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# Improving Domestic Food Waste Collection in Hong Kong

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# List of Abbreviation

| | |
|---|---|
| ECC | Environmental Campaign Committee |
| ECF | Environment and Conservation Fund |
| EPD | Environmental Protection Department |
| FWSRBs | Food Waste Smart Recycling Bins |
| IOs | Incorporated Owners |
| IWMF | Integrated Waste Management Facilities |
| I·PARK1 | The IWMF Phase 1 |
| MSW | Municipal Solid Waste |
| NGO | Non-Governmental Organization |
| O • PARK | Organic Resources Recovery Center |
| PRH | Public Rental Housing |
| SDG | Sustainable Development Goals |
| “Blueprint” | “Waste Blueprint for Hong Kong 2035” |
| “Food Waste Plan” | “A Food Waste and Yard Waste Plan for Hong Kong 2014-2022” |

# Executive Summary

Hong Kong faces a significant food waste challenge, particularly in the domestic sector, where inadequate separation from municipal solid waste (MSW) results in substantial landfill disposal. In 2023, food waste comprised 29% of MSW, with around 3,191 tonnes discarded daily. Despite a target to reduce this by 40% from 2011 to 2022, only an 11% reduction was achieved by 2023, highlighting the need for more effective strategies. In the Southern District, this issue is compounded by limited infrastructure, with only one private housing estate equipped with Food Waste Smart Recycling Bins (FWSRBs) as of July 2024, leaving many public estates underserved. Surveys show that just 21% of residents know about FWSRB availability, while 72% mix food waste with regular trash due to inconvenience, distance, or hygiene concerns from poorly maintained bins. The current Green Points reward system lacks appeal, especially among young residents who favor e-vouchers over household items, and private estate managers resist bin installations due to costs and bureaucratic hurdles. Without action, landfills like the Northeast New Territories, expected to reach capacity by 2026, will face increased pressure, exacerbating methane emissions and water pollution.

The Southern District's challenges—limited FWSRB access, low awareness, hygiene issues, weak incentives, and stakeholder resistance—reflect broader food waste management difficulties in Hong Kong, a complex "wicked problem" worsened by nearing landfill limits and underused recycling facilities operating at one-third capacity. Unlike Japan and Korea, where strong regulations and education have reduced waste, Hong Kong struggles with infrastructure and engagement. Four policy options were evaluated, Maintaining the status quo, which has increased daily food waste collection by 50% since December 2023 but fails to address private estates continue to struggle with low collection rates problem. Expanding existing programs to include private estates, which could enhance coverage but may require significant investment. Mandatory sorting without fees, which could improve recycling but risks public pushback and high enforcement costs. An information campaign, which raises awareness but lacks impact without supporting infrastructure. A hybrid approach, blending an enhanced status quo with an information campaign, emerged as the most practical solution, avoiding the drawbacks of mandatory sorting.

The recommended hybrid plan integrates expanded FWSRB coverage, a targeted information campaign to educate residents, and an improved Green Points system featuring e-vouchers and brand partnerships to boost participation. This strategy aims to alleviate landfill pressure, reduce emissions and improve public health by minimizing waste-related risks. Continuous monitoring and resident feedback will refine the approach, with potential future adoption of advanced technologies or regulatory models from Japan and Korea. By addressing the Southern District's specific barriers and leveraging a tailored, multifaceted solution, this plan offers a sustainable path forward for food waste management in Hong Kong.

# Chapter 1: Introduction

## 1.1 Food Waste Management in Hong Kong

### 1.1.1 Too much Food Waste goes to landfills, Ineffective Policy

Hong Kong is generating too much food waste that goes to landfills. In 2023, 10,884 tonnes per day of MSW was disposed at landfills, in which food waste was the largest contributor, accounting for around 3,191 tonnes per day and comprising about 29% of the MSW. The average food waste disposal rate is 0.43 kg/person/day in 2023 in Hong Kong (Statistic Unit, EPD, 2024), which is higher compared to other developed country such as Japan with a per-capita food waste of around 0.1kg per day in 2022, and Korea with food waste landfill was forbidden since 2005 (Nippon.com, 2024; Murdie & Borsi, 2023).

Food waste in Hong Kong is generated from two sectors: (1) industrial, and (2) domestic. The industrial sector contributed to 37% of the total food waste in 2023 (Statistic Unit, EPD, 2024), including restaurants, canteens, hotels, and supermarkets, especially through buffets and banquets, or large portions of food provided (Policy Research and Advocacy Team, Friends of the Earth (HK), 2024). The domestic sector accounts for the remaining large proportion of 63%. The reasons people throw away food can be the cheap price and buying in bulk, overestimation of their appetite, or improper way of storage (Friends of the Earth (HK), 2022).

To manage food waste, the Hong Kong government currently takes strategies from four aspects: (1) Reduction at Source, (2) Food Donation, (3) Food Waste Collection, and (4) Recycling at Facilities, according to the "A Food Waste and Yard Waste Plan for Hong Kong 2014-2022" ("Food Waste Plan") issued in 2014 and "Waste Blueprint for Hong Kong 2035" ("Blueprint") issued in 2021. First, Reduction at Source involves the Food Wise Campaign, aiming at promoting a food-wise and waste-less culture through activities and schemes, encouraging behavioral changes within the community to prevent and minimize food waste at the source (EPD, 2023a). Second, Food Donation aims to support charitable organizations to collect surplus food from the commercial sector and donate to people in need through the Environment and Conservation Fund (ECF) (EPD, 2024a). Third, as for Food Waste Collection, the Environmental Protection Department (EPD) offers free food waste collection for businesses and launched programs for Public Rental Housing (PRH) estates and private housing by using FWSRBs (EPD, 2023b, 2024a). Finally, Recycling at Facilities includes opening Organic Resource Recovery Centers (O·PARKs) and the Food Waste/Sewage Sludge Anaerobic Co-digestion Trial Scheme to turn collected food waste into energy or resources and launching.


**Graph 1:** Food Waste Management Strategy (EPD, 2024a)

However, the current efforts did not reach the desired result. The Environment Bureau has set a goal in the "Food Waste Plan" in 2014 to reduce food waste in landfills by 40% from 3,600 tonnes per day in 2011 to 2,160 tonnes per day in 2022 (Environment Bureau, 2014). However, even until 2023, only an 11% reduction has been achieved (Statistic Unit, EPD, 2024), highlighting the urgency of improving food waste management in Hong Kong.

