



# Scaling reuse systems through behaviour change

Insights from Southeast Asia  
(Indonesia, Vietnam, Malaysia, Thailand, and the Philippines)

**giz** Deutsche Gesellschaft  
für Internationale  
Zusammenarbeit (GIZ) GmbH

On behalf of:



Federal Ministry  
for the Environment, Climate Action,  
Nature Conservation and Nuclear Safety

of the Federal Republic of Germany

As a federally owned enterprise, GIZ supports the German Government in achieving its objectives in the field of international cooperation for sustainable development.

**Published by:**

Deutsche Gesellschaft für  
Internationale Zusammenarbeit (GIZ) GmbH

**Registered offices**

Bonn and Eschborn, Germany  
Friedrich-Ebert-Allee 32 + 36  
53113 Bonn, Germany  
T +49 228 44 60-0  
F +49 228 44 60-17 66

E [info@giz.de](mailto:info@giz.de)

I [www.giz.de/en/projects/litter-free-oceans](http://www.giz.de/en/projects/litter-free-oceans)

**Programme:**

Global sector project to support the BMUKN in implementing the Marine Debris Framework – Regional hubs around the globe

**Author:**

Dr. Roger Spranz

**Reviewers and editors:**

Phong Giang, Lena Hollender, Filiz Jätzold, Maryvonne Kälberer, Manuel Rauner (GIZ)

**Responsible:**

Elisabeth Duerr

E [elisabeth.duerr@giz.de](mailto:elisabeth.duerr@giz.de)

**Design/layout:**

Ira Olaleye, Eschborn

**On behalf of:**

German Federal Ministry for the Environment, Climate Action,  
Nature Conservation and Nuclear Safety (BMUKN)

**Photo credits:**

Cover, front and back: adapted from © istock/Eoneren; pg. 4–5: © istock/floids;  
pg. 10: © istock/Ake Ngiamsguan; pg. 14: © istock/Edwin Tan; pg. 24: © istock/Nga Pham;  
pg. 29: © istock/Bkamprath; pg. 32: © istock/shih-wei; pg. 38: © istock/Thai Liang Lim;  
pg. 54: © istock/Tigercat\_LPG; pg. 64: © istock/Dedy Andrianto; pg. 70: © Refiller Mobile

**Disclaimer:**

This study was commissioned by and completed exclusively for the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH. The opinions expressed in this study are those of the authors and reviewers and do not necessarily represent the opinions or positions of the GIZ. GIZ does not, however, guarantee the accuracy or completeness of information in this document, and cannot be held responsible for any errors, omissions or losses which result from its use. Responsibility for the content of external websites linked in this publication always lies with their respective publishers.



# Executive summary

Plastic pollution remains a major environmental challenge in Southeast Asia, driven by rapid urbanisation, changing consumption patterns, and widespread reliance on single-use plastics such as sachets and takeaway packaging. While recycling and waste management are important, plastic pollution also needs to be addressed at its source. Reuse systems, which replace disposable packaging with containers designed for repeated use, offer a critical upstream solution with the potential to significantly reduce plastic consumption and marine litter. However, many reuse initiatives struggle to scale. Technical feasibility alone does not guarantee success. Participation depends on whether systems align with how people actually live, purchase, and consume. This depends on a broad variety of factors, including culture, region, gender, income level and religion.

This publication examines how behaviour change shapes the performance and scalability of reuse systems in Southeast Asia. Drawing on literature review and stakeholder interviews, the study analyses behaviour across three domains: adoption (why people try reuse), bringing and returning (how participation becomes routine), and collective engagement (how coordination and shared norms emerge).

A central finding is that behaviour change follows system design. Successful systems make reuse convenient, affordable, reliable, and socially normalised. Where reuse fails, breakdowns typically stem from return friction, unclear responsibilities, infrastructure gaps, weak incentives, or misalignment with everyday routines, particularly in contexts shaped by sachet-based consumption and informal retail structures. Furthermore, an inclusive system design is vital, taking into account the vital role of the informal sector and how different diversity dimensions like gender or income-level shape behaviour.

Four case studies illustrate these dynamics across neighbourhood-level refill systems, traditional deposit-return schemes, refill and prefill operators, and platform-driven pilots. They show that reuse becomes viable when containers have clear value (e.g. cost savings, convenience, and trusted quality), return pathways are predictable, effort is low, and trust in hygiene and quality is visible. Inclusion is key: reuse scales where it fits into existing routines and local structures, and where different key actors, including women, low-income households, and informal workers, feel supported rather than burdened.

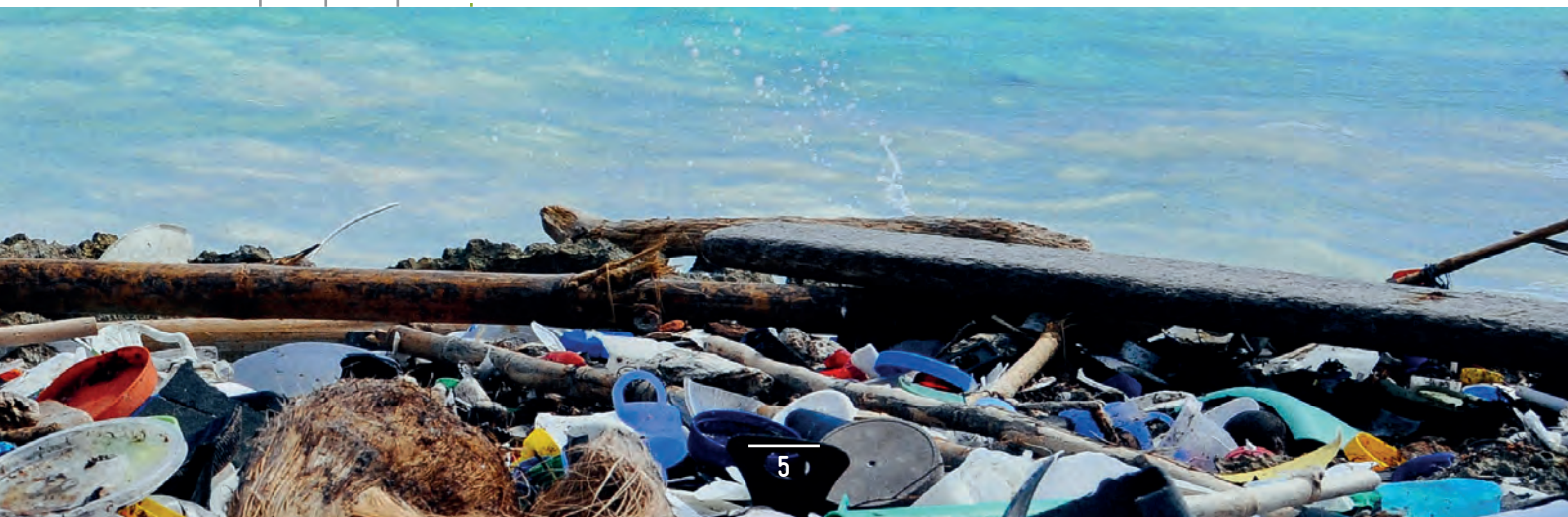
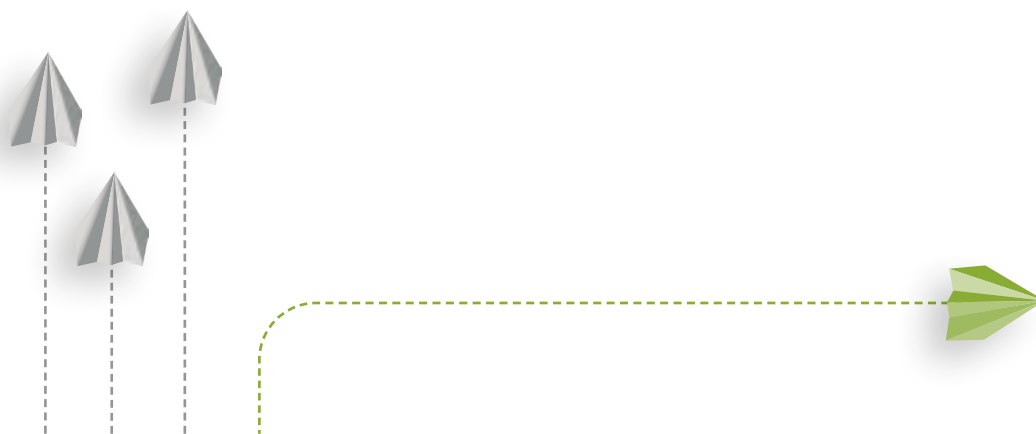




Scaling reuse in Southeast Asia requires coordinated, practical action:


- **Policymakers** can accelerate uptake by integrating reuse into Extended Producer Responsibility (EPR) schemes, investing in shared washing and return infrastructure, and setting clear hygiene standards that build consumer trust. These frameworks should foster inclusive design, e.g. with gender-sensitive analyses and by including the informal sector.
- **Businesses and platform operators** can increase participation by making reuse the default option, reducing return friction through convenient drop-off or pick-up systems, and ensuring price parity with single-use alternatives. Applying an intersectional lens from the outset of design and implementation ensures that reuse systems are both inclusive and effective.
- **Civil society organisations** can strengthen community trust, facilitate inclusive outreach, and ensure that low-income and informal-sector actors are not excluded.

When reuse systems are designed around everyday purchasing patterns, small retail environments, and digitally mediated delivery platforms, and when behavioural insights guide pricing, incentives, and communication from the outset, reuse can move from isolated pilots to a scalable and socially inclusive strategy for reducing plastic pollution and advancing circular economy goals in Southeast Asia.



# Contents

Executive summary .....	4
Contents .....	6
Abbreviations .....	9



<b>1</b>	<b>Introduction</b> .....	<b>10</b>
	1.1 Behaviour change as analytical focus .....	11
	1.2 Scope of the publication .....	12
	1.3 Methodology .....	13

<b>2</b>	<b>Behaviour change theories applied to reuse systems</b> .....	<b>14</b>
	2.1 Why behaviour change theory matters for reuse .....	15
	2.2 Behaviour-Centred Design (BCD): Behaviour as an outcome of context .....	15
	2.3 COM-B Model: Diagnosing micro-level behavioural gaps .....	18
	2.4 Fogg Behaviour Model: Triggers, ability, and digital nudges .....	20
	2.5 Integrating frameworks across three behavioural domains .....	21
	2.6 Implications for policymakers, entrepreneurs and civil society organisations .....	23

<b>3</b>	<b>Southeast Asia: regional context</b> .....	<b>24</b>
	3.1 Plastic waste and marine litter in Southeast Asia .....	25
	3.2 Key drivers of plastic waste in the region .....	26
	3.3 Upstream root causes: production, regulation, and product design .....	27
	3.4 Opportunities for reuse in Southeast Asia .....	27
	3.5 Socio-economic context shaping behavioural outcomes .....	30
	3.6 Growing environmental awareness and sustainability efforts .....	31

<b>4</b>	<b>Barriers and levers for behaviour change in reuse systems</b> .....	<b>32</b>
	4.1 Individual-level barriers to reuse adoption and continuity .....	33
	4.2 System-level barriers undermining behaviour change .....	34
	4.3 Behaviour change strategies aligned to reuse systems .....	35
	4.4 Socio-economic and contextual factors shaping behaviour change strategies .....	36
	4.5 From behaviour change to system readiness .....	37

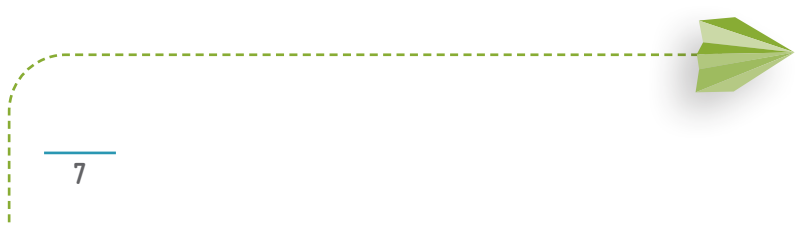
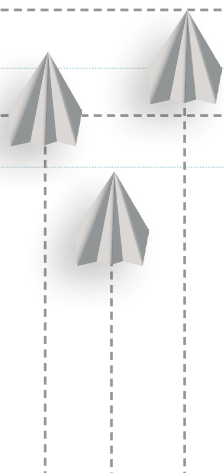
<b>5</b>	<b>Behaviour change aspects in reuse systems in Southeast Asia</b>	<b>38</b>
	5.1 Best practices in reuse systems: What works behaviourally	39
	5.2 <b>Case study 1</b> ▶ Community-based refills	40
	5.3 <b>Case study 2</b> ▶ Traditional deposit-return systems	42
	5.4 <b>Case study 3</b> ▶ Refill and prefill operators	45
	5.5 <b>Case study 4</b> ▶ Platform-enabled reuse systems	48
	5.6 Cross-case behavioural patterns and lessons	51
	5.7 Socio-economic and contextual factors across cases	51
	5.8 Implications for scaling reuse systems	53

<b>6</b>	<b>Policy and organisational recommendations for scaling reuse in Southeast Asia</b>	<b>54</b>
	6.1 Policy recommendations	56
	6.2 Organisational and entrepreneurial recommendations	59
	6.3 Cross-cutting recommendations for systemic change	62
	6.4 Summary	63

<b>7</b>	<b>Challenges and implications for scaling reuse in Southeast Asia</b>	<b>64</b>
	7.1 Structural dependence on single-use packaging	65
	7.2 Infrastructure and accessibility constraints	66
	7.3 Economic viability and market transitions	66
	7.4 Governance and system coordination	67
	7.5 Behavioural and social inclusion risks	67
	7.6 Conditions for scaling reuse in Southeast Asia	68
	7.7 Implications for scalability and replicability	69

<b>8</b>	<b>Conclusions</b>	<b>70</b>
----------	--------------------	-----------

	<b>References</b>	<b>72</b>
--	-------------------	-----------

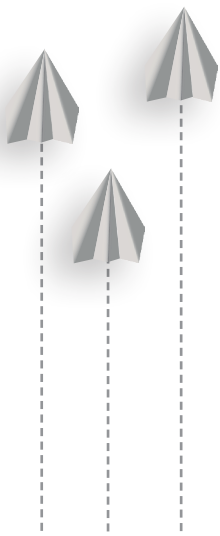


## Figures

1	Behaviour as an outcome of context .....	16
2	BCD implications for reuse systems design .....	17
3	COM-B Model integrating capability, opportunity and motivation .....	19
4	Fogg Behaviour Model of ability, motivation and triggers .....	20
5	Integrating behavioural frameworks across reuse participation .....	22
6	Behaviour change strategies .....	35
7	Refill system replacing sachets .....	40
8	Operations of Glassia .....	43
9	Refiller mobile .....	46
10	Reusable containers from Muuse .....	49

## Tables

1	Socio-economic and contextual factors shaping reuse behaviour .....	31
2	Socio-economic and contextual factors shaping behaviour change strategies for reuse systems .....	37
3	Socio-economic and contextual factors across cases .....	52



# Abbreviations


BCD	Behaviour-Centred Design
BMUKN	German Federal Ministry for the Environment, Climate Action, Nature Conservation and Nuclear Safety
COM-B	Capability, Opportunity, Motivation, Behaviour
EPR	Extended Producer Responsibility
NGO	Non-Governmental Organisation
SMEs	Small and Medium-sized Enterprises
WWF	World Wildlife Fund



1

# Introduction





Plastic pollution has emerged as one of the most visible and persistent environmental challenges facing Southeast Asia.<sup>1</sup> Rapid economic growth, changing consumption patterns, and widespread reliance on single-use plastics have contributed to rising volumes of plastic waste, much of which leaks into rivers, coastal zones, and marine ecosystems.<sup>2</sup> While recycling and waste management remain important responses, they are not sufficient to address the scale and pace of plastic pollution in the region. This underscores the importance of upstream interventions that target the design, production, and consumption stages to reduce plastic use before it becomes waste.

