

A top-down view of various food scraps scattered on a rustic wooden surface. The waste includes two large, overripe bananas with brown spots, a whole green onion, a broken piece of white bread, a sliced onion, a broken white eggshell, a piece of salmon, a piece of ginger, and some green leafy herbs.

# **WASTE DEEP**

**AN EXPLORATORY  
STUDY OF THE WASTE  
GENERATED BY THE  
HOSPITALITY  
INDUSTRY IN HONG  
KONG**



**GREEN**  
HOSPITALITY



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# SPECIAL THANKS

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This report has been the result of six months of collaborations between different stakeholders. First of all, GREEN Hospitality would like to thank all the hospitality group team members who participated in this research for sharing their data, insights, and passion with us. We are aware that the circumstances of this research have been quite challenging for the industry given the COVID-19 pandemic, and we are ever grateful for the time that has been spared for us. Second, we would like to thank Eat Without Waste, an initiative of the ADM Capital Foundation, for assisting us with designing the surveys and providing us with insightful feedback on the research. Third, we would like to thank our other partners, ORCA and Winnow, for giving us pointers on food waste reduction methods and anaerobic digestion.

Finally, we would like to thank the HKU Knowledge Exchange Fund for their financial support.

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# USEFUL DEFINITIONS AND ACRONYMS

Note: the definitions are not displayed in alphabetical order but by theme and logical order.

## ABOUT THE INDUSTRY

### **Tourism and Hospitality Industry:**

For this research, we aligned with the definition of the Hong Kong Census and Statistics department for “inbound tourism”, which encompasses the following sectors:

- Retail trade
- Accommodation services
- Food and beverage services
- Cross boundary passenger transport services (inbound and outbound tourism)
- Travel agencies and related activities

## ABOUT WASTE

### **Municipal Solid Waste (MSW):**

As defined by the Hong Kong Environmental Protection Bureau (EPD), MSW is composed of solid waste from households, commercial and industrial sources. It excludes construction waste, chemical waste, clinical waste and other special waste.

### **Organic Waste:**

Organic waste is waste that has a biological origin (which was once alive or part of a living thing) and hence contains organic compounds. Food waste is an example of organic waste.

### **Food Waste:**

Food waste is then described by the FAO as “the discard of foodstuff at the retail and consumption levels”. It is typical of lifestyles observed in high-income countries, where infrastructures and supply chains are more efficient.

### **Avoidable and Non-Avoidable Food Waste:**

Avoidable food waste is food thrown away that was, at some point prior to disposal, edible (e.g. slices of bread, apples, meat) and could have been eaten if it had been better portioned, managed, stored and/or prepared. “Avoidable” food waste also includes some otherwise acceptable food items that have not been eaten because of consumer preference, such as bread crusts and jacket potato skins. Non-avoidable food waste refers to waste arising from food or drink preparation that is not, and has not been, edible under normal circumstances, e.g. meat bones, egg shells, and tea bags.

### **Kitchen Waste, Spoilage Waste, and Plate Waste:**

Kitchen waste can generally be referred to as waste resulting from food preparation as a result of business operations and planning. It also includes unserved food waste that was cooked and thrown away because it was surplus to requirements. Spoilage waste refers to the food waste that has to be thrown away due to the use of date being exceeded or it being damaged. Plate waste refers to the unconsumed food that is being served.

## **ABOUT WASTE MANAGEMENT**

### **Biodegradable:**

If something is biodegradable, it means that it can undergo degradation resulting from the action of naturally occurring microorganisms such as bacteria, fungi, and algae to form biomass, water, and carbon dioxide (or methane in the absence of oxygen). However, the term does not have any timeframe attached to it. Whether something is biodegradable does not depend on the resources used to make the material but on its chemical structure.

### **Compostable:**

If something is compostable, it means that it is capable of breaking down by microorganisms into natural elements in a compost environment into carbon dioxide, water, inorganic compounds, and biomass at the same rate as other organic materials in the compost pile, leaving no toxic residue.



While everything that is compostable is biodegradable, not everything that is biodegradable is compostable. Hence, the term “compostable” usually has a timeframe attached to it, and varies across individual composters and their specific operational requirements. Generally, this limit is set around 80 days (12 weeks), the time it usually takes in order to get a stable compost, with low microbial activity left.

### **Sustainable Waste Management Practices:**

In this report, waste management practices are considered sustainable if they are higher than landfilling in the waste hierarchy (see below). In our research, “Sustainable Waste Management Practices” mainly refers to reducing waste, composting and digesting food waste, and recycling or composting single-use foodservice packaging.

### **Sustainable Waste Disposal Methods:**

In this report, the definition of a “Sustainable Waste Disposal Method” is the same as the one for waste management practices, except that it doesn’t include waste reduction, as waste in this case is not disposed of.

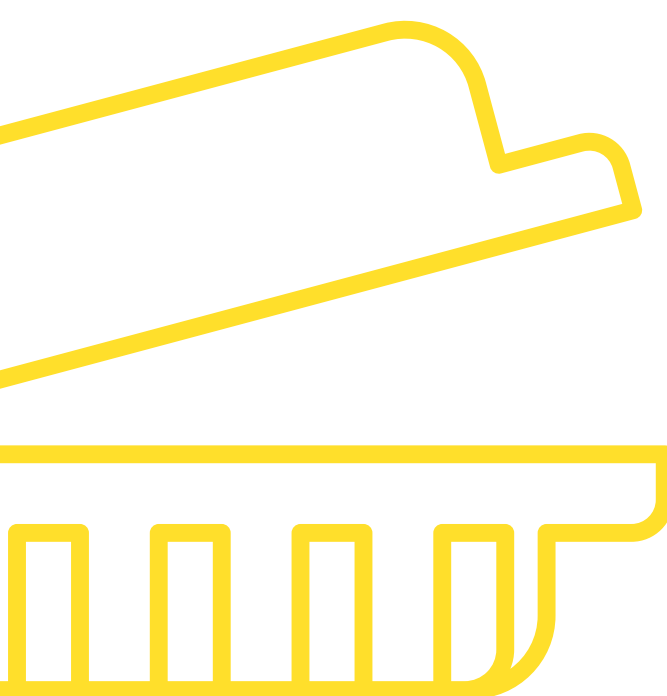
## **ABOUT PACKAGING**

### **Single-Use Foodservice Packaging (SFP):**

As this research was done in collaboration with Eat Without Waste, the definition of “Single-Use Foodservice Packaging” used in this research has been aligned with the one used by Eat Without Waste, that is to say food and drink containers only (boxes, cups, saucers...), excluding peripherals such as cutlery, bags, and napkins.

### **Sustainable Material:**

Similarly to the definitions of “Sustainable Waste Management Practices” and “Sustainable Waste Disposal Methods”, our definition of “Sustainable Material” is based on the waste hierarchy. A material is considered sustainable if it gives additional end-of-life options that are higher in the waste hierarchy, like compostable or recyclable material. It also includes recycled or reused material.

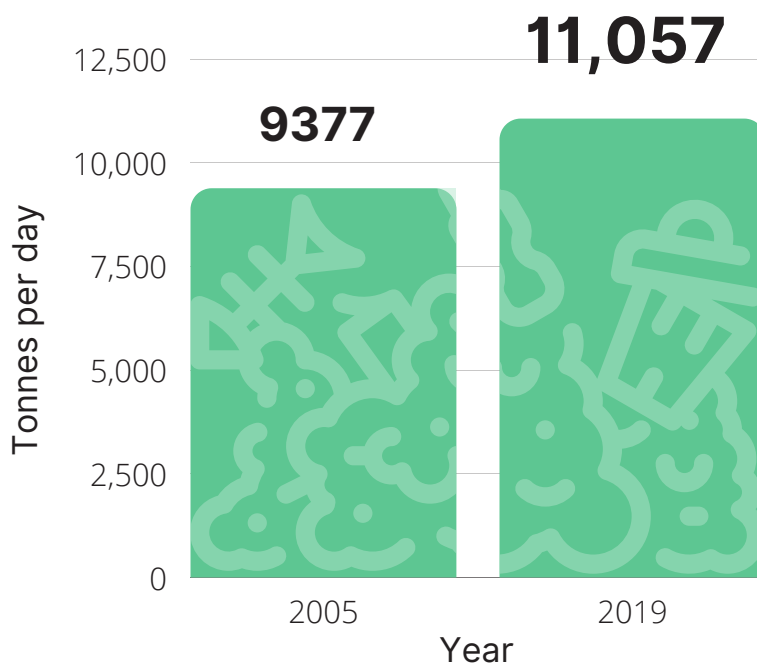


# INTRODUCTION

Waste and waste management is a critical issue in a city as space-constrained as Hong Kong. In its [Waste Blueprint for Hong Kong 2035](#),<sup>1</sup> the Government recognizes that, compared with “other Asian cities with similar economic development, [...] many of them have replaced over-reliance on landfills with the development of highly efficient waste-to-resources/energy infrastructure to make good use of valuable land resources and technology, at the same time transformed waste into various useful resources, thereby achieving a “multi-win situation”. As compared to these cities, **Hong Kong’s per capita waste disposal rate is high.**” This issue, and especially Hong Kong’s over-reliance on landfill, is not new.<sup>2</sup>

In 2005 already, the Legislative Council Panel of Environmental Affairs was already warning that “Hong Kong has an urgent waste problem to tackle. At present, we rely solely on our landfills to meet our waste disposal needs. [...] There is great urgency in putting in place advanced treatment methods which can effectively reduce waste volumes to be disposed of at landfills.”

**Figure 1: Amount of MSW sent to landfills per day in Hong Kong**



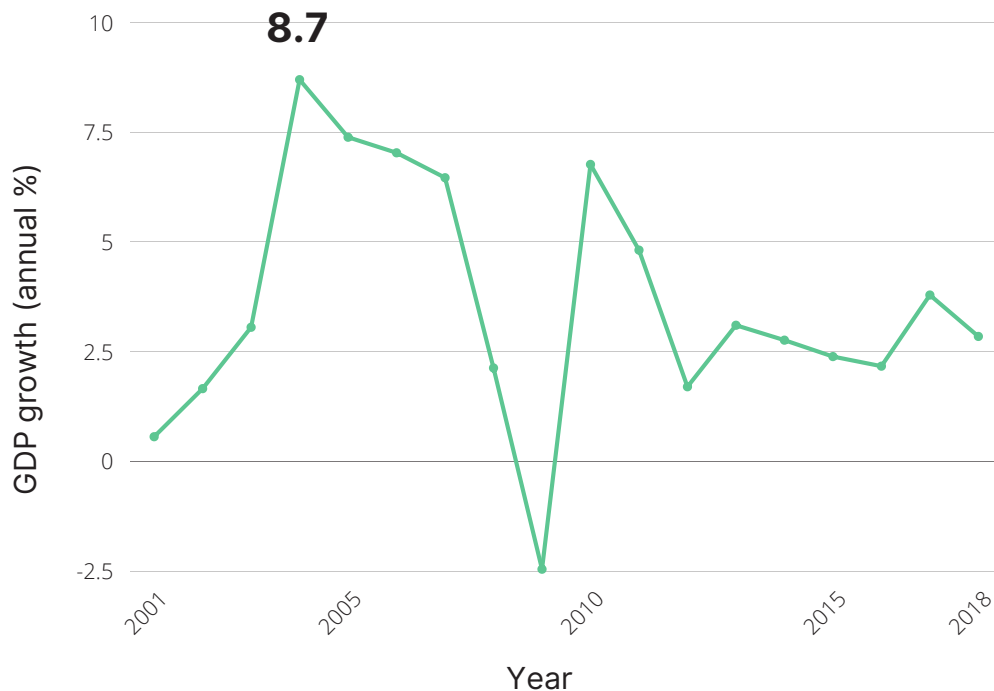
Source: Hong Kong Environmental Protection Department



If today Hong Kong's waste management infrastructures are more diversified and includes for example recycling stations, organic waste-to-energy facilities or an electronic waste recovery center, **the quantity sent to landfill every day has never been higher**: in 2005, Hong Kong sent about 9,377 tonnes of Municipal Solid Waste (MSW) per day to its landfills.<sup>3</sup> In 2019, it was 11,057 tonnes per day,<sup>4</sup> meaning an 18% increase in less than 20 years (see **Figure 1**).

Waste is tightly linked to consumption patterns and, consequently, economic development.<sup>5</sup> During the past 20 years, Hong Kong witnessed strong peaks of GDP growth, culminating at 8.7% in 2004.

**Figure 2: Hong Kong GDP growth (2001 - 2018)**



*Source: The World Bank*

Among the sectors powering Hong Kong's growth, "Financial Services" obviously comes to mind. For two decades now, Hong Kong has emerged as a financial powerhouse for the whole region. What is less known though is that there are three other sectors that constitute the "Four Key Industries" of Hong Kong's economy: "Trading and Logistics", "Professional Services



and Other Producer Services”, and “Tourism”, which, in Hong Kong Census and Statistics Department, also refers to accommodation services and food and beverage services. Before the political unrests and the COVID-19 pandemic, **the sector accounted for as much as 4.5% of the city’s GDP, attracting about 65 million tourists in 2018**<sup>6</sup> for a city whose total population is 7.5 million inhabitants. Even during the pandemic, hotels turned into quarantine centers started to serve food in single-use packaging three times a day. Likewise, coffee shops like [Starbucks](#) and [Pacific Coffee](#) stopped accepting reusable cups from environmentally conscious customers and even stopped using their own porcelain cups for on-site service, claiming hygiene concerns.

## Measuring the waste generated by the Tourism and Hospitality industry in Hong Kong: why?

Needless to say, the Tourism and Hospitality industry has a strong impact on the waste generated on the territory. The only question is: by how much does the Tourism and Hospitality industry contribute to Hong Kong's waste problem?

Answering this question is actually harder than it seems. To this date, there are no recent statistics or research conducted around the waste generated by the Tourism and Hospitality industry in Hong Kong. **The most recent attempts at researching the matter date back to 2001 and 2005**, with two research papers<sup>7</sup> trying to evaluate the environmental cost of rooms and restaurants, among which the environmental cost of waste was taken into account. When it comes to statistics, evaluating the impact of the industry has been made increasingly difficult after 2017, when the “Commercial waste” category (where “waste arising from commercial activities taking place in shops, restaurants, hotels, offices, markets in private housing estates, etc.” was accounted for)<sup>8</sup> was merged with the “Industrial waste” category in official statistics.



