleri refillable water bottle *(left, photo credit: Bisleri)* and empty water bottles collected from consumers *(right, photo credit: India Plastics Pact archives)*

Refill on the go is the prevalent reuse model in the home care and personal care categories. Return from home is the prevalent model in the food and beverage category and this model has not been adopted in any other category. Of these, one of the solutions (Dabbawalla) is a food delivery service, which has been in operation in Mumbai since 1890.

One solution (Cleanlabel) appeared to have shut down, as the latest information is available only up to 2021. The third solution (Bisleri) provides refillable water bottles to consumers. The empty bottles are collected from home and then refilled with Bisleri water.

Four solutions are based on the refill at home model, with Cleanlabel being one of them. The remaining three solutions are available in the home care and personal care categories.

Inferences

Food, beverages, home, and personal care products are typically on offer in B2B reuse systems (as reuse and refill) irrespective of location. About one-third of the reuse solutions outside India are based on the return on the go model and can be said to replace disposable packaging. This model is not found operating in India, which could be because the consumer is required to travel to return empty packaging to a store or drop-off point, as well as the essential long-term investments needed by reuse providers to establish infrastructure for collection, cleaning and redistribution.

Only one solution (Tinge, where the product is lipstick) based on the return on the go model in India was identified. Customers can choose to return the product packaging with specifically 'Return for Refills' mentioned on it to Tinge and receive a certain discount on their next purchase of the same product. However, they are responsible for shipping the empty packaging and bearing the associated costs.

In India, 80% of reuse solutions belong to two of the four models as defined by the Ellen MacArthur Foundation, refill on the go and refill at home. The products are mostly in the home and personal care categories. This is consistent with the trend observed in the rest of the world, where a little over half (57%) of reuse solutions belong to the refill on the go and refill at home category. These models reduce waste from single-use plastic packaging. Businesses offering solutions based on this model provide products (shampoo, toilet cleaner, detergent, for example) in refillable containers which consumers can refill at home (by buying refill packs sold in shops) or bring to a designated centre for refilling. These solutions are easy to implement and require relatively little infrastructure but need a shift in consumer behaviour to become successful (especially, refill on the go).

Figure 11 'Return for Refills' for select Tinge lipsticks *(photo credit: Tinge)*

Analysis of Ellen MacArthur Foundation's Global Commitment by top 25 producers and users

An analysis of the reuse solutions described above showed that a large number of those were start-ups or pilots. To arrive at a complete picture, it is helpful to see what the bigger, more established businesses (brands) are doing globally, given their substantial influence on shaping consumer preferences and leadership in setting industry standards. An assessment of their progress was made by analysing data from the Global Commitment Progress Report 2022, published by EMF: more than 500 signatories,[20] ranging from packaging producers and users to raw material producers, and recycling companies to Governments, have pledged to this Commitment.

For the purposes of this report, only data from the 95 packaging producers and users (referred to as 'brands' in this report) (Table 3) were considered because both these stakeholders have significant responsibilities and roles in designing reusable product packaging, and adopting/putting reuse models into practice, and the other kinds of signatories would not be expected to trial reuse models. These 95 'brands' (packaging producers and users), were ranked by plastic packaging introduced into markets worldwide in the financial year 2021-22, and the top 25 (together contributing 93% of plastic packaging introduced) were selected for further analysis. The remaining 48 brands contributed only 7%, while data for 22 other brands was undisclosed and not reported.

Of the top 25 brands, about half (52%) were fast moving consumer goods (FMCG) companies (users of plastic packaging) operating in sectors including household and personal care, food, beverages, and cosmetics. About a third (28%) were packaging producers, while retailers made up the remainder (20%).

- The share of reusable packaging placed-on-market as a proportion of the total packaging placed is under 5%: this was reported by a majority, 84% of the brands. The top two companies, in terms of percentage share of reusable packaging, were Coca-Cola Fomento Económico Mexicano, S.A.B. de C.V. (FEMSA)[21], (30%) and Arca Continental[22] (8%).

Table 3 Ranking of packaging producers and users of plastic packaging in F.Y. 2021-22 by share of plastic packaging placed on market

Packaging producers and users	Share of plastic packaging placed on market
Rank 1 to 25	93%
Rank 26 to 73	7%
Rank 74 to 95	Data not available

20 Ellen MacArthur Foundation. (n.d.). Global Commitment 2022. Available at https://www.ellenmacarthurfoundation.org/global-commitment-2022/overview. Accessed on 10 April 2024.

21 Coca-cola FEMSA is the largest Coca-cola franchise bottler in the world by sales volume, with headquarters in Mexico.

22 Arca Continental is a Mexican multinational company and the second-largest Coca-cola bottler in the world.

- The largest number of pilots were operational in America (21), and Europe (14) followed by Asia (10).
- 68% of the top ranking 25 brands operated reuse solutions in only business-to-consumer (B2C) applications, while 16% of brands operated in both, B2C and business-to-business (B2B) applications. Data for the remaining 16% were not reported.
- Brands such as Unilever (12), L'Oréal (10), and The Coca-Cola Company (8) launched the largest number of pilots in FY 2021.

Many of the top 25 brands have operations in different countries of the world, so their annual reports were studied to see if there were country-specific targets, but none could be found. However, looking ahead to 2025, the top 25 brands aim to conduct pilots for new products or packaging through consumer studies, and innovative reuse solutions to help achieve the 2025 targets (100% plastic packaging to be recyclable, reusable, or compostable plastic by 2025).

