

# CLOSING THE LOOP

## HOTEL BEVERAGE CARTON RECOVERY – BASELINE ANALYSIS & OPERATIONAL GUIDE

Authors:

Liang Flora Chen

Zhuoxin Jessie Huang

Yat To Rachel Leung

Chui Hung Urania Yau

This guide is a deliverable of the capstone project *From Waste to Worth: Hospitality F&B as an Institutional Consumer Node in Hong Kong's Beverage Carton Circular Economy* under The University of Hong Kong Master of Social Sciences in the field of Sustainability Leadership and Governance Programme.



Supporting Organisation:



# EXECUTIVE SUMMARY

**Problem:** With Hong Kong landfilling 86 tonnes of used beverage cartons daily, the hospitality industry represents a critical, but overlooked, institutional "bulk-user" node that could drive impactful change.

**Opportunity:** Hotels can lead beverage carton recovery efforts, reducing waste while preparing for Hong Kong's forthcoming Producer Responsibility Scheme on beverage cartons and strengthening ESG performance.

**Study Covered:** Nine international chain hotels participated in the pioneering baseline survey, with four receiving back-of-house visits that deep-dived into the hotels' F&B outlets. The team verified operational barriers, discovered enablers, and identified possible solutions.

**Key Findings:** Participating hotels consume 124.3 units of beverage cartons daily on average—over 45,300 cartons landfilled annually per venue. Yet one notable hotel demonstrated that strategic UBC recovery can divert 337 kg of recyclables monthly, achieving a 1% total waste reduction and highlighting the strategic feasibility of UBC circularity.

Derived from a capstone project for HKU's Sustainability Leadership and Governance programme, this report presents the research results and an operational guide with a five-step framework for sustainable recovery:

- Define Scope – Map carton flow and set recovery targets
- Recover – Deploy a suitable collection method
- Store – Use temperature-controlled areas to manage hygiene
- Remove – Partner with recyclers for consistent collection
- Measure – Track performance against GRI standards

By embedding these practices into back-of-house Standard Operating Procedures, hotel operators can transition from waste generators to circular economy leaders—turning a daily operational challenge into measurable environmental impact.



## ABBREVIATIONS

|     |                                      |
|-----|--------------------------------------|
| BOH | Back-of-house                        |
| ESG | Environmental, Social and Governance |
| FOH | Front-of-house                       |
| F&B | Food and beverage                    |
| PRS | Producer Responsibility Scheme       |
| SOP | Standard Operating Procedure         |
| UBC | Used Beverage Carton                 |

# TABLE OF CONTENTS

## 1 | INTRODUCTION

Background of Hong Kong’s UBC recovery P. 4

## 2 | HOW DO HOTELS BENEFIT FROM RECOVERING BEVERAGE CARTONS?

Correlating material circularity with business direction P. 7

## 3 | HOW TO USE THIS GUIDE

Shortcut to key worksheets P. 7

## 4 | THE HOTEL OPPORTUNITY: UNDERSTANDING HOTELS AS INSTITUTIONAL BULK USERS IN PRS

Hotel’s role under a circular UBC recovery loop P. 8

## 5 | HOTEL F&B OPERATIONS: AN IMPORTANT INSTITUTIONAL HUB FOR CIRCULAR FEEDSTOCK

Beverage carton product baseline consumption in hospitality industry P. 9

## 6 | BUSINESS-AS-USUAL VS. CIRCULAR PRACTICE

Moving beyond the take, make, waste cycle P. 10

## 7 | UNDERSTANDING IMPLEMENTATION CHALLENGES

The main factors limiting UBC recovery in hotels P. 11

## 8 | SETTING UP A RECOVERY SYSTEM

A 5-step framework for setting up UBC recovery in your hotel P. 12

**STEP 1. DEFINE SCOPE AND GOALS** P. 13

**STEP 2. PROCESSING USED BEVERAGE CARTONS** P. 15

**STEP 3. COLLECTION AND STORAGE DESIGN** P. 16

**STEP 4. REMOVAL** P. 17

**STEP 5. MEASUREMENT AND REPORTING** P. 18

## 9 | MAKING A LASTING CHANGE

Solidify the recovery system into business-as-usual P. 20

## 10 | WORKSHEET

Summary checklist for setting up a ubc recovery system P. 22

## 11 | REFERENCES

P. 24

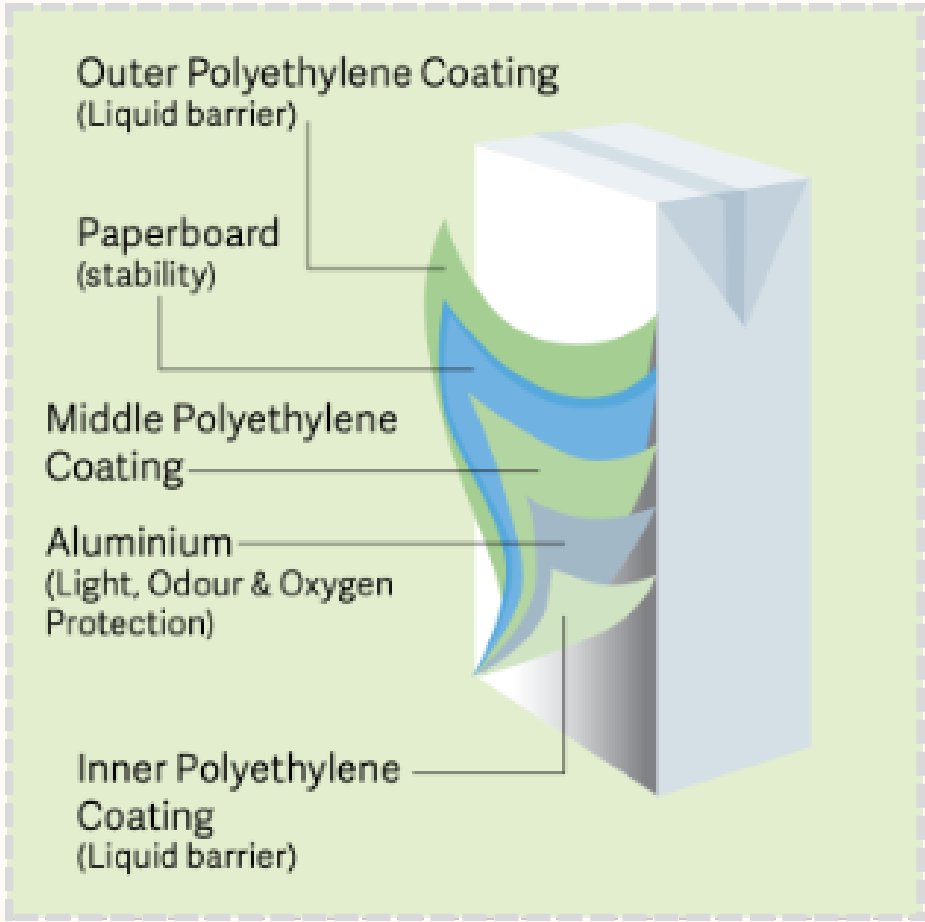
# TWO PRIMARY TYPES OF BEVERAGE PACKAGING IN HONG KONG

Beverage cartons are widely used for milk, juice, plant-based drinks and other liquid food products because they are lightweight, durable and effective in protecting product quality.

A local green NGO, Green Power, estimates that drink cartons account for about 17% of beverage packaging in Hong Kong (Green Power, 2024), of which there are two major types:

## SHELF-STABLE CARTONS

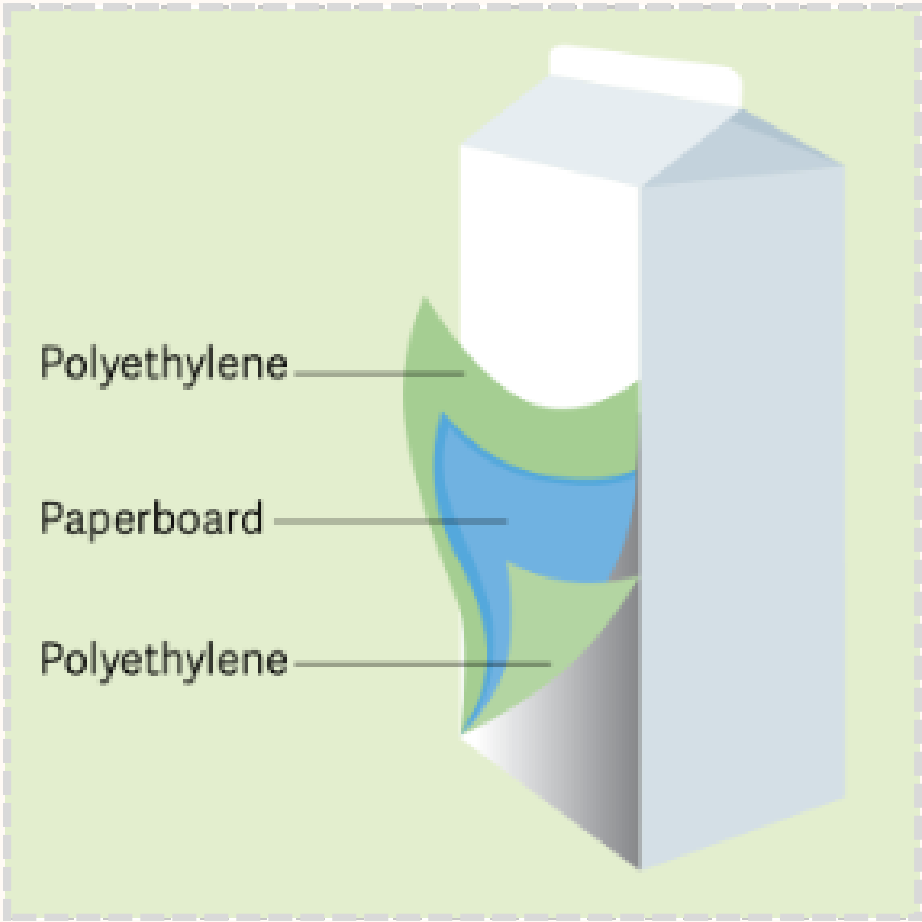
Common for long-life products that do not require refrigeration if unopened. These items are comprised of six layers of polyethylene, paperboard, and aluminium. Tetra Pak is one of the widely used brands in Hong Kong.