This is why this research project came to be. The goal of this exploratory research is to **give insights into the amount of waste generated by the hospitality industry in Hong Kong** and to understand: (i) what measures hospitality businesses take in order to mitigate both the amount and the impact of the waste they produce, (ii) what are the main barriers to implementing better waste management practices, and (iii) what are the good practices that can be readily applied here in Hong Kong.

By conducting this research, we also aim to shed light on **the importance of measuring the waste generated by the tourism and hospitality industry in Hong Kong**. We hope that it will spark interest among academic institutions and NGOs to conduct further research, encourage businesses to start measuring their own waste, and more generally lead to more resources being mobilized into understanding the source of wastage as well as more collaboration between businesses, guests, NGOs and Governmental institutions in order to find solutions to the waste problem in Hong Kong. Measuring the waste is always the first step in the waste reduction journey.

The present research focuses on two types of waste: **food waste and single-use foodservice packaging waste (SFP)**, and includes circumstantial perspectives and insights on the impacts of the COVID-19 pandemic prevention measures on waste management and waste generation.

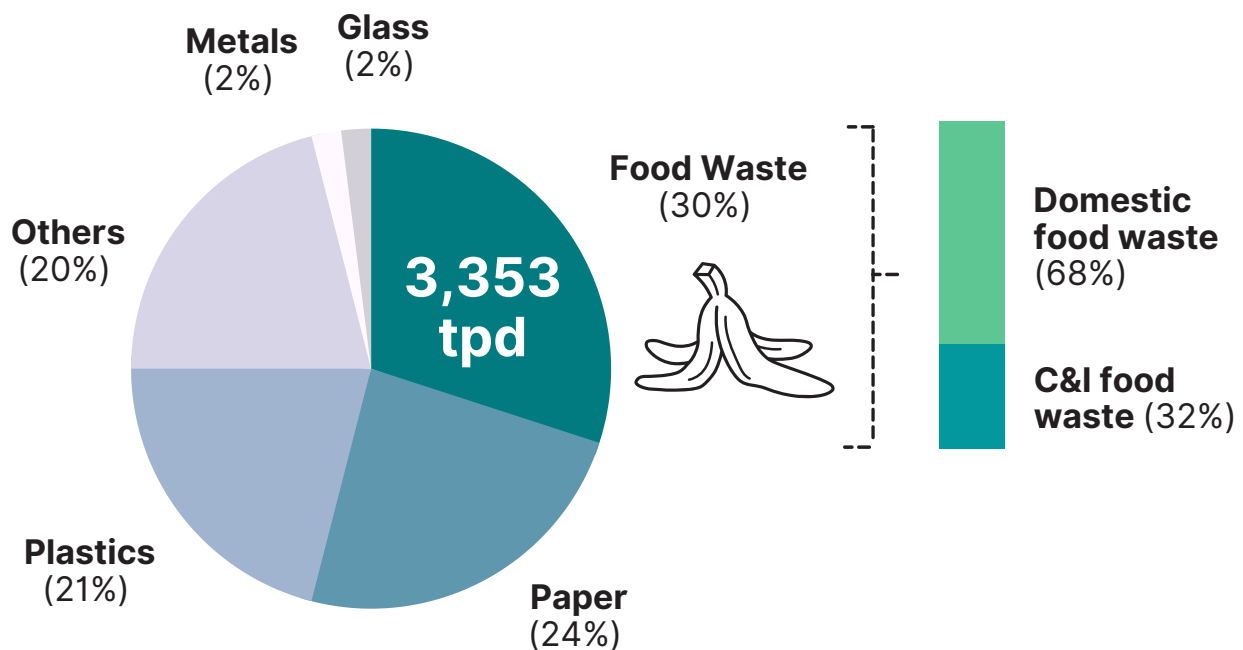
## Why start with food waste?

Because it is the one type of waste we produce most, food waste is one of the most important types of waste.<sup>9</sup> This is the case independently of the level of development of a country, as average generation of food waste for the different income groups ranges from 32% to up to 56% of the total waste produced.<sup>10</sup> In comparison, the share of plastic waste ranges from 6.4% to 13%, while the share of paper and cardboard discarded accounts for between 7% and 25%. It is the same for the hospitality sector: food waste is often the first source of waste compared with other types of waste, like glass, plastic or paper.<sup>11</sup>

In terms of waste management, **proper segregation, disposal and treatment of food waste is at the heart of any functional waste management system.** If improperly managed, food waste contaminates recyclable streams, generates potent greenhouse gases in landfills, and its high moisture content makes incineration more energy-intensive and thus less effective.<sup>12</sup>

In Hong Kong in 2019, food waste accounted for as much as **30% of the municipal solid waste (MSW) disposed of at landfills.** Out of these 3,353 tonnes of food waste generated daily, about a third came from the Commercial and Industrial (C&I) sector.<sup>13</sup>

**Figure 3: Composition of MSW disposed of at landfills in Hong Kong (2019)**



Source: Hong Kong Environmental Protection Department



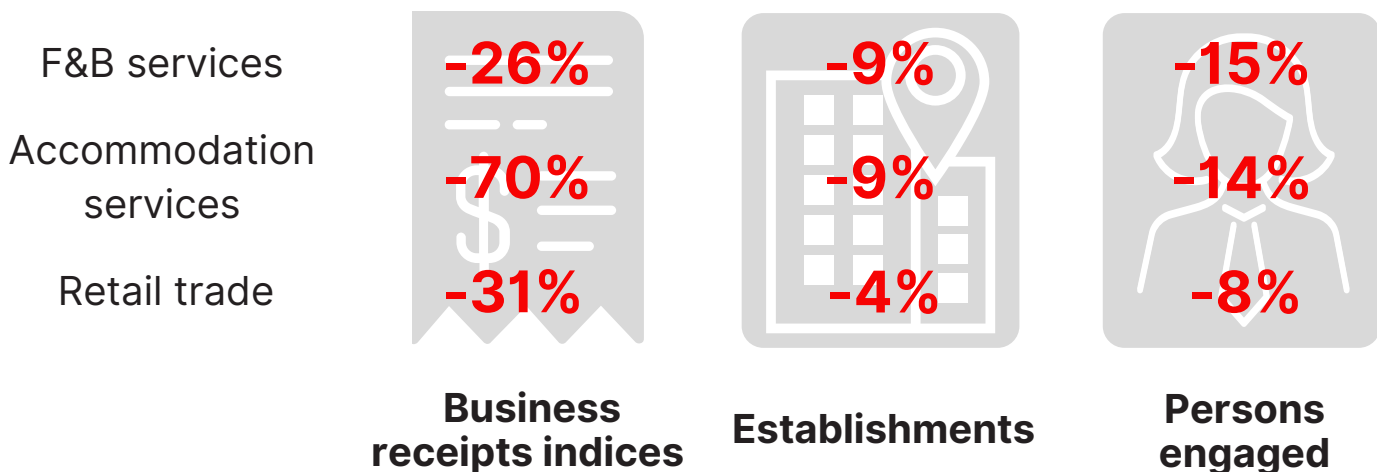
## Why single-use foodservice packaging?

A research in partnership with  
Eat Without Waste



Among the four Key Industries, “Tourism” was evidently the most affected by the COVID-19 pandemic and the sanitary restrictions put in place in order to limit the spread of the disease. According to the Hong Kong Tourism Board,<sup>14</sup> there were **only 3.6 million tourists in Hong Kong in 2020, a drop by 93.6% compared with the previous year.**

**Figure 4: Performance of the tourism industry  
(year-on-year percentage change in second quarter of 2020)**

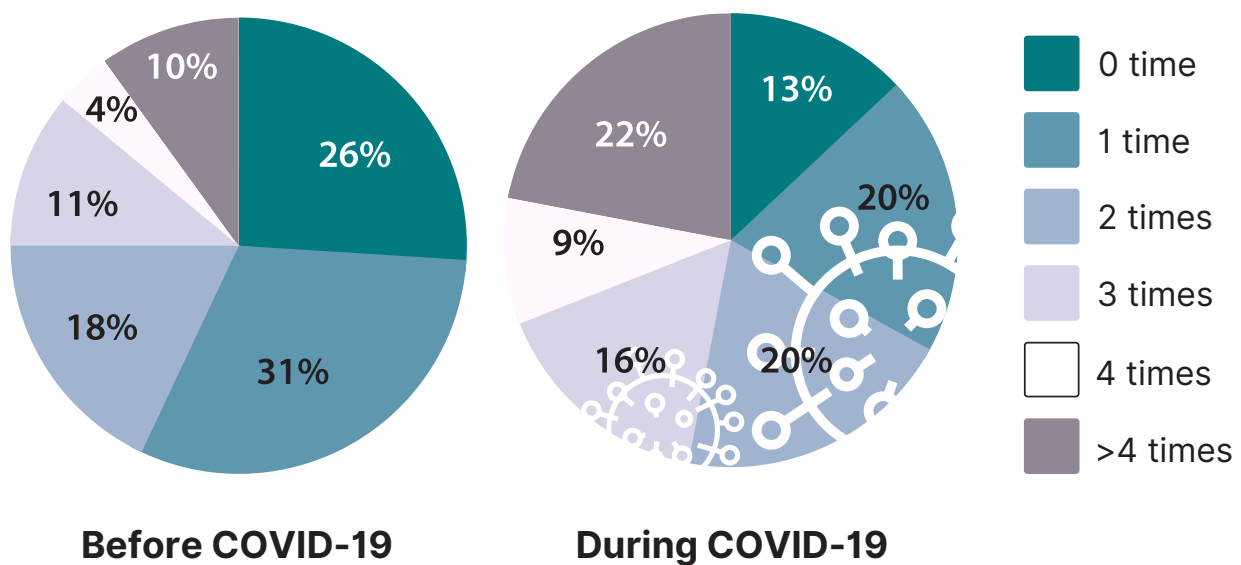


Source: [Research Office, Legislative Council Secretariat \(2021\)](#)

Hotels, restaurants and F&B businesses not only had to cope with a decrease in occupation and frequentation rates but also with new operational constraints. The most noteworthy change has been **a heavy shift towards food take-away**. According to Deliveroo, one of the leading delivery platforms in Hong Kong, **the frequency of placing food delivery orders among its active Hong Kong users almost doubled**, increasing from the usual 2.5 times to four times a month in March 2020.<sup>15</sup>

Additionally, COVID-19 forced restaurants to start offering take-away food in order to survive. As a result, delivery menus became increasingly diversified and premiumised in the region, with even Michelin-starred restaurants adopting the trend, despite initial concerns about sacrificing a part of the guests' experience.<sup>16</sup> All in all, a survey by the local NGO Greeners Actions shows that Hong Kong has seen a **56% increase in takeaway orders during the pandemic**.<sup>17</sup>

**Figure 5: Frequency of weekly takeaway orders before and during the pandemic**



*Source: Greeners Actions, 2020*

Also and as cited earlier, in COVID times, single-use foodservice packaging was adopted by hotels as the most sanitary option to deliver food and beverages, leading to increased single-use foodservice packaging usage and changes in operation in order to comply with the new sanitary guidelines.<sup>18</sup>

This is why this research project also focuses on single-use foodservice packaging, defined as food and drink containers but excluding peripherals such as cutlery, bags, and napkins. Given this scope, GREEN Hospitality **collaborated with the Eat Without Waste campaign**, an initiative from ADM Capital Foundation that addresses Hong Kong's single-use packaging waste in the food and beverage takeout & delivery industry. For this project, GREEN Hospitality and Eat Without Waste collaborated on data gathering and have been sharing knowledge throughout their respective research processes to maximise impact.

# METHODOLOGY

This exploratory research is based on both quantitative and qualitative data. The data was gathered in three phases:

PHASE 1	PHASE 2	PHASE 3
QUESTIONNAIRE	QUESTIONNAIRE DATA COLLECTION	IN-PERSON INTERVIEWS
INSIGHTS ON CURRENT WASTE MANAGEMENT HABITS	INSIGHTS ON HANDLING FOOD AND SINGLE-USE PACKAGING WASTE	INTERVIEWS WITH MANAGEMENT, GUESTS AND OPERATIONS
<b>25 OUTLETS 10 GROUPS</b>	<b>21 OUTLETS 9 GROUPS</b>	<b>21 INTERVIEWS</b>

## Summary of the research phases

### Phase 1: Onboarding Questionnaire and Food Waste Measurement

During the onboarding process, we reached out to the participants and asked them to fill out a short, informative questionnaire. The goal of the questionnaire was threefold:

1. Gather preliminary data about the outlet's characteristics and their current waste management infrastructure.
2. Set up the food waste data collection method in order to identify which participants were able to provide us with self-reported food waste data and which ones required us to physically measure the food waste.
3. For outlets where physical waste measurement from our team was needed, the onboarding questionnaire also served as a scheduling tool of the frequency, date and time of data collection.



The food waste was segregated by the participants and our team directly weighed it on spot. For that part, the [Food Loss and Waste standard](#) has been used as a guideline to measure the food waste generated by the outlets. For outlets who didn't have the possibility to segregate their food waste in a dedicated bin, we used a system of colored plastic bags and an estimation of the average weight of the plastic bags through frequent sampling in order to be able to extrapolate the total weight of food waste generated by the outlet.

The monthly use of single-use packaging has been calculated and communicated directly by the participants.

Both food waste and single-use packaging use have been measured for a minimum of a 7-day period (every day for a week, Monday to Sunday). The collection period occurred during the last week of March.



*Picture from the measurement week*

## Phase 2: Qualitative Survey

In this phase, participants were asked to fill out a second questionnaire related to their habits, struggles and victories when it comes to food waste management and single-use packaging use. These questions were centered around the business' current waste management practices to get a more qualitative view of the issues faced and current practices. When several outlets were part of the same hospitality group with the same guidelines and procedures regarding waste management, only one questionnaire was filled for the group.



*Picture from the measurement week*

### Phase 3: Interviews

Selected and willing participants were invited to participate in semi-structured interviews based on their responses on the previous two stages. The interviews were conducted to gain in-depth qualitative data and reasoning towards the practices already in place and the barriers to implementation encountered by the respondents.

We also conducted interviews with operational staff (waiters and chefs) and customers in order to gain insights about the effects of waste reduction practices on staff engagement and customers satisfaction and loyalty.

### Sampling method and representativity of the research

Despite our efforts to find a more diversified pool of participants, all final participants to the research are part of GREEN Hospitality's network, making our sampling methodology fall under convenience sampling.

Our sampling method implies that **there is an over-representation of outlets that are mindful about sustainability issues**, and who are then more susceptible to already have in place waste reduction measures. As such, **our findings are not representative of the whole hospitality industry** in Hong Kong, and inferences cannot be drawn on the total food waste generated or the amount of single-use foodservice packaging used by the industry as a whole.