Case studies from India

Questionnaires and telephonic interviews were used to gather information from some businesses who had run refill and return trials in different parts of India. The learnings from these trials provides valuable insights into practical difficulties and challenges in operating refill models on a large scale and can help formulate more workable models in the Indian context.

One start-up, Refillable, has, since its founding in 2020, partnered with several organizations to trial reuse by refill in different parts of India. Two case studies documenting the experience in Bangalore, partnering with Hasiru Dala Innovations and in Lucknow, partnering with GIZ (the Deutsche Gesellschaft für Internationale Zusammenarbeit) are presented below.

Also presented is the experience of LESS& in Aurangabad, Maharashtra, partnering with EcoSattva and the Centre for Applied Research and People's Engagement (CARPE).

Case study 1

Refillable

About the organisation

Refillable is a zero-waste refill service founded in 2020. Based in Mumbai, it has been engaged in experimenting/trialling one or other of all of the four reuse and refill models (refill at home, refill on the go, return from home, return on the go). Its platform offers home care liquids (liquid soap, dishwashing liquid, detergents, for example) with refillable containers.

Refillable serves in the B2C space in the retail and consumer goods market segments and brings selected brands to the customer's doorstep without packaging. Home products are sold in reusable containers and tracked. When empty, they are picked up, sent to collection centres where they are cleaned, sanitized, and refilled and once again, upon order, delivered to the customer's doorstep, usually within 48 hours, for payment by cash, or online.

Location

They have worked with several brands, large and small, cumulatively covering about 50 lakh people in Mumbai, Chennai, Bangalore, Pune, Surat, Lucknow, and Trivandrum, with funding sometimes self-provided and sometimes from other sources. Case study 2 and case study 3 provides insights from Refillable 's work in Lucknow and Bengaluru, which were implemented through partnerships with other organisations.

Operating model

Self-designed cups, food containers (used in a subscription-based model with deliveries organized by another agency; polypropylene water bottles, 500 mL and one litre to be used at water refill points especially during events where people brought their own containers; cleaning liquids (self-made and made by other small or mid-level brands); shampoo/handwash (self-made and made by other small or mid-level brands); institutional cleaning products (here, Refillable provided logistics, cleaning, refilling and delivery).

Learnings

- Taking a broader view, fashion, personal care and home care segments are the best suited for application of the reuse business model.
- Lack of awareness of solutions such as reuse, among consumers, increase in overall consumption, emphasis on convenience, all hamper the scale-up of reuse solutions.
- Reuse model is up against perception that the product is ‘secondhand’ and deals with 'used' material, in a sense, because the packaging is not ‘new’: environmental impact of packaging is not a consideration.
- Incentivise businesses through policy and other levers to make a move to reuse models. Effective implementation of policy would accelerate uptake and compel brands to make a bold move.
- Incentivize customers: this was found to be a powerful lever. Slum dwellers were travelling to outlets where incentives for reuse were provided (buying lower-priced sachets was not a priority).

Case study 2

Hasiru Dala Innovations + Refillable

About the organization

Hasiru Dala Innovations Private Limited is a for-purpose, not-for-loss social enterprise that is focused on fostering entrepreneurship in and creating better livelihoods for wastepickers through inclusive businesses that have an environmental impact.

A refill trial was operated from July 5, 2022, to Oct 31, 2023, using a truck with dispensers for home care products (all liquids): laundry detergent, floor cleaner, toilet cleaner, hand wash. The truck moved from one part of the city to another to fill orders.

Motivation

Hasiru Dala Innovations wanted to position themselves as a circular economy solution-providers, especially seeing that most current activities in this field related to recycling, but not reductions in material consumed. Partnering with other organisations, Hasiru Dala Innovations conducted refill trials, the goal being to reduce plastic consumption for packaging.

Location

Bengaluru, Karnataka

Operating model

- How were customers acquired? Hasiru Dala Innovations used social media marketing to drive customers to the website or the helpline number where they could place orders. They parked the refill truck in malls and apartment complexes where prospective customers and the general public could see it.
- How were products chosen within a category? In order to address the needs of different customer types and cover the needs of a larger consumer base, different cleaning liquids at different prices were selected for the trial. All brands used either Premium or otherwise were 'sustainable' brands which appealed to citizens of Bangalore who were sustainability 'warriors' even though the products were more expensive.
- Number of people/scale of trial: the target was 2000 orders a month, at an average basket size of Rs 600.
- EMF typology
  - Refill at home: a truck with 7 refill stations was stationed at different locations in the city. Customers could buy the product by specifying the quantity required (in mL), or how much money they wanted to spend on a refill (in rupees)
  - Return from home: for clients who ordered on the website but weren't available at the time of the truck run, pre-filled glass bottles would be left at their doorstep or with the security guards. Some clients would leave empty bottles for collection.