Against this backdrop, reuse systems have gained increasing attention as a critical strategy for reducing plastic consumption at source. By replacing disposable packaging with reusable containers that circulate multiple times, reuse systems have the potential to prevent waste before it is created, reduce pressure on waste management systems, and lower marine plastic leakage.<sup>3</sup> Importantly, reuse shifts the focus from end-of-life solutions to system-level changes in how products are delivered, used, and returned.

## 1.1 Behaviour change as analytical focus

Although reuse has gained increasing attention within circular economy strategies and private sector pilots, discussions often emphasise environmental impact and technical feasibility. Less attention has been given to the behavioural conditions under which reuse systems operate effectively over time.

In Southeast Asia, expressed environmental concern does not consistently translate into sustained reuse participation.<sup>4</sup> Adoption, return behaviour, and coordination among actors are shaped by factors such as convenience, affordability, hygiene perceptions, infrastructure access, and social norms. Understanding these behavioural dynamics is therefore central to assessing why reuse systems succeed in some contexts and struggle in others.

This study examines how behaviour change influences the performance and scalability of reuse systems across Indonesia, Vietnam, Malaysia, Thailand, and the Philippines. By analysing how behavioural participation interacts with system design, incentives, and institutional arrangements, the publication seeks to identify design principles that strengthen reuse implementation under diverse regional conditions.

<sup>1</sup> United Nations Environment Programme (UNEP). (2021). *From Pollution to Solution: A Global Assessment of Marine Litter and Plastic Pollution*. Nairobi: United Nations Environment Programme.

<sup>2</sup> United Nations Environment Programme (UNEP) & Food Industry Asia. (2020). *Perceptions on Plastic Waste: Insights, Interventions and Incentives to Action from Businesses and Consumers in South-East Asia*.

<sup>3</sup> Plastic Solutions Fund. (n.d.). *Reuse finance: Mapping the financial landscape for reuse and refill systems*. Jakarta.

<sup>4</sup> United Nations Environment Programme (UNEP) & Food Industry Asia. (2020). *Perceptions on Plastic Waste: Insights, Interventions and Incentives to Action from Businesses and Consumers in South-East Asia*.

## 1.2 Scope of the publication

To structure the analysis, four types of reuse systems are examined:

<b>1</b>	<b>Neighbourhood-level reuse systems</b>	▶ typically embedded in small, informal, or community-based retail environments, offering refill of household and personal care products such as detergents, shampoo, and other liquid essentials
<b>2</b>	<b>Traditional deposit-return schemes</b>	▶ such as returnable glass beverage bottles and large water gallons that circulate through long-standing commercial distribution systems in several Southeast Asian countries
<b>3</b>	<b>Refill and prefill models</b>	▶ where consumers either bring their own containers or use operator-provided reusable packaging for household cleaners, personal care products, and cosmetics, supported by centralised or decentralised collection and redistribution systems
<b>4</b>	<b>Corporate and platform-driven initiatives</b>	▶ such as reusable takeaway containers and delivery packaging integrated into supermarket, food service, and app-based delivery systems, supported by digital tracking and incentive mechanisms

Across these system types, behaviour is analysed through three interrelated domains:

<b>1</b>	<b>Adoption</b>	▶ the decision to initiate reuse participation
<b>2</b>	<b>Bringing and Returning</b>	▶ the establishment of repeat use and return routines
<b>3</b>	<b>Collective Engagement</b>	▶ coordination and shared norms among users, vendors, and service providers

These domains were interpreted through established behavioural frameworks, including Behaviour-Centred Design (BCD), the COM-B Model, and the Fogg Behaviour Model (Chapter 2.2–2.4). Traditional deposit-return systems were treated as behavioural reference systems, providing long-standing examples of habitual and economically viable reuse.

### 1.3 Methodology

#### Study design

This study follows a qualitative, exploratory research design aimed at understanding how behaviour change influences the performance and scalability of reuse systems in Southeast Asia. Rather than evaluating individual projects in isolation, the study adopts a systems-oriented perspective, examining how behavioural dynamics interact with infrastructure, policy, business models, and social context.

The methodology combines a review of existing literature with semi-structured stakeholder interviews. The systematic literature review covers international development research, programme evaluations, policy reports, and behaviour change toolkits relevant to plastic reduction and reuse systems. It focused explicitly on reuse-relevant behavioural insights, rather than plastic reduction measures more broadly. The study is further informed by semi-structured interviews with key stakeholders involved in designing, implementing, or enabling reuse systems across Southeast Asia.

Interviews were conducted with organisations operating at policy, corporate, community, and system-operator levels. Interviewees included representatives from reuse system operators, civil society organisations, and regional networks, including Muuse, Alner, Enviu, Plasticdiet, Evergreen Labs, Refiller Mobile, Asia Reuse Consortium, Greenpeace, Yoga Divers Clean Action, Plastic Free July, and World Wildlife Fund (WWF), among others. Interviews covered experiences from five priority countries, Indonesia, the Philippines, Thailand, Vietnam, and Malaysia, reflecting diverse behavioural, cultural, and economic contexts. Interview insights were used to validate findings from the literature, identify practical constraints, and surface implementation lessons that are often underreported in formal publications.

#### Scope and limitations

This study does not constitute a quantitative impact evaluation. The objective is to synthesise actionable insights that are relevant for policy and implementation, rather than to produce statistically representative findings. Evidence reflects a combination of documented experiences, pilot initiatives, and expert insights, and findings should be understood as indicative rather than universally generalisable.

Nevertheless, by triangulating literature and stakeholder perspectives across multiple countries and system types, the study provides a robust basis for identifying behavioural patterns, design principles, and policy-relevant implications for scaling reuse systems in Southeast Asia. The publication is intended for policymakers, private sector actors, and civil society organisations engaged in shaping, implementing, and scaling reuse systems in Southeast Asia.

2

# Behaviour change theories applied to reuse systems



### 2.1 Why behaviour change theory matters for reuse

Efforts to scale reuse systems in Southeast Asia have often focused on technical feasibility, infrastructure, and business models. However, many initiatives continue to underperform or stall despite technically sound designs. A recurring reason is the insufficient integration of behavioural insights into system and policy design.

Reuse requires people to change routines: choosing refill over sachets, bringing containers, re-turning packaging, or engaging with deposit systems. These behaviours are repeated, socially embedded, and highly sensitive to context. In Southeast Asia, participation in reuse is shaped by equity and contextual factors, including income levels, gender roles in household purchasing and waste management, access to infrastructure, and urban–rural differences. These factors influence who makes decisions, who carries responsibility, and who bears the practical effort of participation. Behaviour change theory therefore provides a critical analytical lens to understand why adoption occurs, why it fails, and how participation can be sustained over time.

This chapter introduces three complementary behaviour change frameworks, BCD, the COM-B Model, and the Fogg Behaviour Model, and applies them directly to reuse systems in Southeast Asia. Together, they help diagnose behavioural bottlenecks and inform more effective interventions for policymakers, entrepreneurs, and system designers.

### 2.2 Behaviour-Centred Design (BCD): Behaviour as an outcome of context

BCD conceptualises behaviour as the result of interactions between context, motivation, enabling factors, and barriers.<sup>5</sup> Rather than treating behaviour as an individual attitude problem, BCD emphasises how environments and systems shape what people do.

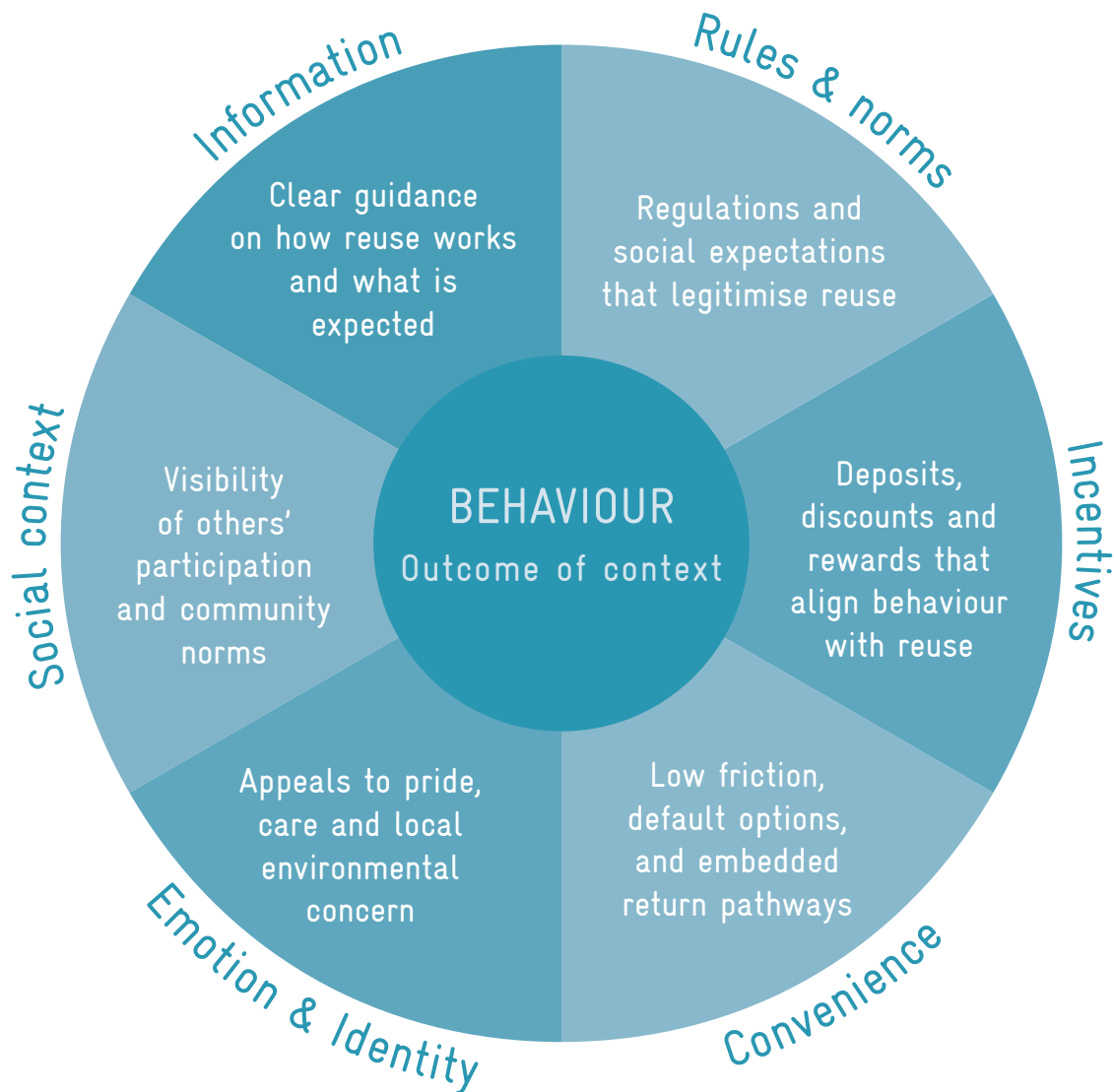
At its core, BCD identifies a set of behavioural levers that influence whether a behaviour occurs. These include factors such as information, rules, incentives, social expectations, emotional responses, and convenience and contextual cues.

---

<sup>5</sup> Aunger, R., & Curtis, V. (2016). Behaviour Centred Design: towards an applied science of behaviour change. *Health Psychology Review*, 10(4), 425–446; Behavioural Insights Team & Rare. (2019). *Behavior change for nature: A behavioral science toolkit for practitioners*. Rare, Arlington, VA.



Figure 1 Behaviour as an outcome of context

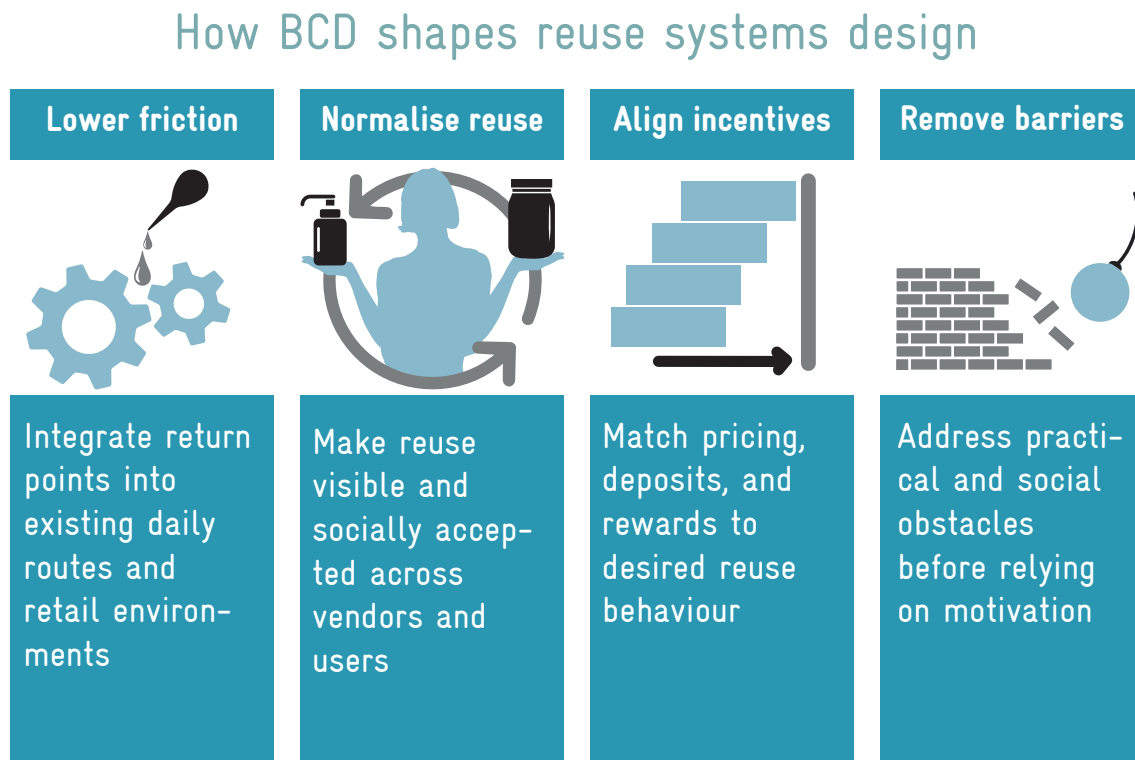


Source: Own Illustration

The focus is on how reuse systems:

- lower effort and friction,
- make reuse visible and normal,
- align incentives with desired behaviour, and
- remove practical and social barriers to participation.

Figure 2 BCD implications for reuse systems design



*Source: Own Illustration*

Applied to reuse systems, BCD highlights that adoption depends on how reuse is positioned within everyday life. Motivation (e.g. environmental concern, cost savings) is rarely sufficient on its own. Behaviour is strongly influenced by contextual cues such as product availability, time pressure, default options, and what others around us are doing.

For example, refill stations integrated into neighbourhood shops or delivery ecosystems reduce effort and normalise reuse, while stand-alone or pilot-only solutions increase cognitive and logistical burden. BCD therefore directs attention to system design choices, where reuse is offered, how easy it is to use, and how it competes with single-use options.

Importantly, BCD also accounts for collective behaviour. Reuse works best when consumers, vendors, and service providers act in coordination, creating shared expectations and trust. Fragmented systems weaken these signals and undermine participation.

## 2.3 COM-B Model: Diagnosing micro-level behavioural gaps

The COM-B Model explains behaviour as the interaction between capability, opportunity and motivation.<sup>6</sup> This framework is particularly useful for diagnosing why specific reuse behaviours fail to occur or persist.