## Quantitative data gathering and analysis

In terms of data analysis, we mainly used descriptive statistics in order to display the quantitative results found in our survey. Where needed, collected or measured data was extrapolated in order to be able to compare similar time frames. Similarly, we encountered cases of outlets measuring their waste data in different ways: some counted the leftover items and some had their food waste measured by their external contractor who reported the data back to them for example, which made the data sometimes hard to compare. In those cases, we treated the data points differently. Given the challenge induced by the different measurement methods used by the different outlets, we weren't able to differentiate the origin of food waste (kitchen waste, spoilage, and plate waste) as well as to differentiate the types of food waste generated (avoidable vs non-avoidable) as well as the content of the waste (meat, vegetables, staples...). This choice was made in order to be able to survey a bigger number of outlets and have more data points instead of having a more granular view of the food waste generated by very few outlets. This limitation paves the way for further in-depth research to be done in order to analyze which type of food waste is generated, as well as its main sources in Hong Kong.

Another factor added uncertainty to our results: the COVID-19 pandemic. Several outlets' operations were strongly disrupted in March 2021, when we conducted the measurement of the waste and when we collected the data from self-reporting outlets. Some outlets had stopped their buffet operations for example. Others were strongly impacted by the outbreak at a gym in the Central area, leading to dropped frequentation rates. Another measurement when restrictions are relaxed, in the coming months or year, could be interesting in order to see if and to what extent there has been a difference in the food waste generation for these outlets due to COVID.

## Relevance of the research

Despite being non-representative of the industry, **this sampling method is in line with the goal of the research cited earlier and its exploratory nature:** we have been able to generate a rough baseline for the food wasted and the single-use foodservice packaging used by our respondents as well as gained experience and developed tools in order to conduct waste audits.



We also **gained valuable insights into our respondents' current waste reduction and waste management methods**, as well as the associated barriers to implementation.

Mainly, our research shows that **putting in place waste reduction measures is possible in Hong Kong**, and the fact that our respondents already have such measures in place does not make their journey, their successes and their remaining struggles less relevant. From their experiences on the sustainability journey, we were able to draw recommendations for the hospitality industry, but also for public policies.

However, through this research, we could also experience first hand **the difficulty of creating a baseline for the food waste generated by the industry**. If there was to be an ambition to improve the data regarding the food waste generated by the hospitality industry and food service sectors in Hong Kong, our experience underlines **the importance and the need of guidelines and methodologies** to harmonize the way food waste is measured in the industry.



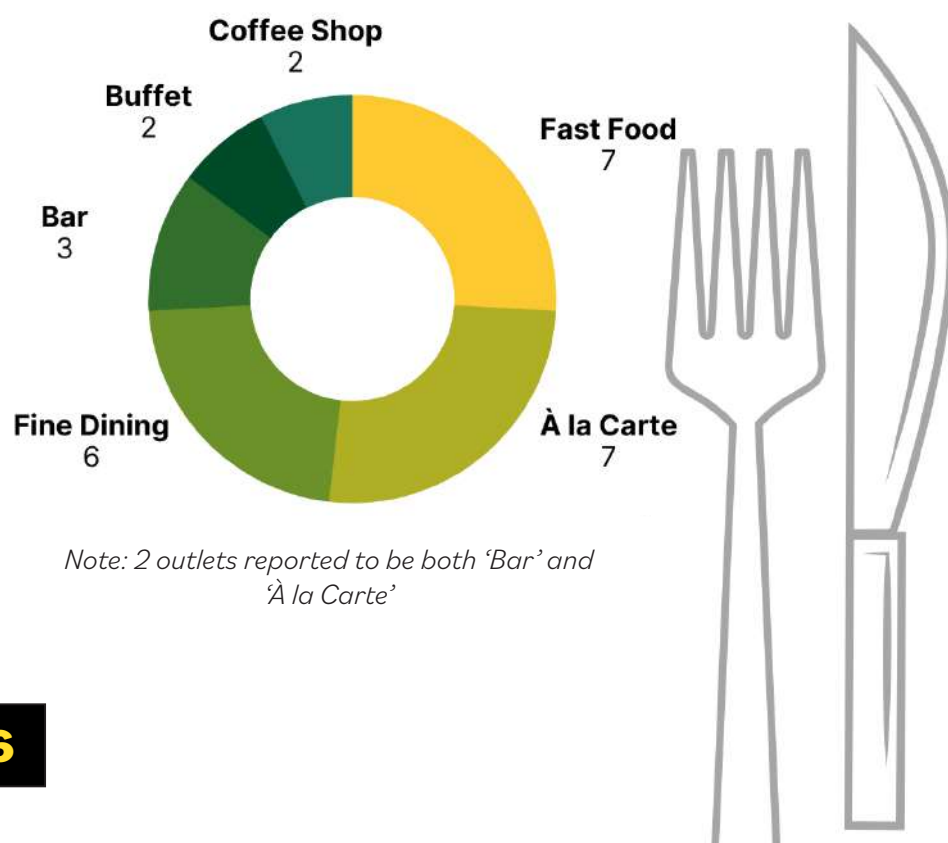
# 1. WASTE GENERATION STATISTICS

The main purpose of this research was to get a better understanding of the waste generated by the different types of outlets in the hospitality industry in Hong Kong. This section presents our findings related to this first goal, and provides the reader with insights into the waste generation statistics of each outlet and/or group, as well as into the impact that the COVID-19 pandemic had on waste generation and waste management of food waste and SFP.

## 1.1 Characteristics of our respondents

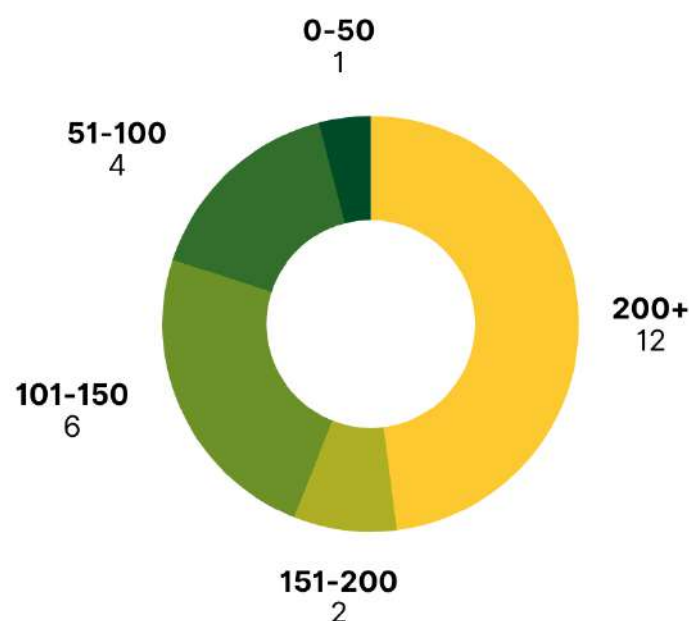
As stated in the **Methodology** section, this research consisted of three phases, gathering alternatively quantitative and qualitative data. The first phase of the research was dedicated to waste measurement and reporting. During this phase, respondents filled a short questionnaire about their current practices regarding food waste management in order to prepare food waste data collection, and it is during this phase that data about food waste and SFP waste generation was collected.

**Figure 6: Types of F&B businesses in our sample**



In the first phase of the research, our sample consisted of **25 outlets** that represented various types and sizes of hospitality businesses. Of the 25 outlets surveyed, the types of F&B establishment were fast food (7), À La Carte (7), fine dining (6), bar (1), buffet (2) and coffee shop (2) (see **Figure 6** above). The daily guest capacity of these outlets were 200+ (12), 151-200 (2), 101-150 (6), 51-100(4), 0-50 (1), meaning that most of the responses were from medium and large restaurants (see **Figure 7** below).

**Figure 7: Daily guest capacity of the F&B outlets sampled**



In terms of food portions, the majority of the 25 outlets served only individual dishes (13). Some provided both individual and shared dishes (8). Only 2 outlets provided only dishes to share and another 2 outlets provided buffet. However, due to the hygiene restrictions induced by the COVID-19 pandemic, buffet operations were suspended during the time of the research.

In phase one, 25 outlets filled the onboarding questionnaire about their waste management habits, but it is important to note that they belonged to 10 hospitality groups following the distribution below:

**Table 1: Number of F&B outlets sampled from each hospitality group**

Hospitality group	Number of outlets per group
Group 1	3
Group 2	3
Group 3	1
Group 4	2
Group 5	1
Group 6	5
Group 7	3
Group 8	2
Group 9	4
Group 10	1
<b>10 GROUPS</b>	<b>25 OUTLETS</b>

Each group had homogeneous guidelines, waste management practices, and policies applied throughout all the outlets. As such the outlets were treated independently when it came to food waste generation measurements. In terms of internal policies and waste management practices though, we mostly analyzed responses at the group level in order to avoid an over-representation of the groups with several outlets. In order to make the reporting of the results clear throughout the report, the number of outlets and/or the number of groups represented in the responses are always mentioned.

In the second phase of the research, Hospitality Group 9 dropped out of the research before sharing their waste data. The insights gathered through the onboarding questionnaire, mainly pertaining to waste management current methods, were still included in the results though. As such, for food waste and SFP waste data and the remaining phases, our sample consists of 21 outlets, representing 9 hospitality groups.

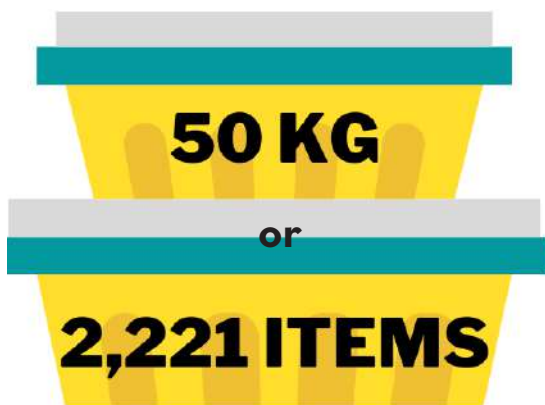


## 1.2 SFP waste generation & impact of COVID-19

SFP use was ubiquitous in our sample. Among the respondents, 20 out of the 21 surveyed outlets (8 out of 9 groups) reported using some kind of SFP, either for on-premise food service (7 outlets), food delivery (11 outlets), doggy bag for guests (10 outlets) and food takeaway (8 outlets).

Depending if they were serving food on premises in SFP or not, the outlets surveyed had two different ways of measuring the SFP waste generated per month: per item using the procurement data, or per weight of SFP discarded on-site. With these two different methods, we found that, in total, **the outlets surveyed generated on average 2,221 items, or 50 kg of SFP waste on-site every month.**

**In total, the outlets surveyed generated on average**



**of SFP per month**

As stated in the introduction, the context of the COVID-19 pandemic strongly affected the use of SFP in the hospitality industry in Hong Kong. First, in line with the findings of other green groups in Hong Kong, we found that, on average, **outlets participating in our research have seen an important increase in monthly delivery orders.** Compared with last year, the number of deliveries increased by between 31% and 50%, leading to a substantial increase in single-use items use.

The second noteworthy impact of COVID-19 in terms of SFP generation is **food-service during the quarantine periods in hotels.** According to government regulations, hotels that have been granted the quarantine status have to provide guests with three meals per day.<sup>19</sup> Among our respondents which were quarantine hotels, all of them decided to serve the three meals in single-use foodservice packaging. In our sample, 12 out of 25 outlets (3 groups) stated that they provided food for quarantined guests in hotels, either because of online ordering from guests, or because they were the restaurants in charge of preparing the food for guests directly. Some of our outlets were restaurants from this second category.

They stated that before getting their quarantine status, they hardly used any SFP at all. One hospitality group in particular consisted of several restaurants within the premises of a quarantine hotel, and **both the composition and the amount of SFP items purchased changed drastically** because of the pandemic: in September 2020, purchasing records consisted of about 6,500 cake boxes, for their cake pop-up store. In January 2021, after the hotel was granted the quarantine status, about 66,300 items were delivered, mainly containers and their lids in order to cater for newly arrived quarantine guests. Three months later, in March 2021, **another 36,800 containers and lids were purchased.** Several outlets in the same situation mentioned their disarray of having to use so much SFP.

In addition to the impact on SFP waste generation, the COVID-19 pandemic also **disrupted the waste management methods of SFP.** Respondents mentioned for example that the pandemic had been **a hard blow to the glass recycling initiative.** First suspended in November 2019 because of the political unrests, the shut down of bars and the lowered consumption of glass beverages further disrupted an industry already in jeopardy.<sup>20</sup> In response to the crisis, the Government launched in March 2020 a dedicated support scheme for recyclers.<sup>21</sup> Given that official statistics regarding glass recycling for the year 2020 are not available yet, the impact of COVID-19 and of the safeguarding measures from the Government on glass recycling rates are still unclear.

## **“[food banks] stopped distributing, they stopped collecting from hotels and bakeries”**

Other external contractors **like food banks** were apparently harshly impacted by the pandemic, making redistribution difficult, according to one outlet: “[food banks] stopped distributing, they stopped collecting from hotels and bakeries,” explained the owner. From an additional interview conducted by GREEN Hospitality, the representative of one of Hong Kong’s food banks actually specified that, **what seems like the consequence of the drop in distribution could actually be the cause.** He specified that “donations from large donors, especially hotels, [had] dropped a lot”, mostly due to the decrease of the number of guests for these outlets as well as the lack of inbound flights to Hong Kong.<sup>22</sup>

Finally, while some establishments have had the privilege of not having to cut down on their sustainability budget, others reported that **the decrease in revenue induced by the COVID-19 pandemic has had an indirect but concrete impact on the way they used packaging.** If none of our respondents seems to have compromised on the material used for their SFP, one fast-food group using compostable packaging and serving all their food in SFP reported to be impacted in the way that they couldn't brand their packaging in the same way. The outlet has been using compostable material for its packaging since its creation. In order to bring down the costs while keeping the same packaging material, they had to sacrifice part of their branding strategy. Before, the packaging of their food would be a crucial element of the brand and would be used to spread various sustainability-related messages and information about the philosophy of the brand. Because of COVID-19 and the loss of revenue induced, they had to resort to standardized stickers, thus providing less information about the brand and their sustainability efforts.