Figure 12 Refill trucks with dispensers for homecare products *(photo credit: Hasiru Dala Innovations)*

Learnings

- While the goal of refill model is to change purchase/consumption behaviour to avoid generating additional plastic waste on every purchase, brands that were carried were own-label, second tier or premium sustainable brands. This demanded (i) change in customer behaviour, (ii) change in price, and (iii) change of brand, which together, was probably too much of a change to expect in one year.
- The geographical density of orders placed/to be delivered was low making the logistics cost per delivery unviable as the truck did not have enough deliveries to be made in a 5—10 km radius.
- To try and maximise the number of deliveries in a day, orders would be held and bunched up as much as possible, but this meant that delivery times sometimes extended up to 7 days. Today, home deliveries are possible in ten minutes, which meant that only about 5% of new customers returned. To counter this, a high volume of new customers would need to be acquired every month but with insufficient funding, achieving a critical mass was not possible. However, despite this drawback, by the end of the pilot cumulatively nearly 55% of orders were from repeat customers.
- Begin reuse and refill trials with well-known brands which have a high market share. Such products will make the switch easier, and a critical mass of buyers would have been reached.

Case study 3

GIZ + Refillable

About the organization

GIZ works for sustainable urban and industrial development by supporting the development of clean, inclusive, green and resilient urban and industrial areas.

Motivation

GIZ India is jointly implementing an Indo-German development cooperation project, 'Circular Economy Solutions (CES) Preventing Marine Litter in Ecosystems'[23] with the Ministry of Environment, Forest and Climate Change (MoEFCC), Government of India. Under this project Refillable was contracted to pilot trials on the portable convenience store in Lucknow and Chennai.

Location

Lucknow, Uttar Pradesh

Operating model

Refillable partnered with reliable, affordable and popular local liquid manufacturers (Refillable Liquids, Kleenex, Rossari, Unilever Professional, Born Good, Mitte se, Herbal Strategi) in Lucknow. The portable convenience store on wheels was launched in December 2022 and serve customers in the B2C mode. In the city of Lucknow, B2B trials were also carried out, and eventually a base of over 100 customers (restaurants, gyms, salons, banks, corporates and business parks), with a retention rate of 80% was established.

Figure 13 Customer purchases product from a Refillable truck at Chennai, Tamil Nadu *(photo credit: GIZ and Refillable)*

23 The CES project, commissioned by the German Federal Ministry of Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV), focuses on tracking and monitoring of marine litter in selected states of India, demonstration of technological solutions on reduction, reuse and recycling of plastics as well as support the implementation of Extended Producer Responsibility (EPR) for plastic packaging in India. The project leads the way for circular economy solutions aimed at addressing plastic and marine litter challenges, in alignment with the Green and Sustainable Development Partnership (GSDP) between the Government of India and Germany.

Figure 14 Trials for refill models implemented through B2B partnerships in Lucknow *(photo credit: GIZ and Refillable)*

The refill idea was also expanded to accommodate the demands of B2B sector by partnering with selected organizations to cater to their need for cleaning solutions, sanitation liquids, for example. Customers could refill their everyday homecare liquids and products on the go, or at their doorstep in either reusable containers/aluminium bottles/reusable pouches, or their own bottles brought from home. Staff were hired locally.

- Number of customers (2024): over 1600 (ongoing)
- Households served: over 650
- Retention rate and repeat rate of customers (B2C): 50%
- EMF typology: return on the go; return from home and refill on the go

As a trial run in Trivandrum, the project was able to work on B2B engagement with Tata Consultancy Services, Jones Long LaSalle and Scheveran, and reduce plastic packaging consumed.

Figure 15 Consumers purchase products from a Refillable truck in Lucknow *(photo credit: GIZ and Refillable)*

Learnings

- Prices had a significant influence on the product's sales after initial discounts were phased out. This underscores the importance of pricing strategies tailored to the local market dynamics and the need for continuous evaluation to maintain competitiveness.
- Customers in Lucknow preferred cost-effective products that deliver value. This aspect of purchasing behavior allows opening up opportunities for introducing and establishing new products. It is important to offer competitive pricing and product performance to attract and retain customers in such markets.
- Hiring suitable individuals for selling/persuading customers and businesses was a significant challenge. Knowledge of sustainability concepts such as reuse and refill models, zero-waste approaches, was difficult to find highlighting the need for innovative approaches to talent acquisition and investment in training and development programmes.
- Overall awareness of sustainability was low in the city, which resulted in a large amount of effort needed to educate customers about the importance of sustainable practices. This again emphasized the importance of community engagement and awareness-building initiatives in promoting sustainable solutions.
- Despite initial challenges, we achieved notable success in building a small yet loyal customer base in Lucknow. This base comprised individuals from select localities who not only reordered from refillable model but also actively referred the products to others. This organic growth underscores the effectiveness of delivering value and quality, which fosters customer loyalty and advocacy.

Case study 4

Majha shampoo by LESS&, supported by Reuse Foundation

About the organization

LESS& is a UK company established in 2020 working to end plastic waste for personal care and household care products. It runs a refill at home solution in the UK and led the development and initial funding of the Beat The Sachet project.

Our pilot has been running for over a year and we have gathered a good amount of data on reuse patterns. We also conducted a survey of 118 consumers and participants are very positive (see https://beatthesachet.org for details).

Motivation

Through research, we had for many years been aware about the plastic waste issue, and particularly the problems caused by disposable plastic sachets that are widely used in India. We were motivated to see if we could find a solution that could work with even the lowest income consumers.

For disposable plastic sachets, there is no technically and economically viable recycling solution. The only option is to stop using them. However, sachets are affordable and allow consumers to get products at a very low price point, a very challenging barrier. LESS& wanted to create a solution that meets the sachet price point but does not cause plastic waste. We are now raising funds to expand the pilot so it reaches financial sustainability at which point it will be stopping about 1,000,000 sachets a year.