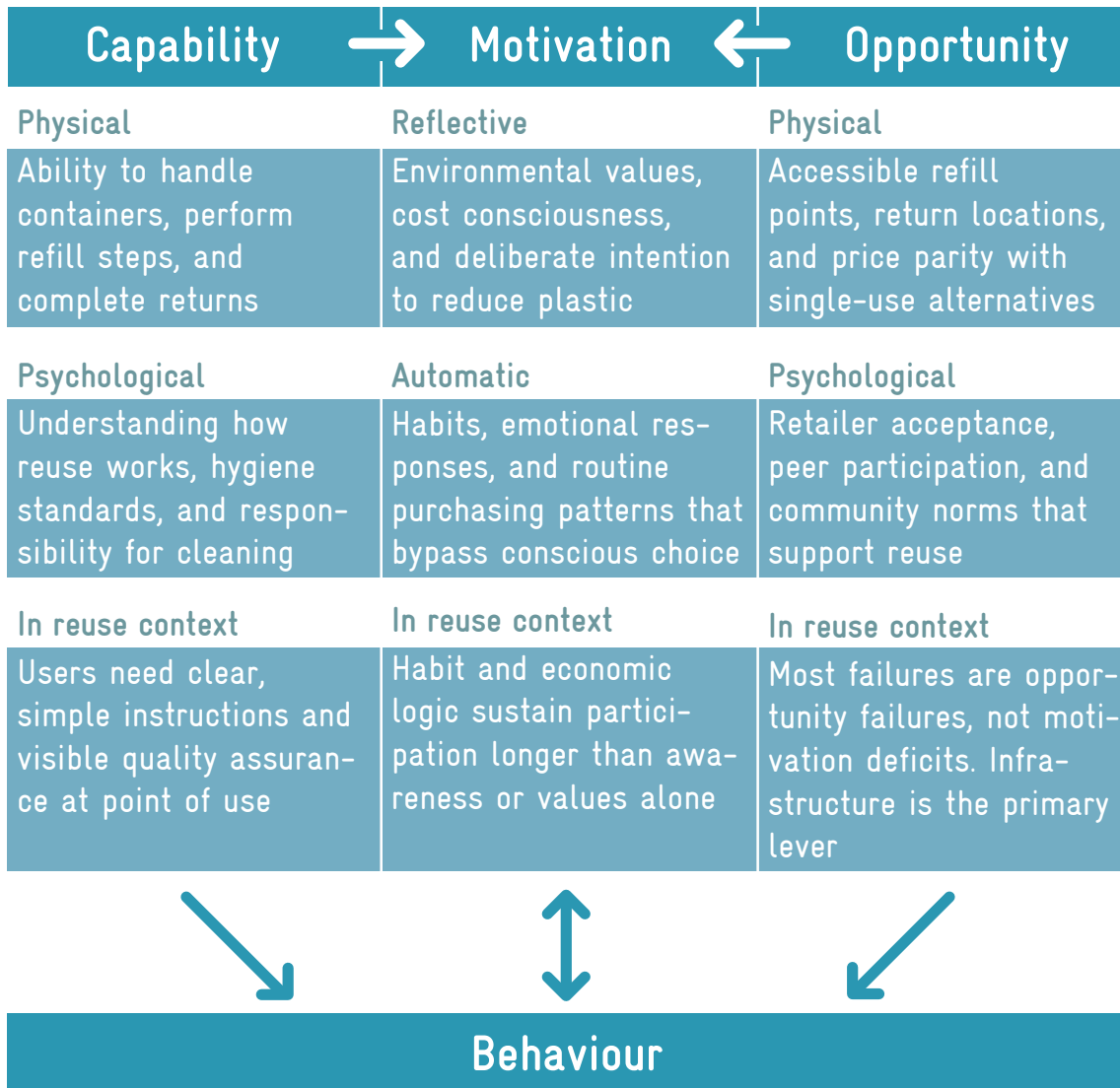
- **Capability** refers to whether individuals have the necessary knowledge and skills. In reuse systems, this includes understanding how refill or return works, knowing where to return containers, and being confident about hygiene practices.
- **Opportunity** encompasses external conditions that enable behaviour. This includes physical infrastructure (refill points, return locations), economic conditions (price parity, deposits), and social opportunity (acceptance by retailers and peers).
- **Motivation** includes both reflective motivation (values, intentions) and automatic motivation (habits, emotional responses).

Applying COM-B to reuse reveals that behavioural bottlenecks often lie in opportunity rather than motivation. Consumers may be willing to participate but lack access to nearby refill points, consistent return systems, or affordable options. For policymakers, this highlights infrastructure and regulatory design as primary behavioural levers. For entrepreneurs, it underscores the importance of reducing friction and simplifying user journeys.



<sup>6</sup> Michie, S., van Stralen, M. M., & West, R. (2011). The behaviour change wheel: A new method for characterising and designing behaviour change interventions. *Implementation Science*, 6(42).

Figure 3 COM-B Model integrating capability, opportunity and motivation



Source: Own Illustration

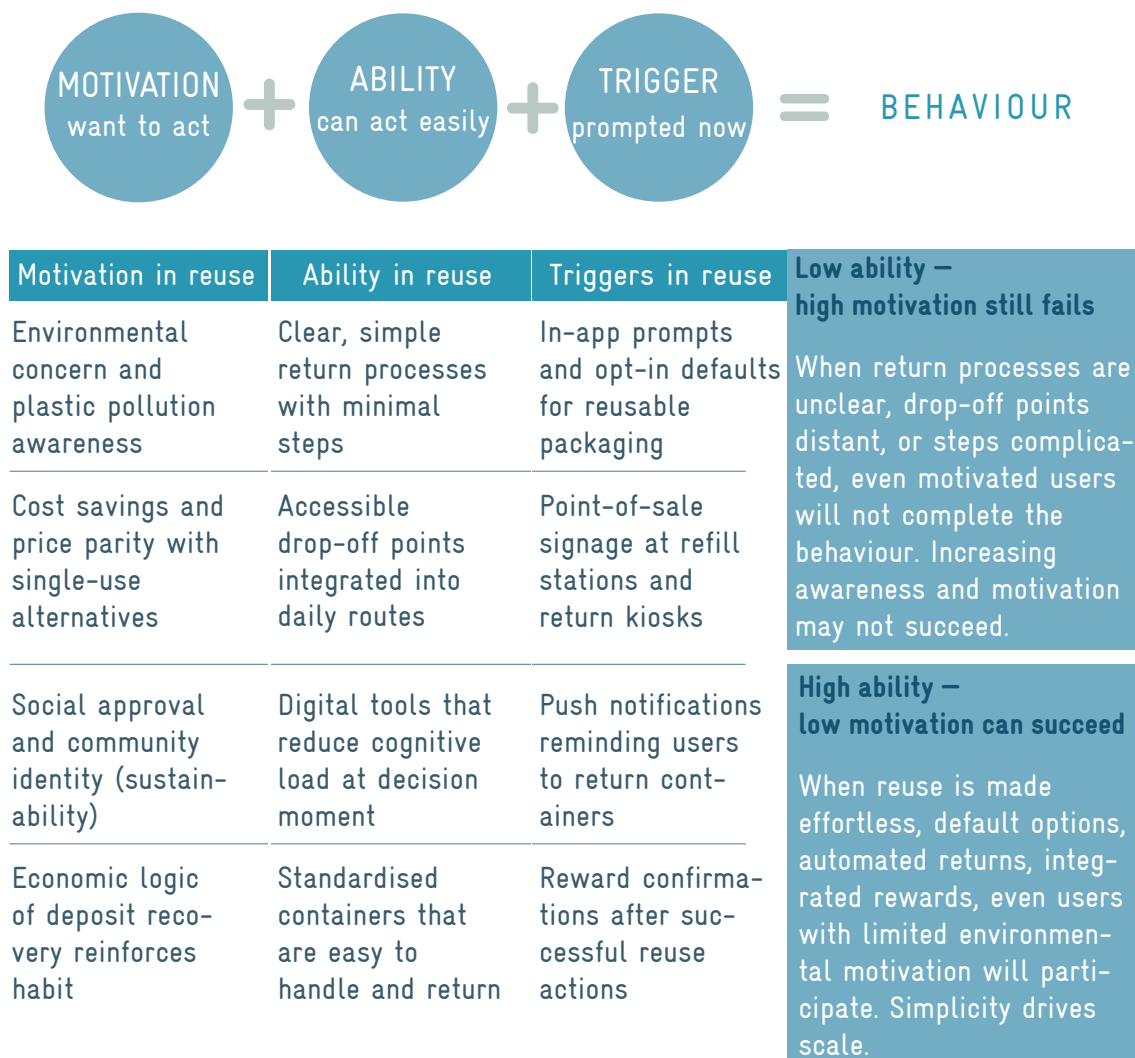
COM-B also allows direct linkage to interventions. For example:

- Opportunity gaps can be addressed through shared infrastructure and retail integration.
- Motivation can be strengthened through deposits, rewards, or social recognition.
- Capability can be improved through clear instructions and standardised processes.

## 2.4 Fogg Behaviour Model: Triggers, ability, and digital nudges

The Fogg Behaviour Model proposes that behaviour occurs when motivation, ability, and a trigger converge at the same moment.<sup>7</sup> This model is particularly relevant for platform-mediated reuse systems, such as food delivery, mobility, or e-commerce services.

**Figure 4** Fogg Behaviour Model of ability, motivation and triggers



Source: Own Illustration

<sup>7</sup> Fogg, B. J. (2009). A behavior model for persuasive design. In Proceedings of the 4th International Conference on Persuasive Technology. ACM.

In Southeast Asia, platforms like Grab, Gojek, and Foodpanda already shape daily consumption patterns through app-based prompts, defaults, and rewards. The Fogg Model helps explain how digital triggers, such as in-app reminders, opt-in defaults for reusable containers, or reward notifications, can prompt reuse behaviour when users already have sufficient ability and motivation.

Critically, the model suggests that when ability is low (e.g. unclear return processes), increasing motivation alone will not lead to behaviour change. Instead, simplifying the action, making return effortless or automatic, has a greater impact. This insight is especially relevant for container return rates and habit formation.

The Fogg Model also helps explain why short-term incentives can catalyse longer-term habits when combined with reliable systems. Once behaviours become routine, reliance on triggers can decrease.

### 2.5 Integrating frameworks across three behavioural domains

Taken together, BCD, COM-B, and the Fogg Behaviour Model can be combined to explain three critical behavioural domains in reuse systems. This integrated view keeps theory accessible while remaining analytically robust.

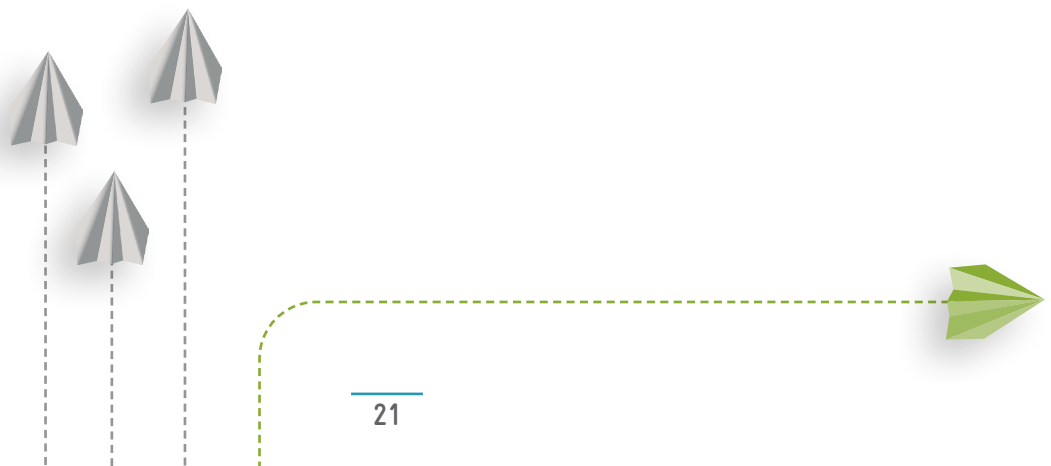


Figure 5 Integrating behavioural frameworks across reuse participation

## Contextual factors & behavioural strategy implications

	1	2	3
Behavioural framework	Adoption – first participation	Bringing & returning – repeated participation	Collective engagement – coordinated participation
<b>Behaviour-Centred Design (BCD)</b>	Adoption is shaped by context: how visible, convenient and embedded reuse is within everyday environments. Motivation alone is rarely sufficient.	Repetition depends on reducing friction and aligning reuse with existing routines and system design.	Collective participation emerges when reuse is consistently visible and reinforced across actors, creating shared expectations.
<b>COM-B Model</b>	Participation requires <b>Capability</b> (knowledge and skills), <b>Opportunity</b> (physical access and availability), and <b>Motivation</b> (reflective and automatic drivers) to align.	Sustained behaviour depends particularly on physical and social opportunity, including accessible return systems and clear rules.	Social opportunity and institutional reinforcement enable coordinated action among users, vendors, and service providers.
<b>Fogg Behaviour Model</b>	Behaviour occurs when motivation and ability converge in the presence of a trigger, such as a prompt or default at the point of decision.	Habit formation is supported by increasing ability (simplifying actions) and using reminders or small rewards to prompt repetition.	Platform-level triggers and default options help normalise reuse and shift it from optional behaviour to standard practice.

*Source: Own Illustration*

Taken together, the three frameworks clarify different but complementary aspects of reuse participation. Behaviour-Centred Design emphasises how infrastructure, visibility, and system design shape everyday behaviour. The COM-B Model helps diagnose whether limitations lie in capability, opportunity, or motivation, often revealing that opportunity constraints outweigh attitudinal barriers. The Fogg Behaviour Model highlights the importance of timing and action simplicity, showing how prompts and defaults can activate behaviour at critical decision points.

Combined, these perspectives suggest that scaling reuse requires structural alignment of context and infrastructure, clear opportunity structures, and well-designed triggers embedded in daily routines.

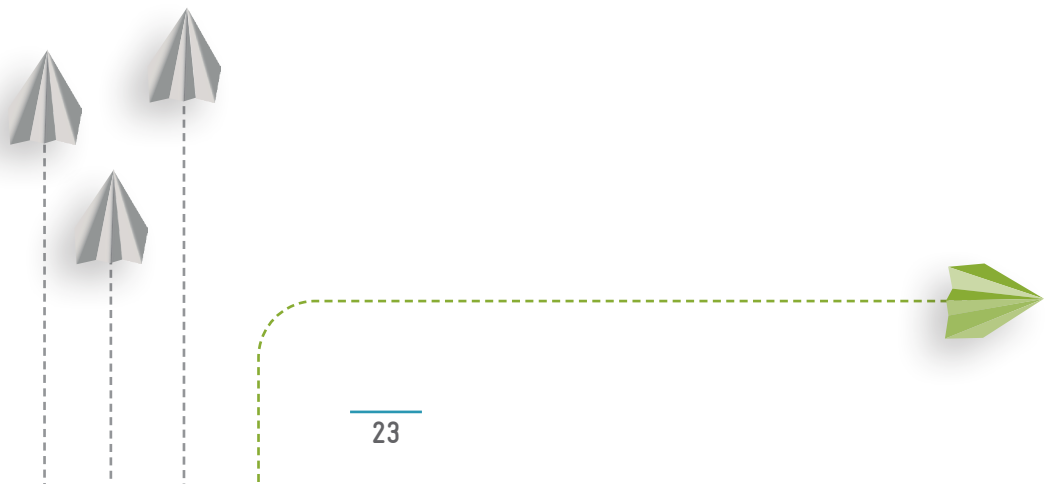
### 2.6 Implications for policymakers, entrepreneurs and civil society organisations

For policymakers, these frameworks provide tools to design reuse-supportive policies that embed behavioural insights. Regulations and incentives can be structured to expand opportunity (through infrastructure), strengthen motivation (through pricing and deposits), and legitimise reuse as a social norm.

For entrepreneurs and system operators, behavioural theory informs customer engagement strategies, digital incentive design, and habit formation mechanisms. Understanding when and how to deploy triggers, simplify actions, and build trust is essential for scaling reuse models.

For civil society organisations and practitioners, including NGOs and community-based initiatives, behavioural insights support more effective engagement, communication, and trust-building at local level. These actors play a critical role in translating reuse systems into culturally resonant practices, addressing concerns around hygiene and convenience, and facilitating collective participation among users, vendors, and service providers.

For all three groups, the central implication is clear: reuse interventions that ignore behavioural bottlenecks risk undermining otherwise sound technical solutions. Behaviour change theory, when applied systematically, ensures that reuse systems are not only viable on paper but workable in everyday life. This behavioural foundation sets the stage for subsequent chapters, which examine how system, finance, and policy conditions can either reinforce or undermine these behavioural mechanisms.