### 1.3 Food waste generation per type of outlet, operation, and comparison with global averages

The primary data of food waste for this research was collected from 18 outlets, which had, **on average, 2,674 guests per month.**<sup>23</sup> The average food waste generation for all outlets was about 927.3kg/month, or 90.8 kg/guest/year. This latter figure was calculated by multiplying the average food waste per guest of our participants, and by multiplying it by the number of times a person goes to the restaurant on average in Hong Kong. As a basis, we used the findings of a study from The Hong Kong University made in 2012 which showed that people in Hong Kong eat out on average 5 times per week.<sup>24</sup>

As expected, given the findings of other studies about food waste, there was a significant discrepancy of the average food waste among different types of outlets. **Tables 2 and 3** below respectively dive deeper into the difference in food waste generated by type of outlet and the types of portion served by the restaurant (menus only with dishes meant to be ordered for several people, menus only with dishes meant to be ordered per person, or menus with both types of dishes available):

**Table 2: Average food waste generated per type of outlet, per month and per guest**

Type of outlet	Average food waste (kg/month)	Average food waste (kg/guest/year)
Fast food	1,263.8	111.1
À la carte	717.8	78.8
Fine Dining	832.2	103.5
Bar	1,069.6	137
Buffet	2,833	190.1
Coffee shop	58.9	5
All outlets	927.3	90.8

**Table 3: Average food waste generated per type of portion, per month and per guest**

Type of portion	Average food waste (kg/month)	Average food waste (kg/guest/year)
Individual dishes	887.4	75.2
Shared dishes	469.7	48.9
Both individual and shared	831.5	106.4
Buffet	2,833	190.1
All outlets	927.3	90.8



**Buffet restaurants had the highest average food waste**, with 190.1 kg/guest/year, which is about two times higher than the average food waste generated by all outlets of our sample. It is in line with previous findings about buffet operations. This is usually due to practices like ordering 30% more food than the expected amount in order to meet guests' expectations for food choices and price worthiness.<sup>25</sup> On the other end of the spectrum, coffee shops, which tend to serve light meals and snacks, wasted the least food, with an average food waste of 5 kg/guest/year.

**Table 4: Comparison of the averages of food waste generated by food services in high-income countries and globally.**

Type of country	Average food waste (kg/capita/year)
High income countries	26
Global	28

Source: UNEP, 2021

In comparison with other countries from a similar income group, the average food waste per guest per year of **the sampled outlets was significantly higher (90.8kg/capita/year) than High-Income Countries (26 kg) or even the global average (28kg)** stated in the UNEP Food Waste Index Report.<sup>26</sup> However, the report noted that there could be a “substantial underestimation” of food waste of the food service sector because its sources included F&B establishments of non-commercial sectors, such as schools and hospitals.<sup>27</sup> Furthermore, it bases its estimates on the total population, which doesn't correspond to the food waste generated per guest. Despite these shortcomings in the methodology of the report, it reaffirmed **the lack of reliability of the food waste data in Hong Kong**, not only for the food service sector, but even at the household level. Unlike countries in Europe for example, where data points on the food service sector is available, the only data points for food waste from studies in Asia and the Pacific cover only household food waste.

Even for household waste, the data points gathered through studies covering Hong Kong “come from statistics with unclear methodological origins, making confidence in them limited.” As a consequence, in the report, Hong Kong household food waste is considered of “Very low confidence”, **further reinforcing the need for systematic and high-quality measurements of food waste, both at the household and food service levels.**

**“the facilities could process the monthly food waste of about 16,200 restaurants, which represents the total number of licensed restaurants in Hong Kong in 2019.”**

While the average amount of food waste generated by our outlets seems high compared with global estimates and high-income countries standards, **Hong Kong has the capacity to treat a very high volume of this waste through local waste management facilities.** For example, O·PARK1 with a treatment capacity of 200 tonnes of food waste per day, can process up to 6,200 tonnes of food waste per month. Even though we cannot draw inferences about the average amount of food waste generated per day in Hong Kong by the whole hospitality industry, if we take as an example the high average of our sample, this would mean that **O·PARK1 alone could process the waste of about 6,700 F&B outlets**, which represents slightly less than half of the total number of licensed restaurants in Hong Kong.<sup>28</sup> Given that the network of Organic Waste Treatment Facilities is expected to grow with O·PARK2 in 2023,<sup>29</sup> Hong Kong food waste management infrastructures will be able to process 500 tonnes of food waste per day, meaning, still with our sample’s average as a basis, that the facilities could process the monthly food waste of about 16,200 restaurants, which represents **the total number of licensed restaurants in Hong Kong in 2019.**<sup>30</sup>

## 2. CURRENT WASTE MANAGEMENT PRACTICES AND EXPECTATIONS FROM THE INDUSTRY

In this section, we look at the current waste management practices used by the hospitality businesses in our sample, as well as the barriers they faced or are facing when trying to implement more sustainable waste management practices and the main measures that, according to them, would help the hospitality industry in Hong Kong implement better waste management practices.

### 2.1 Choice of material and management of SFP waste

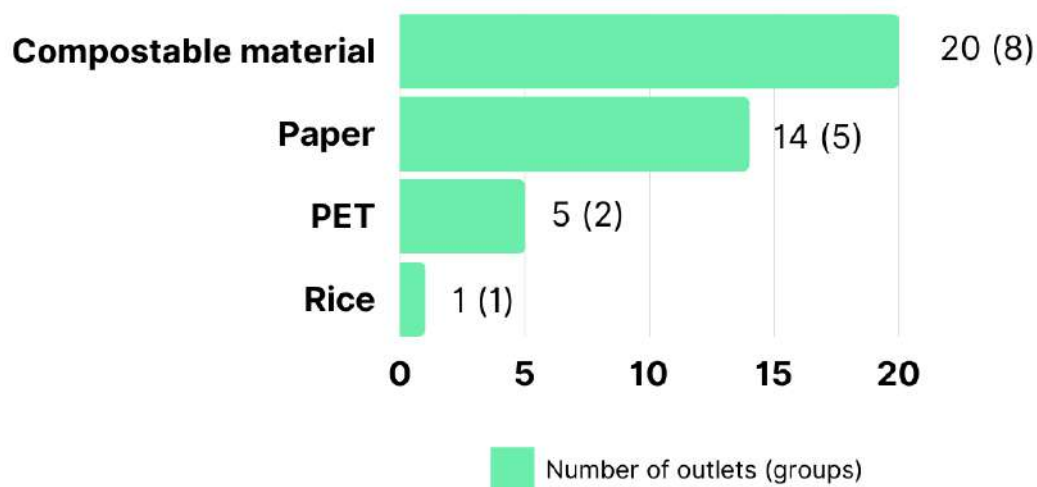
#### a) The importance of environmental considerations in choosing a particular type of material in outlets' SFP mix

The choice of SFP material is important due to its influence on which type of disposal method it gives access to.

Among outlets who used SFP, the decision of the types of material used was, in most cases, mainly in the hands of the **owner/franchise operator** (14 outlets; 6 groups), while 6 outlets (2 groups) mentioned that the operation teams were the main decision-makers (i.e., Chef and F&B Department & Finances department), so the decision is mainly taken at a high level of management. One operator mentioned that, as their chef was involved in the process, **they ruled out some of the material like the cheapest plastic containers due to the unpleasant taste it gives to food**. This argument could be used as an added quality factor/incentive when suggesting other outlets to change their SFP material mix, and shows the importance of involving the operations team in such decisions, as they may incorporate lesser-known or other factors into the decision.

In terms of material used, our respondents predominantly opted for what could be considered as more “environmentally friendly” material given the material’s disposal method: **all outlets reported using "compostable material" as part of their SFP mix.** The second most common material was "paper", used by 14 outlets (5 groups) while 5 outlets (2 groups) reported using PET plastic.

**Figure 8: Type of material used for SFP**



In trying to understand the motivations behind choosing a particular type of material, our study reveals **a predominance of environmental reasons compared with other market factors like the price** (“It is cheaper than other types of materials”), convenience (“It is readily/widely available in Hong Kong”) or the characteristics of the material (“It has the best performance for its type of use: for example, it keeps the food warm or it doesn’t leak”).

When given two options to choose from in order to describe why they had chosen compostable material, **one single reason stood out: all outlets responded they had chosen a particular type of SFP because “[they] want[ed] to avoid plastic” (Table 5).** The prevalence of this reason is such that 8 outlets (4 groups) chose this reason only instead of giving two, as the question invited them to. One representative of a hotel group specified in the questionnaire that the will to avoid plastic was even engrained at the group level, with a clear company policy stating “no single-use plastic in operations across the group”, including rooms.



**Table 5: Two main reasons for choosing SFP material**

Market factors	IT IS <b>CHEAPER</b> THAN OTHER TYPES OF MATERIALS (0/21)	WE WANT TO <b>AVOID PLASTIC</b> (20/8)
	IT IS <b>READILY/WIDELY AVAILABLE</b> IN HONG KONG (0/21)	ITS DISPOSAL METHOD IS <b>NOT LANDFILLING</b> (12/5)
		Environment

This exemplifies a change in mentality for some environmentally conscious outlets and groups, for which one specific aspect of sustainability is particularly important: the fight against plastic.

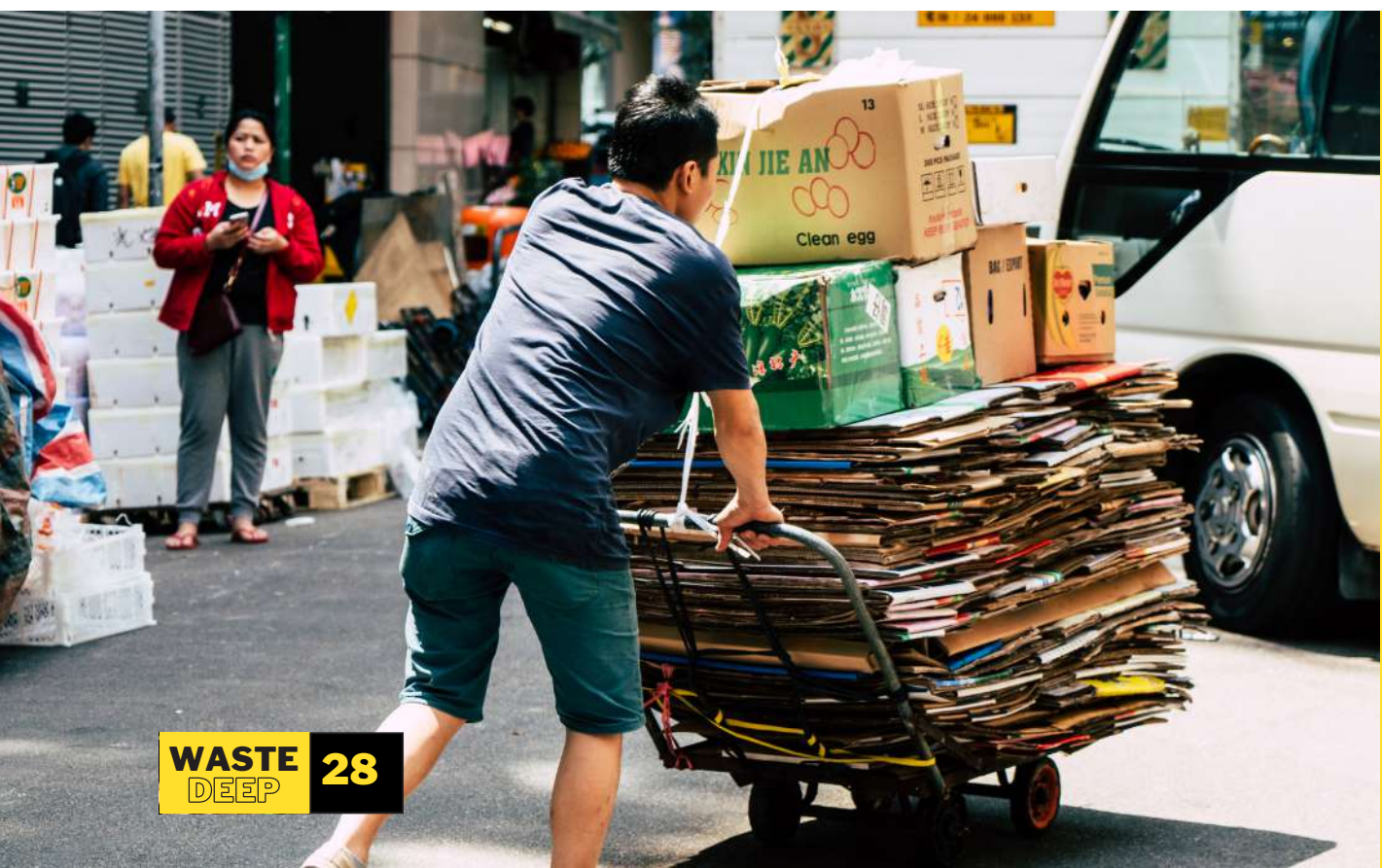
From an anthropological standpoint, some scholars have begun to call the current era the “**Plasticene**”, moving away from other human-induced environmental impacts that define the Anthropocene and solely focussing on a new era that is defined by an ever-increasing amount of plastic debris.<sup>31</sup> The rising beacon of hope plastic once symbolised after its democratization in the 1950s and 1960s seems to have a whole new significance now, albeit mostly negative. Plastic became an illustration of the fact that our current society could be drifting towards what Ulrich Beck defines as a “**risk society**”: a society that fears its own creations due to the negative ecological and social impacts that they will have in the future.

Although there is an increasing awareness of having to implement systematic changes, the solutions that address plastic use may not counteract the risks. For example, **biodegradable alternatives may lead to a higher carbon footprint and water usage**.<sup>32</sup> A related example in our survey would be one of the participating groups having to ship biodegradable gloves from the United Kingdom to Hong Kong in order to avoid using plastic gloves. Considering the carbon footprint of transportation, it is very hard to know if this laudable solution to avoid plastic is better or worse from an environmental standpoint.

The rhetoric of plastic as the number one enemy is reiterated in the previously mentioned Government campaign "Plastic-Free Takeaway, Use Reusable Tableware", where the focus is clearly against plastic, and less on the negative impact single-use items and takeaway habits can have on our environment. **The question of single-use packaging in Hong Kong, regardless of their material, is a discussion that needs to be pushed more into the public debate.** On that matter, the [Regulation of Disposable Plastic Tableware Public Consultation](#) recently launched by the Hong Kong Government is a step in the right direction.

Avoiding the use of SFP in food service is the most effective way for hospitality businesses to eliminate SFP waste: **all outlets were in favor of “BYO” campaigns** and allowed guests to bring and use their own food containers for take-away. One outlet expressed concerns over hygiene though, and mentioned that guests would need to sign a waiver to discharge any responsibility in case the guest's container was contaminated. Such concerns should be kept in mind when promoting BYO campaigns in order to maximize the adhesion and support of the F&B community.