### 1.1.2 Insufficient Collection from the Domestic Sector

The inefficiency of current policies can be greatly attributed that food waste is insufficiently collected from the domestic sector in Hong Kong. The data from EDP shows that the total amount of food waste collection across society has increased from an average of approximately 200 tonnes per day in December 2023 to approximately 310 tonnes per day in October 2024. Among these, the amount of domestic food waste collected has increased from approximately 15 tonnes per day in December 2023 to approximately 90 tonnes per day in October 2024 (Legislative Council, 2024). Even though this marked a significant increase, the amount of domestic food waste collected accounts for less than one-third of the total food waste collected, which contrasts sharply with its large share of generation. Besides, the total amount of collected food waste is still far below the treatment capacity of the current four recycling facilities (O·PARK 1, O·PARK 2, Sewage treatment plants in Tai Po and Sha Tin), which can handle 600 tonnes per day in theory (EPD, 2025). These indicate a big room for improvement in enhancing food waste collection from the domestic sector.

There are mainly two important factors causing the insufficient domestic food waste collection.

#### (2) Lack of Collection Facility

The first reason is the insufficient collection facility in residential areas. As for public housing estates, the government offers free FWSRBs and has already reached the goal of installing 740 FWSRBs across all 213 public housing estates in Hong Kong by the end of June 2024, and the further goal is to reach "one block one bin" in 2026 (Environment and Ecology Bureau, 2024). According to the Southern District Council Member, Mr. Cheung Wai Nam, "The most severe problem happens in the domestic

sector except public housing estates. The catering industry is believed to participate actively, as they have incentive policies and subsidies. The government is also dedicated to promoting FWSRBs in public housing, even though, due to funding constraints, installing one bin per building is not possible currently, it will be gradually improved in the future."

The problem is more directed to private housing estates, as most of them are still not covered by FWSRBs. Two types of funding schemes are provided for estates below and over 1,000 households to apply (Property Management Service Authority, 2025). However, by February 2025, only 380 FWSRBs had been installed in 120 private residential estates and villages across Hong Kong (EPD, 2025). In the Southern District, the latest data from EPD (2024b) shows there was only one private housing estate installed with FWSRBs by September 30, 2024. According to the Southern District Council Member, Mr. Cheung Wai Nam, "there are several private housing estates that have applied for the scheme, including Lei Tung Estate, Chi Fu Fa Yuen, and Southern Horizons, but they are all large housing estates with over ten blocks".

The reason behind the difficulties in the popularization of FWSRBs in private housing estates can be greatly attributed to the resistance from Incorporated Owners (IOs), who are responsible for the building management. Some find the application process for FWSRBs is complicated, requiring detailed data collection, and can take several months; others worry that dealing with residents' complaints about FWSRB, such as the technical and cleaning issues. Additionally, the funds and support they receive may not cover all the expenses for implementation (Liang, 2024). This urges more effective policies to enhance the FWSRBs installation.

**(2) Lack of Awareness for Residents**

The second reason is that residents lack awareness about food waste collection. Many of them have knowledge gap, they are unaware of the existence of the collection facility without being properly informed, and are confused about how to use the food waste smart recycling bin or are unclear about the rules of sorting food waste, such as whether fish and pork bones can be regarded as food waste (HK01, 2024). What is more, some people perceived the inconvenience of food waste sorting, regarding it as time wasting, or worried about the bad smell from the food waste bin. This could be a stereotype, according to Mr. Chan Fu-ming, an IO in the Southern District, "ordinary bins tend to have an unpleasant smell, but FWSRBs are better sealed and more hygienic."

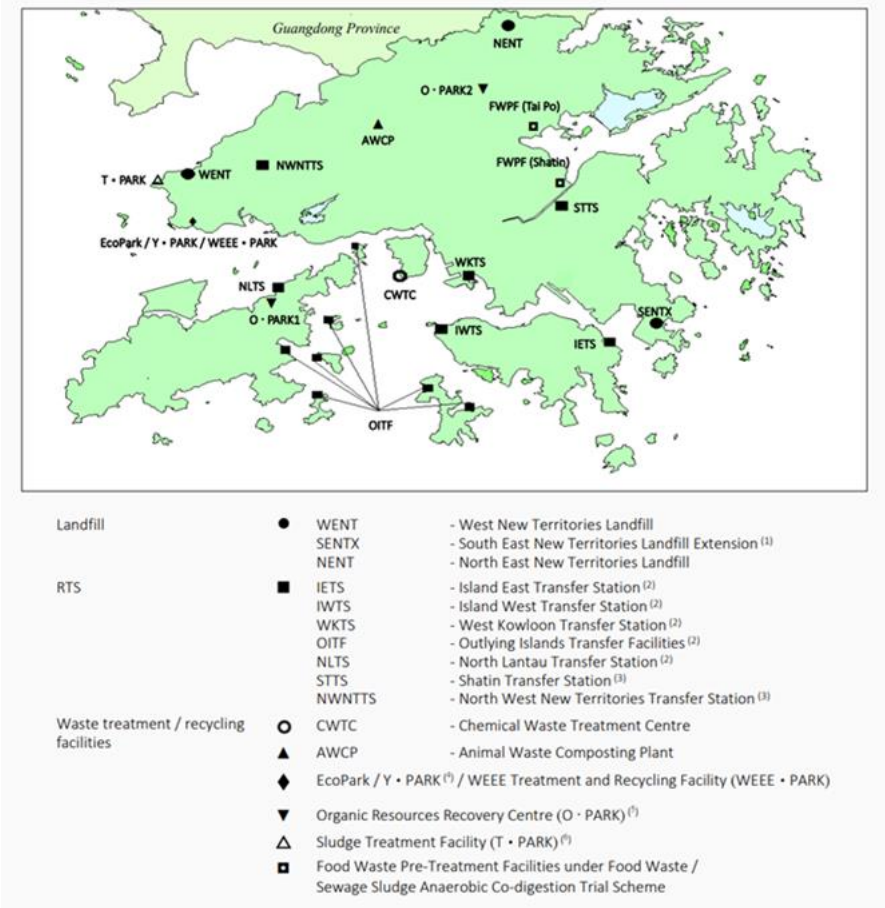
## 1.2 Significance of Reducing Food Waste by Recycling

To reduce the excessive food waste at the end, three approaches are currently taken or planned to be taken in Hong Kong, which are: landfill, recycling, and incineration. The landfills and incineration are used for quickly disposing of large amounts of food waste together with other MSW, recycling aims to dispose food waste separately and is acing low collection rate. However, except for recycling, the other two are considered not sustainable.

First, landfills in Hong Kong will soon become saturated and have negative impacts to environment.