# 3

## Southeast Asia: Regional context

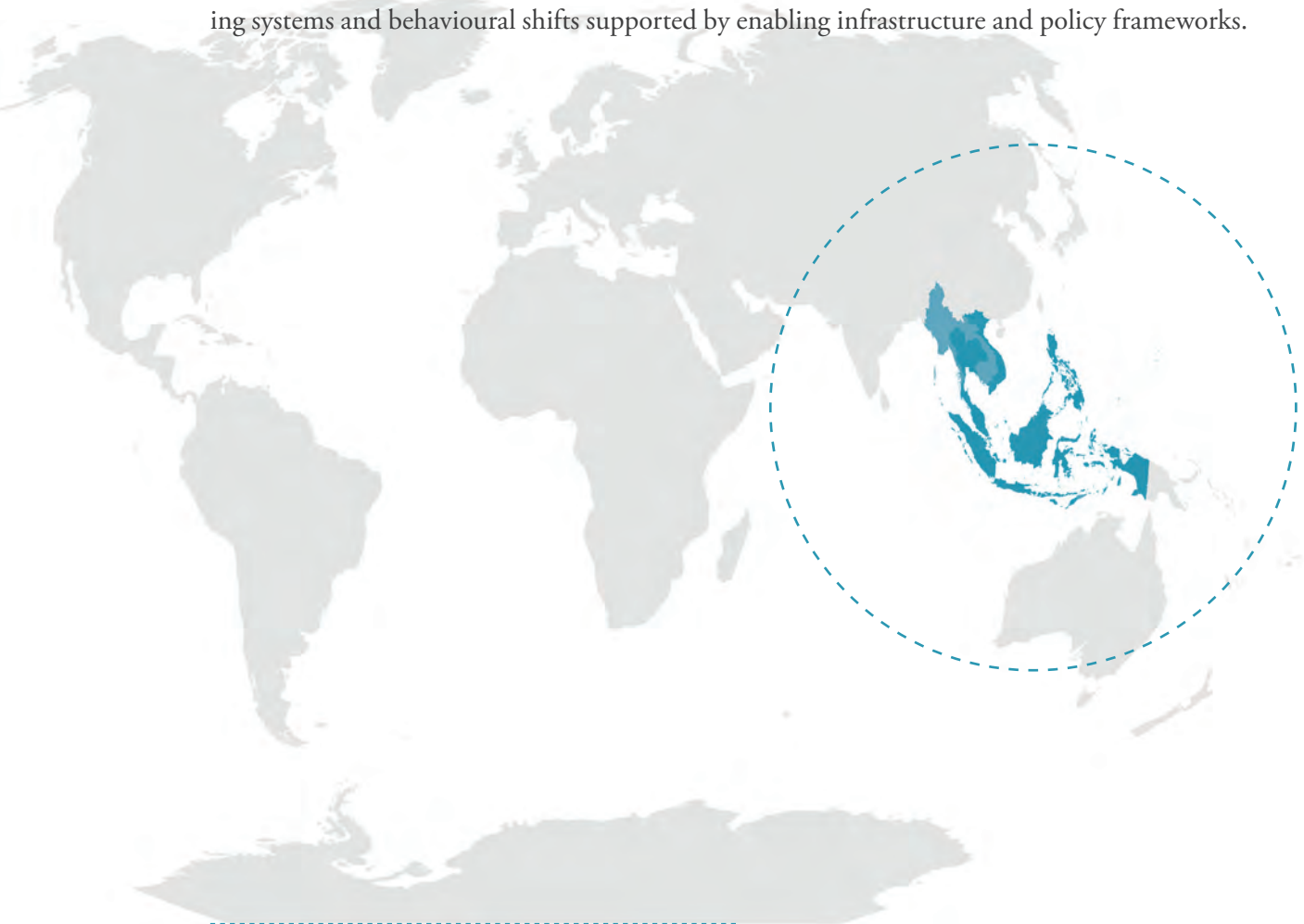


#### 3.1 Plastic waste and marine litter in Southeast Asia

Plastic leakage in Southeast Asia is shaped by structural conditions related to production systems, consumption patterns, geography, and waste management capacity. Several countries in the region are frequently cited among the largest contributors to marine plastic leakage, reflecting high plastic use combined with uneven collection and treatment systems.<sup>8</sup>

Rapid urbanisation, dense coastal populations, and extensive river networks increase the likelihood that mismanaged waste enters marine environments. Waste management infrastructure remains fragmented, and low-value, multi-layer packaging such as sachets often lacks viable recovery pathways.<sup>9</sup>

Importantly, plastic leakage results from the interaction between systemic design and everyday practices. Consumption habits, retail formats, product design, and infrastructure constraints reinforce each other. Addressing marine litter therefore requires both upstream changes in packaging systems and behavioural shifts supported by enabling infrastructure and policy frameworks.



<sup>8</sup> COBSEA. (n.d.). Proven practice guide for reducing marine plastic pollution in Southeast Asia. Coordinating Body on the Seas of East Asia.

<sup>9</sup> Dietplastik Indonesia. (2024). Final report: Economic sachet research. Jakarta.

## 3.2 Key drivers of plastic waste in the region

### Urbanisation, rising consumption, and convenience-oriented lifestyles

Rapid urbanisation and the expansion of middle-income consumer groups over the past two to three decades have fundamentally reshaped consumption patterns across Southeast Asia. Busy urban lifestyles, longer commuting times, and the growth of food delivery and takeaway services have increased demand for convenience, ready-to-use products, and packaged goods.

Single-use plastics, particularly lightweight packaging and sachets, have become deeply embedded in everyday life. They offer affordability, portion control, and distribution efficiency, especially for low-income consumers and informal retail settings. However, these same characteristics make them extremely difficult to collect, recycle, or manage safely at end of life.

### Limited and uneven waste management infrastructure

Waste collection and recycling systems across the region remain fragmented and unevenly distributed. Urban centres often receive higher levels of service, while peri-urban, coastal, and rural areas rely on informal or incomplete systems. Even where collection exists, sorting, treatment, and recycling capacity is frequently insufficient.

The informal sector plays a critical but under-recognised role in recovering high-value recyclables.<sup>10</sup> Informal waste pickers contribute significantly to plastic recovery, yet low-value, multi-layer plastics such as sachets often fall outside viable recovery markets. Because these materials have little resale value, collecting them is rarely economically viable. This leaves a large share of plastic waste without viable recovery pathways.

### Cultural and social norms shaping plastic use

Single-use plastics are not merely functional; they are socially normalised. Practices such as receiving plastic bags at traditional markets, using disposable food containers, or purchasing sachets for daily needs are widely accepted and rarely questioned. Over time, convenience has become culturally embedded, reinforcing demand for disposable formats.

These norms interact with structural constraints: when alternatives are unavailable, inconvenient, or more expensive, single-use plastics remain the default choice.

---

<sup>10</sup> UNEP. (2019). Waste Management Outlook for Asia and the Pacific. Nairobi: United Nations Environment Programme.

### 3.3 Upstream root causes: Production, regulation, and product design

Plastic pollution in Southeast Asia cannot be fully understood without addressing upstream drivers at the point of production and product design. Current regulatory frameworks in many countries allow widespread use of single-use and hard-to-recycle packaging, while placing limited responsibility on producers for post-consumer impacts.

Product design choices, such as multi-layer sachets, composite materials, and non-standardised packaging, prioritise cost efficiency and market penetration over recoverability. These designs externalise environmental and social costs to municipalities, communities, and ecosystems.

While Extended Producer Responsibility (EPR) policies exist in parts of the region, they have often prioritised recycling targets rather than waste prevention or reuse. As a result, upstream incentives continue to favour single-use formats. Without stronger regulations that encourage reuse-compatible design, packaging reduction, and shared systems, downstream waste management alone cannot resolve the problem.

### 3.4 Opportunities for reuse in Southeast Asia

#### Cultural traditions of reuse as behavioural reference points

Despite the dominance of single-use plastics, Southeast Asia has a long history of reuse practices. Deposit-return systems for water gallons, refillable cooking gas containers, and reusable glass bottles provide familiar reference points. These practices demonstrate that reuse is not culturally foreign but rather has been displaced by disposable alternatives.

Such traditions offer valuable entry points for modern reuse systems, particularly when combined with improved hygiene standards, logistics, and digital tracking.

#### Economic growth, digitalisation, and emerging middle classes

Rising incomes and digital adoption create new opportunities to scale reuse models. App-based platforms, cashless payments, and data-driven logistics enable new forms of refill, return, and subscription-based reuse systems. For middle-income consumers, reuse can be positioned not only as an environmental choice but also as a convenient and aspirational lifestyle option.

### Corporate and startup engagement

Multinational corporations and local startups are increasingly piloting reuse initiatives across the region. These include refill stations, pre-filled returnable packaging, and delivery-based container systems integrated into platforms such as Grab, Gojek, and Foodpanda.

While many initiatives remain at pilot stage, they signal growing private-sector interest and provide important learning on consumer response, operational challenges, and business viability.

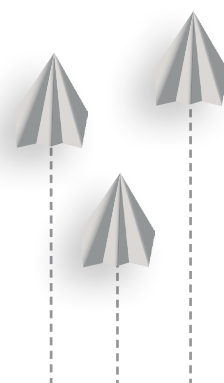
### Grassroots and community-led innovation

At the same time, grassroots initiatives demonstrate how reuse can function in low-income and community settings. In the Philippines, for example, Kuha sa Tingi piloted refill systems through small neighbourhood stores, building on existing sari-sari shop networks and local trust relationships. In Indonesia, community-based refill shops linked to waste banks and women's groups have shown that reuse can be embedded in everyday purchasing routines when supported by local leaders and face-to-face engagement. These initiatives rely less on digital infrastructure and more on social proximity, word-of-mouth promotion, and trusted intermediaries.

Such models demonstrate that low-cost, locally embedded approaches can achieve high participation when aligned with social norms and community relationships. They are particularly relevant for reaching populations that are not served by digital platforms or formal retail channels.

### Integration of the informal sector

Including the informal sector can make reuse systems in Southeast Asia far more scalable, resilient, and locally grounded, because informal workers already collect, sort, repair, and move large parts of the region's material flows. Their inclusion also creates opportunities to improve collection quality, recovery rates, and last-mile logistics while turning an existing livelihood network into a core part of the reuse economy. This is especially important in Southeast Asia because informality is not peripheral but structurally embedded in waste and resource management, so reuse systems that ignore it reduce the chance for long-term success and exclude the people who already make the system work. In practice, inclusion is therefore not just a social add-on but a prerequisite for durable, regionally workable reuse systems.





### 3.5 Socio-economic context shaping behavioural outcomes

Reuse adoption in Southeast Asia is influenced by diverse socio-economic, geographic, and institutional contexts. Interviews and regional case material highlight several structural factors that shape how reuse systems are adopted and sustained across different population groups. Different diversity dimensions like gender, age, religion or income level have to be considered to make sure that the reuse solution is really adapted to the local context and the user's reality to ensure long-term success (see Table 1 on next page).

Across Southeast Asia, socio-economic conditions and local contexts interact with structural features such as informal retail networks, community-based organisations (e.g. waste banks), and the rapid expansion of digital consumption platforms. Designing reuse systems that account for these factors is therefore essential for inclusive and scalable implementation.

Furthermore, these considerations should already go into the design phase. A co-creation process involving diverse stakeholders avoids creating blind spots in the system.

For Southeast Asia, it is also important to note that there are vast differences among regions. What works for one country or even neighbourhood will not work for another. There is no one-size-fits all approach. Local pilots cannot automatically be scaled without further research.

### 3.6 Growing environmental awareness and sustainability efforts

Environmental awareness among consumers and the private sector is increasing across Southeast Asia. Public concern about plastic pollution, marine litter, and climate impacts has grown, supported by civil society campaigns, media coverage, and youth-led movements.

Many companies now articulate sustainability commitments and experiment with alternative packaging models. However, awareness and corporate intent have not yet translated into systemic change at scale. Structural constraints, such as cost pressures, regulatory gaps, and infrastructure limitations, continue to limit impact.

This gap between awareness and outcomes reinforces a central message of this publication: while awareness is necessary, it is not sufficient. Meaningful reduction of plastic pollution requires upstream action, system-level reuse infrastructure, and aligned policy and finance mechanisms.

Together, these regional dynamics provide the context for understanding both the potential and the limitations of reuse initiatives in Southeast Asia, setting the stage for subsequent chapters on systemic barriers, finance, and governance.

**Table 1** Socio-economic and contextual factors shaping reuse behaviour

Factor	Behavioural implications
1 Socio-economic conditions	Price sensitivity and small-unit purchasing patterns shape adoption, especially in a region where many households deal with small daily budgets. Reuse systems must provide visible savings, low or refundable deposits, and refill options that match daily budgeting practices.
2 Gender implications on roles in households, time budgets and daily routines	Routines and tasks often differ among genders. Women frequently manage household purchasing, care work and waste practices, with already little time for additional tasks. Reuse systems must integrate easily into daily routines and minimise additional time or labour burdens. Extra work should be minimal (e.g. automatised or mobile return, no extra trips, automatic reminders, integration into existing shopping routines).
3 Multiple users	In refill and reusable systems, one person can buy, another store, bring back a third; this is particularly relevant in multigenerational households and dense forms of housing. Make sure to address not only end users, but all the people involved.
4 Urban, rural, & archipelagic contexts	Infrastructure and logistics vary widely across locations. Reuse models must adapt to dense urban markets, informal rural retail networks, and geographically dispersed island contexts.
5 Digital access & platform participation	App-based models may exclude populations with limited smartphone access or digital literacy. Hybrid systems combining digital tracking with offline participation can broaden accessibility.
6 Trust, hygiene perception & regulatory clarity	Visible cleaning processes, clear hygiene standards, and regulatory guidance are essential for building consumer confidence and sustained participation, especially relevant for the food and beverage sector.
7 Tailored incentives	Incentives vary depending on the target group. For example, in some contexts men are more likely to be addressed by utility, convenience or status than by morality or renunciation. Segment messages: For some target groups, emphasise status, efficiency and practicality, for others family benefit, hygiene or cost savings.
8 Safety & Mobility for return options	Women often react more strongly to systems that offer security, reliability and predictability. Ensure safe places, good lighting, reliable opening hours, transparent processes and low-threshold support services. Furthermore, men and women or single people and parents show different mobility patterns. Place reuse offers along real everyday routes, e.g. daycare centre, supermarket, public transport, commute, or in the neighbourhood.

*Source: Own Illustration*

4

# Barriers and levers for behaviour change in reuse systems



This chapter examines why behaviour change towards reuse remains difficult in Southeast Asia despite growing awareness, policy attention, and pilot initiatives. Drawing on behavioural theory, interview insights, and regional evidence, it distinguishes individual-level barriers from system-level constraints and maps these barriers to concrete strategies that have proven effective in practice.

### 4.1 Individual-level barriers to reuse adoption and continuity

#### Confusion, misinformation, and hygiene concerns

Across the region, low or uneven understanding of reuse systems remains a significant barrier. Interviews and behavioural change programmes consistently highlight confusion around how reuse works in practice, particularly with regard to hygiene, safety, and responsibility for cleaning.

Concerns about food safety, contamination, and cleanliness - alongside halal requirements - are especially pronounced in food service and personal care contexts. These concerns are often amplified by past public health crises and by the visibility of informal handling practices. Importantly, such concerns do not necessarily reflect a lack of willingness, but rather a lack of clear and trusted standards.

#### Strong convenience bias and habitual single-use practices

Single-use plastics are cheap, widely available, and deeply embedded in daily routines. Convenience is not simply a preference, but a structural condition shaped by time pressure, informal retail formats, and delivery-based consumption. Behavioural evidence from interviews in Southeast Asia shows that even highly motivated individuals revert to single-use options when reuse requires additional effort, planning, or coordination.