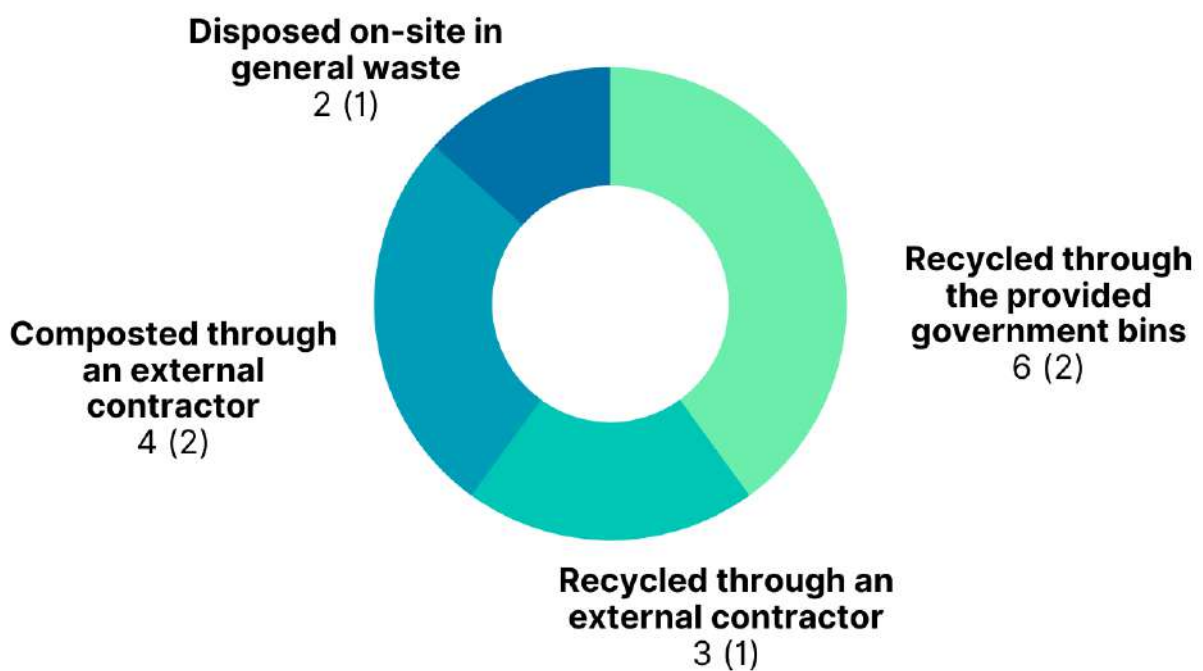
Except from avoiding plastic, the only other reason cited for choosing a particular type of material for an outlet's SFP was **"Its disposal method is not landfilling (e.g. we can recycle it or compost it)"** (11 outlets; 5 groups), which is in alignment with the Government's ambitions of "Zero Landfills by 2035" stated in the newly released Waste Blueprint for Hong Kong 2035.



## b) The need for transparency and inclusion of the F&B sector in efforts to improve SFP waste management

The most popular disposal method for SFP in our sample was **recycling**. Out of the outlets that used SFP to serve food on-site,<sup>33</sup> 9 outlets (3 groups) recycled the SFP waste generated. Among them, 6 outlets (2 groups) recycled them through the provided Government bins, and 3 outlets (1 group) recycled them through an external contractor. After recycling, most of the remaining outlets used external contractors to compost their SFP (4 outlets, 2 groups). Only 2 outlets (1 group) disposed of on-site SFP in general waste.

**Figure 9: Disposal method for SFP**



What happens to the waste once discarded is a controversial issue in Hong Kong. A lack of trust exists between the public and the waste collectors who take care of the Governmental waste separation bins. Hong Kong citizens regularly witness recyclables being collected in a single bin and sent to landfill indiscriminately.<sup>34</sup> **A lack of transparency** was also cited by interviewed guests when asked about their views on segregating SFP at a restaurant. **Almost all of them recalled and cited personal experiences when their trust was broken** by seeing waste collectors putting the separated waste back into one bin.

Given that transparency and trust in the waste management system are recurring issues for the general public in Hong Kong, we tried to assess **to what extent hospitality businesses in our sample were also sensitive to the presence or lack of transparency** when choosing their waste management methods, for both SFP and food waste. Thus, for participants who stated that they were using an external contractor to either treat their SFP waste or their food waste, we asked the following question: “If you use an external contractor to take care of your packaging/food waste, do you know or have you inquired how the external contractor is treating your single-use foodservice packaging/food waste? (where it is recycled or composted and what is done with the end-product afterwards)”. It appears that, out of the 7 outlets (3 groups) and 8 outlets (4 groups) who hired external contractors to respectively dispose of their SFP waste and food waste, **all of them knew or had inquired about how the external contractor was treating their waste and the end-product after recycling or composting.**

**“out of the 7 outlets and 8 outlets who hired external contractors [...], all of them knew or had inquired about how the external contractor was treating their waste and the end-product after recycling or composting.”**

As such, it seems to be that **transparency was an important factor for the proportion of our sample who hired an external contractor.** Some outlets even included transparency of their waste management as an integral part of their communication with the customers by displaying in the restaurant what the composted food waste is used for, for example, or explicitly stating on their social media the contractor who takes care of their compostable food packaging. Pre-COVID, one group even published a monthly report with the amount of food waste diverted from landfill.



More generally, during the interviews, **staff and members of the management teams shared the public opinion regarding the lack of transparency in Government-run recycling programs**, with one person from the management team of an outlet stating, about the public rubbish bins that are separated: “I cannot remember I have ever seen a person coming back and collecting this rubbish with four separate containers. So they might as well have been cleaning those and actually it falls under the same container again. We don't know. Are they really putting the plastic in the plastic receiving container [...] or is it all going in the same pile and we just all separated it just to look like we care? [...] It's very hard to tell because we don't really see in front of our eyes what really happens to it.”

This lack of trust from both public and private actors is why Government initiatives such as the [Plastic Recycling Pilot Scheme](#) not only focuses on “process waste plastics more cost-effectively” but also on trying to “**raise public confidence in the waste separation and recycling system**”. The 2-year Pilot Scheme on Collection and Recycling Services of Plastic Recyclable Materials (塑膠回收先導計劃) was launched in January 2020 in three districts: Sha Tin, Eastern District and Kwun Tong. Community Recycling Centres and GREEN@COMMUNITY in these districts accept plastic containers, plastic utensils, and polyfoam. Some of these recycling centers regularly collect recyclables from commercial buildings. However, according to the Pilot Scheme, these recycling centers are meant to accept waste plastics from “non-commercial and non-industrial sources”, such as Governmental venues, housing estates and schools, thus excluding the possibility for hospitality businesses in participating in this scheme. This is representative of a broader trend regarding Government campaigns targeted at improving Hong Kong waste management system: they tend to target individuals' behavior and rarely include the commercial F&B sector. For example, there was no mention of partnering with or including the F&B or hospitality businesses in the “Waste reduction and Recycling” part of the [2020 Policy Address of the Environment Bureau](#).

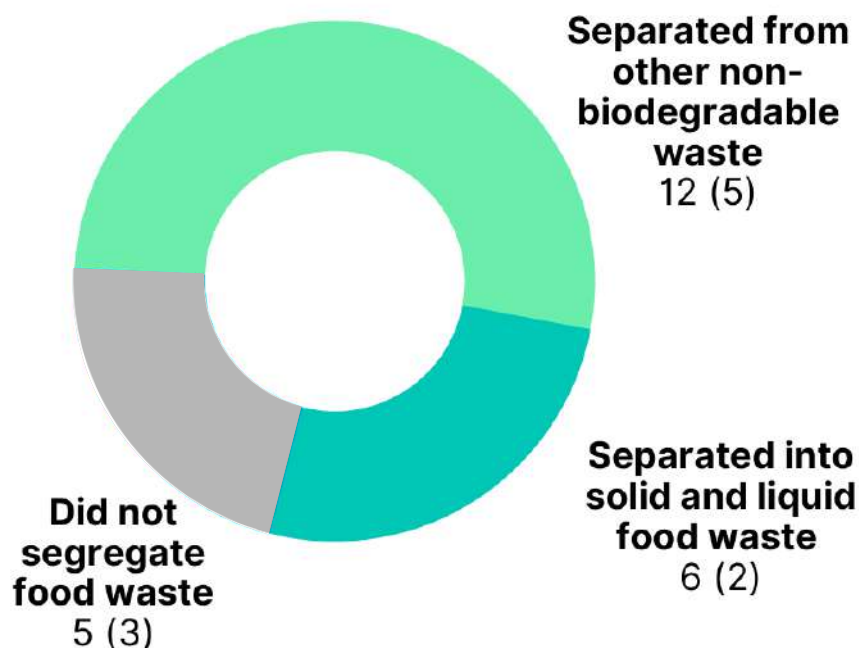


## 2.2 Management of food waste

### a) Segregating and measuring food waste

As stated in the introduction, **food waste segregation is of utmost importance** when it comes to building efficient waste management systems and infrastructures. Just like for their choices of SFP material mix, overall **our respondents had already good practices in place** when it comes to handling food waste: the majority of the outlets (18 out of 25 outlets; 7 groups out of 10) already segregated their food waste from general waste before the start of the research. Out of these 18 outlets, 12 of them (5 groups) separated from other non-biodegradable waste and 6 of them (2 groups) separated it into solid and liquid food waste. Only 5 outlets (3 groups) didn't segregate their food waste. One group (3 outlets) reported that they didn't segregate food waste because it was discarded with their SFP. However, as their SFP was compostable, their food waste was in effect segregated from other non-biodegradable types of waste.

**Figure 10: Segregation of food waste in the sample**



Two outlets started segregating food waste for the sake of the research, and we could then gather insights from the staff regarding this new habit. **The feedback from the staff during the interviews was mainly positive** towards waste segregation: all staff interviewed at these two outlets found that segregating food waste was relatively easy, mentioning during the interviews that “It was very easy to put the garbage and the food separately”. As such, in our case, staff’s lack of support or adherence wasn’t a main obstacle for segregating food waste.

Actually, staff at multiple outlets were **enthusiastic about continuing waste segregation**, and one group’s owner mentioned that staff members were inquisitive and curious about the next steps forward: “[...] what they ask[ed me] as well is “What is going to happen next?” which is good because [the staff is] like, ok, if we’re doing that, why aren’t we continuing, and if we are not continuing, why? And what could we do to continue [...]?”.

Whether the establishments continue segregating food outside the trial run period was instead a matter of space, funds, and willingness of the establishment’s operator or owner. The barriers of implementation for better food waste management will be further explored in **Section 2.3**.

### **OUT OF THE 25 OUTLETS SURVEYED IN PHASE 1:**



Segregating waste, both food waste and SFP, **was not a problem for the guests either**. Interviews of guests at establishments which require guests to separate their waste themselves found it easy and understandable: “I enjoy it. I think that’s fun. It’s like: This goes there, this goes there, and like, it’s fun,” said one guest during an interview.

More than just separating food waste, **many outlets also measured food waste**. Food waste measurement is a first step towards reduction, as it provides insights on the amount of waste, but also the sources of food waste—like kitchen waste, spoilage, and customers’ plates waste—and allows to identify avoidable and non-avoidable food waste. It also helps hospitality businesses set food waste reduction targets and act meaningfully.<sup>35</sup> **Out of the 18 outlets that segregated food waste, almost all of them (15 outlets, 4 groups) also measured it**, showing how important segregation is in order to allow for food waste measurement.

COVID-19 has also been a factor in starting food waste measurements: there was one group among our respondents who actually didn’t segregate but did measure their food waste. As the two outlets of the group were coffee shops, they could easily measure the items prepared but not eaten by counting them. The reason they started measuring in the first place was because of the loss of revenue it represented, something that made a difference in difficult COVID-19 times, which reaffirms the business case of reducing food waste in hospitality businesses, as presented by the movement [Champions 12.3](#).

Surprisingly, all staff members mentioned that **the food waste measured was not as much as they had expected**, which is discordant with previous studies that tend to show that, when it comes to food waste, people tend to underestimate the food waste they generate and expect to waste less than what they actually throw away.<sup>36</sup> Interviews clearly indicated that **segregating and measuring food waste makes one more aware of what is thrown away and what is not**. Even though staff members were satisfied with the amount (or lack) of food waste, they agreed that, in addition to the existing food waste management measures, more could be done to reduce food waste generated by guests. “[U]sually, [...] we don’t waste that much in the kitchen,” mentioned one kitchen staff member who believed that most food wasted was generated by the guest and wanted to highlight this aspect of wastage. “[We are] quite advanced but there’s of course always room for improvement,” mentioned another waiter at the same outlet.

## b) Engaging staff in food waste monitoring and reduction

Forming habits for better waste management is also dependent on **the social and cultural environment staff find themselves in**. Due to a staff member's constant mention of “we” instead of “I” one could deduce a healthy kitchen staff unity which would help the formation of habits.

A phenomenological study published in 2008 with 12 participants deduced that the phenomenon of “belonging at work” consisted of six elements, two of which fit remarkably well when talking about how kitchen staff unity promotes loyalty towards the group's or outlet's philosophy related to sustainability.<sup>37</sup> For a new individual arriving in the team, the first element is to be invited by an established individual to participate in learning how to engage with the work culture. For that, **training needs to be provided for the individual to learn and grow** (the importance of training will be explored in more details in **Section 3.1**). The second element is that, once a certain understanding of the culture is attained, a trusting bond can start forming which increases commitment to the values and attitudes that are upheld by the group or the outlet.

**[I will] try to get them onboard first, before I make some drastic changes [...]. It is trying to find solutions together, because at the end of the day, [I am not the one who is] doing the recycling, it is them, right?”**

During our interviews, one hospitality group was **actively incorporating staff in major decisions and changes pertaining to improving sustainability practices but directly impacting their work**. Staff would then be involved in the way the outlet would operate, providing an opportunity for the team to work together and heighten the transparency between staff and the franchise operator.

On that topic, the founder of the hospitality group mentioned that “[...] if I am going to implement things that I know are going to have an impact on the way [my staff] work[s], then I am going to try to have a talk with them first, and try to understand if it is implementable or not, and how. [I will] try to get them onboard first, before I make some drastic changes [...]. It is trying to find solutions together, because at the end of the day, [I am not the one who is] doing the recycling, it is them, right?”. Thus, **promoting a healthy and trusting bond between staff members and operators** promotes a feeling of loyalty towards the overall philosophy, which in turn improves habits and attitudes.