Nowadays, most of the food waste still goes to landfills together with other MSW, instead of being collected separately to be recycled. In 2023, only 6.4% of the generated food waste were recycled and the rest went to landfills (EPD, 2025). Due to the limited land use, only three strategic landfills in the city are functioning as key disposal sites, including the Northeast, Southeast, and West New Territories Landfills. The Northeast and West New Territories Landfills are expected to be exhausted in 2026 (GovHK, 2024a). The initial works for the extension part of the Southeast New Territory Landfill were completed in November 2021 and are expected to be able to meet Hong Kong's waste disposal needs up to the 2040s (EPD, 2022). However, as landfills extension occupy valuable land resources in Hong Kong, it cannot be considered as a sustainable way. From the environmental aspect, food waste produces leachate, which is a liquid that contaminates surface water sources, affecting wildlife, polluting drinking water supplies, and spreading disease (Ramsey, 2024). It also greatly contributes to climate change, as rotten food in landfills represents 34% of all methane emissions, which is 20 times more damaging to the environment than CO2 (Truong, 2022).

Second, incineration is unsustainable due to greenhouse gas emissions from waste burning. Hong Kong is building Integrated Waste Management Facilities (IWMF) to substantially reduce mixed MSW volume and recover resources. The IWMF Phase 1 (I·PARK1), commissioning in 2025 with a 15-year contract, uses incineration as core technology alongside sorting/recycling facilities, having a treatment capacity of 3,000 tonnes each day (EPD, 2023c). While incineration reduces landfill food waste quickly, it emits more greenhouse gases than recycling. According to Green Power (2022), 0.61 tonnes of greenhouse gas emissions can be saved by each tonne of food waste recycled in O·PARK2, while the future I·PARK1 is expected to reduce only 0.4 tonnes of greenhouse gas per tonne of waste burned. Besides, anaerobic digestion also performs much better than incineration in terms of greenhouse gas emissions and acidification in food waste disposal (SCMP, 2023).




**Graph 2:** Waste Management Facilities in Hong Kong (Statistic Unit, EPD, 2024)

Overall, food waste collection for recycling is important, as it provides a sustainable solution to food waste management in Hong Kong, which is aligned with the United Nations Sustainable Development Goals (SDG) 6 (Clean Water and Sanitation), SDG 11 (Sustainable Cities and Communities), SDG 12 (Responsible Consumption and Production), and SDG 13 (Climate Action).


**Graph 3:** SDGs Align with Food Waste Management (United Nations, n.d.).

### 1.3 About the Southern District

Considering the insufficient food waste collection in Hong Kong, the Southern District Council is actively seeking effective solutions. The role of the district council is to collect public views, submit suggestions to the government, and convey government policies to the public.

Improving the domestic sector food waste collection can be extremely challenging in the Southern District, as its residential areas represent a wide range of income groups and demographics, as shown in Table 1 (Centaline Property, n.d.). Therefore, the complexity of policy design should be considered arises from the diverse opinions and needs of various residents and stakeholders.

Table 1: Key Neighborhoods in the Southern District

| | High-income neighborhoods | Middle-class neighborhoods | Low-income neighborhoods |
|---|---|---|---|
| Example | Shouson Hill | South Horizons | Wah Fu |
| Total Population | 1,800 | 30,000 | 40,000 |
| Median monthly household income | HK$161,660 | HK$ 64,840 | HK$ 22,610 |
| Median age | 43.9 years. | 46.4 years | 51.9 years |

This research aims to provide the District Council members with feasible policy alternatives, with a comprehensive analysis from the opinions of the public and other relevant stakeholders for their reference both when they communicate with the government for policy improvement, or they communicate with the public for policy implementation.

# Chapter 2: Method

This study applies a mixed methods approach, combining quantitative and qualitative data collection techniques, to comprehensively explore the current situation, challenges and potential improvement options for food waste collection in HK. The research relies on primary and secondary sources, using questionnaires, in-depth interviews and analyses of publicly available data to construct a multi-dimensional understanding of the issue.

### 2.1 Primary data collection

#### 2.1.1 Questionnaire

To gather residents' perceptions and behaviors of food waste collection and relevant policies, this research designs a structured questionnaire. Due to client requirements and demographic features similar to those of HK as a whole, the survey was conducted in the Southern District. This questionnaire

includes closed-ended questions and a small number of open-ended questions to collect data and supplementary insights. The content of questionnaire covers:

- Basic information of respondents
- Current food waste disposal practices
- Residents' willingness to participate in relevant initiatives

The questionnaire employed a convenience sampling method and was administered to residents in the Southern District of HK through both online platforms and face-to-face interactions. To ensure data representativeness and statistical validity, survey phases have implemented quota adjustments to align with HK's demographic statistics. Specifically, the study will maintain an approximate proportional distribution of 30% public housing estates and 70% private housing estates in its sampling framework (Census and Statistics Department, 2021). Eventually, 130 valid responses have been collected, with public housing estates representing 28% and private housing estates constituting 72% of the current sample (Table 2). The face-to-face distributed questionnaires were collected from the following locations：

- The Southside shopping mall (Both public housing and private estates)
- South Horizons (Mainly private estates)
- South Wave Court (Both public housing and private estates)
- Wah Kwai Estate and Wah Fu Estate (Mainly private estates)
- Wah Fu Shopping Centre (Mainly public housing)

Table 2 Distribution of current and expected samples

| Housing Type | Sample (n=130) |
|---|---|
| Public Housing | 37 (28%) |
| Private Housing | 93 (72%) |

### 2.1.2 In-depth Interview

To investigate alternative recycling methodologies and identify optimal operational practices, semi-structured interviews were conducted with waste management specialists and District Council representatives, particularly those in the New Territories. Furthermore, targeted interviews were also conducted with IOs of small-scale and large-scale private housing estates to systematically examine implementation barriers at the policy execution level. To enhance the multidimensional analysis of policy implementation mechanisms, subsequent interview phases will incorporate semi-structured engagements with Southern District Council members, coordinators of the Green@Community initiative, and representatives from Non-Governmental Organizations (NGOs) engaged in pertinent policy research.