(Drink Without Waste, 2025a)

## REFRIGERATED CARTONS

Common for pasteurized liquids such as milk and juices, these items require refrigeration and are comprised of 3 layers of polyethylene and paperboard.



(Drink Without Waste, 2025a)

# 1

## INTRODUCTION

Municipal Solid Waste has long been one of Hong Kong's major environmental management challenges. The Government's *Waste Blueprint for Hong Kong 2035* sets out the vision of "Waste Reduction, Resources Circulation and Zero Landfill", with targets to reduce the waste disposal rate by 40-50% and raise the overall recovery rate to about 55% (Environment Bureau, 2021).

In response to Hong Kong's waste reduction and recovery targets, a Producer Responsibility Scheme (PRS) on Plastic Beverage Containers and Beverage Cartons was proposed in 2024 (Advisory Council on the Environment, 2024). Under the PRS, registered beverage suppliers must achieve statutory recovery targets either through self-recovery or through engagement with a scheme operator, with phased recovery targets across four stages—from 10% to 50%—over an estimated 8-year timeline (The Advisory Council on the Environment, 2025).

86 tonnes

of UBCs are landfilled  
each day

33 tonnes

are from commercial  
and industrial waste

1%

Current recovery rate  
in Hong Kong

50%

HKSAR Recovery Target  
under the forthcoming PRS

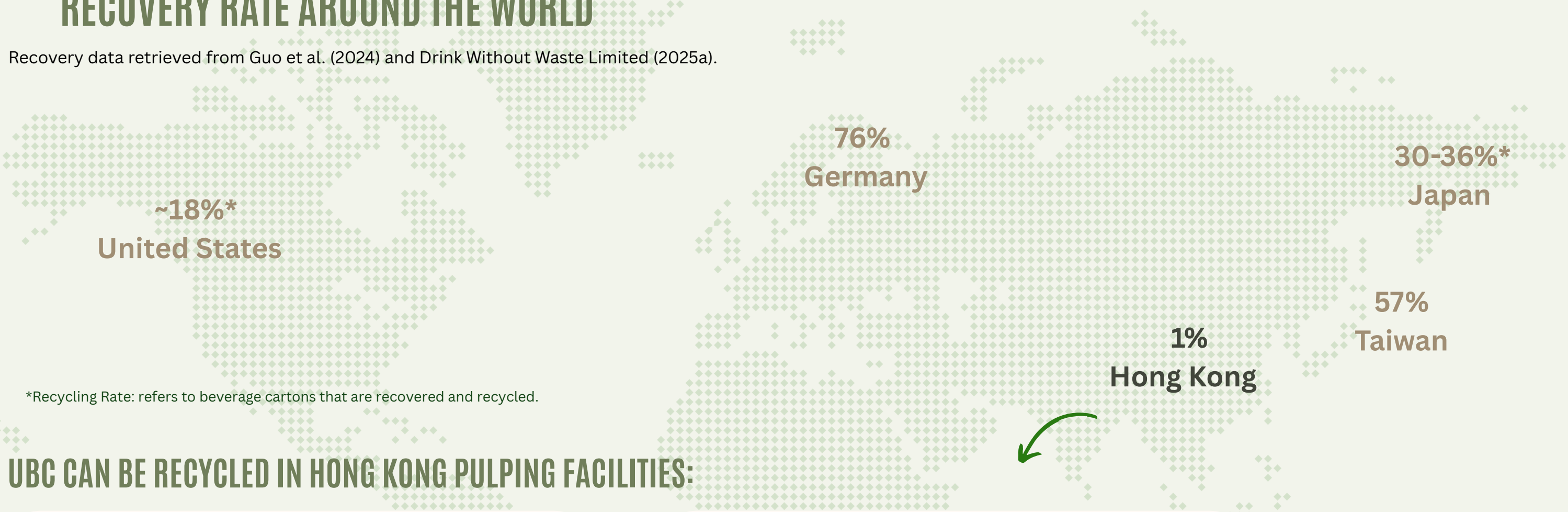
**Beverage cartons** include shelf-stable cartons and refrigerated cartons. While technically recyclable, the current beverage carton recovery rate in Hong Kong remains below 1% (LegCo Panel on Environmental Affairs, 2025; Lee, 2025). Environmental Protection Department's 2024 waste statistics show that Tetra Pak cartons alone accounted for about 86 tonnes of waste per day, with 33 tonnes from commercial sources (EPD, 2025).

The commercial sector is a key stakeholder in the beverage carton recovery pathway, yet the hospitality industry remains an overlooked institutional "bulk-user" node. This report addresses that gap under the proposed PRS framework, grounded in circular economy principles.



# RECOVERY RATE AROUND THE WORLD

Recovery data retrieved from Guo et al. (2024) and Drink Without Waste Limited (2025a).



\*Recycling Rate: refers to beverage cartons that are recovered and recycled.

## UBC CAN BE RECYCLED IN HONG KONG PULPING FACILITIES:

### MIL MILL

The first carton recycling facility in Hong Kong, Mil Mill can process up to 50 tonnes of paper cartons per day. The company also recycles other materials and is heavily involved in public education and remanufacturing of recycled materials. (Mil Mill, n.d.)



(Source: Mil Mill’s Facebook)

MAXIMUM DAILY CAPACITY OF 50 TONNES

### ECOPARK

A modern paper pulping facility has begun trial operation at the end of 2025 inside Tuen Mun’s EcoPark, capable of processing 720,000 tonnes of waste paper, including an annual capacity of 10,000 tonnes of used beverage cartons. (Drink Without Waste Limited, 2025a)



(Source: Hong Kong Waste Reduction Website)

EXPECTED DAILY CAPACITY OF 27.4 TONNES

The current recovered beverage carton is **well under** the recycling capacity of local recyclers.



## 2 HOW DO HOTELS BENEFIT FROM RECOVERING BEVERAGE CARTONS?

As the hospitality sector utilises beverage carton products regularly through its F&B outlets, building UBC recovery capacity in hotels ahead of the PRS implementation can deliver three strategic advantages:



### POLICY READINESS AND FIRST-MOVER ADVANTAGE

As Hong Kong moves toward a PRS for beverage cartons, hotels gain **first-mover advantage** by beginning their UBC recovery journey. A proactive approach allows time to understand **challenges, test workflows, establish workable SOPs before** forthcoming PRS becomes effective.



### ENHANCED ESG PERFORMANCE AND SDG CONTRIBUTION

Contributes to **Sustainable Development Goals** (SDG) and organisational ESG/sustainability commitments with **improved performance** in waste reduction, carbon emissions reduction, material circularity, and upcoming packaging / container requirements.



(Source:  
United Nations)



### BRAND DIFFERENTIATION AND MARKET POSITIONING

Visible sustainability practices, including UBC recovery, attract eco-conscious travelers and corporate clients who value environmental responsibility in their accommodation and event choices.

## 3 HOW TO USE THIS GUIDE

This guide provides the necessary tool and best practices needed to implement feasible beverage carton recovery at any stage. From identifying beverage carton flow within hotel F&B outlets to tackling various operational barriers, this guide aims to equip hotel operators with knowledge to establish beverage carton recovery across multiple touchpoints.

### JUMP GUIDE TO WORKSHEETS

|                                                                   |       |
|-------------------------------------------------------------------|-------|
| Worksheet: Mapping the Beverage Carton Flow                       | P. 13 |
| Worksheet: Measuring UBC Recovery                                 | P. 18 |
| Worksheet: summary checklist for setting up a ubc recovery system | P. 22 |

# 4 THE HOTEL OPPORTUNITY: UNDERSTANDING HOTELS AS INSTITUTIONAL BULK USERS IN PRS

The Single-Use Beverage Packaging Working Group—a coalition of beverage manufacturers and importers, waste handlers, recyclers, and institutions—on PRS for Beverage Cartons emphasized that collaboration between government and industry is essential for PRS efficiency (Drink Without Waste, 2025a). However, the proposed market-led PRS approach focuses primarily on general consumers rather than commercial sectors (LegCo, 2025).

The following graphs compare the government's proposed market-led framework with this research's suggested hotel F&B-involved framework for the hospitality sector.