Habits and attitudes can however be **influenced by external factors of which the outlet or group has no control over**. Staff members might possess different motives depending on their **cultural and generational background**. One restaurant owner described that, in their 20 years of working and training staff, there were some sustainability habits that were harder to convey to the staff, despite the training provided and the general philosophy embedded in the restaurant’s DNA. For example, the restaurant being a vegetarian one, the owner explained that Chinese or Western staff were more receptive to the idea of giving up meat, compared with Nepalese or Philippino staff for example, and that younger staff were more willing to change their own habits.

Changing habits at the restaurant can also be made easier if the staff can implement these changes at home as well. For recycling for example, the same restaurant owner acknowledged that a big portion of the Nepalese community in Hong Kong do not live in housing estates; where recycling is made more convenient. Thus, before citing cultural differences as the main factor to explain a certain behavior, **external factors such as housing inequalities in Hong Kong and the unequal availability of recycling and sorting facilities should be considered**. An outlet can facilitate an environment where recycling and sustainability choices are easier to make, but values and behaviors of staff can still be shaped by other social factors, such as their living environment. This shows that, no matter how much education is provided, at the restaurant or elsewhere, if the environment makes change complicated and difficult, then habits cannot be adopted properly nor on a large scale.



### c) Food waste disposal methods

Just like for the material chosen in a SFP mix, the range of options for different food waste disposal methods depends on the existence or absence of segregation of food waste at the outlet, as some disposal methods like digesting or composting are only feasible with a rigorous waste segregation. Following the high proportion of outlets segregating food waste, it is not surprising to find that **respondents in our sample mainly used digesting and composting as their main waste disposal method**. Out of 21 outlets, 16 (6 groups) either digested or composted their waste. The remaining 5 outlets (3 groups) disposed of their waste in the general waste and correspond to the outlets that didn't segregate at all their food waste.

**Figure 11: Food waste disposal methods**



Contrary to SFP waste management where environmental considerations were the most important factors, the choice of a particular food waste disposal method was mainly driven by a market factor: **convenience**. Among the two main reasons for choosing a particular food waste disposal method, 10 outlets (6 groups) said that “it was the most convenient given the restaurants characteristics (like the size or location of the outlet for example)” and 7 outlets (3 groups) mentioned that “it was easy to integrate in [their] current operation”. Another important consideration for the choice of waste disposal was **the environmental aspect of the disposal method**: 8 outlets (4 groups) chose their disposal method because “it was the most

environmentally-friendly option” and 6 outlets (4 groups) mentioned that “The method helped [them] monitor / reduce our food waste”. Only one outlet mentioned price as the main reason for choosing a particular food waste disposal method, and that outlet disposed of its food waste in the general trash. One outlet, who also disposed of its food waste in the general trash, also specified that “**it was the only method [they] knew of at the time of opening**”, which tells a lot about the communication around the readily available options for food waste disposal for hospitality businesses.

**Table 6: Motivations for choosing a particular disposal method for food waste**



As such, it seems like, for our sample, the motivations for choosing a particular food waste disposal method were mainly an environmentally-friendly option that would be easy to integrate in their operations. Among the food waste disposal methods used by our respondents, composting and digestion of organic waste are the two most environmentally-friendly options because of their landfill-diversion capacity as well as their end-product, which can be used as fertilizer. The two options and their end-product are slightly different though. A digester uses anaerobic digestion, which is a process through which bacteria break down organic matter in the absence of oxygen<sup>38</sup> and turn it into a liquid that can be filtered safely through a 0.5mm screen into existing plumbing infrastructure,<sup>39</sup> solid residue that can be used as fertilizer, and biogas. A composter on the other hand uses the natural process of biodegradation and decomposition of organic matter into compost.

Typically, in order to process the amount of food waste generated by a hospitality business, the composter will allow for a more controlled environment where the temperature, carbon and nitrogen ratio, and the balance of air and water are optimized in order to speed up the process.

Out of the 16 outlets (6 groups) who either digested or composted their waste, **half of the outlets (8 outlets, 4 groups) used an external contractor for composting or digesting their waste**, while the remaining 8 outlets (2 groups) were using an **in-house digester**. These two groups were hotels, who have the necessary space to have a food waste processing machine.

### OUT OF THE 16 OUTLETS WHO EITHER DIGESTED OR COMPOSTED THEIR WASTE



**8**

**USED AN EXTERNAL  
CONTRACTOR**



**8**

**USED AN IN-HOUSE  
DIGESTER**



**0**

**USED AN IN-HOUSE  
COMPOSTER**

**None of the outlets reported using an in-house composter.** When asked specifically why they preferred an in-house digester instead of an in-house composter, they mentioned that “for [their] operation, a digester is more efficient and cleaner” and that “[they] ha[d] no internal needs of using the compost for now”. However, for outlets using a digester, some interviewees mentioned that **operating the machine required following special rules and special maintenance treatment**. When asked about his experience with the digester they are using, a chef replied: “I do not have too many comments on that machine because I personally don't know how to work with it. [...] But, we have a company who handles and who operates the machine in the basement. [It is] very critical [because the] machine can break easily if people don't follow the right rules.”

## 2.3 Expectations for improved waste management practices and main barriers for implementation

Despite having a sample that is particularly wary of sustainability in their SFP use and food waste management, we asked our respondents to provide us insights with what they would see as the three most effective measures that would help them and the hospitality industry improve the waste management of their SFP as well as their food waste.

Below is a summary of the most relevant measures according to them in order to improve SFP waste management and food waste management respectively:

**Table 7: Most efficient measures to improve waste management for SFP and food waste (out of 21 outlets)**

Measure to improve waste management	For SFP waste Number of outlets (groups)	For food waste Number of outlets (groups)
Better waste management infrastructure	15 (6)	12 (5)
More stringent regulations	13 (5)	6 (2)
More information on the alternatives and best practices	9 (3)	3 (2)
Government financial support	6 (3)	15 (7)
More open information-sharing with guests	3 (2)	3 (3)
A certification system for businesses implementing more sustainable practices	2 (2)	1 (1)
Broader availability of technological innovations	3 (1)	11 (5)
More commitment to sustainability from hospitality businesses	2 (2)	4 (3)





From this table, one can see that the hospitality industry expects a lot more to be done in terms of infrastructures, financial support, and regulations, which are measures that are external to them and that should be taken at a systemic and territory-wide level.

Both for SFP and food waste management, outlets agreed that **the existing waste management infrastructure in Hong Kong was insufficient** and appeared to be **the most important improvement to make** in order to facilitate waste management practices of the industry. During interviews, several members of the management teams of outlets mentioned that a broader availability of recycling bins for example was needed. They linked it to the fact that, given the lack of space to put recycling bins or food waste bins indoors, there should be more bins available outside and serve several outlets in the vicinity. One restaurant owner actually mentioned that this doesn't necessarily need to be run by companies contracted by the Government, but by dedicated NGOs like HK Recycles, whose expertise and experience could also be leveraged in order to improve the availability of recycling bins:

*“Because you know [...] hotels [for example] always have a designated area where they put their bins for safety and hygiene reasons, but for free-standing restaurants [like us], wherever you have space to put a table you put a table you know! So yeah, it's a little bit tricky. So if there was a way for the Government to [put more recycling bins] that would be so much more helpful. Or just, you know, letting an NGO like HK Recycles to have massive bins in certain areas [that] only industries or the restaurants that are in this area that can [use] [...]. And then you lock it and you only have the code if you are a restaurant that's part of this program. I mean that would be ideal.”*



**The lack of space** was also an issue when trying to segregate food waste, and in order to compensate for it, the same outlet was considering the same type of community/neighborhood recycling concept, but for food waste:

*“[...] I don’t remember her name but she works for [another restaurant], and she came to see us because I think that they are trying to do some composting, but they might not have enough for composting so they came to us, they asked [our team] if they would be interested [...] to combine it with them,”*

said the restaurant owner in an interview.

In terms of the importance and effectiveness of more stringent regulations, outlets expressed different opinions regarding SFP waste management and food waste management (**Table 7** above): while 13 outlets (5 groups) thought that it would be one of the 3 most effective measures to implement for SFP waste, only 6 outlets (2 groups) thought so for food waste. Until now, measures that aim to reduce SFP waste have been mainly implemented in Government buildings in a green procurement approach. For example, canteens serving Government employees do not provide plastic straws and polyfoam food containers anymore.<sup>40</sup> In July 2021 though, the Government disclosed a plan to [regulate the use of disposable plastic tableware](#). The initiative, targeting a wide range of plastic tableware and taking into consideration disposable items both used for dine-in service and take-away, has been mostly welcomed, despite some criticism related to the timeline of the project,<sup>41</sup> whose first phase is scheduled to start around 2025.

**Government financial support as well as the need for a broader availability of technological innovations** were cited more often as measures to improve food waste management than SFP management: for improving the hospitality industry’s food waste management practices, 15 outlets (7 groups) were wishing for more financial support and 11 (5 groups) thought that a broader availability of technological innovations was needed. In the case of food waste, technological innovations can refer to smart bins that directly weigh and identify the type of food waste discarded using artificial intelligence. It could also mean more efficient composters or digesters. In all cases, technological innovations are usually costly and, as we will see below, cost is cited by our respondents as one of the main barriers for implementing better food waste management at an outlet or groups’ level.

For SFP, one outlet actually added “**Lower cost [for] sustainable packaging**” to the suggestions. This could also be an area where financial support could be needed. In the interviews, **respondents mentioned that they would welcome subsidies in order to help them make better choices in terms of sustainability of their operations.** Moreover, as sustainable alternatives are not readily available in Hong Kong, they become harder to reach for smaller businesses. Sustainable alternatives need to be in higher demand to lower the cost, or should be financially supported by the Government, according to interviews. Plastic food containers are expected to be substituted by affordable and available alternatives.

**“Oftentimes what happens is that the Government sends you a leaflet [...]. But it’s only paper, and there is no real education in the restaurant that is provided”**

According to our respondents, **information sharing from the Government and other actors in charge of waste management (NGOs, recycling contractors...) about alternative waste management methods and best practices was also insufficient and could be improved in order to help hospitality businesses implement better practices,** especially for SFP waste: 9 outlets (3 groups) mentioned it for SFP waste, and 3 outlets (2 groups) mentioned it for food waste. The campaigns the Government has endorsed so far such as the Food Wise campaign haven’t been successful, according to an outlet operator. The campaign did not offer explanations as to why it is important to reduce food waste, nor offered any kind of monetary incentives such as the establishment economically benefiting from proper food waste management or having monitoring from the Government. “Yeah, it doesn’t work. I haven’t seen anything to be honest. Oftentimes what happens is that the Government sends you a leaflet [...]. We receive so much paper sometimes I’m just like, ‘Can you stop just killing trees?’ But it’s only paper, and there is no real education in the restaurant that is provided,” was mentioned by the operator. The same feeling was apparent when guests were asked about the Food Wise Campaign or any eco-label/campaign present in Hong Kong:

*Interviewer: Do you know any eco-labels in Hong Kong?*

*Customer: I think the Government has some sort of certificates for the restaurants saying this is less waste or whatever.*

*Interviewer: Do you mean the Food Wise Campaign?*

*Customer: But I don't know. I've seen the campaign but I don't know if they have specific stickers or certifications for the restaurants. I'm not sure.*

*Interviewer: Do you know a lot about this campaign or you just know it exists?*

*Customer: I know it exists.*

*Interviewer: But you don't know exactly what it means, right?*

*Customer: No.*

Moreover, sustainability labels, food composting, compostable SFP or food waste reduction measures at the restaurant level were not cited by guests as a decisive factor for visiting a restaurant. If they agreed that the implementation of such practices could somewhat play a role, interviewed guests mostly cited **the quality and taste of the food as their main motivation** for visiting a particular outlet.



All in all, the expectations of outlets regarding the way to implement better waste management was mirrored by the biggest barriers they identified as impeding better food waste management. They are listed below in **Table 8** below:

**Table 8: Main barriers of implementation for better food waste management (out of 21 outlets)**

Main barriers to implement better food waste management	Number of outlets (group)
Lack of proper waste management infrastructure (at the city level)	15 (6)
Lack of dedicated service providers	13 (5)
Little to no Government/ external initiatives or support	13 (4)
Lack of space to implement in-house waste management	9 (5)
Costly	8 (4)
Concerns with transparency	3 (3)
Lack of information about better food waste management methods	2 (1)
Time consuming	0 (0)

Just like the expectations from the different outlets/groups, **most of these barriers are external to the outlets' operations and are linked to the intervention of an external actor**, and especially the 3 most frequently cited barriers: “Lack of proper waste management infrastructure (at the city level)”, chosen by 15 outlets (6 groups), “Lack of dedicated service providers (i.e. no suitable waste management contractors)” and “Little to no Government/external initiatives or support (e.g. public collection programs, subsidies)”, both chosen by 13 outlets, and by 5 and 4 groups respectively.



Market factors like the lack of space (which can be interpreted as lack of convenience) or the price were also important barriers in terms of groups, but less in terms of outlets. This could suggest that smaller groups consider that **such barriers could be overcome with proper waste management infrastructures, more dedicated service providers and more Government/external initiatives or support.** Interestingly, no outlet mentioned the time it takes to implement the food waste management method as one of the main barriers for implementing it.

One group also reaffirmed its **need for more information** and the perceived lack of options and solutions about better food waste disposal methods: the group that mentioned that “it was the only method [they] knew of at the time of opening” as the reason for their choice of food waste disposal method is also the one who chose “Lack of information about better food waste management methods (we don't know how to do better)”.





### 3. FOOD WASTE REDUCTION MEASURES: CURRENT PRACTICES AND MAIN CHALLENGES

While the previous sections explored waste management practices for SFP items and food waste, this section focuses specifically on the practices of our respondents to reduce food waste generation, before they have to dispose of the waste. In order to assess the difficulty of these practices, we will compare them with the practices that our respondents think are the most difficult to implement. Insights about the main barriers of implementation were also gathered in order to understand why these practices were difficult to implement, despite the fact that they are already in place. Finally, we also tried to understand how the different outlets and groups overcome these barriers.