Location

Aurangabad, Maharashtra

Operating model

- How were customers acquired? Mostly through community outreach and by word of mouth. Reuse is a new concept and we needed to explain it to consumers to help them understand the benefits and how it works. We did this at launch events where we introduced our reuse solution and provided a free reusable bottle for consumers that contained a sample of product. If they liked the product, they could return to a local distributor for refills. This work was led by a local NGO partner, EcoSattva.
- How was the product chosen? Our solution can work with many categories, certainly all personal care and household care products. We intended to work with several categories in our pilot but were unable to secure the participation of any established brands. Consequently, we needed to create our own brand to demonstrate our refill solution. We did this with the help of our target market which was low-income and economically marginalised women. This additional work meant that we were only able to offer one product. We chose shampoo since it is amongst the most widely and frequently used personal care products.
- Number of people covered/scale of trial: about 1000 households
- EMF typology: mostly refill on the go

Figure 16 Majha shampoo introduced to residents in Aurangabad, Maharashtra *(photo credit: LESS&)*

Learnings

- Since consumers want establishes brands, our reuse solution would be much more successful with the participation of such brands as well as a broader portfolio of product categories.
- Clear policy guidelines and ideally, minimum reuse targets for companies that use plastic packaging would help stimulate innovation and encourage uptake of the reuse model.
- Levy plastic tax and carbon tax high enough to meaningfully change price points; this will help level the playing field.
- Gear solutions to meet needs of a customer base with a wide income distribution. There are several factors such as a large rural population, that may obstruct reuse and refill or at least require a different approach in India.
- Prioritise education and consumer behaviour change to familiarise people with reuse and refill solutions.

4 Policy and regulatory context

An enabling and ambitious policy environment can provide a make-or-break lever in the approach to plastic packaging use and design. It can also increase the pace of adoption of different business models especially in an environment such as India's where reuse and refill are practiced informally, and where the era of unpackaged product sales is still within the living memory of large numbers of people. Both kinds of policy can encourage reuse: targets for shifting, as well as bans on single-use plastics (SUP) (may trigger a shift to reusable packaging).

Promoting formal reuse solutions/systems can generate opportunities for employment and new businesses. It can also help increase awareness and drive investments,[24] as was noticed when the EPR Guidelines were notified in February 2022. It is also clear that many businesses prefer a regulatory mandate in matters related to sustainable packaging for two reasons:

- voluntary action adds extra costs and effort to the business putting it at a disadvantage over competition while regulatory mandates help create a level playing field adding equal costs and efforts to all businesses;
- sustainable packaging approaches such as reuse and refill and recycling need a supporting ecosystem of collectors, recyclers, cleaning facilities, etc., which will develop if there is a regulatory mandate. If one or just a few individual businesses adopt sustainable packaging voluntarily, it will be challenging to create a critical mass of demand.

24 Paben J. (December 23, 2020). Details on Circulate Capital's Indian plastics investments. Plastics Recycling Update. Available at Details on Circulate Capital's Indian plastics investments (resource-recycling.com). Accessed on 10 April 2024.


Figure 17 Street vendors move around residential areas with loose, dry groceries such as lentils, rice, wheat: although packaging is available, customers can bring their own containers to be refilled *(New Delhi, India, photo credit: India Plastics Pact archives)*

Policy changes and mandates help create a level playing field which encourages companies to invest money in making the systemic shifts needed in the packaging value chain. Countries in many regions of the world are enacting legislation to encourage a circular economy for plastic packaging, by promoting reuse business models.

The following section collates policies in different parts of the world and in India that aim to promote reuse and refill business models (not a comprehensive list).

Global

Policy instruments encouraging the use of reusable systems include EPR, economic incentives, ban and taxes on single-use packaging, and deposit refund systems (DRS).

These policy instruments can be applied at different levels of government.

At a regional level, the European Union has action plans and policies which specify reuse and refill. The plastics strategy[25] of the European Union Circular Economy Action Plan[26], mandates by 2030 all plastics packaging placed on the EU market to be reused or recycled in a cost-effective manner.

The EU Packaging and Packaging Waste Directive prescribes specific targets for applications such as non-alcoholic beverages, transport packaging and cold/hot beverages.[27] Many countries in Europe have national-level policies in place to promote reuse and refill (there is currently no published data on the proportion of reusable packaging that has been achieved, raising concerns that delivery and enforcement

25 European Commission (2018). ANNEXES to A European Strategy for Plastics in a Circular Economy. Available at https://circabc.europa.eu/ui/group/2203ac52-e11f-4a4f-82d6-a3a72eda77aa/library/915ed7a7-557e-43d1-aa5e-b050138a1de4/details?download=true. Accessed on 10 April 2024.

26 European Commission (n.d.). First circular economy action plan. Available at https://environment.ec.europa.eu/topics/circular-economy/first-circular-economy-action-plan_en#documents. Accessed on 10 April 2024.

27 European Commission (November 30, 2022). Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on packaging and packaging waste, amending Regulation (EU) 2019/1020 and Directive (EU) 2019/904, and repealing Directive 94/62/EC. Article 26. p. 70—72. Available at resource.html (europa.eu). Accessed on 10 April 2024.

mechanisms or monitoring approaches to ensure that these targets are met, are lacking).