Table 3: List of Interviewees

| **Type of Interviewee/ Stakeholders** | **Name** | **Organization and Title** |
|---|---|---|
| Academic Experts | Prof. James Ka Lei WONG  | Associate Dean of Humanities and Social Science at HKUST. Research interest: Politics of science, environment and sustainability; Ethics and public policy |
| District Council members | CHUNG Kin-fung  | District Council geographical constituency member of Tuen Mun West |
| | JEUNG Wai-nam  | District Council geographical constituency member of Southern District Northwest |

| | | |
|---|---|---|
| IO Members | CHEUNG Pou-king<br>  | Chairman of Wah Kwai Estate Owners Corporation |
| | Chan Fu-ming<br>  | Chairman of Hoi Chun Court, Hoi Chu Mansion, Hoi San Mansion and Hoi Wu Court Owners Corporation |
| Environmental conservation groups | Wendell Chan<br>  | Senior Officer at Friends of the Earth (HK) |
| Government Project | Green@Community | / |

## 2.2 Secondary data collection

### 2.2.1 Government public data

Public data related to food waste recycling are collected from HK government websites such as the EPD. This data includes, but is not limited to:

- The cost of the government for deploying and maintaining smart food waste bins
- The number of users and the amount of waste recycled by smart food waste bins
- The distribution and quantity of smart food waste bins in the Southern District
- The number of applications for smart food waste bins in private estates
- …

### 2.2.2 NGO webpages and other literature

Supplementary information was gathered from local and international NGO websites such as Greenpeace and Friends of the Earth Hong Kong, including:

- Case studies of NGO-led food waste collection initiatives.
- Challenges and recommendations noted in advocacy materials or research reports.

## 2.3 Data analysis

### 2.3.1 Quantitative analysis

Closed-ended questionnaire responses were analyzed using statistical software Stata. Descriptive statistics, such as means and percentages, and correlation were employed to identify patterns in residents' behaviors and their influencing factors.

### 2.3.2 Qualitative analysis

The qualitative analysis will systematically interpret textual data from two primary sources:

- Semi-structured interviews with stakeholders, including IOs, district councilors, and NGO practitioners
- Secondary data from Government public documents, NGOs, and other literature.

## 2.4 Research limitation

### 2.4.1 Selection bias and undersampling

Firstly, the sample size of 130 may suffer from under-sampling and under-representation. To mitigate this limitation, different IOs of private housing estates have been interviewed, and their interviews are broadly representative of the owners. Secondly, the reliance on convenience sampling may introduce selection bias. This problem will be effectively mitigated by sampling calibration. Survey weighting adjustments (Census_proportion/Sample_proportion) were applied during regression analysis to partially correct housing-type disparities.

### 2.4.2 Weakness of secondary data

Temporal validity concerns emerge from potential lags in secondary data sources, as the data publicly disclosed by government departments and NGOs may not be the most up to date. This limitation could be mitigated with clients' assisstance. Due to the client's position as a district council member, they have the right to raise inquiries with government departments and receive responses. In this way, the study will obtain as much up-to-date data as possible from the government side.

# Chapter 3: Policy Evaluation Criteria

## 3.1 Criteria

### 3.1.1 Effectiveness

Effectiveness refers to the extent to which a program or policy achieves its stated objectives, as evidenced by its effectiveness in reducing financial burdens, improving public service delivery, and promoting sustainable economic and social development. Firstly, an optimal policy should lead to improved quality in public services, which in this project will be measured by the coverage of food waste treatment facilities (%). Additionally, resource use efficiency serves as a key reference indicator, encompassing metrics such as the increase in the recycling rate (%) of food waste or the rise in the utilization rate (%) of food waste treatment facilities.

### 3.1.2 Equity

This criterion requires that the policy must take into account the equitable distribution of costs and benefits among various groups. In this context, the policy could negatively impact disadvantaged populations. For example, it's essential to evaluate whether the policy is disadvantageous for low-income families. Furthermore, enhancing facility accessibility is crucial, as different types of housing estates, such as public and private housing, have different regulations. And varying sizes (number of households) of private estates have different requirements in applying assistance from the government. Additionally, the unequal distribution of award redemption machines in the supporting mechanism may also lead to additional costs for some residents.

### 3.1.3 Acceptability

This criterion aims to evaluate the ability of food waste recycling management policies or interventions to gain adoption by key decision-makers and maintain stakeholder consensus during implementation. Therefore, the interests of different stakeholders must be adequately considered. First, the level of support from decision-makers should be assessed, measuring how well the policy aligns with the EPD's strategic planning and the Southern District Council's budget priorities. Second, the proposed alternatives must be legislatively compatible, meaning they need to meet the technical and procedural requirements of the Waste Disposal Ordinance. Third, the dynamics of interest groups should be considered (Bardach, 2012), as conflicts may arise between the cost demands of IOs and the environmental advocacy of NGOs. Lastly, public acceptance must be evaluated, focusing on citizen satisfaction with the policy's implementation details.

### 3.1.4 Fiscal burden

The fiscal burden refers to the challenges that governments face due to a mismatch between income and spending when delivering public services and social welfare, which can significantly impact decision-making. Effective policy spending, generally at lower levels, can enhance the decision-making process

for policy implementation. Fiscal burdens can be categorized into one-time investments and ongoing expenditures. One-time investments are critical for determining whether a policy can be approved and implemented, while long-term expenditures are essential for sustaining the policy in its later phases, affecting its overall viability. Currently, many of Hong Kong's solid waste management policies tend to focus on short-term solutions. In this study, one-time investments can refer to the costs incurred by the government or other implementing agencies for placing facilities or carrying out activities, such as the cost of the government providing smart food waste bins. Subsequent investments include the costs of maintaining and operating these facilities by the government.

### 3.2 Ratings of Criteria

Among the four criteria, effectiveness holds the highest priority, followed by equity. Acceptability and fiscal burden are of comparatively lower importance. For effective comparison and prioritization of alternatives, each criterion will be evaluated using a four-level rating scale: Low, Medium, High, and Very High. These ratings will be determined by: (1) each alternative's absolute performance across the four criteria, and (2) its relative performance compared to other alternatives. Notably, alternatives with a higher fiscal burden will automatically receive lower ratings (Low), while those with a lower fiscal burden will score correspondingly higher (High). Therefore, evaluating an alternative requires not only examining its individual criterion ratings but also accounting for the relative importance weights of each criterion.

Table 4: Evaluation Criteria

| **Criteria** | **Importance Ranking** |
|---|---|
| Effectiveness | 1 |
| Equity | 2 |
| Acceptability | 3 |
| Fiscal burden | 4 |
| For each criterion, there is a four-level rating scale: Low, Medium, High, and Very High. | |

# Chapter 4: Policy Alternatives Analysis

Based on the results of the questionnaire survey and interviews, three alternatives were identified: (1) Status Quo, (2) Expansion of existing programs, (3) Mandatory waste sorting without charging, and (4) Information Campaign. Four alternatives were assessed to address these challenges, evaluated based on effectiveness, equity, acceptability, and fiscal burden.