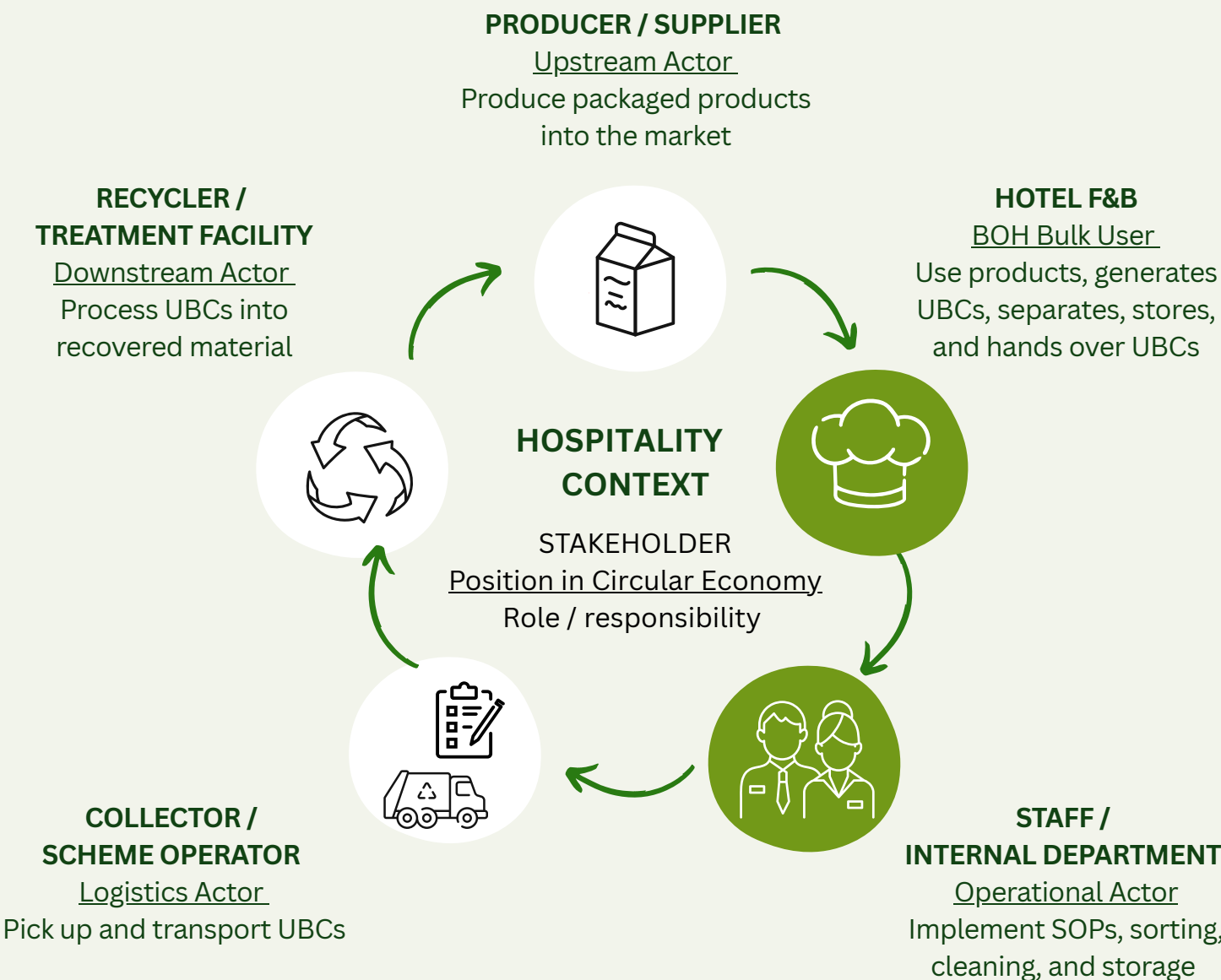
## GOVERNMENT'S PROPOSED MARKET-LED PRS FOR BEVERAGE CARTONS



Although statutory responsibility falls primarily on beverage suppliers, producers, and scheme operators, hotels will face indirect pressure through multiple channels: supplier arrangements, collection contracts, scheme-operator requirements, ESG reporting expectations, and cost-sharing mechanisms.

Our research suggests the hotel F&B operation as a critical institutional consumer—a bulk-user with organizational capacity—a role that must not be overlooked in designing the circular recovery loop.

## HOTEL F&B WITHIN THE CIRCULAR RECOVERY LOOP





# 5 HOTEL F&B OPERATIONS: AN IMPORTANT INSTITUTIONAL HUB FOR CIRCULAR FEEDSTOCK

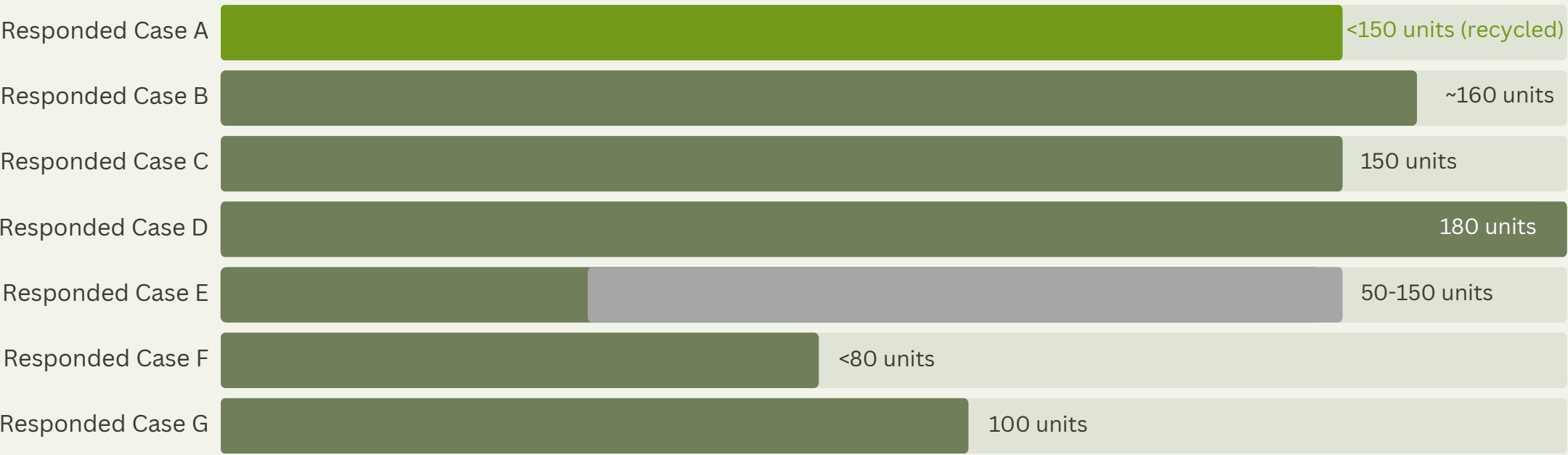
This section presents the baseline consumption data collected from our survey of nine participating hotels, seven of which provided data or estimated amounts on their daily beverage carton usage.

The data reveal the daily volume of beverage cartons purchased or consumed per hotel, varying between fewer than 80 and up to 180 units. Only one hotel reported adopting a recycling practice. Unfortunately, the majority of UBCs currently end up in landfills, despite their recyclability.

Case A demonstrates pioneering sustainable hotel practice. By implementing carton-specific separation and partnering with local recyclers, Case A recovered 337 kg of UBCs in a single month, reducing landfill waste by 1%. This achievement actively embraces circular economy principles, proves the feasibility of beverage carton recycling within hotel operations, and delivers measurable environmental benefits.

By adopting carton-specific separation and collaborating with recyclers, hotel F&B operations can serve as hubs for circular feedstock, establishing a pioneering role for the hospitality sector.