Some examples of countries which have mandated reuse targets:

France

- by 2027, 10% of packaging, expressed in sales units or equivalent sales units, placed on the market to be reusable[28]
- reduction and reuse targets in place, highlighting 50% of the 20% reduction in single-use plastic packaging should be obtained through reuse[29]
- by 2030, 20% of the floor surface of shops larger than 400 square meters must be fitted with refill systems.

Portugal

- 30% of packaging placed on the market by 2030, regardless of the material in which they are produced, will be reusable[30]

Romania

- 25% reusable by 2025

Austria

- has set targets for expanding reusable quota of drinks sold to 25% by 2025 and 30% by 2030 for water, milk, juice, non-alcoholic soft drinks and beer.[31]

In Chile, the EPR packaging regulation was approved in March 2021 which establishes special incentives for reusable packaging.[32]

While policy can provide conducive conditions for businesses to invest in reuse and refill models, there are instances where businesses have developed such models in the absence of a direct policy to incentivise reuse and refill. For example, in Argentina, Brazil and Mexico a large share of Coca Cola's products is sold through reuse and refill models.

Indian context

The Government of India has influenced the case for reusable packaging systems through direct and indirect policy changes over the past three years or so.

- Reuse targets are specified in the Extended Producer Responsibility Guidelines of the Plastic Waste Management Rules, 2022.[12] These guidelines outline quantitative reuse targets for brand owners for rigid plastic packaging (Category I of the Guidelines).

28 Government of France (February 11, 2020). LAW no. 2020-105 relating to the fight against waste and the circular economy (1). Available at https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000041553759. Accessed on 10 April 2024.

29 Government of France (April 30, 2021). Decree No. 2021-517 relating to the reduction, reuse and re-use objectives and recycling of single-use plastic packaging for the period 2021-2025. Available at https://www.legifrance.gouv.fr/loda/id/JORFTEXT000043458675. Accessed on 10 April 2024.

30 Government of Portugal (August 10, 2021). Law No. 52/2021. Available at https://diariodarepublica.pt/dr/detalhe/lei/52-2021-169360995. Accessed on 10 April 2024.

31 Government of Austria (January 17, 2024). Federal law consolidated: Entire legal provision for the Waste Management Act 2002. Available at https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=20002086. Accessed on 10 April 2024.

32 Ellen MacArthur Foundation (n.d.). Government of Chile. Available at https://www.ellenmacarthurfoundation.org/global-commitment-2021/signatory-reports/gov/government-of-chile. Accessed on 10 April 2024.

Table 4 EPR targets for reuse to be achieved by brand owners.

	Target (as percentage of rigid plastic packaging in products sold annually)			
	2025-26	2026-27	2027-28	2028-29 and onwards
Category I rigid plastic packaging with volume or weight equal or more than 0.9 litre or kg but less than 4.9 litres or kg, as the case may be	10	15	20	25
Category I rigid plastic packaging with volume of weight equal or more than 4.9 litres or kg	70	75	80	85

- the Food Safety and Standards (Packaging) Regulations (2018) published by the Food Safety and Standards Authority of India (FSSAI), states that, 'plastic containers of capacity 5 litre and above and glass bottles, which are reused for packaging of food, shall be suitably durable, easy to clean or disinfect.[33]

The current policy might appear to enable B2B more than B2C models because the sizes specified in the policy (0.9 to 4.9 litres or kilos and >4.9 litres or kilos) are more likely to be used in the B2B context (it is true, though that some products, such as edible oils, milk and cleaning liquids, are commonly bought in large volumes at retail level, that is, in the B2C context).

Most SKUs of products in the personal care category and food and beverage category, in a B2C setting, are *under* 0.9 litre or kilo, perhaps limiting the motivation for businesses to adopt or change over to the reuse model.

Figure 18 Edible oils sold at Adrish zero waste organic store, Mumbai, India *(photo credit: India Plastics Pact archives)*

33 Food Safety and Standards Authority of India (February 1, 2022). Food Safety and Standards (Packaging) Regulations, 2018. Available at Compendium_Packaging_01_02_2022.pdf (fssai.gov.in). Accessed on 10 April 2024.

5 Challenges, opportunities and recommendations

Photo credits: GIZ and Refillable

This chapter will explore the challenges presented in the uptake of reuse business models in India and the opportunities they may open up (identified through interviews and reviews of the literature).

Challenges

Current systems are designed for a linear economy, but reuse systems involve a systemic change in the value chain, with the product and product packaging being provided as a service. Some challenges identified in the Indian context which will affect the uptake, adoption and success of reuse systems.

- **Consumer behaviour**: consumers are now used to single-use systems. Reuse models may involve extra effort because containers have to be cleaned, refilled and dropped off. Bringing about change in entrenched behaviour, to accept reuse systems is a major challenge to tackle. However, in India, drop-off and collection systems could be revived and would offer increased convenience if quality considerations are taken care of.
- **Safety/hygiene and quality**: cross contamination, spills, allergies, and the use of inappropriate/soiled container are concerns, especially for food products, beverages, and cosmetics. In the case of food packaging, additional food health and safety regulations are necessary to attain consumer trust. The perception that cleaned, reused packaging is somehow 'secondhand' and not 'new' will need to be addressed by awareness campaigns.
- **Convenience and affordability**: compared to single-use, reusable packaging comes with increased cost. The weight of reusable packaging, for example, if made of glass, can be inconvenient depending on the location and transportation methods. Consumer access to reuse systems and the level of desirability for reusable packaging are major aspects which need to be addressed by stakeholders. However, for both, consumers and businesses, costs are likely to go down with time as efficiencies and scale improve.