#### Forgetfulness and competing routines

Reuse often fails not at the point of intention, but in execution. Forgetting to bring containers, uncertainty about where to return them, or disruption of daily routines are common reasons for drop-off after initial adoption. These challenges are particularly acute for return-based models that rely on repeated action over time.

#### Intersectional and gender-sensitive lens

As described in Chapter 3.5, reuse behaviour is shaped not only by gender, but also by age, income, religion, household roles, mobility, and access to time and information. An intersectional gender-sensitive analysis should therefore examine how these diversity dimensions create different barriers and incentives for different user groups.

## 4.2 System-level barriers undermining behaviour change

### Lack of accessible and reliable infrastructure

Behaviour change cannot be sustained without enabling systems. A recurring insight across interviews and programme evaluations is that reuse adoption stalls when refill stations, drop-off points, or return logistics are sparse, inconsistent, or poorly integrated into existing consumption pathways.

When reuse infrastructure is perceived as unreliable or inconvenient, behavioural interventions alone have limited impact. This reinforces the finding that many behaviour change failures are in fact opportunity failures, rather than motivation deficits.

### Weak or uneven policy enforcement

While several Southeast Asian countries have introduced bans, levies, or EPR schemes targeting single-use plastics, enforcement remains uneven. Inconsistent implementation weakens behavioural signals and allows single-use options to remain the default in practice.

Moreover, most EPR frameworks continue to prioritise recycling outcomes rather than reuse. As a result, producers and retailers face limited regulatory incentive to invest in reusable systems, and consumers encounter mixed messages about expected behaviour.

### Cost and risk distribution

Reuse systems often involve higher upfront costs for businesses and households, including containers, washing infrastructure, reverse logistics, and system coordination. These costs are frequently borne by early adopters, while the environmental benefits are collective.

Without shared infrastructure, financial support, or risk-sharing mechanisms, reuse remains economically fragile. Behaviour change efforts that ignore these structural cost dynamics risk shifting responsibility onto individuals or small businesses.

### Fragmented participation across actors

Reuse systems depend on coordinated participation by consumers, vendors, delivery riders, platform operators, and service providers. Interviews repeatedly show that when even one actor opts out, such as vendors refusing containers or riders defaulting to disposables, the system breaks down.

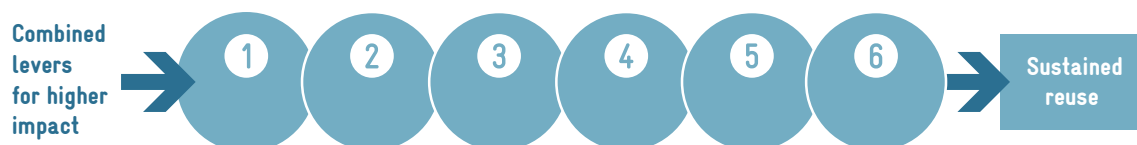
This fragmentation erodes trust and increases effort for users, reinforcing a return to single-use options.

### 4.3 Behaviour change strategies aligned to reuse systems

Behaviour change in reuse systems rarely results from a single intervention. Evidence from behavioural programmes and reuse pilots shows that sustained participation typically emerges when multiple behavioural levers are combined and aligned with the specific barriers people face. These levers operate at different levels, ranging from information and incentives to social norms, regulatory frameworks, and system design. The following overview summarises key behaviour change strategies that can support reuse adoption, participation, and long-term habit formation.

**Figure 6** Behaviour change strategies

<p><b>1 Information &amp; Practical Guidance</b>  <b>What to do, how systems work, what to expect</b></p> <ul style="list-style-type: none"> <li>• Hygiene assurance for families; cost savings for low-income households; environmental pride for youth.</li> <li>• Timely reminders via app notifications, Point-of-sale signage, or visual cues at return points.</li> <li>• Bridges the intention-action gap, practical not abstract.</li> </ul>	<p><b>2 Rules &amp; Regulations</b>  <b>Shifting defaults across markets</b></p> <ul style="list-style-type: none"> <li>• Strengthen enforcement of single-use restrictions and extend EPR schemes to include reuse.</li> <li>• Mandate return systems for retailers, food service, and delivery platforms.</li> <li>• Clear hygiene and safety standards build trust across the supply chain.</li> </ul>
<p><b>3 Material Incentives &amp; Cost Reduction</b>  <b>Adoption and return behaviours</b></p> <ul style="list-style-type: none"> <li>• Deposits, discounts, loyalty points, and mobile credits encourage both first use and return.</li> <li>• Integrated return options, pick-ups, kiosks, shared drop-off, lower effort for users.</li> <li>• Business subsidies and shared infrastructure reduce participation barriers.</li> </ul>	<p><b>4 Emotional Appeals &amp; Narrative Framing</b>  <b>Resonance and personal relevance</b></p> <ul style="list-style-type: none"> <li>• Appeals to pride, family care, and local environment resonate more than abstract messages.</li> <li>• Storytelling linking plastic pollution to fisheries, tourism, or flooding makes impact tangible.</li> <li>• Fear-based messaging must be balanced to avoid disengagement or resistance.</li> </ul>
<p><b>5 Social Influences &amp; Collective Action</b>  <b>Normalising and legitimising reuse</b></p> <ul style="list-style-type: none"> <li>• People participate more when they see others doing so and when participation is recognised.</li> <li>• Teachers, community leaders, and faith-based actors legitimise new practices.</li> <li>• Schools, youth groups, and workplaces provide effective collective entry points.</li> </ul>	<p><b>6 Convenience &amp; Contextual Cues</b>  <b>Making reuse the easy default</b></p> <ul style="list-style-type: none"> <li>• Offer reusables by default, simplify return processes, place prompts at moments of decision.</li> <li>• Visible reuse options and contextual nudges reduce friction at point of choice.</li> <li>• Digital platforms support cues through default settings, reminders, and integrated rewards.</li> </ul>



Source: Own Illustration

These strategies are most effective when implemented in combination. Information alone rarely leads to sustained behaviour change unless supported by enabling conditions such as convenient return systems, visible social participation, and appropriate incentives. The following sections discuss these behavioural mechanisms in more detail and highlight how they can be applied in reuse systems.

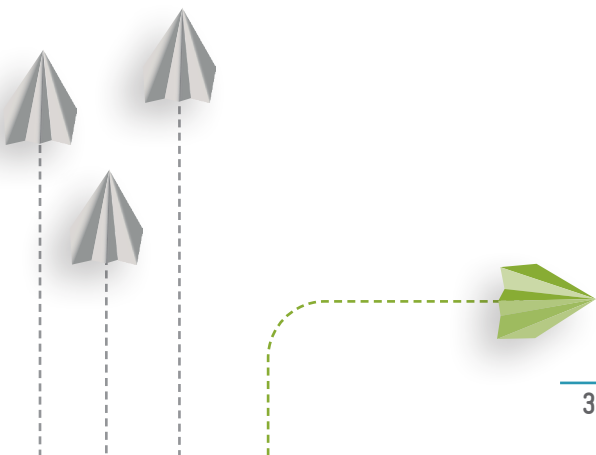
#### 4.4 Socio-economic and contextual factors shaping behaviour change strategies

Table 2 on the next page links socio-economic and contextual factors identified in Chapter 3 with behaviour change strategies discussed in Chapter 4. It illustrates how reuse systems must adapt behavioural interventions to the region's economic conditions, infrastructure constraints, and social practices rather than applying uniform approaches across different contexts.

#### 4.5 From behaviour change to system readiness

The evidence reviewed in this chapter reinforces a central insight: behaviour change follows system readiness. Individuals are willing to participate in reuse when systems are convenient, trustworthy, affordable, and socially supported.

Information campaigns, incentives, and nudges can accelerate adoption, but they cannot compensate for missing infrastructure, fragmented participation, or misaligned policy signals. Sustainable behaviour change therefore depends on aligning behavioural strategies with system design, finance, and governance, topics explored in the following chapters.



**Table 2** Socio-economic and contextual factors shaping behaviour change strategies for reuse systems

Factor	Context & challenge	Strategy response
1 Sachet economy & daily budgeting patterns	High price sensitivity, small-unit purchasing, and dominance of informal retail shape everyday consumption decisions.	Prioritise price parity and visible savings at point of decision. Offer small-unit refill options and low or refundable deposits. Emphasise reliability and convenience over abstract environmental messaging.
2 Gender roles in household & retail activities	Women frequently manage household purchasing and waste practices, while men are often represented in vendor or managerial roles.	Integrate reuse into daily routines and minimise additional time or cleaning burdens. Combine household-focused communication with clear financial and regulatory signals for vendors.
3 Urban, rural & archipelagic contexts	Dense urban centres with digital platforms coexist with rural, peri-urban, and island settings facing logistical constraints.	Use digital nudges and default options in urban contexts. In rural and island areas, rely on visible local infrastructure, trusted intermediaries, and decentralised return systems.
4 Uneven digital access & infrastructure	Smartphone access, digital literacy, and payment systems vary widely, with continued reliance on cash-based transactions in many areas.	Avoid app-only solutions. Develop hybrid models combining digital tracking with offline participation. Use simple visual instructions and face-to-face communication where appropriate.
5 Trust, hygiene perception & regulatory clarity	Concerns about cleanliness, water access, and unclear hygiene standards can undermine participation.	Make cleaning processes visible and communicate endorsed hygiene standards clearly. Build trust through transparency and credible branding.
6 Age & social identity dynamics	Youth networks often prioritise innovation and peer influence, while older generations may prioritise predictability and safety.	Use peer visibility and collective identity to engage younger audiences. Provide clear instructions, reassurance, and predictable routines for older participants.

Source: Own Illustration

5

# Behaviour change aspects in reuse systems in Southeast Asia



This chapter examines how behaviour change operates in practice across different reuse systems in Southeast Asia. Building on the behavioural frameworks introduced in Chapter 2 and the barriers and levers discussed in Chapter 4, it combines analytical synthesis with explicitly defined case studies drawn from the literature review and stakeholder interviews conducted for this study.

### Case study approach

To reflect the diversity of reuse systems and evidence sources in the region, this chapter applies three complementary case study types:

- Single-organisation case studies, which examine a specific reuse system implemented by one organisation, based primarily on interview material and supporting documentation.
- Clustered case studies, which synthesise insights from several organisations operating comparable reuse models, allowing shared behavioural patterns and constraints to be identified.
- System-level case studies, which analyse compiled or multi-actor reuse systems, drawing on literature and interview reflections to extract transferable design principles.

All case studies are grounded in the same analytical lens and are not presented as blueprints to be replicated one-to-one. Instead, they are used to show behavioural mechanisms that are likely to hold across contexts when system conditions are comparable.

### 5.1 Best practices in reuse systems: What works behaviourally

Across Southeast Asia, reuse systems that achieve sustained participation share a number of behavioural characteristics. These include low effort for users, clear economic logic, trust in hygiene and system reliability, and visible social acceptance. At the same time, different system types rely on different combinations of these factors.

The following sections retain a thematic discussion of best practices, while anchoring them in concrete case studies to illustrate how behavioural dynamics play out in practice.

## 5.2 Case study 1 ► Community-based refills

### Single-organisation case study

**Organisation:** Greenpeace (Philippines)

**System type:** neighbourhood-level refill and reuse

**Scale:** the initiatives referenced here were implemented as community-based pilots in selected neighbourhoods in the Philippines, primarily operating through small neighbourhood retailers (sari-sari stores) and community retailers. While not national-scale systems, they were designed to test the feasibility of refill models in low-income, high-sachet environments and operated over extended pilot periods rather than one-off demonstrations.

**Figure 7** Refill system replacing sachets



*Photo: © Jilson Tiu/Greenpeace.*

### Context and system design

The refill model built on the existing structure of sari-sari stores, where purchasing is characterised by small, frequent, cash-based transactions and close relationships between shopkeepers and customers. It focused on fast-moving household and personal care products typically sold in single-use sachets, replacing these with bulk dispensing formats at the point of sale.

Participating retailers stocked bulk containers supplied by partner distributors and dispensed products into reusable containers, either brought by customers or retained within the store through simple deposit-based container arrangements. This approach reduced reliance on sachet packaging while maintaining familiar retail practices.

The system was intentionally designed to align with existing purchasing routines. Customers continued to buy small quantities during regular visits, pay in cash, and interact with trusted vendors, without requiring subscriptions, bulk purchases, or digital tools. By preserving these patterns, behavioural disruption was minimised.

Store owners played a central role in operating the system, managing dispensing and container handling while also introducing the refill option to customers. Implementation was supported by suppliers providing bulk formats and by civil society partners facilitating onboarding and communication.

### Behavioural challenges and enablers

A central behavioural challenge in the refill model relates to trust. In sachet-based systems, sealed packaging provides a visible safety signal, whereas refill requires consumers to rely on the handling practices of the store. This shift introduces concerns about container cleanliness, dispensing practices, and product safety. In this context, hygiene is not only a technical issue but a perceptual one: refill systems must actively replace the trust signal previously provided by single-use packaging.

In addition, refill introduces a degree of process uncertainty for first-time users, including how quantities are measured, how prices compare to sachets, and what is expected in terms of container use. These uncertainties highlight the importance of clear, simple communication at the point of sale. At the same time, the system places significant behavioural responsibility on retailers, who act as both operators and communicators. Their ability to explain the system, apply consistent practices, and visibly manage dispensing directly shapes customer confidence and system credibility.

Participation was observed to strengthen where these challenges were effectively addressed. Visible and orderly handling practices helped build trust by making hygiene processes observable. The close alignment with existing purchasing routines, such as small-unit buying, cash payments, and frequent store visits, reduced behavioural friction and enabled gradual uptake. In addition, the social visibility of refill within neighbourhood stores contributed to normalisation, as repeated exposure and peer participation reinforced legitimacy. Reliable product availability further supported participation, as interruptions risked pushing consumers back to familiar sachet options.

### Key behavioural insight

In neighbourhood-based Philippine contexts, refill participation depends less on environmental awareness and more on whether the system fits within existing social and economic structures. Trust in local retailers, compatibility with daily budgeting practices, visible handling procedures, and consistent supply emerge as critical conditions. Where these factors are in place and behavioural demands remain low, refill systems can operate within informal retail environments without requiring significant lifestyle change.

## 5.3 Case study 2 ▶ Traditional deposit-return systems

### System-level case study

**Organisation:** informed primarily by Evergreen Labs/Glassia (Vietnam), with regional perspectives from WWF and the Asia Reuse Consortium (Regional)

**System type:** traditional deposit-return (water and beverages)

**Scale:** returnable bottle systems for drinking water and beverages remain widely used in Vietnam, particularly in urban and peri-urban areas. Unlike pilot-based refill initiatives, these systems operate through established commercial supply chains and have long been embedded in beverage and water distribution.

Returnable formats are common in large water gallons supplied to households and offices, as well as in glass beverage bottles circulated through restaurants, cafés, hotels, and local retail shops. These systems function across multiple provinces through distributor networks that manage delivery, collection, and restocking as part of routine operations rather than as stand-alone environmental programmes.

Figure 8 Operations of Glassia



Photo: © Glassia Water.



### Context and system design

Traditional deposit-return systems are structured through established producer – distributor – retailer loops in which reusable containers remain part of a continuous circulation system. Beverages and drinking water are supplied in standardised glass bottles or large water containers, for which consumers pay a deposit that is refunded upon return.

The return mechanism is embedded in routine purchasing and delivery practices. Containers are typically returned either at the point of repurchase or during scheduled delivery cycles, after which they are collected, transported to centralised facilities for cleaning and refilling, and redistributed through the same supply chain.

The system relies on clear and widely understood exchange rules, predictable return pathways, and an explicit economic value attached to the container. Responsibility for collection and recovery is integrated into commercial arrangements, with retailers and distributors accountable for return rates and container loss representing a direct financial cost.

As a result, container return is not treated as an additional pro-environmental action but as a standard part of the transaction, requiring minimal behavioural change from consumers.