DAILY BEVERAGE CARTON CONSUMPTION ACROSS SURVEYED HOTEL CASES



**Median:**  
150 units/day  
**Average:**  
~124.3 units/day  
**Estimated annual total:**  
~45,370 units per hotel



Average consumption:  
**124.3 UNITS**  
per day per hotel



PURCHASE



CONSUME



DISPOSE



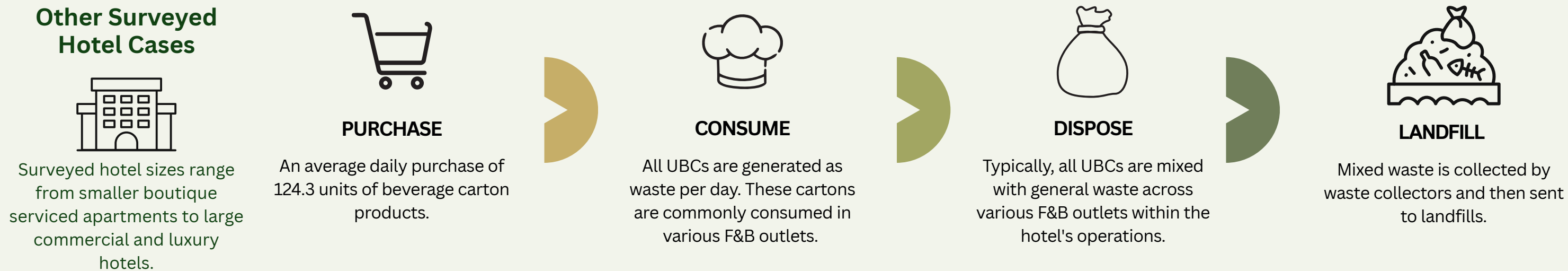
LANDFILL

**45,370 units**

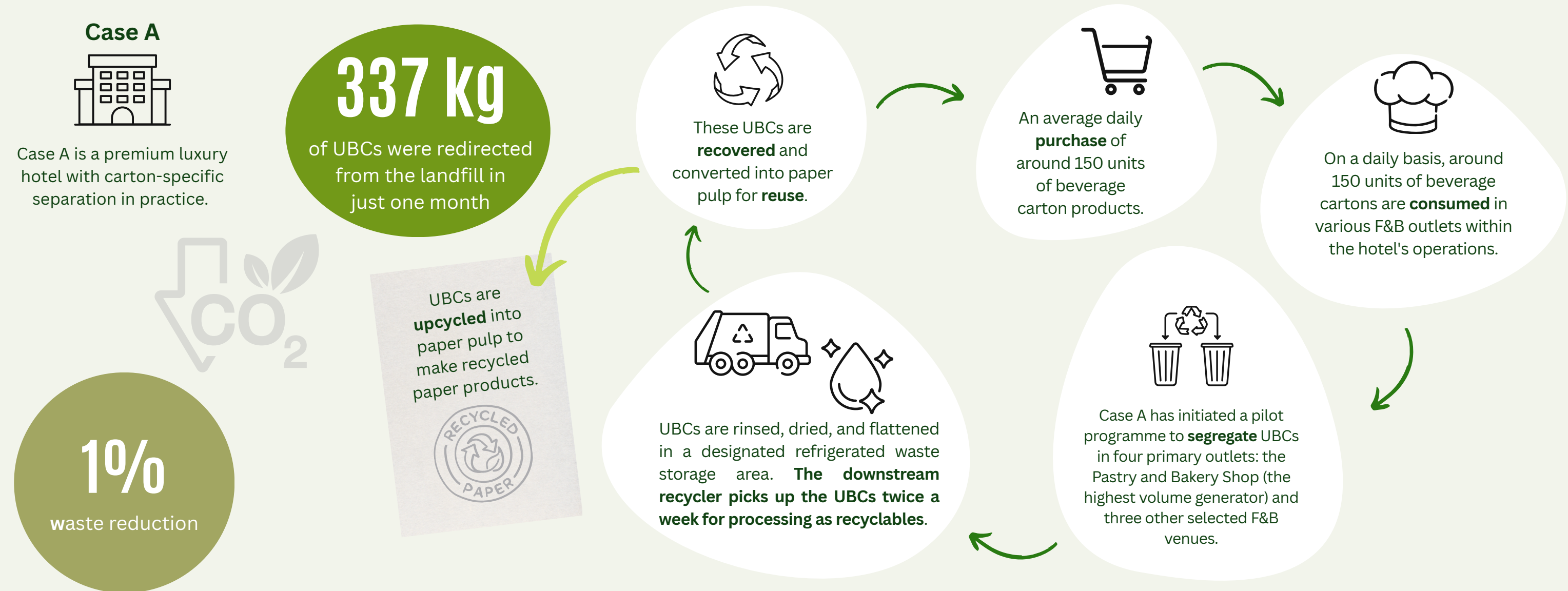
landfilled per hotel each year  
(If no recycling practices are implemented)



# 6 BUSINESS-AS-USUAL VS. CIRCULAR PRACTICE



It's time to move beyond the cycle of TAKE, MAKE, WASTE.



# 7 UNDERSTANDING IMPLEMENTATION CHALLENGES

While Case A's success demonstrates feasibility, it also raises a crucial question: What prevents other hotels from implementing similar practices? This section presents the barriers and enablers identified across all nine surveyed properties.

Survey respondents represent diverse property types in terms of scale and corporate profiles. Hotel sizes range from boutique serviced apartments (approximately 100 rooms) to large commercial and luxury hotels managing between 560 and 610 guest rooms. Respondents held operational, quality, sustainability, or general management roles. Their responses identify both the barriers limiting carton recycling and the enablers for potential implementation:

## CURRENT UBC DISPOSAL ROUTINES



### BARRIERS | ROOT CAUSES

- Staff time or workflow pressure
- Storage space limitations
- Dry-collection approach
- Hygiene / food-safety constraints
- Unclear recyclable acceptance criteria
- Low operational priority or incentives
- Lack of suitable bins or signage
- Lack of clear internal responsibility
- Inconsistent practices across shifts
- UBC pickup timing not suited to storage limits

### ENABLERS | SUCCESS FACTORS

- Wet-compatible containment
- Stable and well-timed collection
- Clear recyclable acceptance
- Suitable bins or storage solutions
- Simple staff training or SOP
- Clear internal responsibility
- On-site posters or reminders

### LONG-TERM MAINTENANCE CONDITIONS

- Shared responsibility across teams
- Continued management support
- Stable collection arrangements
- Clear SOPs and training
- Suitable storage
- PRS-related policy or external support

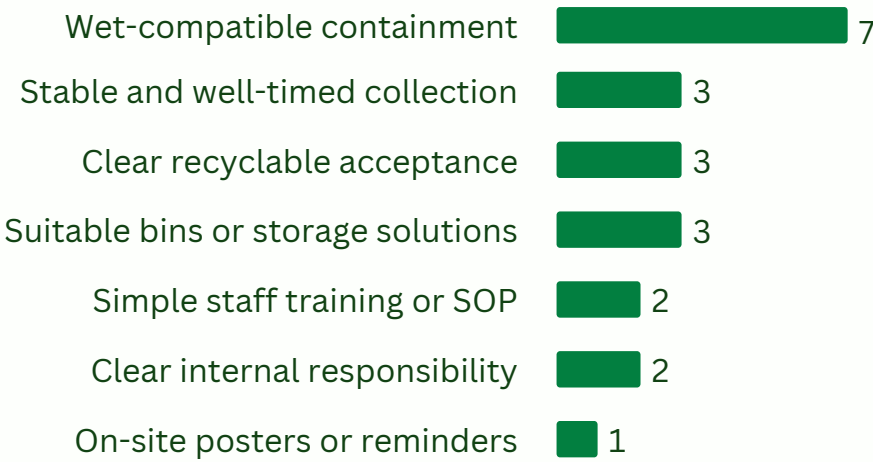
## OPERATIONAL BARRIERS

Number of responses rating it as moderate or major impact



## ENABLING CONDITIONS

Number of responses selecting this option



# TRANSFORMING IDENTIFIED BARRIERS INTO ACTIONABLE IMPLEMENTATION STEPS

The previous section has shown that operational barriers, rather than awareness, are the main factors limiting UBC recovery in hotels. Successful recovery depends on several enabling factors, including wet-compatible containment, stable and well-timed collection schedules, and clear recycler acceptance criteria. However, these enablers require broader support from policy-makers and downstream partners once the PRS is implemented.

All surveyed hotels already recycle other materials such as food waste, aluminium cans, and plastics, and therefore demonstrate a degree of recycling maturity. Yet, this does not automatically translate into UBC-specific readiness. The immediate priority is to help other hotels establish UBC recovery pathways in preparation for PRS.

The numbers make this urgent: if each hotel maintains current consumption patterns, over 45,300 UBCs end up in landfills annually from their operations. **Case A has proved this doesn't have to happen.**

To move forward, hotels need a practical framework that addresses operational feasibility, coordinates across teams, and meets recycler requirements. This section walks through how to set up the first UBC recovery system for the hospitality sector.





01 GETTING STARTED

UNDERSTAND YOUR BEVERAGE CARTON FLOW

Understanding your beverage carton flow is an essential first step in setting up your recovery practice, it helps you recognise the current context of your hotel and build a foundation for action.

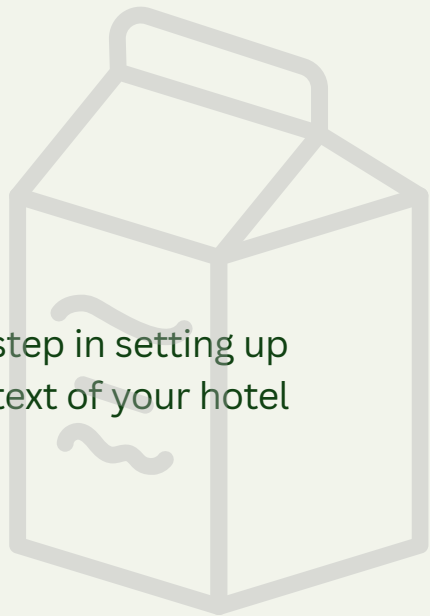
Step 1. Identify beverage carton products

Step 2. Map UBC points of generation in front-of-house (FOH) and back-of-house (BOH)

Step 3. Cross-check measurements

The worksheet on the right helps hotels to map the beverage carton flow within the hotel. A few points to note when filling out the various columns:

- **Timeframe:** Define a standardised timeframe for both reports to ensure a comparable measurement. A short timeframe, such as a few days to a week, is recommended for this exercise.
- **Product:** Align product names with other internal records to ensure traceability.
- **Consumption Location:** Pre-identify a list of beverage carton product consumption points to ensure consistent reference and coverage. This exercise can also be simplified for a single outlet, in which case you may remove the “outlet” column.
- **Unit:** Counting by unit is acceptable for this exercise due to the potential lack of weighing equipment. An equation on the next page helps provide guidance should hotels wish to measure in weight, which is a standard practice in measuring waste in sustainability reporting.