- **Applicability and design**: at present, reuse products and systems are applicable and convenient only for a certain category of products/services. It is a challenge to fit all the present formats and design the already-existing product packaging/systems for transition into reuse systems.
- **Standardization and brand differentiation**: standardization in packaging formats may result in the loss of brand identity. Although this can be overcome, brands may be required to change their packaging design, work towards attaining brand differentiation, ensure consumer loyalty, work out logistics and reorganise their supply chain. Brands may be reluctant to step into reuse over fears about maintaining product quality, hygiene, for example; they may lose out on opportunity to advertise on packaging labels.
- **Metrics and tools:** metrics and tools to measure and evaluate the impact of economic, environmental, and social benefits of reuse are not standardised or widespread; the World Economic Forum is currently leading a multistakeholder group working on evaluating, prioritizing, and recommending a set of reuse metrics for consumer goods and retail corporate stakeholders to test.[34] Frameworks and standardised tools should be developed to assess the effectiveness of present reuse and promote effective reuse systems in future.
- **Lack of infrastructure**: infrastructure for the development and scale up of reuse systems is not set up. Many aspects of the current infrastructure will have to change, some of which are: logistics, product design, introduction, and reduction of elements in the supply chain along with the rearrangement of communication processes. The absence of infrastructure is often a major barrier to businesses.
- **Financial investment/funding**: lack of funds from government, in the form of subsidies and incentives to develop reuse system infrastructure, and support from investors to businesses using or providing reuse and refill models form significant barriers. Investments in recycling are sometimes seen as a diversion of funds away from reuse infrastructure development.[6]

Opportunities

Addressing the challenges of reuse systems and scaling up these systems creates value and bring economic, environmental, and social benefits. It has been shown[18] that scaling up reuse, especially when done in a collaborative way, brings benefits in many ways, especially by reducing GHG emissions and plastic waste.

The Indian Government's policies, and multilateral agreements such as the proposed Global Plastics Treaty can be seen as opportunities to begin making changes to current systems of distribution and use.

India's thriving start-up ecosystem enabled by mobile connections and availability of digital platforms holds significant promise for innovation and implementation of reuse and refill solutions in the following ways:

- India has a diverse cultural and socio-economic landscape, which requires customized strategies for the adoption of reuse and refill practices. It is important to design solutions to align with diverse cultural norms and economic conditions. This can create business opportunities at all levels of skills/education/capacity.
- Creativity in marketing: present reuse as a traditional practice
  - Reuse, and reuse by refill need not be portrayed as new concepts, but as a revival of traditional reuse practices (for example, refillable glass bottles for milk).
  - Brands can build customer loyalty by offering customized reuse/refill services.

34 World Economic Forum (January 2023). Measuring reuse - developing a standardised approach for reuse measurement and reporting. Summary document. Available at https://www3.weforum.org/docs/WEF_Consumers_Beyond_Waste_Summary_Document_Reuse_Metrics_Measurement_2023.pdf. Accessed on 10 April 2024.

Designing for a just transition to reuse models: the opinion of women waste workers from Pune

A unique feature of the waste management ecosystem in India, particularly that of plastic waste, is the engagement and contribution of informal workers/units at all points of the value chain. For most of these workers, collecting waste and passing it up the value chain is a means of livelihood; often, what is not explicit is the importance of access to the waste. This aspect should be kept in mind by adopters such as brands when new policy measures, such as those relating to reuse are introduced.

The significance of access to waste was brought to light during an interaction with 46 women waste workers of the Kagad, Kach, Patra Kashtakari Panchayat and SWaCH, in Pune, Maharashtra. These views were gathered during a five-day workshop-cum-exposure session with these waste workers who had participated in a week-long intensive capacity-building exercise on climate change. After the capacity-building exercise, they were told about the different forms of packaging reuse, including closed-loop systems, deposit refund systems, refill systems and models in which reuse would dovetail into recycling. The following summary of their perspectives does not represent the views of women waste workers elsewhere in India or outside it, it clearly showed that the women quickly grasped the significance of different reuse business models and the impact they would have on their livelihoods and access to waste.

A summary of the thoughts and comments of these women waste workers are summarized below and underline the need for designing reuse systems which involve workers already engaged in the task of waste collection. Such systems would allow access to the waste, as before, and augment their incomes; new, retrofitted systems which neglect this aspect, would displace such workers and disrupt a smoothly-operating system.

Figure 19 Capacity building exercise conducted with women waste workers in Pune, Maharashtra
(photo credit: Kagad, Kach, Patra Kashtakari Panchayat and SWaCH)

On closed-loop reuse in large-scale contexts such as hospitals, malls, airports (where disposable packaging is replaced by metal cutlery, plates, dishes, etc., which are washed on site), the women workers said they had experienced a reduction in their income from recyclable waste. However, they felt the jobs created by the switch to washing could have been given to them, since they knew how to clean, wash, and didn't need to be skilled or educated.