## 4.1 Alternative 1: Status Quo

### 4.1.1 Implementation of Current Policies

Under the overarching framework of the *Pilot Scheme on Food Waste Collection*, the focus of food waste recycling in Hong Kong has shifted from the business sector to the household level. This initiative encourages housing estates to adopt smart recycling bin technology and establish treatment facilities to convert food waste into electricity and compost, thereby enhancing the effective collection and recycling of food waste. In PRH estates, *Food Waste Collection in Public Rental Housing Estates* provides FWSRBs free of charge. For private housing estates, *Funding Support to Food Waste Collection and Recycling* provides financial assistance for food waste initiatives and promotes smart bin technology in residential buildings. As the EPD continues to expand and innovate, these efforts are expected to further improve food waste management across different residential sectors in Hong Kong.

***Overarching Programme in Domestic Sector: Pilot Scheme on Food Waste Collection***

In 2021, the EPD launched a larger-scale Pilot Scheme for food waste collection, expanding its focus from commercial and industrial sectors to include domestic food waste. Residents are instructed to remove non-food waste, drain liquids, and pour food waste directly or via a small container into designated bins (EPD, 2023a). The collected food waste is then sent to treatment facilities, such as O·PARK2, where it is converted into electricity and compost. From 2023 to October 2024, the EPD has increased the number of food waste collection sites from 800 to about 1450. In the future, the EPD plans to double the number of food waste collection facilities in all residential premises in Hong Kong to about 1600 and increase the number of portable food waste recycling sites to 100. In addition, the EPD will explore various innovative and more cost-effective food waste collection technologies, including upgrading the existing food waste recycling bins and piloting various types of on-site food waste treatment facilities (EEB, 2024).

***Food Waste Collection in PRH Estates***

In collaboration with the Housing Department and the Hong Kong Housing Society, the EPD launched the Food Waste Collection Scheme in PRH estates in late October 2022. The initiative aims to enhance food waste recycling by installing FWSRBs across all 213 PRH estates by August 2024. These sealed bins are equipped with deodorizing devices, weight sensors, capacity level sensors, and Green Rewards card identification. Residents earn Green Points for their first use each day, which can be redeemed for

daily necessities. As of June 2024, 740FWSRBs have been installed, covering all PRH estates ahead of schedule, with further expansion planned in the coming years to meet the target of 'one bin per PRH block' by 2026 (The Government of the Hong Kong SAR, 2024).

***Funding Support to Food Waste Collection and Recycling in Private Housing Estates***

The Government assists the installation of FWSRBs in private housing mainly through funding support projects, including the Recycling Fund's *Solicitation Theme* and the *Pilot Scheme on FWSRBs in Private Housing Estates* launched by the Environmental Campaign Committee (ECC). Under the Recycling Fund's Project, IOs, Owners' Committees (OCs), and Property Management Companies (PMCs) can apply for grants of up to $2,500,000 to procure, install, and maintain FWSRBs on their own. In contrast, the ECC's scheme offers free FWSRBs to eligible large-scale housing estates, which are centrally procured and distributed by the ECC to housing estates and provided with installation and maintenance services for a period of 24 months. From late 2023 to October 2024, the number of FWSRBs in private housing estates has tripled from about 100 to about 330 bins. For example, eight sets of food waste management systems have been installed in Chi Fu Fa Yuen, a private housing estate in the Southern District, to enhance food waste management (EPD, 2024).

Table 5 FWSRBs Schemes for Public Housing

| | **Recycling Fund's *Solicitation Theme*** | **ECC's *Pilot Scheme on FWSRBs in Private Housing Estates*** |
|---|---|---|
| **Project Duration** | 24-48 months (including a 6-month preparation period) | 24 months (including a 3-month preparation period) |
| **Maximum Funding Amount** | $2.5 million per project | 20 FWSRBs per housing estate |
| **Funding Content** | 1. FWSRBs' rental fee<br>2. FWSRBs<br>3. Additional workers' fees<br>4. Costs for promotion, educational activities and administration<br>5. Audit expenses | 1. FWSRBs' rental fee<br>2. FWSRBs |
| **Preparation and Execution Projects** | 1. Arrange human resources and training<br>2. Basic electrical engineering equipment<br>3. Conduct tendering for rental services<br>4. Open a dedicated bank account<br>5. Regular reporting | 1. Arrange human resources and training<br>2. Basic electrical engineering equipment |
| **Procurement Arrangement** | Procured by the applicant themselves | Centralized procurement by ECC, then distributed to housing estates |
| **Application Requirements** | At least 200 signatures from residents per recycling bin | Housing estate must have over 1,000 households |

Overall, there has been a significant increase in overall food waste collection as a result of these current policy initiatives, with an average daily food waste collection of about 310 tonnes, representing an increase of 50% compared with December 2023. In particular, there has been a significant increase in the amount of household food waste collected, with the amount of household food waste collected in October 2024 five times higher than that in December 2023, and the amount of food waste collected in PRH estates in October 2024 also increased by nearly 70% compared to May.

#### 4.1.2 Evaluation of Alternative 1

Therefore, based on the above analysis, the results of the evaluation at the selected criteria are as follows.

| **Alternative 1** | | |
|---|---|---|
| **Criteria** | **Rating** | **Explanation** |
| Effectiveness | Medium | Since late 2023, collection points increased by 81%, smart bins achieved 100% coverage in public housing, and private housing saw a 230% rise in bins. Daily food waste collection grew by 50%, with household recycling increasing fivefold. While 67% of residents use available bins, challenges remain. HK's public housing estates have achieved full coverage under the current food waste recycling scheme, though the 2026 target of "one bin per block" has not yet been met. So overflowing public bins due to high demand (including private estate users), and operational issues like transport contamination. Private housing coverage still needs improvement. |
| Equity | Medium | From the perspective of vulnerable groups, public housing residents face no additional financial burden as the government provides food waste recycling bins free of charge. However, accessibility remains an issue, while FWSRBs achieve 100% coverage in public housing estates, private estates lag significantly due to complex application procedures. Even within public housing, the "one bin per block" target has not yet been met. Survey data reveals that 32% of respondents consider excessive distance to bins as the top deterrent affecting their willingness to recycle, ranking this as the most significant barrier. |
| Acceptability | Medium | The policy complements the EPD's Blueprint and the Southern District Council's budgetary allocation for sustainable development. However, in interviews, many IOs expressed frustration with the complicated application requirements and procedures, hoping to see relevant improvements. |

| | | |
|---|---|---|
| Fiscal burden | Low | The policy imposes a relatively heavy financial burden, including substantial upfront costs for installing FWSRBs in public places and subsidizing private housing estates, as well as recurrent costs for cleaning and maintenance, and incentive rewards. |

Table 6: Alternative 1 Evaluation

## 4.2 Alternative 2: Expansion of Existing Programs

Alternative2 is the expansion of existing programs, which is to improve the status quo by focusing on private housing estates.