WORKSHEET: MAPPING THE BEVERAGE CARTON FLOW

STEP 1. IDENTIFY BEVERAGE CARTON PRODUCTS

Accurately identify products that come in beverage carton packaging. Although simple, some items could be overlooked without conscious identification.

| Start Date:        |                         | End Date:          |                   |
|--------------------|-------------------------|--------------------|-------------------|
| Product            | Outlet                  | Quantity           | Estimated Weight* |
| e.g. XX Brand Milk | e.g. Patisserie kitchen | e.g. 30 units/week | e.g. 1029.9g      |
|                    |                         |                    |                   |
| Grand Total        |                         | units              | g                 |

STEP 2. MAP UBC POINTS OF GENERATION IN FOH AND BOH

This step identifies where beverage carton waste is generated and first collected, which will assist future plans on devising a recovery flow.

| Start Date:           |                    | End Date:     |                   |
|-----------------------|--------------------|---------------|-------------------|
| Outlet                | Product            | Quantity      | Estimated Weight* |
| e.g. Breakfast buffet | e.g. XX Brand Milk | e.g. 30 units |                   |
|                       |                    |               |                   |
| Grand Total           |                    | units         | g                 |

STEP 3. CROSS-CHECK MEASUREMENTS

Cross-check if all products and the grand total in Step 1 and 2 align. Discrepancies between beverage carton input and output allow hotels to identify gaps in their mapping. Revisit Step 1's outlets to identify any missed beverage consumption points to fill in the gaps in Step 2.

\*Refer to formula on next page for estimated weight calculation

GOAL SETTING

Setting a measurable goal helps align expectations, define a shared target, and maintain motivation throughout the recovery strategy. It also serves as a key monitoring metric for hotels to measure progress and success.

Beverage carton recovery goals can also be expressed in the following ways:

- Number of F&B outlets that begin segregating beverage cartons
- Weight of UBCs recovered (in kg)
- Weight of UBCs diverted from landfills (in kg)

Alternatively, hotels may reference the phased recovery rate target laid out by the Hong Kong government’s upcoming PRS on Beverage Cartons when setting a recovery goal.

| Recovery target under PRS on Beverage Cartons |         |         |         |         |
|-----------------------------------------------|---------|---------|---------|---------|
| Beverage Carton Recovery Target               | Phase 1 | Phase 2 | Phase 3 | Phase 4 |
|                                               | 10%     | 20%     | 35%     | 50%     |



QUICK TIP

A well-structured goal should also include defined timeframes, and hotels can consider setting a phased goal based on their capacity and overall sustainability goals.

STARTING POINT

The recovery system does not have to start perfectly, and a phased approach could sometimes be an easier starting point. Hotels can identify and select the following outlets as the first phase of their recovery plan:



HOT SPOTS

**Identifying** F&B outlets with the most consumption justifies not only the impact of the recovery system, but can also stress-test certain operational procedures.



SIMPLE OPERATION

Alternatively, a path with lower operational resistance is to conduct recovery at an F&B outlet that consumes fewer types and smaller quantities of beverage carton products.

Based on the **Worksheet: Mapping the Beverage Carton Flow**, hotels may identify the above outlets as a starting point.

Both the management and staff within these starting-point outlets should be onboarded on the rationale, goal, and process of the UBC recovery to ensure alignment across levels.

CALCULATING BEVERAGE CARTON PACKAGING WEIGHT

The weight of beverage carton packaging can be calculated with the below formula:

average weight of  
beverage carton  
packaging

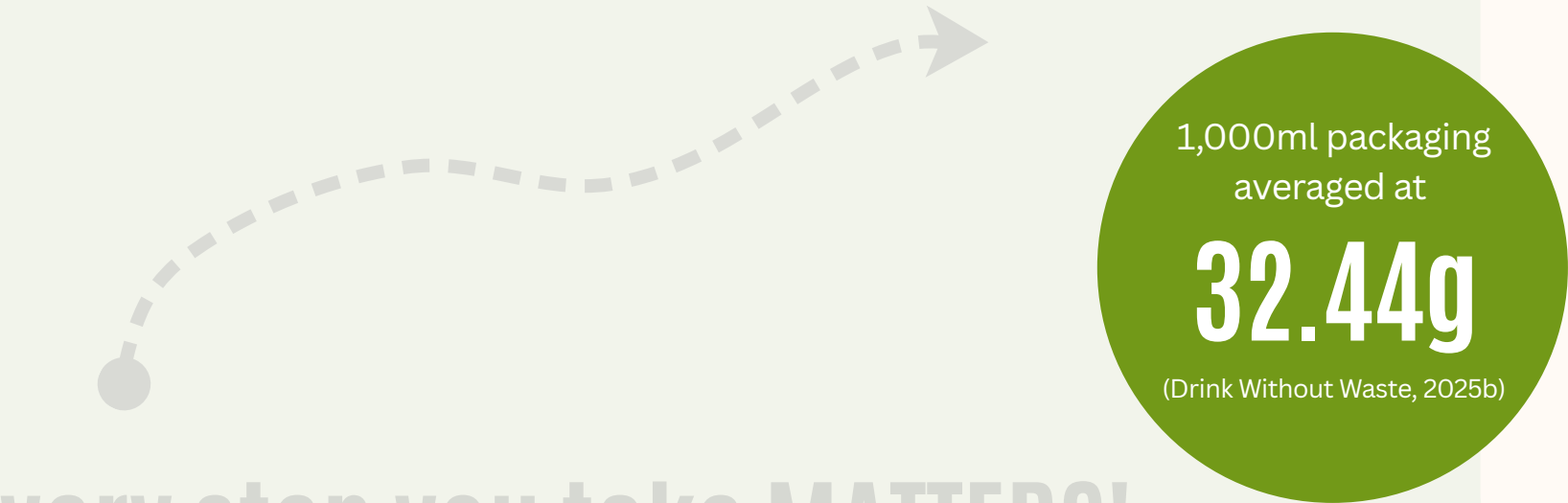
x

quantity of  
beverage carton  
product

=

weight of beverage  
carton packaging

Hotels may reference the *Beverage Carton Packaging Monitor* by Drink Without Waste (2025b) for the average weight of packaging with different volumes.



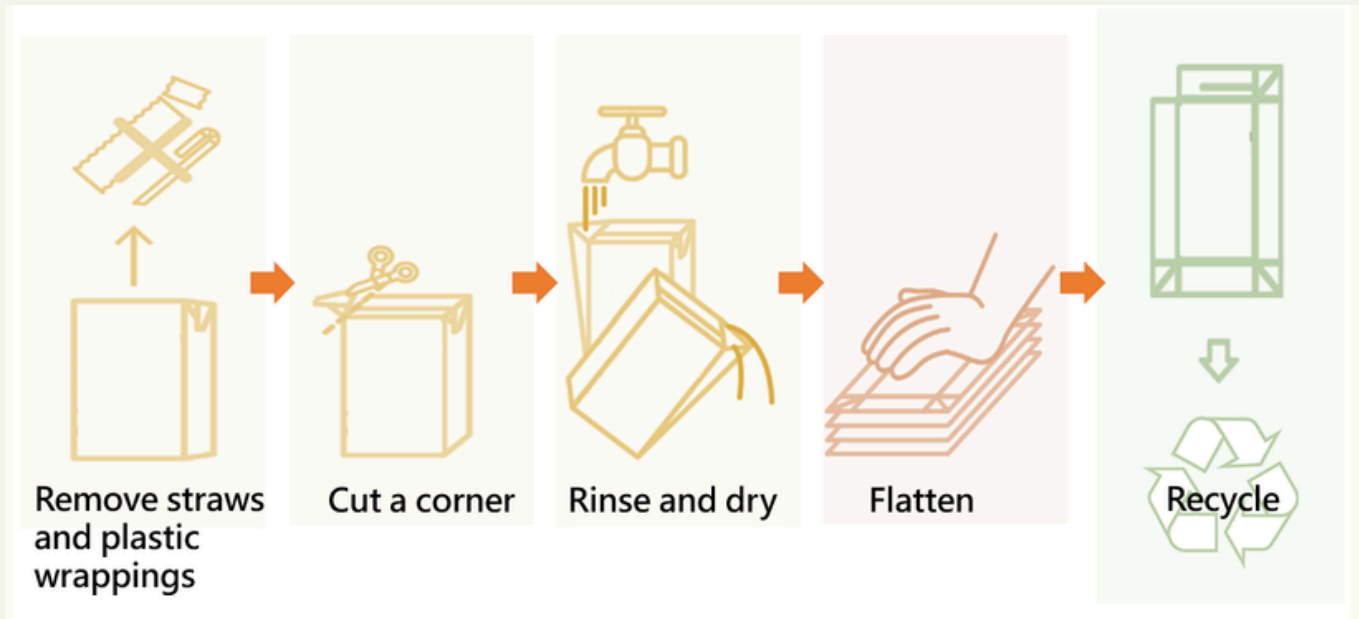
Every step you take MATTERS!