Zero waste stores had often failed because of the large change in consumer habits and behaviour that this business model demanded. They thought that such stores could create a couple of jobs, but that these would be filled by people who knew how to read, write; they could not be offered work, and there would be no waste to collect. Women waste workers thought that this was an impractical mode, because it would require several vessels/containers to be carried when they went out to buy groceries. Without personal transport, it would be very difficult to carry the shopping back home.

Deposit return systems (DRS) did not find favour at all, and the workers doubted the motivation of customers to carry packaging back to machines. They felt a parallel system would be created for each material separately, and that they would be cut off from access to the waste.

The women workers were positive about a reuse system of the kind operating already for beer bottles. This system fulfilled two purposes: the bottles were reused (and hence not discarded) after washing by the company, and, the collection of bottles was part of the existing scrap trading process in which they had a role and which provided a livelihood.

Overall, the women waste workers were happy to become part of a transition to business models reducing plastic packaging, if they were

- Enumerated, registered and given access/rights to handle reusables.
- Allowed access to all packaging material
- Paid rates of collection that were fair and commensurate with the labour involved
- Assured of the safety and ease of handling alternative materials
- Allowed a say in the discussions at all stages of the transition and represented in governance and oversight bodies.

They expressed the need for preserving their access to livelihoods as they transitioned to new materials in a different system; however, this should happen without expecting entirely new skills or knowledge. They understood the need for solutions, and the scale and nature of the problem with managing waste. To enable a new system, some aspects requiring attention would be packaging design and materials; production and distribution systems; decentralizing infrastructure; hygiene standards, new terms of work covering the handling and of newer volumes and kinds of material.

Recommendations

Reuse and reuse and refill models can be used for many products without much delay, while health, safety and hygiene regulations/concerns might limit application in some products.

Specific recommendations are presented below for businesses and governments:

Business

- Businesses should explore the potential of implementing one or more of the four reuse and refill business models from their product portfolio.
  - Home care and personal care products through refill at home or refill on the go prioritized in the short to medium term.
  - Return on the go and return from home for all products to be prioritized in the medium to long term.
- High market share brands move into the reuse and refill space quickly to drive penetration and change in behaviour. This could be applied to everyday use products, but only application on scale will bring benefits by reducing pollution.
- For return on the go and return from home business models, businesses should identify the appropriate transport option based on sales volumes and location. Motorized two-wheelers (bikes and scooters) might be apt for last-mile connectivity in congested areas, while trucks might be economical for bulk transport from cleaning plants to delivery nodes.
- Design a role for waste workers in a new reuse system wherever possible, especially those engaged informally. If done before implementing reuse, this will create the environment for a just transition into new business models while allowing livelihoods to remain secure and also creating new opportunities.
- Design schemes to reward consumers for their behaviour. For instance, every time a customer refills, he/she should get a sustainability credit that can be over time added up and redeemed (loyalty points for instance).
- Examine possibility of minimum criteria for reuse in food service establishments such as hospitals, malls, hotels, corporate offices, event venues, cinemas, sit-down restaurants.

Government

- EPR Guidelines to be modified to encourage reuse and refill of any packaging size. The current policy only deals with large volume containers which might help in B2B applications, but not B2C.
- In the short term, explore the opportunity to link with the Government of India's Green Credit Programme.[35]
- Introduce design for reuse in curriculum of institutions teaching design and packaging.
- To support businesses setting up return models, in particular, incentivise building of washing and cleaning infrastructure.

All stakeholders

- Government- and businesses-led education and awareness campaigns to bring about shift in consumer behaviour, which is important for the widespread adoption of reuse and refill in India.

35 Government of India (October 12, 2023). Green Credit Programme. Ministry of Environment, Forest and Climate Change. Available at https://egazette.gov.in/WriteReadData/2023/249377.pdf. Accessed on 10 April 2024

6 Conclusion

Photo credits: India Plastics Pact archives (taken from Adrish zero waste organic store, Mumbai, India)

This study highlights India's existing reuse systems, making comparisons with those in the Global North, and emphasizes the need for increased investment in reuse and refill solutions (especially return on the go and return from home models) within India.

Globally, reuse systems exist in some consumer markets (for instance, beverages and soft drinks), reusable packaging solutions are more common in B2B applications rather than in consumer facing B2C applications.

The reuse and refill system in India is still developing, with many solutions recently introduced. Examples of reuse and refill solutions offered by major brands were not found, highlighting the necessity for brands to make investments in reuse systems. The absence of reuse solutions based on the return on the go model in India emphasizes the need for long-term investments in establishing the infrastructure required for the collection, cleaning and redistribution of reusable packaging. The lack of infrastructure may be a significant barrier to the adoption of return models in India.

Although the sample size is very small for India, refill models are dominant in India, particularly in the home and personal care categories. Businesses offering solutions based on this model provide products (shampoo, toilet cleaner, detergent, for example) in refillable rigid containers that consumers can refill at home through refill pouches (containing the actual product, concentrate or powder). This is likely because these solutions are easy to implement and require little infrastructure. However, the refill pouches

currently used are non-recyclable. Thus, while the refill at home model reduces plastic consumption, for it to be completely circular, the refill pouches need to be made recyclable, or refillable.[36] Many businesses are conducting research and development to make these pouches recyclable.