### 4.2.1 Problems of Status Quo: Insufficient FWSRBs in Private Housing Estates

Hong Kong's FWSRB programme shows a structural imbalance, with 69% of FWSRB coverage concentrated in PRH estates, according to the data up to 2024 mentioned in the previous status quo. Private housing estates, on the other hand, particularly small estates and single blocks, face a significant shortage. For example, questionnaire data shows that only 19 % of residents with FWSRBs in their estates live in small private housing estates with less than 1,000 households, highlighting systemic inequalities.

In addition, interviews with stakeholders further validate this disparity:

- Mr. Wendell Chan noted that PRH estates account for only 30% of total households (GovHK, 2023) yet dominate FWSRB deployment.
- Mr. Chung Kin-Fung observed that FWSRBs in PRH estates are overburdened by cross-use from private residents, leading to frequent overflow.
- Mr. Cheung Wai Nam emphasized that small private housing estates face insufficient recycling capacity, with single-block buildings lacking both funding and space for FWSRBs.
- Prof. James Wong highlighted that the current number of FWSRBs may not be sufficient to meet the needs of domestic households, as FWSRBs are available in all PRH estates but not in all private estates and buildings.

The insufficient FWSRBs in private housing estates reflect the socio-economic divide to a certain extent, as PRH in Hong Kong mainly protects the accommodation needs of the low-income group, whereas residents of private housing estates are mainly in middle- to high-income groups. This divide undermines the city’s sustainability goals and perpetuates low participation rates in waste reduction.

### 4.2.2 Root Causes and Solutions of Insufficient FWSRBs in Private Housing Estates

The installation of FWSRBs in private housing estates requires the endorsement and active application of IOs. In addition, IOs elected by residents of the housing estates need the support of the residents, so

the attitude of the residents towards FWSRBs is also crucial. Therefore, the report will analyze the root causes of the insufficient number of FWSRBs in private housing estates, mainly from the perspective of both residents and IOs.

**(1) Resident-Side Challenges and Solutions**

The questionnaire data shows that only 35% of the residents who have FWSRBs in their housing estates use FWSRBs as a general way to dispose of their food waste, while 65% of the residents do not want to use FWSRBs mainly because the bins are far away from the buildings they live in (71%), the bins have unpleasant smell (54%), and they think that food waste sorting is neither convenient nor as important as other real-life problems (30%).

Obviously, low convenience and accessibility are the first major challenges. Residents of private housing estates often face logistical barriers due to the insufficient number and density of FWSRBs in private housing estates. As Professor James Wong pointed out, transporting food waste over long distances on a daily basis can hinder habit formation.

The second challenge is insufficient behavioral incentives for residents. The current Green Points can mainly be exchanged for daily commodities such as rice, noodles, oil, biscuits and toilet paper, which are attractive to the low-income and middle-aged and elderly groups. Mr. CHUNG Kin-Fung pointed out that if the incentive mechanism can be designed to be more relevant to the general needs of the public, for example, by exchanging the points for cash coupons of supermarkets, McDonald's vouchers, and so on, the public's participation will be much higher. And Mr. CHAN Fu-ming argued that for young and high-income residents, recycling is not more about exchanging points for things, but rather about the sense of achievement that comes from environmental awareness.

Comparing these two challenges, mismatched incentives are a more fundamental cause than inconvenience. The relationship between residents' willingness to use FWSRBs and the availability of bins represents a causal dilemma: while low FWSRB density discourages participation, increasing bin numbers alone cannot resolve systemic barriers to convenience and accessibility. To break this cycle, policies must prioritize targeted behavioral nudges over infrastructural expansion alone. By reinforcing immediate and personalized incentives for residents of different ages and incomes, recycling habits can be fostered before infrastructure is scaled up, thereby justifying future investments in FWSRB density to IOs based on proven resident demand. This approach not only solves the causality dilemma but also ensures that expanded FWSRB coverage translates into sustained behavioral change.

**(2) IOs-Side Challenges and Solutions**

The first challenge is the administrative hurdle. On the one hand, small private housing estates usually lack functional IOs or resources to navigate government funding schemes. For example, unlike the ECC scheme where FWSRBs are procured directly by the Secretariat and then distributed to the estates, the

Recycling Fund Scheme, to which small private housing estates can apply, requires the IOs to conduct their own tendering exercises for the leasing of FWSRBs. Moreover, as highlighted by Mr. Cheung Wai Nam, single-block buildings usually do not have IOs and hence are not even eligible to apply for the government funding schemes. On the other hand, the cumbersome government approval processes are also adding to the difficulties for IOs. Ms. Cheung Pou-king criticized the slow bureaucratic approval timeline, stating that "the process of government services takes a long time". Delays in the disbursement of funds or technical approvals can discourage IOs, even if they initially supported the recycling programme. For example, the Wah Kwai Estate application faced such a long preparation period that "even if approved, it would not be able to meet the demand" due to shifting priorities or resident dissatisfaction during the waiting period.

The second challenge is the prohibitive operational costs and resistance to long-term commitment. The government funding programme provides support for two to four years, but upfront funding alone cannot address the long-term cost challenges. Mr. Chan Wing-Tak's warning about the unsustainability of short-term subsidies resonated with the experience of Wah Kwai Estate. Ms. Cheung Pou-king pointed out that each FWSRB consumes about 802 kWh per month and hiring additional cleaners would increase costs. In turn, community hygiene and FWSRBs' odor are a major concern for residents, so the recurrent costs of cleaning and maintenance will inevitably force IOs to raise management fees, which usually triggers objections from residents. In the long term, the IO cannot sustain the operation of the FWSRBs without passing on the costs to residents, but fee increases may erode community support. Financial and operational risks as well as resident opposition discourage IOs from supporting recycling projects, ultimately prioritizing short-term stability over sustainability goals.

The third challenge is space constraints. Property managers prioritize parking or recreational spaces over FWSRBs. Mr. Cheung Wai Nam added that even willing IOs face "no suitable locations" for bin placement, especially in small private estates with limited public space and densely populated single buildings in city centers.

The implementation of FWSRBs in Hong Kong's private housing estates faces three interrelated institutional challenges: administrative complexity, long-term operational costs, and space constraints. Addressing IOs-side challenges requires a holistic approach: simplifying bureaucracy, aligning costs with resident incentives, and expanding public infrastructure. By integrating these measures, the government can reduce institutional friction, foster community buy-in, and create a scalable framework for citywide food waste recycling.