02 PROCESSING USED BEVERAGE CARTONS

Each hotel’s UBC recovery approach differs based on its capacity, resources, and specific workflow in each F&B outlet. The aim is to manage UBCs to meet the collection standards of local recyclers.

METHOD 1. CLEAN RECYCLING

In Hong Kong the clean recycling method is the preferred standard due to the existing capacity of available recycling facilities. This method requires preparation of UBCs in the following way:



(Source: Hong Kong Waste Reduction Website)

Certain service providers offer sorting and processing service upon collection of recyclables, alleviating the need for hotels to remove plastic components from the cartons. Hotels should therefore always confirm the requirements of their chosen downstream partners.

METHOD 2. WET COLLECTION

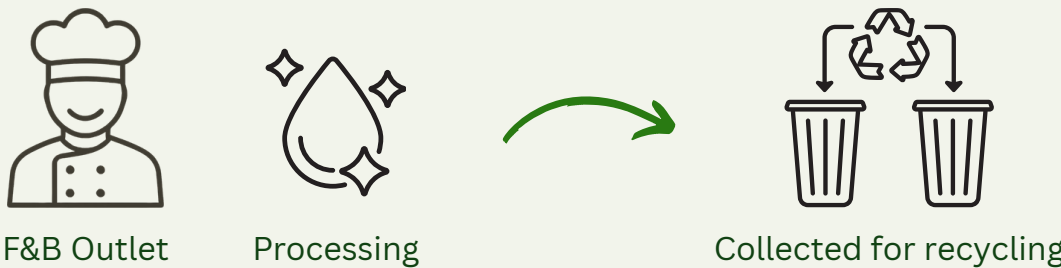
Wet collection is an alternative collection standard implemented in some countries. This method does not require the cleaning and cutting of beverage cartons, but it requires a network of collection, sorting, and processing facilities.

CASE STUDY: GERMANY

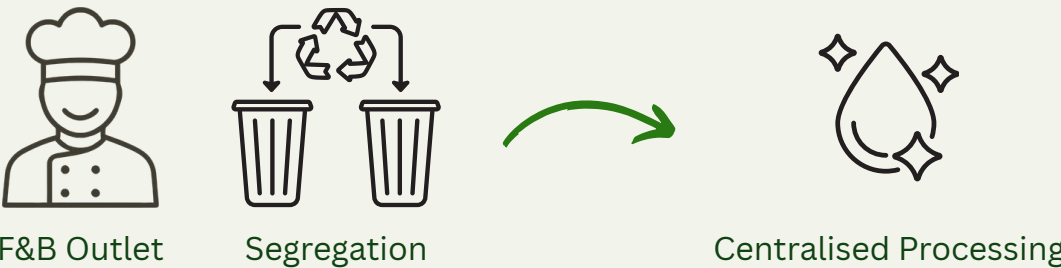
In Germany, beverage cartons are collected after they have been “spoon-cleaned”. These UBCs are collected with plastics and metal recyclables through daily door-to-door waste collection, then transported to facilities for sorting and processing. The country has set a national beverage carton recycling target of 80%, with national data showing a 77.6% recovery rate in 2016 (Zero Waste Europe, 2020).

Due to hotel manpower, space, and internal responsibility allocation, beverage cartons may be processed at different locations by different departments.

PROCESSED WITHIN F&B OUTLET



PROCESSED OUTSIDE F&B OUTLET



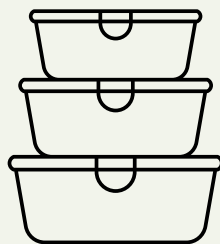
### 03 COLLECTION AND STORAGE DESIGN

In hotels, UBCs are collected and temporarily stored in multiple locations prior to being removed from the hotel. Often generated in hotel BOH, UBCs are then transported to the refuse room or recyclable collection areas before chosen downstream partners collect them from the hotel.

Regardless, hotels can consider the following checklist when designing collection bins at beverage carton generation outlets.

#### CHECKLIST ON COLLECTION AND STORAGE DESIGN

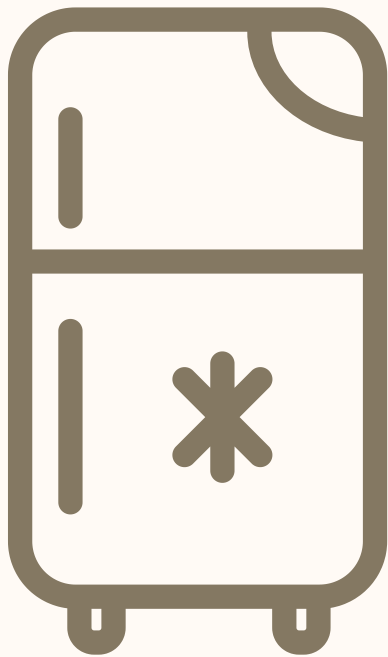
-  **PLACEMENT**  
Estimate the number of UBC collection bins based on the number of recycling stations. Consider placing bins near workstations that have a higher consumption of beverage carton products.
-  **DESIGN**  
Besides traditional bin design, hotels can consider using easy-open and resealable boxes for temporarily storing UBCs. Size of the bin is decided by the consumption volume of each outlet, as well as whether staff flatten the beverage cartons before binning them.
-  **FRONT-OF-HOUSE**  
Include the FOH if beverage carton products are consumed by hotel guests. Evaluate FOH consumption and prepare to incorporate UBC collection into cleaners' trolleys.



#### BEST PRACTICE ON MINIMISING ODOUR AND HYGIENE CONCERNS

Even cleaned beverage cartons can retain residue if not thoroughly washed, which may cause the development of odour and other hygiene concerns. Sealing daily cleaned UBCs in **reusable containers** and keeping the recyclables within a **refrigerated waste compartment** is an effective storage solution for minimising bacteria and subsequent odour.

Refrigerated compartments are observed in best practice hotels in both BOH areas and refuse rooms, which ensures the recyclables are stored at low temperature throughout their removal route.



 **QUICK TIP**  
Maximise space by using **vertical storage** such as stackable bins and shelves.

 **QUICK TIP**  
**Label** bins clearly, with simple **instructions** on the processing steps.





## 04 REMOVAL

As one of the final steps in the recovery system, UBCs are removed from hotels to recyclers. Hotels are encouraged to interact with downstream stakeholders such as **collectors and PRS-registered scheme operators** to arrange removal services. Alternatively, hotels can also reach out to **recyclers and treatment facilities** to arrange direct delivery.

Hotels can consider the following touchpoints to facilitate the logistics of removing UBCs from the venue:

- 1 EXPAND THE SCOPE OF EXISTING RECYCLABLE COLLECTOR**  
Explore expanding the scope of the existing recyclable collector to include UBCs in its collection. This minimises extra logistics and administrative work by leveraging existing vendor relationship.
- 2 RECYCLER DIRECT COLLECTION**  
The Green@Community Green Outreach programme on Source Separation of Commercial and Industrial Waste provides free recyclable bins and facilitates the connections between hotels and recyclers or relevant organisations.
- 3 EXPLORE PARTNERSHIPS WITH LOCAL GREEN@COMMUNITY**  
Hotels located near a Green@Community outlet can explore direct collection arrangements.
- 4 RECYCLING SERVICE PROVIDERS**  
There are multiple service providers in the market that offer sorting and processing of recyclables, including UBC. Their services also include reporting, which helps hotels meet their sustainability reporting requirements.

RECYCLERS /  
TREATMENT FACILITIES

COLLECTORS /  
SCHEME OPERATOR

Hotels may consider drafting formal agreements with partners in accordance with internal policies. During discussions with downstream partners, hotels should take note of the checklist below.

### CHECKLIST FOR DOWNSTREAM PARTNERSHIP



#### COLLECTION STANDARD

Understand the UBC collection standard from downstream partners, as each may differ slightly.



#### MINIMUM COLLECTION QUANTITY

Understand the minimum collection quantity requirements from downstream partners prior to formalising the agreement.



#### COLLECTION FREQUENCY/SCHEDULE

Agree on a collection schedule that matches hotel operations patterns and storage capacity.



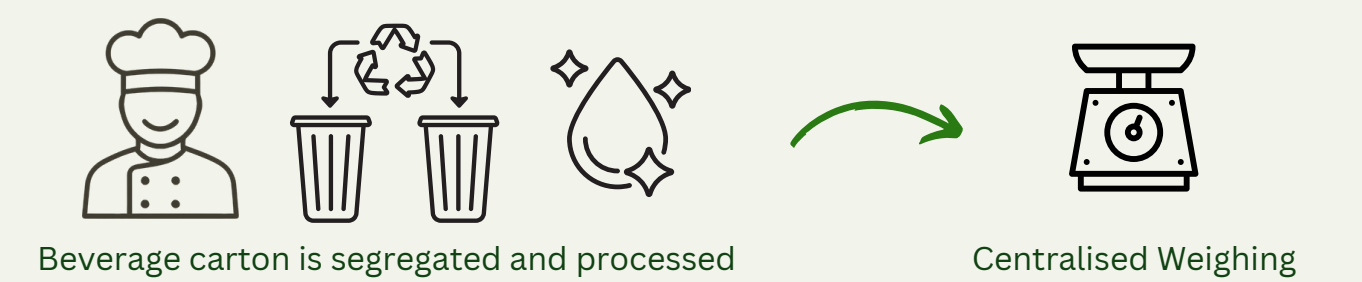
#### RECORD AND DOCUMENTATION

Some partners may be able to offer reporting at regular intervals. Hotels should communicate their needs to ensure they receive qualitative data suitable for their reporting needs.