India's EPR Guidelines[12] have set out clear targets for the reuse of packaging by brand owners starting from FY 2025-26. The Guidelines further incentivise reuse and refill by reducing the EPR commitments of companies by an amount equal to the quantum of reusable packaging placed-on-market. Businesses will need to design packaging specifically for reuse to meet these requirements.

While the EPR mandates larger SKUs for reuse and refill; considering the number of small format flexible packaging placed on the Indian market, focus on reuse and refill models to replace small SKUs is needed. Data from the small formats[37] report highlighted that a majority (84%) of personal care products in 2021 were sold in flexible packaging. For products such as shampoos, almost all (95%) units placed on market were small formats. There is a huge potential for the adoption of reuse and refill system as a replacement for such small format packaging.

However, it is clear that in India solutions must be geared to meet needs of a customer base with a wide income distribution and approaches may be quite different from those applied in other countries.

Overall, businesses need to strategically invest in building infrastructure and technologies to create a convenient ecosystem for reuse and refill practices. There is also a need for strong collaboration between brands, and retailers to implement refill stations and reverse logistics systems. In a study[18] reported by the Ellen MacArthur Foundation, collaboration was found to be the crucial parameter to realize the full benefit of the reuse business model.

Figure 20 Refill models allow purchasing of an exact amount of product *(seen at Adrish zero waste organic store, Mumbai, India, photo credit: India Plastics Pact archives)*

36 Bower Collective (n.d.). Household Cleaning Refills. Available at https://bowercollective.com/collections/household-refills. Accessed on 10 April 2024.

37 India Plastics Pact (2023). Insights report: Small formats and sachets. Available at https://www.indiaplasticspact.org/uploads/1703753842document.pdf. Accessed on 10 April 2024.

Annex: Methodology for creating repository of reuse and refill solutions

The initial repository drawn up (List A) had 159 entries from all over the world. As the study progressed a database of 1,196 examples of reuse and refill solutions (List B) was found at Moss et al., 2022,[16] bringing the total count to 1,355 solutions.

The dataset with 1,196 solutions (List B) contained some entries that were not examples of reuse and refill business models in practice, as such: these included application/digital-based rewards, package-free shops, reusable shipping and logistics, and reuse advocacy programmes (764 entries). After removing these, 432 entries were left.

A further screening was carried out on List B, to check for entries common to both List A and List B, and duplicates were removed. Some solutions with incomplete information (non-functional website, website closed down, for example) were also removed at this stage, leaving List B with 230 solutions. When added to List A, the final list had 389 solutions.

About the India Plastics Pact

The **India Plastics Pact** is a collaboration between the **Confederation of Indian Industry** (CII) and **WWF India** that unites businesses, governments, NGOs and citizens to create a circular plastics economy in India. The **CII-ITC Centre of Excellence for Sustainable Development** (CESD) anchors the India Plastics Pact, within CII. The initiative is supported by **WRAP**, a global NGO based in the UK.

Launched in September 2021, the India Plastics Pact is the first Plastics Pact in Asia. As of January 2024, there are 14 Plastics Pacts spread across the globe. 54 organizations are currently part of the India Plastics Pact. The Pact works on all plastic resins at all stages of the plastics value chain.

About Confederation of Indian Industry

The Confederation of Indian Industry (CII) works to create and sustain an environment conducive to the development of India, partnering Industry, Government, and civil society, through advisory and consultative processes. For more than 125 years, CII has been engaged in shaping India's development journey and works proactively on transforming Indian Industry's engagement in national development. CII engages closely with Government on policy issues and interfaces with thought leaders to enhance efficiency, competitiveness, and business opportunities for Industry through a wide portfolio of specialized services and strategic global linkages.

India's premier business association has around 9,000 members, from the private as well as public sectors, and an indirect membership of over 300,000 enterprises from around 286 national and regional sectoral industry bodies. With 62 offices, including 10 Centres of Excellence in India, and 8 overseas offices in Australia, Egypt, Germany, Indonesia, Singapore, UAE, UK, and USA, as well as institutional partnerships with 350 counterpart organizations in 133 countries, CII serves as a reference point for Indian Industry and the international business community.

About WRAP

WRAP is a climate action NGO working around the globe to tackle the causes of the climate crisis and give the planet a sustainable future. Our vision is a thriving world in which climate change is no longer a problem. We believe that our natural resources should not be wasted and that everything we use should be re-used and recycled. We bring together and work with governments, businesses, and individuals to ensure that the world's natural resources are used more sustainably. Our core purpose is to help tackle climate change and protect our planet by changing the way things are produced, consumed, and disposed of. We support partner NGOs around the world to deliver real change through collaboration and progress from over 300 of the world's largest businesses. Initiatives we support include Plastics Pacts in Chile, South Africa, Kenya, and India; food waste agreements in Mexico, South Africa and Indonesia; and food waste citizen campaigns through our Love Food Hate Waste brand in Canada, Australia and New Zealand.

UKRI India

UKRI India plays a key role in enhancing the research and innovation collaboration between the UK and India. Since 2008, the UK and Indian governments, and third parties, have together invested over £330 million in co-funded research and innovation programmes.

This investment has brought about more than 258 individual projects. The projects were funded by over 15 funding agencies, bringing together more than 220 lead institutions from the UK and India. These research projects have generated more than £450 million in further funding, mainly from public bodies but also from non-profit organisations and commercial entities, attesting the relevance of these project.

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