**Table 9: Sustainable practices judged most difficult and practices already in place (out of 21 outlets)**

Sustainable FW management practices	Practices already in place Number of outlets (groups)	Most difficult practices Number of outlets (groups)
Train the staff to avoid food wastage	21 (9)	4 (3)
Use ingredient scraps or leftovers for other purposes	15 (6)	4 (2)
Reduce the size of the menu	14 (7)	1 (1)
Distributing the left-over food to the staff	13 (5)	1 (1)
Develop a food waste reduction strategy with specific targets	13 (5)	10 (5)
Compost/digest organic waste	12 (4)	8 (4)
Have all ingredients of each dish listed in the menu	11 (4)	0 (0)
Donating the extra food to charities and/or NGOs	8 (4)	10 (3)
Propose different portion sizes	5 (3)	1 (1)
Provide discounts after a certain time to sell the stock	5 (3)	0 (0)
Sell food surplus at discounted price through dedicated apps	3 (1)	6 (2)

In accordance with the profile of our respondents, outlets in our sample had, on average, **5.7 out of the 11 sustainable practices proposed in place**. **Table 9** above shows the distribution of the practices per outlet number and per group, and compares them with the practices that outlets and groups found most difficult to implement.

### 3.1 Low hanging fruits in food waste reduction

From **Table 9** above, by focusing on the practices that outlets have in place but don't find difficult to implement, one can deduce the easiest measures to implement at the outlets, but also the most frequent ones in our sample.

Regarding waste reduction, **all outlets/groups seemed to agree that training was an effective way to reduce food waste generation**, as well as to help shape staff's habits. According to the interviews conducted with staff and management teams, effective training needs to be regular, includes daily reminders, and aims to explain instead of just prescribe. **Monitoring** was a crucial aspect to change the habits and attitudes of staff: one chef of a major group further mentioned that if monitoring on a senior level was lacking, then so would the execution of sustainability rules. The goal of monitoring was not to control every single movement of staff but to briefly look over how staff prepared food and correcting the behaviour through daily or regular briefings. One outlet mentioned that they held regular communication meetings with their team to demonstrate the current amount of food waste measured.

Additional to the training, 15 out of 21 outlets (6 groups) mentioned that they **make use of ingredient scraps or leftovers for other purposes** like vegetable trimmings to make broths or soups or potato skins to make snacks. Some outlets actually include this dimension in the training of their kitchen staff. At one outlet, an event night was organised in which the head chef prepared dishes solely using scraps and leftovers, which served as an educational occasion for guests and staff alike, and was very appreciated on both sides. Furthermore, establishments with multiple outlets at one location mentioned sharing unused ingredients with each other. For this particular outlet, the management team mentioned that it was particularly relevant

for their exclusive fine-dining restaurants, as standards in such operations often require that only a small part of the ingredients is used: “[...] let's say we cannot use all of it in our fine dining restaurant, then certain parts of fish for example will be used in another restaurant or downstairs and in [our bar] or in the canteen,” mentioned a staff member.

**Optimizing and improving the menu** was also widely used in our sample as a way to generate less food waste in the kitchen. 14 out of 21 outlets (7 groups) adopted a smaller and well-curated menu to fit the actual needs of guests. One outlet in particular even adopted a “**running out policy**”, meaning that the outlet ordered just enough produce and ingredients, effectively **deliberately putting a limit on the quantity of each menu choice**. In doing so, the outlet is ready to compromise on guests' satisfaction by accepting the risk that some guests might have to reconsider their choices when ordering their meals. This is why, in this outlet, the staff is trained to advise guests on which dish would be closest to their taste or as enjoyable for them as the one they had chosen in the first place. 11 outlets (4 groups) also had all ingredients of each dish listed in the menu. Hence, guests would know what to expect from each menu choice and tell the waiter to leave out ingredients they do not like.

**“let’s say we cannot use all of it in our fine dining restaurant, then certain parts of fish for example will be used in another restaurant or downstairs and in [our bar] or in the canteen”**

Besides providing training and making use of leftover ingredient scraps, another reason for an establishment’s low food waste was, according to a member of staff, **the lack of extra garnishes plated on the dish**. Tapping into his previous experience, the waiter mentioned that he used to work at a restaurant where garnishes such as pre-cut carrot swans were displayed in a display area before being used as garnishes for various dishes. Most of the carrot swans were not eaten, since according to the member of staff, no staff member went out of their way to inform guests that the carrot swans were indeed edible.

The garnishes were laid out in a display area which promoted reminiscence of decorations and thus lost their first purpose which is to be eaten. Garnishes are there to add to the plate colour and texture, and should represent the ingredients that have been incorporated in the dish. If garnishes are not well-chosen such as lemon slices in a dish that does not incorporate lemons otherwise or - in this case - carrot swans for a multitude of different dishes, garnishes become waste.<sup>42</sup> For all these reasons, **many reports promoting food waste reduction are proponents of a no-garnish policy.**<sup>43</sup>

### 3.2 The last mile: most difficult food waste reduction measures

In **Table 9**, among the measures that were deemed most difficult to implement by our respondents, three stood out. They can be compared with their respective position on the “Food Recovery Hierarchy” in **Figure 11** below.

First, **“Developing a food waste reduction strategy with specific targets”** was a major challenge for 10 out of 21 outlets (5 groups). Since measuring food waste is one of the enablers of establishing a coherent food waste reduction strategy, we could expect outlets who measured food waste to find it less hard to develop a food waste reduction strategy. This is verified in our sample, where none of the 3 groups who measured food waste in their operations mentioned “Developing a food waste reduction strategy with specific targets” as one of three biggest barriers to implementing better food waste management. We can then expect that, for the 6 outlets that did not measure food waste, it would be more difficult to establish a baseline, which is crucial to establishing a reduction strategy.

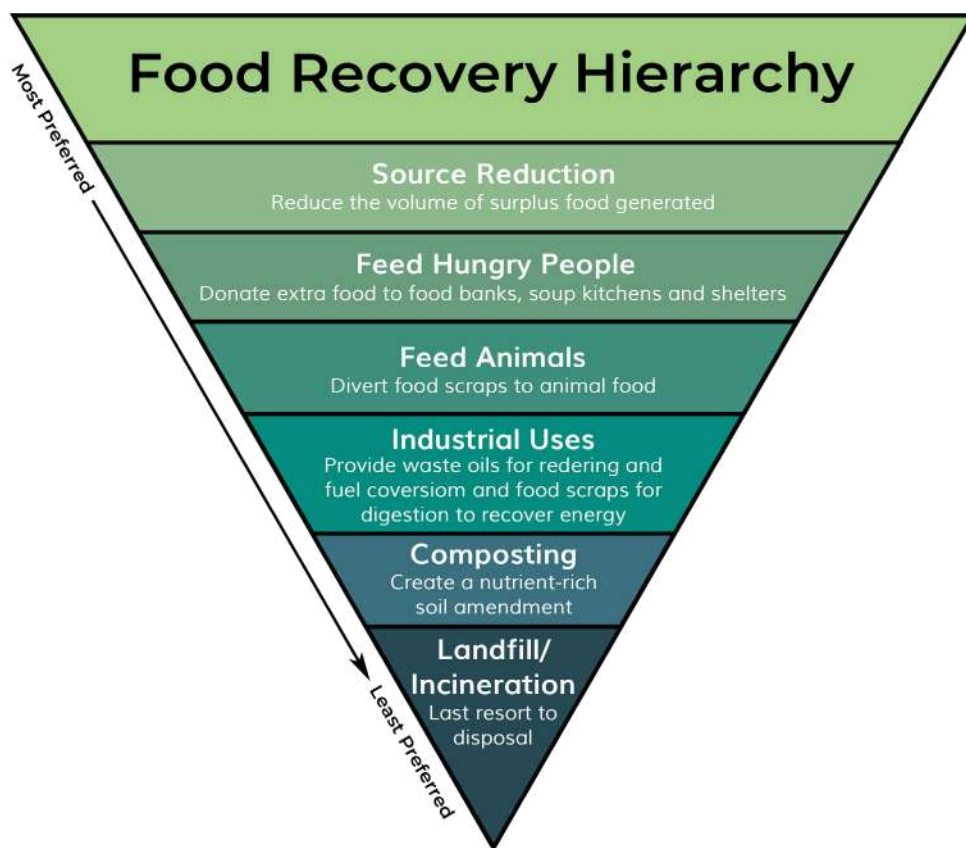
The difficulty of implementing a food reduction strategy can also be due to the fact that it requires a holistic view and systemic changes to be implemented throughout all the aspects of the operations. One particular outlet, which was attached to a hotel, mentioned that, if changes to the waste management system were to happen, **they would have to happen throughout the entire building.** Once again, **owners and franchise operators were perceived as enablers,** since a restaurant manager could not do much without asking the owner. During the interviews with the staff for this particular outlet, the staff seemed reluctant to impulse change due to it seeming like an insignificant action or due to not wanting to disturb

the hotel management and the current practices. During other interviews, factors like **bureaucracy, insufficient communication, and high set-up costs** impeded independent changes to happen, which was an opinion mentioned by many respondents when discussing implementing systemic changes.

Second, “**Compost/digest organic waste**”, which was a challenge for 8 out of 21 outlets (4 groups). This difficulty to implement this method can be linked to several barriers mentioned in **Section 2.3**. Among the 8 outlets who said that composting or digesting was a challenge:

- 5 mentioned as a barrier that better food waste management methods were too costly (e.g. hiring external contractors, buying the equipment)
- 5 mentioned a lack of space, and
- 4 cited “Little to no Government/external initiatives or support” as a main barrier.

**Figure 11: Food waste recovery hierarchy**



Source: The United States Environmental Protection Agency



As such, hospitality businesses who find composting and digesting particularly difficult to implement, seem to be constrained by several factors such as **cost, space and would hope for external support** if they were to implement such food waste management methods.

Third, “**Donating the extra food to charities and/or NGOs**” was a major challenge for 10 out of 21 outlets (3 groups). Food donation, almost at the top of the waste hierarchy, can prevent waste generation, support the local community and reduce waste management costs.<sup>44</sup>

During our interviews, several reasons were evoked by the respondents for finding food donations difficult. One outlet for example **was unsure on what to donate** since they had a running out policy in place, meaning that only scraps and trimmings were left behind, not full meals. “[...] what would we donate?,” asked an operator in an interview, “Because we don’t have so much food waste. [...] either it’s, you know, the cuts or whatever that goes into the food digester. But in terms of leftover food, we don’t overproduce”.

Further barriers hindering food donations were mentioned in the interview, such as **donors fearing being held liable if something happened to people who consumed the donated food**. This can be due to the fact that, in Hong Kong, there is no so-called “**Good Samaritan Law**” to exempt food donors from product liability.<sup>45</sup> Despite local food banks signing bilateral agreements with donors to compensate for the lack of such regulation, donors might not be aware of that fact and be discouraged to donate. According to the additional interview between GREEN Hospitality and the food bank representative mentioned earlier, he also cited as a factor the **relative novelty of the practice of food banking in Hong Kong**, compared with other places like France where there is a higher priority placed on food issues in the policy agenda by the French Government.<sup>46</sup>

Finally, another group (representing 3 outlets) also mentioned “**Waste segregation due to lack of recycling options**” among the most difficult practices in addition to the proposed answers. This challenge can be linked to several of the barriers that have been identified in **Section 2.3**, namely the lack of waste management infrastructure at the city level, “Little to no Government/external initiatives or support” and the lack of space within the restaurant.

### 3.3 Long-hanging fruits: what it takes for systemic and durable changes

Interestingly, for a few food reduction measures, respondents mentioned that **they had already implemented them, but they also appeared to be the most difficult measures to implement**. If one can think that different outlets could implement and find difficult different measures, thus not necessarily leading to an overlap of the measures for the same outlets, a closer look at the distribution of the measures show that, for two measures in particular, it is often the same outlets/groups who cite them as both something they have been implementing and as one of the three most difficult measures to implement. The two measures were “Develop a food waste reduction strategy with specific targets” and “Train the staff to avoid food wastage” and **Table 10** below displays the distribution of these two measures per group:

**Table 10: Overlaps between implemented and most difficult food waste reduction measures**

Hospitality group number	Train the staff to avoid food wastage		Develop a food waste reduction strategy with specific targets	
	Implemented	Difficult	Implemented	Difficult
1	×		×	
2	×	×		
3	×		×	×
4	×			
5	×	×	×	×
6	×	×	×	×
7	×			
8	×		×	
9	×			

This overlap between implemented and most difficult measures could be due to the fact that both are **long-term, ever evolving and require systemic thinking and change**. If training was widely adopted by outlets, one dimension of training was particularly challenging for staff and management teams: **changing guests habits**. Indeed, in addition to the proposed food reduction measures, one group (representing 5 outlets) mentioned “changing clientele mentality on food consumption (finishing fully the dish or eating all garnishes not only the animal protein)” as one of the three most difficult measures to implement. **This was a recurring concern for staff during the interviews**. Even if a restaurant owner mentioned that, during the training, waiters were encouraged to let the guests know if they think they have ordered too much or too little, a waiter wished for additional training on how to deal with guests who wasted a lot and refused to take the leftover food home with them: “[...] most of these guests are very stubborn in their ways. They aren’t really thinking about the environment and stuff when they’re having a good time with like six of their friends, right?” Dining out is seen as an enjoyable occasion and dimming that joyous element is for some outlets untrodden terrain. A [“Love food, hate waste”](#) consumer research study found out that **the majority of respondents did not want to think of food waste when dining out**, which is reiterated by staff who did not know how to encourage guests to order less or take-away leftovers.

The difficulty of the second measure, “Develop a food waste reduction strategy with specific targets”, has been touched upon during the interviews: **restaurant owners and managers saw it as a trial-and-error approach that needed constant readjustment and improvement**, hence the difficulty to maintain it in the long term, even for the outlets considering it as a measure already in place.

The different interaction with the staff and the management teams revealed that, for all the outlets in our sample that had a strong focus on sustainability in their operations, **there was always one passionate person who would be pushing for a sustainability approach not only regarding food waste, but also all sustainability aspects in the outlet’s operations**, like procurement, menus, and even the furniture used in the outlet. This person, who we called “**Sustainability Champion**” was not necessarily the head of sustainability of the hospitality groups: we observed that sometimes that person could be the owner, the director of one of the restaurants of the group, or a Chef. Having a sustainability champion makes for clear goals and directions and inspires other members of the team to follow their vision.

The champion was most of the time not appointed for the specific task of improving sustainability practices, but was a role an individual who is passionate about the environment, educated about sustainability and forward-thinking took over. In a qualitative study conducted by the Natural Resources Institute in Finland and published in 2016, one reason for food waste generation was poor management practices. Similar to the “Sustainability Champion”, the managerial work described in the study had an influence over kitchen operations, processes and activities.<sup>47</sup> “A manager has to be able to **motivate, encourage and give instructions to staff so that they can carry out their duties professionally and to the best of their abilities**” (Heikkilä et al. 2016, 449). Likewise, “Sustainability Champions” are responsible for inspiring and educating staff, as well as implementing an environmentally-conscious workplace.