05 MEASUREMENT AND REPORTING

Accurate measurements of UBC are central to an effective recovery system. It helps hotels track progress against internal KPIs, meet sustainability reporting requirements, and demonstrate impact.

Once UBCs have been processed according to the agreed collection standard, hotels can measure them using one of the following approaches:



INTERNAL STEWARDING TEAM

As part of the **refuse collection routine**, the Stewarding team collects processed beverage cartons from F&B outlets and measures them centrally at regular intervals (e.g. daily or weekly).

WASTE MANAGEMENT SYSTEM AT EACH F&B OUTLET

Hotels can consider equipping each F&B outlet with a waste management system, such as bins with **built-in scales** that connect to a **cloud-based platform** for waste data storage and analysis. This method simplifies manual work and reduces human error, enabling easy data consolidation for hotels with multiple outlets.

EXTERNAL WASTE COLLECTORS

External waste collectors and processors often include measurement and **reporting services** for hotels as part of their scope of work. Hotels can align with these partners on a reporting framework that suits their reporting needs.



WORKSHEET: MEASURING UBC RECOVERY

This worksheet aims to assist hotels in centrally measuring UBCs collected, covering key metrics regardless of whether measurement is taken at each F&B outlet or at the hotel as a whole.

A few points to note when filling out the various columns:

- **Timeframe:** Define a standardised timeframe for measurement to ensure consistent reporting practice. It will also be beneficial to start measurements at the beginning of the month, which facilitates sustainability reporting (e.g. “Outlet A begins its UBC recovery practice in June”).
- **Product:** Align product names with other internal records to ensure traceability.
- **Consumption Location:** Pre-identify a list of consumption locations to ensure consistent reference.
- **Unit:** Moving towards industry-recognised waste measurement, hotels should aim to record their results in kg/tonnes

| Timeframe             | Weight   | Record Personnel |
|-----------------------|----------|------------------|
| e.g. 1-7 April 2026   | e.g. 3kg |                  |
|                       |          |                  |
| e.g. June Grand Total |          |                  |

**PRESENTING UBC RECOVERY IN SUSTAINABILITY REPORT**

UBC recovery presents an opportunity to improve sustainability performance and contributes to the hotels’ overall material circularity efforts. Measurement of waste is a common practice for hotels that compile sustainability reports, where waste and recyclables are typically recorded in kg or tonnes, corresponding to different sustainability reporting metrics.

**CALCULATION OF % WASTE DIVERTED**

Utilising data from **Worksheet: Measuring UBC Recovery**, you can also calculate the UBC recovery rate with the below formula:

$$\frac{\text{kg of recovered UBC}}{\text{kg of purchased beverage carton packaging*}} = \% \text{ UBC recovery}$$

\*Refer to formula on P. 14 for calculation of purchased beverage carton product weight.

**WASTE RECOVERY DATA IN SUSTAINABILITY REPORT**

**WASTE DIVERSION**

Measurement of waste diversion can be distinguished between reused, recycled, and recovered. Results are expressed in percentage or absolute weight.

**SCOPE 3 EMISSIONS**

**CATEGORY 5: WASTE GENERATED IN OPERATIONS**

This metric measures greenhouse gas emissions from treatment and disposal of waste handled by third parties. Carbon emissions from disposal and treatment of waste can be calculated by multiplying waste generated in operations with an emission factor.

**GRI 306: WASTE 2020**

**306-4 WASTE DIVERTED FROM DISPOSAL**

The GRI standard measures the total weight of waste diverted from disposal, and a breakdown of this total by composition of the waste. Hotel is also responsible for disclosing the recovery method, distinguishing between reuse, recycling, and other recovery operations.



# 9

## MAKING A LASTING CHANGE

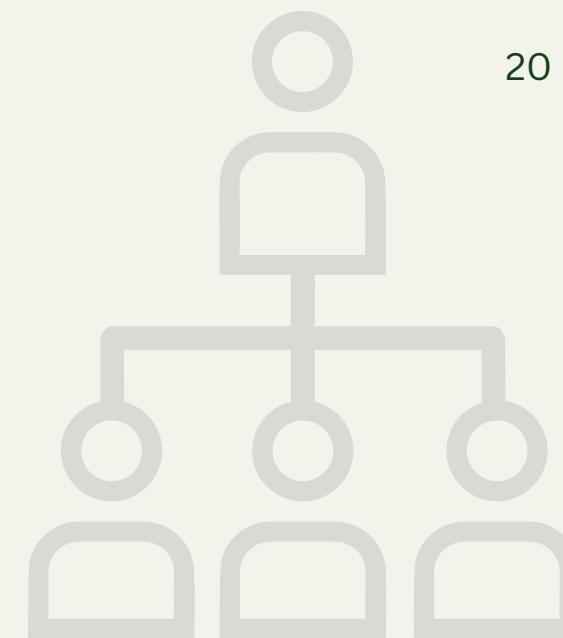
After a UBC recovery system is in place, hotels need to implement measures to internalise the new system and solidify the changes within operations to enable long-term sustainment. This process happens over time, and the following factors should be taken into account throughout the stages in establishing the hotel’s UBC recovery system:

### MANAGEMENT SUPPORT

Our research shows that the successful implementation of UBC recovery and other material circularity programmes is strongly supported by hotel management. From a business point of view, a sustainable operation **brings environmental, social, and governance** (ESG) benefits to the hotel operation, meets **regulatory requirements** and **reputational expectations**. When senior management endorses UBC recovery, allocates resources, integrates UBC recovery into hotel operational priorities, it is easier to launch change and maintain it in the long run.

### REGULAR REVIEWS AND ADJUSTMENTS

After setting up a UBC recovery system, hotels should conduct regular reviews of the process and results of the recovery flow. By continuously fine-tuning and adjusting the recovery system, hotels can **troubleshoot processes** that do not fit the workflow and identify an operationally feasible UBC recovery pathway unique to their hotel. **Reviews can be done in all aspects**, from auditing the quality of the collected UBCs for contamination control, to reviewing staff’s recovery execution and collection bin design, continuous reviews and adjustments help reinforce UBC recovery in hotel F&B operation.



## INTERNAL ACCOUNTABILITY

A clear internal accountability structure assigns responsibility at all levels, and “Shared Responsibility Across Teams” is listed as one of the key factors in ensuring long-term change in our survey with hotels.



### TOP MANAGEMENT CHAMPION

A champion for UBC recovery (or overall material recovery and sustainability effort) acts as a leader in the initiative, reviews progress, and removes obstacles. This role is placed at the senior management level to provide oversight and decision-making authority.



### OPERATIONAL OWNERS

Outlet-level managers in F&B and stewarding teams act as operational owners to gate-keep recovery procedures, monitor performance, solve daily issues, and communicate feedback to the management.



### KPI OF INDIVIDUAL STAFF

To ensure effective execution, individuals should also be held accountable through UBC recovery-related objectives. Whilst the KPI does not have to be numerical in the beginning, it can gradually become measurable as the recovery system matures.



# TRAINING

A clear standard operating procedure (SOP) reinforced through regular staff training is essential to keep UBC recovery practices consistent. As hotels employ a diverse range of people, including part-time staff, foreign workers, and student interns with different levels of understanding about recycling practices and sustainability, It is therefore important to incorporate education on not just of the “**how to**” but also the “**why it matters**” into staff training at various touchpoints.

## CHECKLIST ON CONTINUOUS STAFF TRAINING & EDUCATION

- **ONBOARDING TRAINING**  
Incorporate UBC recovery into the first touchpoints for all new employees.
- **REGULAR STAFF BRIEFINGS**  
Regular reminders during daily briefings or monthly meetings to resurface the topic and solidify the importance of UBC recovery.
- **POSTERS AND LABELS**  
Place visual aids around beverage carton product collection points and storage points to support daily execution.

# INDUSTRY KNOWLEDGE EXCHANGE

Knowledge exchange events such as seminars, conferences, and exhibitions give hotels a platform to **access industry best practices** and **practical, field-tested solutions**. As the recovery of UBC and the PRS on Beverage Cartons is still developing, F&B and Stewarding teams can stay current on the latest technology and industry practices through knowledge exchange in these events. Furthermore, these events can be a great opportunity for building **networks and partnerships**, as well as for hotels to **benchmark** themselves against peers.

# STAKEHOLDER ENGAGEMENT

## UPSTREAM

Hotels are encouraged to communicate with suppliers as commercial consumers to assist their UBC recovery. The hotel, as a consumer, can exercise its influence on suppliers through its choice and voice. The purchasing team may communicate their preference for:

- **Products with a larger volume** that reduce the amount of packaging used in the hotel.
- **Packaging that is designed for easier processing.** Leveraging the supplier’s industry knowledge, the hotel can explore products with packaging that is designed for easier processing.
- When the forthcoming PRS takes effect, source from suppliers on the **registered supplier list**. Registered suppliers are responsible for the recovery of UBC either through direct collection or collection through a scheme operator. The hotel can benefit from **supplier-arranged collection** through scheme operators or reverse logistics – a practice where suppliers collect UBCs when they deliver a new batch of products.