### Behavioural challenges and enablers

In contrast to refill pilots, the behavioural challenge in deposit-return systems lies less in persuading consumers to participate and more in maintaining system discipline across actors. While container return is widely understood and embedded in routine practice, challenges arise around container loss, breakage, and inconsistent handling, particularly in hospitality and retail settings. In these contexts, containers may be misplaced, retained by customers, or insufficiently tracked within operations, directly increasing costs for operators. Where containers are perceived as valuable or attractive items, return rates depend on clear communication and internal controls.

These dynamics shift the behavioural burden from individual consumers to institutional actors. The system relies on consistent coordination between producers, distributors, retailers, and hospitality venues, all of whom are financially accountable for container recovery. Where roles are unclear or procedures inconsistently applied, return performance weakens. At the same time, stable logistics, such as predictable collection schedules, standardised handling, and reliable redistribution, are essential to maintaining system performance, although these are primarily managed at the supply-chain level rather than requiring changes in consumer behaviour.

Participation is reinforced by a set of strong structural enablers. Containers retain explicit economic value through deposits or exchange systems, reducing ambiguity about ownership and making return a financially rational action. Return pathways are predictable and embedded in

existing commercial relationships, such as routine delivery cycles or regular retail interactions, which minimises additional effort. Institutional accountability further strengthens performance by distributing responsibility across actors rather than relying on voluntary consumer action. Finally, long-standing familiarity with deposit-return systems has normalised container exchange as a standard part of commercial transactions, rather than as an environmentally motivated behaviour.

### Key behavioural insight

The effectiveness of deposit-return systems in Vietnam is rooted in their integration into existing economic and institutional structures. High return rates are achieved not through behavioural change campaigns, but through clear incentives, established routines, and distributed accountability across the supply chain.

## 5.4 Case study 3 ► Refill and prefill operators

### Clustered case study

**Organisation:** informed by interviews with Alner, Enviu, Plasticdiet (all Indonesia), and Refiller Mobile (Malaysia)

**System type:** Refill and prefill reuse systems for household and personal care products

**Scale:** Refill and prefill systems for household and personal care products are currently implemented at small to medium scale across parts of Indonesia and Malaysia. They operate mainly through pilot retail outlets, partner stores, and mobile refill services in urban areas, often targeting sustainability-oriented consumer segments.

Unlike established deposit-return systems, these models function in competitive retail environments where single-use packaging remains widely available and highly convenient, limiting their expansion beyond early-stage pilots.

Figure 9 Refiller mobile



Photo: © Refiller Mobile.

### Context and system design

Refill and prefill systems aim to reduce single-use packaging for frequently used household and personal care products such as detergents, soaps, and cleaning liquids. They are typically implemented through refill shops, sustainability-oriented retail outlets, partner stores, and mobile refill services operating in residential areas.



Two main models are used. Refill systems allow consumers to bring their own containers and purchase products dispensed from bulk storage, usually priced by volume. Prefill systems circulate standardised reusable containers that are returned after use, cleaned at centralised facilities, and redistributed with new product. Both approaches rely on bulk supply, container management, and clearly communicated hygiene standards, often supported by visible cleaning practices to build trust.

In contrast to traditional deposit-return systems, these models operate in retail environments where single-use packaging is highly accessible, low-cost, and deeply embedded in everyday purchasing. As a result, participation typically requires additional behavioural effort, such as remembering containers, visiting dedicated refill locations or mobile services, and adjusting established shopping routines.

System performance depends on coordination between product suppliers, refill operators, and retail partners. Operators are responsible for maintaining hygiene standards, managing dispensing or container circulation, and ensuring that refill services remain reliable and easy to access within daily consumption contexts.

### Behavioural challenges and enablers

The main behavioural challenge in refill and prefill systems relates to convenience and competition with highly accessible single-use alternatives. Participation often requires consumers to deviate from established shopping routines, such as visiting dedicated refill locations, remembering containers, or spending additional time at dispensing points. In dense retail environments where single-use products are widely available, even small increases in effort can reduce repeat participation.

Additional barriers include limited product range, price sensitivity, and concerns about hygiene and product quality. Early refill pilots often offered a narrower selection of goods than conventional retailers, reducing the incentive for regular visits. At the same time, even minor price differences compared to sachets or low-cost packaged products influenced purchasing decisions. Perceptions of cleanliness, container safety, and product consistency further shaped first-time adoption, particularly where refill systems lacked visible quality assurance.

Participation strengthened where operators adapted their models to reduce behavioural friction and better align with everyday consumption patterns. Expanding product offerings to include frequently used household essentials increased repeat visits, while price alignment with single-use alternatives reduced economic barriers. Visible and professional hygiene practices, including clear labelling and transparent cleaning procedures, helped build trust. In addition, alternative delivery formats such as mobile refill services reduced the need for dedicated trips and allowed refill to be integrated more easily into daily routines.

### Key behavioural insight

Refill and prefill systems gain traction when they minimise additional effort and align with existing purchasing practices. In competitive retail environments, participation depends less on environmental motivation and more on whether refill can match single-use alternatives in terms of convenience, price, and perceived reliability. Behavioural success therefore hinges on reducing friction and embedding refill into everyday shopping routines.

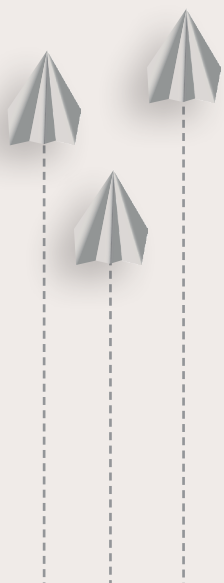
## 5.5 Case study 4 ▶ Platform-enabled reuse systems

### Clustered case study

**Organisation:** informed by interviews with Muuse, Asia Reuse Consortium, WWF and Plastic Free July (all regional)

**System type:** platform-enabled and service-based reuse systems (food service, events, and on-the-go consumption)

**Scale:** platform-enabled reuse systems are primarily implemented in large urban areas where takeaway food, beverage consumption, and delivery services generate high volumes of single-use packaging. They operate through networks of participating cafés, restaurants, food vendors, and event organisers, typically within defined service areas rather than across entire retail systems.



Most initiatives currently function as coordinated service networks in which vendors opt into shared container systems supported by washing infrastructure and digital coordination tools.

**Figure 10** Reusable containers from Muuse



*Source: Honest Media for Muuse.*

### Context and system design

Platform-enabled reuse systems aim to reduce single-use packaging in takeaway food, beverage, delivery, and event settings by circulating reusable containers through coordinated service networks. Containers are shared across participating cafés, restaurants, and vendors, allowing customers to receive food or beverages in reusable packaging as part of a standard takeaway transaction and return them to designated drop-off points within the network.

The systems are typically supported by digital platforms that manage container circulation, track loans, and provide return information across participating locations. However, the user experience remains largely service-based, with the digital layer operating primarily as coordination infrastructure rather than requiring active user engagement.

Containers are collected, washed at centralised facilities, and redistributed to vendors, enabling circulation across multiple locations. The model is designed to preserve existing consumption patterns, such as fast takeaway purchasing and on-the-go use, while offering flexible return options across the network.

System performance depends on effective coordination between platform operators, food service vendors, and washing providers, supported by reliable return locations and consistent logistics to ensure smooth container circulation.

### Behavioural challenges and enablers

The main behavioural challenges in platform-enabled reuse systems relate to convenience, return coordination, and consistency across service networks. Takeaway food purchases are typically made quickly and with minimal planning, meaning that even small uncertainties, such as unclear return locations, confusing deposit rules, or inconsistent procedures, can discourage participation. In these contexts, single-use packaging remains the default option, requiring no follow-up action, and therefore sets a high benchmark for convenience.

Participation further depends on how easily containers can be returned within existing routines. Where return points are difficult to locate, not integrated into frequently visited locations, or inconsistently available across vendors, users may delay or avoid returning containers. In addition, the system relies on consistent service practices across multiple providers. If reusable containers are not offered reliably or return procedures vary between locations, user confidence can decline.

Participation improves when systems reduce decision complexity and integrate reuse directly into existing service flows. Offering reusable containers as a default option lowers the need for active decision-making, while accessible return locations across commonly visited sites make return more convenient. Clear and simple communication, including visible return points and straightforward instructions, helps reduce uncertainty for first-time users. Consistent implementation across vendors further reinforces understanding and repeat use. Under these conditions, reusable containers are more likely to be perceived as part of the service infrastructure rather than as an additional pro-environmental effort.

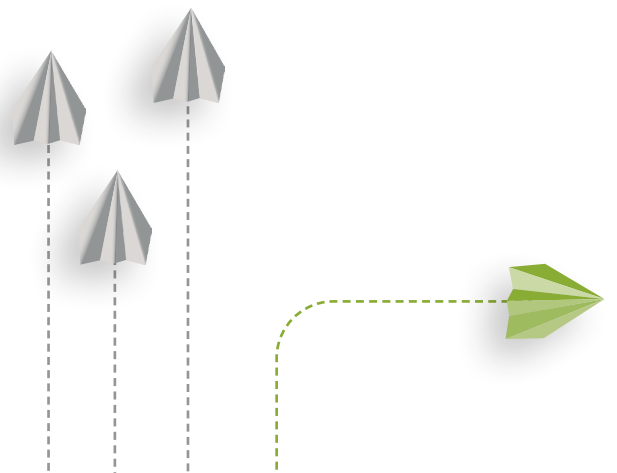
### Key behavioural insight

In fast-paced urban food service environments, participation depends on whether reuse is seamlessly integrated into service design at the point of purchase and return. Platform-enabled systems are most effective when they minimise additional effort through clear defaults, accessible return pathways, and consistent service delivery across networks. While digital tools support coordination, behavioural outcomes are ultimately determined by how convenient and predictable the service is in practice.

## 5.6 Cross-case behavioural patterns and lessons

The four case studies presented above illustrate different reuse system models operating in Southeast Asia. When considered together, several common behavioural patterns and lessons emerge:

- Behaviour change is sustained when participation requires little additional effort and system rules are easy to understand.
- Trust, whether social, economic, or institutional, is a prerequisite for participation. Users must trust that products are handled safely, that containers will be accepted when returned, and that the system operates reliably.
- Systems that place excessive responsibility on individual users or vendors struggle to maintain engagement over time. Successful models distribute operational responsibilities across actors such as retailers, distributors, platform operators, and service providers.
- At the same time, each system type has distinct strengths and limitations. Traditional deposit-return systems offer behavioural stability because return routines are embedded in existing distribution networks, while refill systems depend more heavily on consumer habits and retailer engagement. Platform-enabled models offer potential for scaling reuse across service networks but require reliable coordination across vendors, return locations, and system operators.



## 5.7 Socio-economic and contextual factors across cases

Building on the behavioural patterns identified above, the case studies also highlight how socio-economic and contextual factors shape participation and system performance.

**Table 3** Socio-economic and contextual factors across cases

Factor	Observed pattern across cases
1 Socio-economic constraints	Low-income households prioritise affordability, convenience, and predictable pricing. Reuse participation increases when systems minimise upfront costs and align with existing spending patterns.
2 Gender roles	In many households, women manage routine purchasing and the handling of reusable containers. Reuse systems therefore perform better when return and refill routines fit easily into everyday household practices.
3 Urban versus semi-urban	Platform-enabled and digitally coordinated reuse systems tend to perform best in dense urban environments with concentrated food service networks. Community-based refill systems often perform better in neighbourhood settings where social trust and local relationships are strong.
4 Convenience and time burden	Changing behaviour and sustaining it over time depend largely on convenience and fit with existing routines. For reuse and refill practices to be adopted long term, they should not add extra time or labour burdens, especially for women, who often have less free time because of gendered divisions of labour.

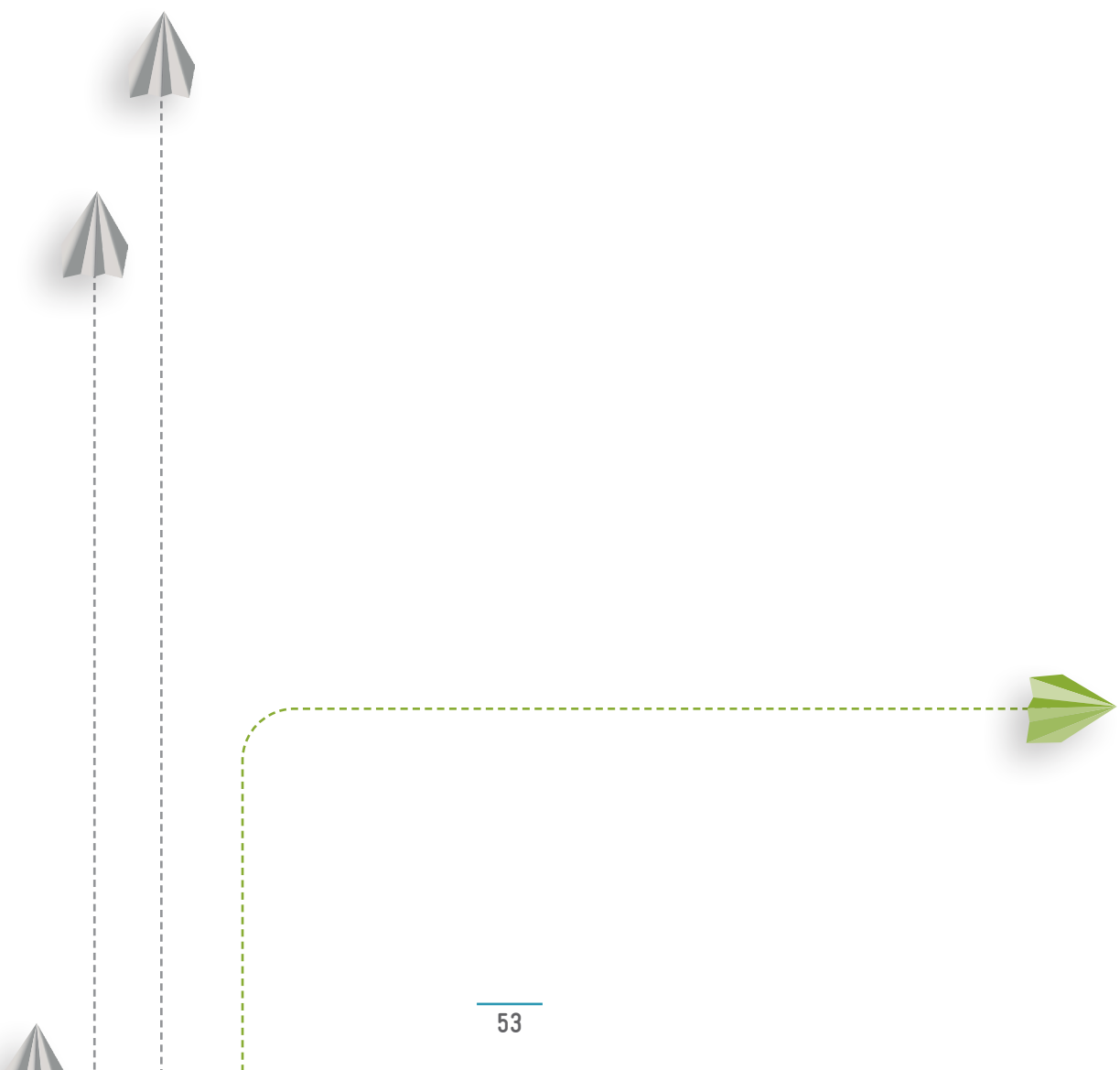
*Source: Own Illustration*

## 5.8 Implications for scaling reuse systems

Taken together, the case studies demonstrate that behaviour change is not a separate intervention layered onto reuse systems, but an outcome of how those systems are designed and governed. Successful pilots integrate behavioural considerations into infrastructure, incentives, and coordination mechanisms from the outset.

Across the cases, participation was more likely when reuse systems reduced effort, aligned with existing purchasing routines, and established clear rules for how containers circulate and return.

These findings provide the empirical foundation for the policy and organisational recommendations presented in Chapter 6 and reinforce the importance of system-level alignment for scaling reuse in Southeast Asia.