#### 4.2.3 The Practices Alternative 2 Proposed: Concrete Improvement of Status

To address the systemic barriers undermining FWSRB adoption in private housing estates, a multi-pronged strategy is proposed, targeting resident engagement, administrative efficiency, and infrastructure accessibility.

### (1) Upgrade the Incentive System for Residents

The current Green Point rewards scheme, while effective in PRH estates, fails to motivate private residents. As Mr. Wendell Chan noted, “carrots alone cannot build a recycling culture” without tailoring incentives to diverse lifestyles.

#### A. Increase Redemption Machine Density

Expanding the coverage of Green Point redemption machines is critical to reinforcing participation. The questionnaire shows that 68% of residents prioritize distance and convenience in recycling. However, interviews revealed that not all housing estates have convenient redemption points nearby. For example, residents of Wah Kwai Estate have to walk for about ten minutes to a nearby wet market to redeem their gifts. By ensuring all housing estates with FWSRBs are equipped with redemption machines, the government can bridge the “last mile” gap between waste disposal and reward collection. This aligns with Prof. James Wong’s emphasis on proximity as a key driver of habit formation.

#### B. Tailor Incentives to Socioeconomic Diversity

To engage middle- to high-income households and younger demographics, incentives must evolve beyond generic rewards like fixed in-kind redemptions.

On the one hand, e-coupons in partnership with different merchants give a wide range of choices to residents with different consumption preferences for common everyday needs. For example, partnering with supermarkets like ParknShop and food delivery platforms like Foodpanda to offer e-coupons redeemable through Green Points can meet a wide range of public needs.

On the other hand, co-branded IP campaigns can motivate higher income groups who are more conscious of environmental culture and fulfilment, as well as young people who have a preference for novelty. For example, launching limited edition Chiikawa-themed IP merchandise or commemorative badges that people can earn through green point competitions promotes community-driven engagement through gamification.

This stratified approach not only broadens participation but also leverages Hong Kong’s “Goods Economy”, where exclusive products and experiences drive consumer behavior. In addition, residents' willingness to participate may also compensate to some extent for the financial risk that prevents IOs from implementing FWSRB programmes, as residents may perceive that the incentive benefits outweigh the cost of the passed-on management fee.

### (2) Optimize the Application Process for IOs

Administrative barriers and eligibility constraints make corporations unwilling or unable to pursue the FWSRB programme, which requires corresponding policy interventions.

**A. Streamline Application Forms**

Simplify documentation for the ECC and Recycling Fund schemes. For instance, replace technical jargon with checkboxes and visual guides, reducing the burden on small IOs lacking legal or administrative expertise.

**B. Accelerate Approvals with Digital Tools**

Develop a web-based tracking system to provide real-time updates on application status, funding disbursement, and technical approvals. This addresses Ms. Cheung Pou-King's critique of opaque timelines, which erode trust and momentum.

**C. Relax Eligibility Criteria**

Extend access to the ECC scheme, which provides bins directly, to small private housing estates and single-block buildings without formal IOs by allowing property managers or resident committees to apply—a fix for the eligibility gap highlighted by Mr. Cheung Wai Nam.

**D. Empower District Council (DC) Members as Proactive Mediators**

To address the inertia in private housing estates, DC members must proactively engage with IOs to drive FWSRB applications. Unlike public housing residents, private estate stakeholders rarely initiate recycling requests independently, as noted by Mr. Cheung Wai Nam. DC members should act as intermediaries, offering hands-on assistance to simplify bureaucratic hurdles, such as guiding IOs through tendering processes, clarifying eligibility criteria, and accelerating form submissions. Similarly, leveraging survey data and the experience of other estates can persuade reluctant IOs to adopt schemes. By bridging the gap between policy and practice, DC members reduce administrative friction, enhance transparency, and ultimately raise FWSRB coverage in underserved private estates.

**(3) Expand FWSRB Layouts in Public Places**

Space constraints in private estates, particularly single-block buildings, necessitate decentralizing infrastructure. Prof. James Wong's proposal to deploy FWSRBs in government premises offers a scalable solution.

**A. Strategic Placement**

Install bins in high-traffic public spaces, such as MTR stations, wet markets and sports centers, to serve residents from nearby private estates. For example, Southern District's Aberdeen Market could host bins for adjacent single-block buildings lacking space.

**B. Shared Community Hubs**

Pilot clustered FWSRB stations in urban centers like Causeway Bay, allowing multiple estates to share access. This reduces per-building costs and addresses overflow issues observed in public estates

**C. Leverage Existing Networks**

Integrate FWSRBs with Hong Kong's "Smart Street Furniture" initiative, embedding bins into bus stops or pedestrian walkways for seamless urban recycling.

In conclusion, these measures collectively tackle the causal loop between low resident participation and insufficient infrastructure. By enhancing incentives, the government cultivates demand to justify expanded FWSRB deployment. Simultaneously, simplified applications and public-space bins reduce operational risks for IOs, creating a self-reinforcing cycle of adoption.

### 4.2.4 Evaluation of Alternative 2

Therefore, based on the above analysis, the results of the evaluation at the selected criteria are as follows.

Table 7: Alternative 2 Evaluation

| **Alternative 2** | | |
|---|---|---|
| **Criteria** | **Rating** | **Explanation** |
| Effectiveness | High | By deploying FWSRBs in public spaces (e.g., MTR stations, wet markets) and streamlining application processes for private estates, the policy directly targets low coverage rates in small private housing. The proposal to expand infrastructure aligns with improving facility utilization rates, while tailored incentives address behavioral barriers. |
| Equity | High | Relaxing the eligibility criteria for single-block buildings ensures marginalized estates gain access to funding. Increasing the accessibility of FWSRBs on private estates and diversifying incentives for different groups, again bridge the accessibility and incentive disparities. |
| Acceptability | High | The policy complements the EPD's Blueprint and the Southern District Council's budgetary allocation for sustainable development. By upgrading subsidies to residents and optimizing funding for IOs, as well as engaging DC members as mediators, the policy is aligned with stakeholders' priorities. |
| Fiscal burden | Low | The policy imposes a heavy financial burden, including substantial upfront costs for installing FWSRBs in public places and |

| | | |
|---|---|---|
| | | subsidizing private housing estates, as well as recurrent costs for cleaning and maintenance, and incentive rewards. |

In conclusion, alternative 2 effectively addresses recycling gaps through targeted interventions, earning high marks for effectiveness, equity and political feasibility. However, its success hinges on managing fiscal burdens via phased implementation.