## **“The philosophy is part of why I am here, essentially”**

For such a work environment, we observed that no one was fully responsible for waste management but that the “Sustainability Champions” were able to **leverage teamwork between the kitchen, waiters and owners in order to reduce food waste**. For such establishments, it appeared crucial to create an environment for staff to discuss environmental issues and raise awareness of sustainability practices in order for the team to grow and learn. If the “Sustainability Champion” could be the impetus of such initiatives, **the responsibility of creating such a work environment also falls on owners, managers and operators to continuously work on the group mentality** by organising event nights, training, and educational events such as farm visits, food bank visits, or other activities involving both the staff and the community. According to our respondents, if a group has a common goal and believes in the same philosophy, then changes will be all the more easier to implement. When an outlet plans to move to a more transparent waste management system, staff would feel valued because they are well-informed and are given the opportunity to **contribute to the discussion about an aspect of the operations that will affect their work**. An inclusive work environment and a philosophy people can support could increase the loyalty of staff towards the establishment and thus reduce staff turnover. “[The philosophy is] part of why I am here, essentially,” mentioned a staff member in an interview.

## 4. RECOMMENDATIONS FOR ACTION

A better SFP and food waste management is possible if hospitality businesses and the HKSAR Government take concerted action. Based on the findings, this chapter provides recommendations for hospitality businesses, the HKSAR Government and NGOs to resolve barriers and facilitate change in order to give the opportunity for the hospitality industry in Hong Kong to become the catalyst for change it can become.

### Start now

As mentioned by several of our respondents, improving an outlet's sustainability and especially reducing food waste **can be a long and arduous journey**.

One of our participants mentioned that **they had been doing it for ten years, and that they were still thinking about how to go further in food and SFP waste reduction practices**, so hospitality businesses considering improving the sustainability of their operations shouldn't be discouraged by the long and bumpy road ahead. Instead, one thing that this research showed clearly is that the most important step on a sustainability journey is the first one.

In two instances during the research, **one week of segregating and measuring food waste influenced the habits of two outlets**. One didn't segregate nor measured food waste. After the measurement week, which showed that segregation and measurement were actually possible, the staff wanted to continue and to know what was the next step in improving the restaurant's food waste management. The owner then decided to explore a community composting project with restaurants in the vicinity. Another participant was already segregating, but not measuring. After the measurement week, they started a food waste monitoring system in order to have a better idea of the food waste generated by the outlet.



## Infuse sustainability in your business' philosophy

As previously mentioned in **Section 3.3**, the role of a “Sustainability Champion” can give businesses a clear philosophy to believe in and clear goals to follow and achieve. Being a sustainability-oriented business and believing in an eco-conscious philosophy does not need to be at the expense of the economic viability of the business. When it comes to reducing food waste for example, [the business case from Champions 12.3](#) found out that **almost 90% of the restaurants earned their money back in two years after investing in a food waste reduction programme**. With the rising awareness of the waste problem in Hong Kong, more guests have been conscious, and businesses need to grow with their guest pool. One outlet connected the idea of implementing sustainable practices with being a leader in the hospitality sector, as well as proper and environmentally conscious waste management regulations being a criteria for presenting oneself as a first-world city. Both ideas could be used as quality factors to motivate the implementation of such initiatives.

## Leverage collaboration with partners and the community

**Hospitality businesses do not necessarily have to provide all the sustainable solutions.** In Singapore and France, restaurants and main food delivery platforms are collaborating with [Barepack](#), a company that provides reusable cups and containers to guests for takeaway orders. Hospitality businesses can proactively support this emerging type of service, which can ensure that reusing containers is convenient and hygienic.

In the same spirit, one solution would be to **implement a circular system of reusable takeaway boxes**, which typically works better when more outlets participate in the return-scheme system, as they give guests more drop-off places for used containers. Such measure has already be implemented in Switzerland, where the Swiss organisation [reCIRCLE](#) allows guests to pay for reusable takeaway containers from participating establishments and then reuse it as often as one likes or return it to get the rental fee back.

The scheme works similarly to rentable mulled wine mugs at Austrian Christmas markets or the plastic bottle return schemes in Germany. Similar to reCIRCLE is Singapore-based organisation [Muuse](#) which has expanded to cities such as Toronto, Jakarta, and Hong Kong! With Muuse, guests simply have to download the Muuse app, go to a participating cafe and ask for your order to-go in a Muuse cup. Once finished borrowing, the guest can return their cup at the Return Station. **Such circular schemes have also been unrolled by local Hong Kong companies such as [Circular City](#).**

Hospitality businesses do not need to solve their waste management problems alone: upcoming programs such as the GREEN Hospitality Circular Community Composting allow restaurants to collectively compost their food waste, thus dragging down costs of waste management while providing them with fresh herbs from local farms in return.

## Make waste segregation convenient and more transparent

Programs such as the Circular Community Composting Program have a positive impact on a micro scale but are not systemic and territory-wide scalable solutions, and **respondents in our research expressed several times that the current waste infrastructure**, especially the **recycling bins**, were not in sufficient number to be convenient for them in a financially viable manner.

Similarly, in order for Hongkongers and businesses to adhere to bold waste reduction policies like the [Municipal Waste Charging Scheme](#), segregation should be encouraged, but **this can only be achieved if people trust that the effort they put in segregating the waste will actually make a difference**. On both individual and business sides, our interviews revealed that this trust was almost non-existent, and people generally prefer to implement individual initiatives like using external contractors (including NGOs) for recycling or community and home-composting instead of relying on Government-run or housing estates infrastructures.

Hopefully the recent opening of Government-run [Recycling Stores](#) are a step in the right direction and will help increase the trust in the local recy-

cling system, but **the scale of the measure left some guests dubitative**. When asked about what would be the most efficient measure to improve recycling rates in Hong Kong, a visibly sustainability sensitive guest replied “Making it easy for people to go to a local recycling center. There's supposed to be one in every district and there are 18 districts, but I think there's only three or four. I mean we make an effort to recycle, but it's actually quite a big effort to get to do it and we're not perfect. So the whole issue of recycling needs to be improved.”

As such, **convenience and transparency are recognized as crucial prerequisites** for the improvement of waste management in Hong Kong and should be kept in mind and addressed in priority when trying to influence and change both individual and businesses behaviors.

## Deepen the dialogue with the hospitality industry

More transparency also comes with more communication, but several outlets mentioned the lack of communication from Government agencies regarding Government-run waste management or waste reduction programs and had to resort to their own network and community in order to find alternatives to throwing their waste in the general bin. This shows that there should be **more outreach to hospitality businesses in order to better understand their needs** in terms of waste management infrastructures and practices.

Sofar, **most of the waste-related campaigns and policies are targeted at individuals and aim to tackle household waste**, making the restaurants and outlets mere communication platforms for a message intended to the general public. Even if it is true that the biggest proportion of municipal solid waste (MSW) generated comes from households, **there was still 40.7% of the 11,057 tonnes of MSW generated per day in Hong Kong in 2019 that originate from commercial and industrial waste**. Such a household-centered approach discards the opportunity to fulfill the wishes of some hospitality groups to become real catalysts for impulsing systemic industry change, changing guests' habits as well as reducing the amount of municipal solid waste share of the industry.



## Create guidelines and methodologies for waste segregation and measurement for the industry

As mentioned in the previous sections, **measuring food waste is the first step towards awareness and reduction**. In line with the previous recommendation of improving the communication with hospitality businesses about best waste management practices, there should be clear guidelines on how to implement these best practices, starting with segregation and measurement of food waste. These guidelines and methodologies could be partly based on existing material like the [Food Loss and Waste Accounting and Reporting Standard](#) for example. They could be adapted to Hong Kong's specific waste management infrastructures and specificities and include supporting information in order to help the local hospitality industry overcome their current barriers.

Also, these guidelines would be of utmost importance in order to **spread the correct knowledge about the best sustainable practices that can be implemented locally** given the current state of the waste management infrastructures in Hong Kong. Indeed, **the environmental impact of a type of waste and its disposal method depends largely on the local waste treatment infrastructures**. For example, if using compostable SFP seems to be the right choice, the use of this type of material actually needs to be followed by the availability of an industrial composting facility to treat the SFP waste generated. If not, the impact of using compostable material is, at best, equal to using plastic.<sup>48</sup>

## Offer more financial support and incentives

In the responses gathered from the questionnaires, it was clear that **most of the participants were wishing for more financial support to implement better sustainability practices for their waste management**, like for composting food waste, hiring an external contractor for recycling, or implementing waste reduction methods like installing water filters.

In an interview, one hospitality group owner also mentioned that one way to encourage businesses to reduce their waste would be to **communicate around it as a cost-saving measure**:

*“Why not tackle it in a different way by saying “if you reduce your food waste, you would reduce your cost by this much”? Because at the end of the day, I think in Hong Kong it’s the most important thing: how can you reduce your costs, how can you save money to make more profit, because I’m sure a lot of people think that when you own a restaurant, you make a lot of profit: no, you make absolutely no profit because it’s such an expensive city and profits are really really low in the restaurant industry so as soon as you can have you know one point or one percentage that can be saved, it’s a huge amount of money. So if they tackled it in that way maybe, maybe it would have more of an impact on the restaurants.”*

It is already the approach of organizations like Champions 12.3, but **so far there has been no real evaluation of the financial benefits of reducing food waste in the different types of restaurants that exist in Hong Kong**, from the small Cha Chaan Teng to the opulent luxury buffets.

If encouraging good behavior can be one type of incentive, guests in restaurants were also proponents of **dissuading less environmentally-friendly behavior**. When asked what the government should do to support businesses in reducing their packaging waste or in managing their waste better, one guest replied:

*“Certainly business subsidies for [...] green companies. [...] [H]igher tax rates for non green companies [because] [t]he only way you’re gonna get any company to change is if you affect them, you know fiscally. Right? So if you make it more expensive for them to be less green. You know I think the reason why a lot of companies don’t go green as much as they can is because of cost, right? So if you can do as much to subsidize the cost then that should promote [better waste management practices].”*



This thinking is in line with the “Polluter Pays” principle proposed by the Municipal Waste Charging Scheme proposed by the Government, but could be extended to other waste-related areas, such as **the choice of the material for SFP in order encourage a diversion from hard to recycle material like styrofoam for example**, or to dissuade from choosing unsustainable disposal method, like landfilling.

No matter the type of financial incentive, both businesses and guests were wishing that **“taking the right decision” in terms of waste should be, if not more, at least as economically viable as less environmentally-friendly alternatives.**



## 5. POTENTIAL FOR FURTHER RESEARCH



As stated in the introduction, this research project was exploratory and aimed to gather some qualitative and quantitative insights about the waste generated by the hospitality industry in order to start a constructive dialogue with the different stakeholders involved in the waste issue in Hong Kong: hospitality businesses, their staff, the guests, Government agencies, NGOs as well as waste contractors.

Hopefully, this research project will **encourage other actors to take a deeper look at the type and amount of waste generated by the industry**, starting by understanding if the food wasted in Hong Kong is mostly avoidable or non-avoidable for example, and where does the waste come from: guests, kitchens, or poor stock management.

These types of measurements can already be implemented at outlet levels, and we encourage all outlets who are already measuring their waste to take this extra step and to try to understand where this waste comes from and what it is made of. Ideally, **this data should be made publicly available in a centralized and anonymized database** in order to improve data collection from hospitality businesses in Hong Kong and increase the reliability of the waste statistics.

After identifying the composition of food waste, it is then easier to calculate **the cost of the wastage**. As mentioned above, a closer look into the business case for reducing food waste for the different types of restaurants in the context of Hong Kong could maybe help in convincing more hospitality businesses to reduce their waste. **Such research doesn't exist today.**

Finally, Hong Kong being world-renowned as a “Foodie Paradise”, it would be interesting to **compare the food wasted by a single person or a family in a restaurant with the food wasted by a home-cooked meal**. Indeed, given that Hongkongers eat on average 5 times out per week, an assessment of the influence of this habit versus cooking at home would be helpful in identifying other behavioral changes to explore in order to reduce food waste.





## CONCLUSION

As our sample shows, **there is hope for the hospitality industry in Hong Kong**: most of our respondents were striving to include more sustainability practices in their operations, as shown by their efforts to mitigate the environmental impacts of their SFP and reduce food waste. Outlets, many of which faced barriers within and outside of their operation, had different progress. Nevertheless, **the majority was aware of the waste crisis that the city is facing and the responsibility they had in it**. They were ready to take the lead and to find solutions to implement better practices, but needed external support to do so. All in all, the missing link between awareness and mitigating the waste crisis in Hong Kong are a series of collective and structural first steps that need to be taken urgently by all stakeholders involved, at all levels.

If hospitality businesses take the first step to segregate food waste, then **food waste measurement** will be made possible to bring in more insights to the food waste generated by the industry. If the Government takes the first step to **communicate better with hospitality businesses, include them in its waste management plan, and involve them in their waste reduction policies and campaigns**, outlets will be able to provide helpful feedback about the challenges they face and better segregate their SFP and food waste. If an owner/franchise operator of an outlet takes the first step to create an environment where staff receives training about food waste prevention and where sustainability is openly discussed, it will help **create an environment and a philosophy where sustainability considerations are at the core of the outlet's operations** and stakeholders' preoccupations. Both businesses, Government agencies and NGOs are ready and committed to solving the waste crisis that Hong Kong is facing.

**All it takes is a step in the right direction:  
a step towards each other.**

# ACKNOWLEDGEMENTS

This project is supported by the HKU Knowledge Exchange Fund  
granted by the University Grants Committee



The University of Hong Kong Business School has contributed to this report through the involvement of student interns, researchers and instructors of its Impact Lab Course.



Soap Cycling, a Hong Kong based charity, works with students, hotels, corporates, volunteers and WASH charities across Asia to recycle soap in a movement to reduce preventable hygiene-related diseases and suffering by distributing this life-saving resource to where it is needed the most. Soap Cycling is part of the Foundation for Shared Impact (FSI) portfolio and hosts students from the University of Hong Kong through its Impact Lab Course.



Foundation for Shared Impact's mission is to enable social entrepreneurs and high-impact organizations to maximize social value and minimize the barriers. FSI works with the University of Hong Kong - Faculty of Business and Economics to deliver its Impact Lab Course which connects students through internships with impactful organisations solving the world's most pressing problems.

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# WASTE DEEP

GREEN Hospitality is a collaborative platform that encourages businesses to work together to bring about innovative, sustainable, cross-border advancements to the global hospitality industry. This is achieved through knowledge sharing, research, partnerships and incubation of solutions.



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