6

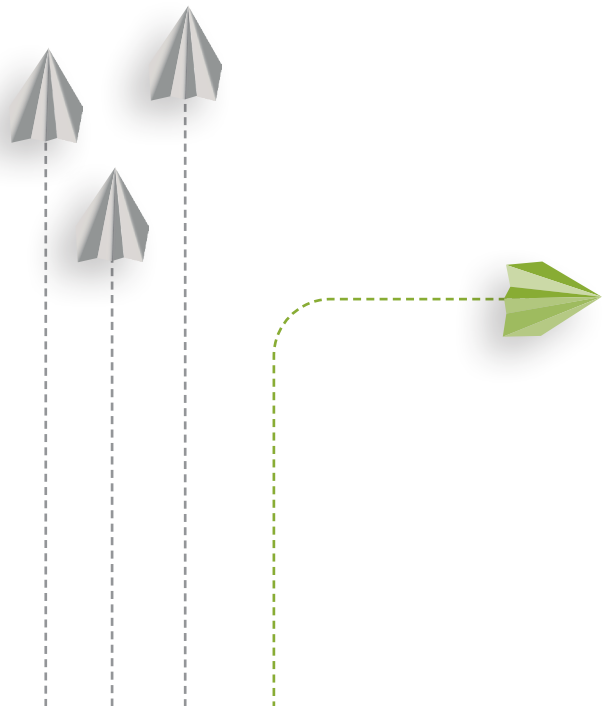
# Policy and organisational recommendations for scaling reuse in Southeast Asia



This chapter translates the behavioural insights, system analysis, and empirical lessons from previous chapters into actionable recommendations for policymakers, organisations, and entrepreneurs working to scale reuse systems in Southeast Asia.

A central finding of this study is that behaviour change does not occur through awareness campaigns alone. Instead, sustained participation in reuse systems emerges when infrastructure, policy frameworks, organisational practices, and behavioural design work together. Successful systems reduce effort, clarify responsibilities, and align reuse with existing consumption routines.

The recommendations below therefore focus on how policies and organisational strategies can create environments in which reuse becomes convenient, trustworthy, affordable, and normalised across diverse contexts.



## 6.1 Policy recommendations

### Establish policy frameworks that define behavioural responsibilities

Policymakers play a decisive role in shaping the conditions under which reuse systems can emerge and scale. However, reuse policies often focus on general waste reduction targets without specifying the concrete behaviours required for systems to function.

In practice, reuse systems depend on coordinated actions across actors. Consumers must return containers, vendors must accept reusable packaging and store returned items, service staff must manage container circulation, and platforms or retailers must integrate reuse options into ordering systems.

Effective policy frameworks therefore need to define these behavioural responsibilities clearly.

Key policy measures include:

- Embedding reuse targets and behavioural pathways within national waste reduction strategies and circular economy roadmaps, specifying actions such as container return, refill participation, and vendor acceptance of reusable packaging.<sup>11</sup>
- Strengthening enforcement of single-use plastic bans and levies to ensure disposable packaging does not remain the default option in practice, since default availability strongly shapes everyday consumer and business behaviour.
- Integrating reuse into Extended Producer Responsibility (EPR) schemes, recognising container pooling, refill systems, and return logistics as legitimate compliance pathways alongside recycling, and enabling producers to contribute to consumer awareness and behaviour change campaigns that support reuse participation.<sup>12</sup>
- Clarifying actor responsibilities across **reuse systems**, including container return by consumers, acceptance by vendors, integration by delivery platforms, and recovery logistics by system operators.

By defining behavioural roles explicitly, policy frameworks can reduce diffuse accountability and support coordinated participation across reuse systems.

<sup>11</sup> Enviu & The Upstream Lab. (2024). Deploying reuse and refill models in South-East Asia. In Off Plastic/SecondMuse.

<sup>12</sup> Enviu & Global Plastic Action Partnership. (2025). Menerapkan sistem kemasan guna ulang untuk makanan dan minuman di lingkup institusi: Sebuah panduan praktis. Jakarta.

### Embed behavioural insights into policy design

Policies are more effective when they reflect how people actually make decisions in everyday consumption environments. Behavioural research shows that packaging choices are often made quickly and with limited attention, particularly in food service and retail contexts. Regulations should therefore aim to reduce friction and make reuse the easier option.

Several design principles can support this objective:

- Make reuse the default option rather than an opt-in alternative, particularly in food service, delivery, and retail settings.<sup>13</sup>
- Design policies around specific behavioural moments, such as ordering food, receiving packaging, returning containers, or refilling products.
- Reduce uncertainty through standardised system features, including clear container labelling, harmonised return rules across municipalities, and visible return instructions.
- Use behavioural incentives and infrastructure to reinforce desired practices, including deposit systems, return reminders, and convenient collection points.

Policies that focus on concrete user actions are more likely to translate into real behavioural change than those framed solely around environmental goals.

### Support reuse infrastructure and financial incentives

Even well-designed policy frameworks cannot scale reuse systems without the supporting infrastructure required for container circulation. Collection networks, washing facilities, and redistribution logistics represent critical system components and often require significant upfront investment.

Governments can accelerate reuse system development through targeted infrastructure and financing support, including:

- Co-investing in shared washing and container circulation infrastructure, particularly where individual businesses cannot absorb the costs alone.<sup>14</sup>
- Financial incentives for reuse system development, such as grants, concessional financing, or tax benefits for businesses implementing reusable packaging models.

<sup>13</sup> UN Environment Programme. (2020). The little book of green nudges: 40 nudges to spark sustainable behaviour on campus. UNEP & GRID-Arendal, Nairobi and Arendal.

<sup>14</sup> Plastic Solutions Fund. (n.d.). Reuse finance: Mapping the financial landscape for reuse and refill systems. Jakarta.



- Public return infrastructure, including container return points in markets, public institutions, transport hubs, and commercial districts.

Such investments reduce financial risks for early adopters while signalling long-term government commitment to reuse systems.

### Adopt diversity-sensitive policy approaches

Reuse adoption is shaped by a broad variety of socio-economic conditions, gender roles, and geographic contexts across Southeast Asia. Policies that assume uniform consumers or business environments risk overlooking these differences.

In many contexts, women play a central role in household purchasing and waste management, while small neighbourhood retailers and informal vendors form critical distribution channels. At the same time, affordability constraints mean that lower-income households often prioritise price stability and convenience.

Policy design should therefore remain sensitive to these structural conditions by:

- Supporting low-cost and community-based reuse models that remain accessible to lower-income households.
- Recognising the role of informal and neighbourhood retail networks in container circulation systems.
- Adapting policy instruments to urban, peri-urban, and archipelagic contexts, where infrastructure and logistics constraints vary significantly.
- Conducting gender-sensitive and intersectional analyses of the target group and context, or applying participatory design approaches.
- Including the informal sector as implementation partners in reuse systems, making sure they are part of the solution instead of endangering their livelihoods depending on recyclable and reusable materials. Support them in their role in reuse systems, e.g. through dedicated funds or capacity-building.
- Testing policies separately in different socio-economic and geographic settings before scaling them regionally.

Policies that account for these differences can broaden participation and improve system legitimacy.

## 6.2 Organisational and entrepreneurial recommendations

### Apply behavioural insights to system and service design

Organisations and entrepreneurs shape how reuse systems are experienced in everyday consumption contexts. Many behavioural barriers identified in Chapter 5, such as uncertainty about return procedures, perceived inconvenience, or hygiene concerns, emerge directly from system design decisions.

Applying behavioural design frameworks such as Behaviour-Centred Design, COM-B, or the Fogg Behaviour Model can help organisations identify behavioural barriers and design systems that minimise effort.

In practice, this often involves:

- Simplifying return and refill procedures.
- Providing clear instructions at the point of use.
- Making hygiene and safety practices visible to users.

Systems designed with behavioural considerations in mind are more likely to achieve both initial adoption and sustained participation.

### Strengthen consumer engagement and trust

Trust is a prerequisite for sustained reuse behaviour. Interview evidence highlighted that consumers frequently require reassurance regarding hygiene practices, container safety, and system reliability when reuse systems are first introduced.

Organisations can strengthen trust by ensuring that reuse systems are transparent and visibly well managed. Effective strategies include:

- Clearly explaining how containers are cleaned and sanitised.
- Communicating roles and responsibilities across the reuse system.
- Maintaining clean infrastructure, trained staff, and consistent branding.

Communication is most effective when reuse is framed as convenient, reliable, and beneficial for households and communities, rather than solely as an environmental obligation.



### Design for scaling from the outset

Many reuse initiatives struggle to scale because they are designed as isolated pilots rather than systems intended for broader deployment. Organisations should therefore incorporate scalability considerations early in system development.

Key recommendations include:

- Testing reuse systems across diverse geographic contexts to understand operational adaptability.
- Aligning pilots with emerging policy frameworks and regulatory developments.
- Standardising containers, operational procedures, and data collection, where possible, to support interoperability and coordinated participation across actors.<sup>15</sup>

Designing for scale from the outset can reduce operational complexity and support wider adoption.

### Leverage digital and logistical integration

Digital tools and logistics systems can support reuse when they simplify participation and improve coordination across actors.

Organisations should prioritise solutions that integrate reuse into existing consumption routines, for example by:

- Using digital platforms to monitor container circulation and return rates.
- Integrating reuse into existing digital ecosystems, such as food delivery apps or loyalty programmes.
- Developing convenient return models, including decentralised return points, collection services, or integration with delivery routes.

Digital integration is most effective when it reduces behavioural friction rather than introducing additional steps.

<sup>15</sup> GAI A, Break Free From Plastic & Asia Reuse Consortium. (2024). Unpacking Reuse in Asia: A Brief Report Featuring Selected Case Studies on Reuse Systems for Packaging.

### Adopt diversity-sensitive organisational approaches

Reuse systems operate across diverse user groups, vendors, and retail environments. Organisational strategies must therefore reflect differences in income levels, retail structures, and local consumption practices.

Inclusive system design can involve:

- Offering flexible participation options for small vendors and informal retailers.
- Designing vendor onboarding processes that accommodate family-run businesses and women-led enterprises.
- Adapting communication strategies to reflect different user motivations and constraints.
- Incorporating informal workers as integrated partners in collection, return, and refill operations.
- Developing diverse product and packaging formats that fit different income levels, household sizes, and mobility patterns.
- Considering the various diversity dimensions (such as gender, age, and religion) as outlined in Chapter 3.5. Inclusive design requires analysing the target group through an intersectional lens and translating these insights into concrete measures.
- Using communication campaigns that avoid reinforcing gender stereotypes and instead encourage the less involved gender to participate in waste management and reuse as well.

Such approaches can expand participation while strengthening the resilience of reuse systems.





## 6.3 Cross-cutting recommendations for systemic change

### Public-Private Partnerships

Scaling reuse systems requires collaboration between public institutions and private actors. Governments can provide regulatory certainty and infrastructure support, while businesses contribute operational innovation and logistics capacity. Joint initiatives may include:

- Co-investing in washing and container circulation infrastructure.
- Aligning regulatory requirements with operational system design.
- Sharing system data based on agreed behavioural performance indicators, such as container return rates, vendor participation levels, and reuse transaction volumes.

### Multi-stakeholder collaboration

Effective reuse systems depend on coordination across the value chain. Civil society organisations, community groups, and informal sector actors often play key roles in building trust and supporting adoption.

Key collaboration strategies include:

- Engaging NGOs and community organisations as facilitators of reuse system adoption.
- Integrating informal sector actors where relevant.
- Building national or regional coalitions to support coordinated reuse initiatives.

### Knowledge exchange and capacity building

Scaling reuse systems requires continuous learning and adaptation. Regional knowledge exchange and capacity-building initiatives can help accelerate this process.

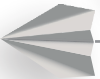
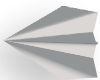
Important actions include:

- Establishing regional platforms for sharing lessons on reuse system implementation and behavioural design change across countries.
- Training policy makers, SMEs, and civil society organisations in applying behavioural insights to reuse systems design.
- Developing monitoring systems that track both operational performance and behavioural outcomes.

## 6.4 Summary

Scaling reuse systems in Southeast Asia requires coordinated action across policy frameworks, organisational strategies, infrastructure investment, and behavioural design.

When reuse systems are designed to fit everyday behaviours, economic realities, and diverse social contexts, they are more likely to achieve sustained participation and deliver meaningful reductions in single-use plastic waste.



7

# Challenges and implications for scaling reuse in Southeast Asia



This chapter reflects on the structural challenges and systemic implications for scaling reuse systems across Southeast Asia. It examines the broader conditions that may limit the long-term success of reuse initiatives even when pilots appear technically or behaviourally successful.

Drawing on insights from the case studies and interviews presented in Chapter 5, the chapter identifies several structural constraints that influence whether reuse systems can move from isolated pilots to durable, region-wide solutions. Taken together, these issues highlight the conditions that must be addressed for the policy and organisational recommendations presented in Chapter 6 to translate into lasting impact.

### 7.1 Structural dependence on single-use packaging

Across Southeast Asia, reuse systems operate within markets that are deeply structured around single-use packaging.<sup>16</sup> In many contexts, the widespread use of sachets and low-cost disposable packaging reflects not only consumer preferences but also long-standing retail and distribution practices.

The case studies discussed earlier illustrate how reuse initiatives must compete with purchasing systems designed for convenience and affordability. In neighbourhood retail settings, such as sari-sari stores in the Philippines, small-unit purchases allow households to align consumption with daily cash-flow realities. Similarly, in urban takeaway and delivery markets, disposable packaging remains the fastest and simplest service option.

This structural dependence on single-use packaging means that reuse systems must do more than appeal to environmental motivation. They must compete directly with established convenience norms. Systems that rely primarily on awareness campaigns or short-term incentives therefore face a high risk of participation declining once novelty fades.

Sustained reuse behaviour depends on systems that embed reuse into everyday routines through defaults, predictable return pathways, and reliable service availability.

---

<sup>16</sup> United Nations Environment Programme (UNEP). (2021). *From Pollution to Solution: A Global Assessment of Marine Litter and Plastic Pollution*. Nairobi: United Nations Environment Programme.

## 7.2 Infrastructure and accessibility constraints

Infrastructure remains a major constraint to scaling reuse systems across Southeast Asia.<sup>17</sup> While some urban areas support return logistics, washing facilities, and platform-based reuse services, many semi-urban and rural regions lack the physical infrastructure needed to support container circulation. For example, refill pilots operating through small neighbourhood retailers in Indonesia and the Philippines often depend on a limited number of participating shops, meaning consumers must travel outside their usual purchasing routes to refill or return containers.

Evidence from the case studies illustrates how infrastructure shapes system viability. Traditional deposit–return systems for beverages in Vietnam benefit from established distribution networks that allow containers to circulate efficiently. In contrast, newer reuse pilots often require the creation of new return points, washing facilities, or transport routes before systems can scale.<sup>18</sup>

Accessibility challenges are not limited to physical infrastructure. Some platform-enabled reuse systems rely heavily on digital tools such as smartphone applications, QR codes, or electronic payments. In regions where smartphone access or digital literacy is uneven, these models may unintentionally exclude segments of the population.

The implication is that reuse infrastructure must remain flexible and context-specific. Hybrid systems that combine digital coordination with accessible physical return points are more likely to function across diverse geographic and socio-economic environments.

## 7.3 Economic viability and market transitions

Economic viability represents another major challenge for scaling reuse systems. Many reuse initiatives require significant upfront investments in containers, washing infrastructure, logistics networks, and system coordination before economies of scale can be achieved.<sup>19</sup>

During this transition period, reuse systems often struggle to compete with single-use packaging, which benefits from established supply chains and externalised environmental costs. Interviews with practitioners highlighted that many pilots depend on grant funding or temporary subsidies during their early phases.

<sup>17</sup> Envio & Global Plastic Action Partnership. (2025). Menerapkan sistem kemasan guna ulang untuk makanan dan minuman di lingkup institusi: Sebuah panduan praktis. Jakarta

<sup>18</sup> Dietplastik Indonesia. (2024). Establishing Reuse Solutions and Roadmap Design for Waste Reduction through Reuse by Producers in Indonesia.