# 10 WORKSHEET: SUMMARY CHECKLIST FOR SETTING UP A UBC RECOVERY SYSTEM

This guidebook has covered why used beverage carton recovery matters, and how F&B outlets in Hong Kong hospitality industry can turn a difficult waste stream into a practical circular economy opportunity.

The following list brings together all the tips and action items in one place. Use it as a practical tool to tick off what you have done, identify action items, and revisit it periodically to improve the hotel’s UBC recovery system.

| Checklist                                                                                                                             | Person In Charge | Completed | Incomplete - Action Item |
|---------------------------------------------------------------------------------------------------------------------------------------|------------------|-----------|--------------------------|
| GETTING STARTED                                                                                                                       |                  |           |                          |
| Understand the hotel’s/specific F&B outlet’s current beverage carton flow.<br>→ complete Worksheet: Mapping the beverage carton flow. |                  |           |                          |
| Set a measurable and time-bound goal for UBC recovery.                                                                                |                  |           |                          |
| Identify F&B outlet as starting point/pilot project.                                                                                  |                  |           |                          |
| PROCESSING USED BEVERAGE CARTONS                                                                                                      |                  |           |                          |
| Understand UBC collection standard from waste collector.                                                                              |                  |           |                          |
| Identify processing workflow and manpower within the hotel.                                                                           |                  |           |                          |
| COLLECTION AND STORAGE DESIGN                                                                                                         |                  |           |                          |
| Set up UBC collection system within each F&B outlet.                                                                                  |                  |           |                          |
| Set up UBC collection system at central refuse area.                                                                                  |                  |           |                          |
| Consider UBC collection in FOH environment.                                                                                           |                  |           |                          |
| Prepare and apply bin labels and guideline posters across collection points.                                                          |                  |           |                          |
| REMOVAL                                                                                                                               |                  |           |                          |
| Identify suitable downstream partner to remove recovered UBCs from hotel to recycling facilities.                                     |                  |           |                          |
| Agree on collection schedule and requirements with downstream partner.                                                                |                  |           |                          |
| Communicate hotel’s reporting needs with downstream partner.                                                                          |                  |           |                          |
| MEASUREMENT AND REPORTING                                                                                                             |                  |           |                          |
| Identify measurement workflow and manpower within the hotel.                                                                          |                  |           |                          |
| Regularly measure and report on the UBC recovery results.                                                                             |                  |           |                          |

| Checklist                                                                                                                            | Person In Charge | Completed | Incomplete - Action Item |
|--------------------------------------------------------------------------------------------------------------------------------------|------------------|-----------|--------------------------|
| MAKING A LASTING CHANGE                                                                                                              |                  |           |                          |
| Gain management support through building a business case and proposing a pilot to illustrate the benefit of UBC recovery.            |                  |           |                          |
| Regularly review UBC recovery results compared to the goal; make adjustments to the goal based on recovery performance.              |                  |           |                          |
| Regularly review UBC recovery processes and make necessary changes and adaptations to fit hotel and F&B outlet’s operational needs.  |                  |           |                          |
| Establish clear internal accountability structure and targets, and communicate them to all staff relevant to UBC recovery.           |                  |           |                          |
| Incorporate training in staff onboarding, regular trainings and briefings, and visible bin labels and guidelines.                    |                  |           |                          |
| Participate in industry knowledge exchange events.                                                                                   |                  |           |                          |
| Engage beverage carton product suppliers and explore sourcing products with larger volumes, and designs that enable easier recovery. |                  |           |                          |
| Explore beverage carton product suppliers’ UBC collection support options.                                                           |                  |           |                          |

# 11 REFERENCES

- Advisory Council on the Environment. (2024). Proposal to establish a common legislative framework for Producer Responsibility Schemes (ACE Paper 2/2024). Environmental Protection Department. [https://www.eeb.gov.hk/sites/default/files/en/node5840/ACE\\_Paper\\_2\\_2024\\_eng.pdf](https://www.eeb.gov.hk/sites/default/files/en/node5840/ACE_Paper_2_2024_eng.pdf)
- Advisory Council on the Environment. (2025). Common legislative framework for Producer Responsibility Scheme and the Producer Responsibility Scheme on plastic beverage containers and beverage cartons (ACE Paper 3/2025). Environmental Protection Department. <https://www.legco.gov.hk/yr2025/english/panels/ea/papers/ea20250224cb1-236-4-e.pdf>
- Drink Without Waste Limited. (2024). Research paper on beverage cartons in the PRS for beverage packaging in Hong Kong: Final report. <https://drinkwithoutwaste.org/wp-content/uploads/2024/10/Research-Paper-on-Beverage-Cartons-in-the-PRS-for-Beverage-Packaging-in-HK-full-final.pdf>
- Drink Without Waste Limited. (2025a). A producer responsibility scheme for beverage cartons in Hong Kong: Research report summary. [https://drinkwithoutwaste.org/wp-content/uploads/2025/02/BevCartonsEngFull05\\_2.pdf](https://drinkwithoutwaste.org/wp-content/uploads/2025/02/BevCartonsEngFull05_2.pdf)
- Drink Without Waste Limited. (2025b). Beverage carton packaging monitor [PDF]. <https://drinkwithoutwaste.org/wp-content/uploads/2025/05/Beverage-Carton-Packaging-Monitor-final-.pdf>
- Environment Bureau. (2021). Waste blueprint for Hong Kong 2035. Government of the Hong Kong Special Administrative Region.
- Environmental Protection Department. (n.d.). Clean recycling. Hong Kong Waste Reduction Website. Retrieved June 27, 2026, from <https://www.wastereduction.gov.hk/en-hk/waste-reduction-programmeme/clean-recycling#toc-clean-recycling-beverage-cartons>
- Environmental Protection Department. (2025). Monitoring of solid waste in Hong Kong: Waste statistics for 2024. Government of the Hong Kong Special Administrative Region. [https://www.wastereduction.gov.hk/sites/default/files/resources\\_centre/waste\\_statistics/msw2024\\_eng.pdf](https://www.wastereduction.gov.hk/sites/default/files/resources_centre/waste_statistics/msw2024_eng.pdf)
- Environmental Protection Department. (n.d.). Moving towards “zero landfill”. Hong Kong Waste Reduction Website. <https://www.wastereduction.gov.hk/en-hk/zero-landfill>
- Environmental Protection Department. (2026). Source separation of commercial and industrial waste. Hong Kong Waste Reduction Website. <https://www.wastereduction.gov.hk/en-hk/waste-reduction-programmeme/source-separation-commercial-and-industrial-waste>
- GHG Protocol. (2022). Category 5: Waste generated in operations [PDF]. [https://ghgprotocol.org/sites/default/files/2022-12/Ch5\\_GHGP\\_Tech.pdf](https://ghgprotocol.org/sites/default/files/2022-12/Ch5_GHGP_Tech.pdf)
- GRI. (2020). GRI 306: Waste 2020. <https://www.globalreporting.org/publications/documents/english/gri-306-waste-2020/>
- Guo, X., Xu, Y., Liang, C., & Long, C. (2024). Best practices for beverage carton packaging recycling in China. Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.
- Lee, A. (2025). Hong Kong needs “more aggressive” recycling targets for drinks cartons. South China Morning Post. <https://www.scmp.com/news/hong-kong/health-environment/article/3299953/hong-kong-needs-more-aggressive-recycling-targets-drinks-cartons>
- Legislative Council of the Hong Kong Special Administrative Region. (2025). Promotion of Recycling and Proper Disposal of Products (Miscellaneous Amendments) Bill 2025 (LC Paper No. CB(1)878/2025(01)).
- Legislative Council Panel on Environmental Affairs. (2025, February 24). Minutes of meeting (LC Paper No. CB(1)340/2025). Hong Kong Legislative Council. <https://www.legco.gov.hk/yr2025/cn/panels/ea/minutes/ea20250224.pdf>
- Mil Mill. (n.d.). Vision. Retrieved June 27, 2026, from <https://www.milmill.hk/vision>
- Swire Properties. (2026). Swire Properties sustainability report 2025. [https://sd.swireproperties.com/2025/pdf/en/Swire-Properties\\_Sustainability-Report-2025\\_EN.pdf](https://sd.swireproperties.com/2025/pdf/en/Swire-Properties_Sustainability-Report-2025_EN.pdf)
- United Nations. (n.d.). Sustainable Development Goals. Retrieved June 27, 2026, from <https://sdgs.un.org/goals>
- Zero Waste Europe. (2020). Recycling of multilayer composite packaging: The beverage carton. Zero Waste Europe & Eunomia Research & Consulting. [https://zerowasteurope.eu/wp-content/uploads/2020/12/zero\\_waste\\_europe\\_report\\_-beverage-carton\\_en.pdf](https://zerowasteurope.eu/wp-content/uploads/2020/12/zero_waste_europe_report_-beverage-carton_en.pdf)