<sup>19</sup> Dietplastik Indonesia & Ministry of Environment and Forestry of the Republic of Indonesia. (2024). Executive summary: Preliminary study on establishing reuse solutions and roadmap design for waste reduction through reuse by producers in Indonesia. Jakarta.

If viable cost-sharing mechanisms are not established, there is a risk that businesses or consumers will revert to single-use packaging once pilot funding ends. The long-term success of reuse systems therefore depends on economic models that distribute costs and benefits more evenly across producers, retailers, consumers, and service providers.

Policy instruments such as Extended Producer Responsibility, deposit systems, and infrastructure co-investment may play an important role in supporting this market transition.

### 7.4 Governance and system coordination

Scaling reuse systems requires coordination among multiple actors, including policymakers, producers, retailers, consumers, service providers, and in some contexts informal sector actors.<sup>20</sup> Fragmentation across these actors remains a major barrier to system expansion.<sup>21</sup>

The case studies illustrate how successful reuse systems often depend on coordinated operational structures. For example, deposit–return systems rely on clear roles across producers, distributors, retailers, and consumers. Platform-enabled reuse systems similarly depend on consistent participation across vendor networks.

When coordination breaks down, reuse systems become more difficult for users to navigate. Incompatible container designs, proprietary tracking systems, or inconsistent return rules across jurisdictions increase complexity and operational costs.

Moving from pilot initiatives to system-wide solutions therefore requires shared standards, governance frameworks, and coordination mechanisms that allow reuse systems to operate across sectors and geographic regions.

### 7.5 Behavioural and social inclusion risks

Behavioural dynamics and social diversity play a critical role in determining whether reuse systems can scale inclusively across Southeast Asia.

<sup>20</sup> Dietplastik Indonesia & Ministry of Environment and Forestry of the Republic of Indonesia. (2024). Executive summary: Preliminary study on establishing reuse solutions and roadmap design for waste reduction through reuse by producers in Indonesia. Jakarta.

<sup>21</sup> Enviu & Global Plastic Action Partnership. (2025). Menerapkan sistem kemasan guna ulang untuk makanan dan minuman di lingkup institusi: Sebuah panduan praktis. Jakarta.



Technology-driven or infrastructure-first approaches may overlook behavioural feedback loops that support habit formation, such as reminders, incentives, and convenient return pathways. Without these mechanisms, participation often declines after initial adoption, even when systems are technically sound.

At the same time, systems designed primarily for urban, middle-class consumers risk excluding lower-income populations who rely on sachets or other low-cost packaging formats.<sup>22</sup> This exclusion may reduce the environmental impact of reuse initiatives while reinforcing existing inequalities.

Gender dynamics also influence participation. In many Southeast Asian contexts, women play a central role in household purchasing and container management. Systems that increase household labour without providing clear benefits may therefore face resistance.

In many countries in the region, the informal sector forms the backbone of collection and sorting of plastics waste. Neglecting or displacing these workers can simultaneously weaken reuse systems and undermine social inclusion.

Policy environments further shape these behavioural and inclusion risks. Although many Southeast Asian countries have introduced policies aimed at reducing plastic waste, such as plastic bag bans adopted by several Philippine municipalities, Indonesia's national roadmap on waste reduction by producers, and Thailand's plastic waste reduction strategy, reuse is still rarely positioned as a central policy pathway. Regulatory frameworks often remain fragmented or primarily focused on recycling, rather than on integrating reuse, informality, and gender-sensitive design into a coherent approach.

Recognising these behavioural and social factors is therefore essential for designing reuse systems that remain accessible, inclusive, and resilient across diverse communities.

## 7.6 Conditions for scaling reuse in Southeast Asia

Taken together, the challenges described above highlight several conditions that influence whether reuse systems can move beyond isolated pilots and become durable regional solutions.

First, reuse systems must compete with established single-use consumption patterns by embedding reuse into everyday purchasing routines. Convenience, affordability, and predictable system rules are therefore critical for sustained participation.

---

<sup>22</sup>Break Free From Plastic. (2022). Beyond Sachets: Building a Reuse Economy.

Second, infrastructure and logistics must support container circulation across diverse geographic contexts. Systems that rely exclusively on urban infrastructure or digital tools risk excluding large segments of the population.

Third, economic viability must be achieved through cost-sharing mechanisms that distribute financial responsibilities across the value chain. Without viable business models, behaviourally successful pilots may still fail.

Finally, governance arrangements and shared standards are required to coordinate actors and ensure interoperability across reuse systems. Without this coordination, fragmentation can limit scalability and increase system complexity.

These conditions underscore that scaling reuse systems requires more than technological innovation. It requires coordinated changes across policy frameworks, market structures, infrastructure, and behavioural design.<sup>23</sup>

### 7.7 Implications for scalability and replicability

The analysis presented in this chapter suggests that scaling reuse systems in Southeast Asia depends on aligning behavioural, economic, and governance conditions across multiple levels of the system.

Reuse systems that succeed over the long term tend to combine several reinforcing elements: reliable infrastructure, viable economic models, coordinated actor participation, and behavioural design that integrates reuse into everyday consumption routines. When these elements operate together, reuse can move from isolated experiments toward stable market practices.

Conversely, when one or more of these elements is missing, reuse systems often remain limited to pilot projects or niche consumer segments.

For policymakers and practitioners, the central implication is that scaling reuse requires systemic alignment rather than isolated interventions. Behaviour change, infrastructure development, economic incentives, and governance coordination must evolve together if reuse systems are to achieve meaningful regional impact.



<sup>23</sup>GAIA, Break Free From Plastic & Asia Reuse Consortium. (2024). Unpacking Reuse in Asia: A Brief Report Featuring Selected Case Studies on Reuse Systems for Packaging.

8

# Conclusions



This publication examined how behaviour change can support the transition from single-use plastics to reuse systems in Southeast Asia. Drawing on behavioural theory, regional literature, case studies, and insights from practitioners and policymakers, it shows that reuse systems are technically feasible and socially viable but not yet supported at the scale required to significantly reduce reliance on single-use packaging.

A central conclusion of the analysis is that behaviour change follows system design. Consumers across Southeast Asia are willing to participate in reuse when systems are convenient, trustworthy, affordable, and aligned with existing consumption routines. What this means for each user and context varies significantly across genders, income levels, age groups, religions, and other diversity dimensions. Where reuse initiatives struggle, the causes rarely lie in a lack of awareness or motivation alone. Instead, participation declines when infrastructure is unavailable, incentives are misaligned, responsibilities are unclear, or coordination across actors breaks down.

Evidence from the case studies highlights that reuse practices already operate in different forms across the region. Long-standing deposit–return systems, neighbourhood refill practices, and emerging platform-enabled reuse models demonstrate that repeated reuse can become habitual when supported by clear operational rules, economic incentives, and reliable return pathways. Newer models, particularly those coordinated through digital platforms or service networks, may offer opportunities for scale, but only when reuse is integrated into everyday service environments rather than presented as an additional burden for users, especially when it comes to women who tend to have higher care and time burdens.

Important differences also emerge between product categories. Non-food reuse applications, such as household and personal care products, can provide more accessible starting points for scaling reuse systems, as they generally involve lower hygiene and operational complexity than food and beverage contexts.

At the same time, the analysis identifies significant challenges that must be addressed for reuse systems to move beyond pilots. Infrastructure gaps, cost pressures, uneven policy implementation, and fragmented coordination across actors continue to limit scalability. If behavioural and socio-economic factors are overlooked, reuse risks remaining confined to niche initiatives or urban consumer segments, limiting both environmental impact and social inclusion.

The findings underline the importance of coordinated action. Policymakers, businesses, civil society organisations, the informal sector and communities each play important roles in shaping reuse systems. Progress depends on aligning policy frameworks, organisational strategies, infrastructure investment, and behavioural design. Public–private partnerships, shared standards, and regional learning platforms can support this alignment while enabling systems to evolve across different national and local contexts.

In conclusion, reuse systems in Southeast Asia have the potential to contribute significantly to reducing plastic pollution while supporting more resilient and circular consumption patterns. Realising this potential requires moving from isolated initiatives toward coordinated systems that reflect how people live, work, and consume across the region. When behavioural insights are integrated with supportive policy frameworks, viable business models, and inclusive system design, reuse can become a practical and scalable pathway toward reducing single-use plastic waste.

# References

- APEC. (2023). Enhancing labor-intensive separate waste collection and utilization in APEC economies. Asia-Pacific Economic Cooperation Secretariat.
- ASEAN Secretariat & World Bank. (2025). Regional behaviour change communication (BCC) strategy playbook for marine plastic pollution in Southeast Asia (SEA-MaP). Jakarta.
- Aunger, R., & Curtis, V. (2016). Behaviour Centred Design: towards an applied science of behaviour change. *Health Psychology Review*, 10(4), 425–446.
- Bain & Company. (2025). Building a Resilient Plastic Circularity Framework in Southeast Asia.
- Behavioural Insights Team & Rare. (2019). Behavior change for nature: A behavioral science toolkit for practitioners. Rare, Arlington, VA.
- Break Free From Plastic. (2022). Beyond Sachets: Building a Reuse Economy.
- BSR & Sustainable Lifestyles Frontier Group. (2016). Big brands, big impact: A marketer's guide to behavior change. Business for Social Responsibility, New York.
- Caldwell, J., & Sleight, A. (2021). Plastics, health and environmental impacts: Evidence and policy implications. UK Foreign, Commonwealth & Development Office (FCDO), London.
- COBSEA. (n.d.). Proven practice guide for reducing marine plastic pollution in Southeast Asia. Coordinating Body on the Seas of East Asia.
- Dietplastik Indonesia. (n.d.). Breaking the plastic habit. Jakarta.
- Dietplastik Indonesia. (n.d.). Protokol guna ulang untuk mewujudkan Ramadan ramah lingkungan. Jakarta.
- Dietplastik Indonesia. (2024). Final report: Economic sachet research. Jakarta.
- Dietplastik Indonesia. (2024). The preliminary study: Establishing reuse solutions and roadmap design for waste reduction through reuse by producers in Indonesia. Jakarta.
- Dietplastik Indonesia & Enviu. (2022). Reuse movement Jakarta: Building a model for a reuse ecosystem. Jakarta.
- Dietplastik Indonesia & Enviu. (2023). Gerakan guna ulang Jakarta: Upaya untuk mewujudkan percontohan ekosistem guna ulang. Jakarta.
- Dietplastik Indonesia & Ministry of Environment and Forestry of the Republic of Indonesia. (2024). Executive summary: Preliminary study on establishing reuse solutions and roadmap design for waste reduction through reuse by producers in Indonesia. Jakarta.
- Enviu. (n.d.). Refill and reuse systems: Visual guide and implementation pages. Jakarta.
- Enviu. (n.d.). Reuse in the Global South. Enviu Global.
- Enviu & Global Plastic Action Partnership. (2025). Menerapkan sistem kemasan guna ulang untuk makanan dan minuman di lingkup institusi: Sebuah panduan praktis. Jakarta.
- Enviu & The Upstream Lab. (2024). Deploying reuse and refill models in South-East Asia. InOff Plastic/SecondMuse.
- Enviu Zero Waste. (2025). Indonesia's plastic crisis & the oasis of reuse. Jakarta.
- Evergreen Labs. (2024). Glassia Water. Singapore.
- Fogg, B. J. (2009). A behavior model for persuasive design. In Proceedings of the 4th International Conference on Persuasive Technology. ACM.
- Friedrich-Ebert-Stiftung Asien. (2024). The gender dimension of informality in waste collection in Vietnam. Hanoi.
- GAIA, Break Free From Plastic & Asia Reuse Consortium. (2024). Unpacking Reuse in Asia: A Brief Report Featuring Selected Case Studies on Reuse Systems for Packaging.
- Global Plastic Action Partnership (GPAP). (2021). Guide to Ensure Gender-Responsive Action in Eliminating Plastic Pollution.
- GIZ. (2025). Behavioural change toolbox: Methodology. Bonn.
- GIZ. (2025). Gender in focus: Towards inclusive solutions to plastic pollution. Bonn.
- GIZ. (2022). Community behavior change strategies for plastic waste reduction: HOCCI framework.
- GIZ & Dietplastik Indonesia. (2022). Preliminary study of reusable packaging risks in ready-to-eat food in Indonesia. Jakarta.
- GIZ & Divers Clean Action. (2025). Lesson learned: Circulating Island – Towards circularity through extended producer responsibility (EPR) in Kepulauan Seribu, Jakarta. Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.

## References

- GIZ & Indonesian Resource Association. (2023). Study on reuse & refill infrastructure and operational systems. Jakarta.
- GIZ, Pollution Control Department Thailand, & Expertise France. (2022). Guideline for reducing single-use plastics in food delivery and takeaway. Bangkok.
- Greenpeace Philippines. (2024). #KSTMetroManila: Groups call for solutions to plastic and waste crisis in Metro Manila. Quezon City.
- Heinrich Böll Stiftung. (2023). Combatting global plastic pollution - feminist perspectives for a gender-just approach.
- Heinrich Böll Stiftung Phnom Penh (2025). Nexus Gender & Waste.
- Ipsos. (2024). Public attitudes towards a global plastic pollution treaty. Ipsos Global.
- Michie, S., van Stralen, M. M., & West, R. (2011). The behaviour change wheel: A new method for characterising and designing behaviour change interventions. *Implementation Science*, 6(42).
- Muuse. (2026). Muuse – reuse and return platform. Singapore.
- National Geographic Society. (2021). Sea to source: Methods toolkit. Washington, DC.
- Plastic Solutions Fund. (n.d.). Reuse finance: Mapping the financial landscape for reuse and refill systems. Jakarta.
- SAYS. (2022). Malaysia's 1st refill store on wheels can come straight to your doorstep. Kuala Lumpur.
- SEA Circular. (n.d.). Reuse and refill infrastructure: Lessons from Petaling Jaya under the SEA Circular Project. United Nations Environment Programme.
- SWITCH-Asia. (2022). Role of Gender in Sustainable Consumption and Production.
- UK Government. (2025). Gender analysis: informal waste pickers in Indonesia's plastics recycling supply chain. London.
- UNEP. (2019). Waste Management Outlook for Asia and the Pacific. Nairobi.
- UNEP and FIA. (2020). Perceptions on plastic waste: Insights, interventions and incentives to action from businesses and consumers in South-East Asia. Bangkok.
- UNEPIETC & GRIDArendal. (2019). Gender and waste nexus: experiences from Bhutan, Mongolia and Nepal.
- UNEP. (2020). The little book of green nudges: 40 nudges to spark sustainable behaviour on campus. UNEP & GRID-Arendal, Nairobi and Arendal.
- UNEP & COBSEA. (2020). Reducing Marine Litter by Addressing the Management of the Plastic Value Chain in Southeast Asia (SEA Circular Project).
- UNEP. (2021). From Pollution to Solution: A Global Assessment of Marine Litter and Plastic Pollution. Nairobi: United Nations Environment Programme.
- UNEP & UNFCCC. (2023). The sustainable fashion communication playbook: Shifting the narrative. Nairobi.
- UNEP Malaysia. (n.d.). Zero waste living in Malaysia: Summary report. Kuala Lumpur.
- UN-Habitat, IGES, & Save Philippine Seas. (2022). Community behavior change strategies for plastic waste reduction: 10 key questions. Healthy Oceans and Clean Cities Initiative (HOCCI), Bangkok.
- World Bank Group. (2021). Market Study for Thailand: Plastics Circularity Opportunities and Barriers. Marine Plastics Series, East Asia and Pacific Region. Washington, DC.
- Worldbank. (2022). Marine Plastic Management : The Gender Dimensions.



Deutsche Gesellschaft für  
Internationale Zusammenarbeit (GIZ) GmbH

Registered offices  
Bonn and Eschborn, Germany

Friedrich-Ebert-Allee 32 + 36  
53113 Bonn, Germany  
T +49 228 44 60-0  
F +49 228 44 60-17 66

Dag-Hammarskjöld-Weg 1 - 5  
65760 Eschborn, Germany  
T +49 61 96 79-0  
F +49 61 96 79-11 15

E [info@giz.de](mailto:info@giz.de)  
I [www.giz.de](http://www.giz.de)