## 4.3 Alternative 3: Mandatory waste sorting without charging

### 4.3.1 Japan and Korea's Case

Hong Kong's Municipal Solid Waste Charging Scheme, which has been discussed for over twenty years, was originally meant to take effect in April 2024. However, due to strong opposition from citizens and insufficient policy preparation, the scheme did not go ahead as planned. Based on this failed attempt, this study started to wonder how our neighbors, such as Japan and Korea, successfully promoted waste sorting and charging policies. The following two cases were analyzed.

In Japan's case, three aspects are noteworthy. Institutional coercion is the most important aspect. In most areas of Tokyo, there are strict regulations that allow residents to dispose of kitchen waste only two days a week (Koto City Office, 2024). If residents do not comply with the waste sorting regulations, they may face fines of up to 100,000 yen (approximately 5,399 HKD). According to Article 25, Paragraph 14 of the Waste Management Act, those who improperly dispose of waste may be sentenced to imprisonment for up to five years and fined 10 million yen (approximately 514,000 HKD). Since garbage bags are transparent, waste that does not meet sorting standards will be labeled as "violating regulations" and returned to the residents' doorsteps. Residents and community managers supervise each other, creating a complete system of institutional coercion. On the other hand, Japan provides residents with detailed instructions on how to handle kitchen waste, such as how to drain moisture, reduce odors, and use grease solidifiers, and offers subsidies for residents to purchase food waste disposers (Takashima City, 2024). Finally, people can learn about the waste processing process after collection in detail from the city government's website and flyers (Tokyo 23 ward cleaning department, 2024), increasing confidence in waste sorting. Currently, all kitchen waste in Japan is first incinerated, and the ash from incineration is then landfilled.

In Korea's case, to effectively implement food waste sorting, Korea has established a series of legal provisions, such as Article 14 of the Waste Management Act (regarding the planning for reducing food waste generation) and Article 15 (obligations of food waste disposers). If food waste is found mixed with general waste, measures such as checking supermarket receipts in garbage bags, verifying addresses on discarded envelopes, or reviewing surveillance footage will be used to identify the individuals involved for advice, education, and fines (up to 1 million won, approximately 5,580 HKD). Currently, there are three main forms of food waste recycling in Korea. The first is the smart bin, which can weigh food waste and charge fees accordingly. The second is a shared recycling bin used by a certain number of residents, who then share the recycling costs. The third option allows residents to

purchase food waste bags themselves. A single 3-liter bag costs 300 won (about 1.67 HKD) apiece (Kim, 2022). Korea prohibits the landfilling of food waste, and the government has established hundreds of processing facilities to convert it into animal feed, fertilizer, and home heating fuel.

#### 4.3.2 Experience Learned

After briefly reviewing the experiences of Japan and Korea, it is noticed that the waste charging policy must have a coercive framework to ensure its enforcement. The coercive power comes from four aspects.

First, comprehensive legislation is essential. The law needs to clearly define which behaviors should be subject to penalties instead of being vague and ambiguous, which would create difficulties for further implementation. The severity and form of penalties must be carefully discussed and stipulated. If the penalties are not enough, grassroots enforcers may lack sufficient motivation to enforce waste sorting.

Second, penalties must be strictly enforced. As our interviewees pointed out, penalizing only a portion of people or being unable to punish all violations is equivalent to having no penalties at all. Japan and South Korea have adopted methods such as surveillance and manual inspections, as well as tracing individuals by checking personal items within trash bags, to enforce penalties.

Third, the supporting elements for implementing the policy need to be strengthened. Learning from Japan's experience, the government should clearly communicate the policy details to citizens by providing guidelines and setting examples. Comprehensive support for implementation is essential. For instance, designated trash disposal locations should be established in each community or building, and a calendar should be published to inform residents about which types of waste can be disposed of on specific days. Additionally, appointing supervisors to oversee the process and reducing the number of public trash bins can help. This step should demonstrate the consistency of the policy rather than frequent changes, showcasing the government's commitment to promoting waste sorting.

Fourth, the establishment of social norms is indispensable. Since waste sorting and charging policies have been in place for decades in Japan and South Korea, a social norm has been formed where not sorting waste is considered shameful. Neighbors monitor each other, creating a form of “soft” coercion.

- #### 4.3.3 Hong Kong’s Context

Our interviewee, Mr. CHUNG Kin-fung used many real-life examples to show that Hong Kong residents generally prefer incentives in the form of awards and are more likely to oppose penalties. Not only does the low-income group show this characteristic, but it is also very evident among the vast middle class. Under the previous garbage bag charging policy, many middle-class people said that if they were charged, they would go to Taobao (a mainland shopping platform) to buy cheaper bags. Also, in Hong Kong, we have observed that residents’ general reaction to the charging policy is not mutual supervision but “collusion” to collectively oppose the policy. These phenomena are also recognized by Mr. CHAN Fu-ming.

People don't like charging. Can we use punishment only? The answer is yes, this could be feasible, according to Mr. CHAN Fu-ming, because there are already policy precedents in Hong Kong. The Hong Kong government started to impose a fine for littering on the street in 2002, with the starting fine amount is HKD 600. In the next year, the fire amount rose to HKD 1500. And in 2023, the fire doubled to HKD 3000. This shows that if use punishment only, there will be higher acceptability.

In addition to the opposition against charging for trash bags, chaotic policy enforcement is also a significant reason for the failure of the waste fee policy. People opposed the policy because the government did not provide enough guidance on how to implement the system. Problems included distributing fee-charging trash bags without any instructions on how to use them, difficulties with food waste machines, and not having enough staff on the front lines to assist. All these issues contributed to the policy's failure.

Sometimes residents are not opposed to the policy itself, but rather dislike the inconveniences caused by its implementation. For example, Mr. CHUNG Kin-fung mentioned that when a waste incineration plant was proposed in a certain area, nearby residents opposed it because they were concerned that trucks transporting waste to the facility would dirty the roads. Their worries were about the details of the implementation process, but not the concern that the incineration plant would lead to pollution and health issues. Thus, enhancing the implementation process can increase acceptability.

#### 4.3.4 The Practices Alternative 3 Proposed

Based on the above analysis, Alternative 3 advocates for mandatory waste sorting without charging. The specific approaches are as follows:

The main approach is to distribute two types of trash bags for free: one for general waste and another for food waste. The free plastic bags provided are transparent, making it easier to monitor whether people are properly sorting their trash when they dispose of it. It could also be considered to reduce the size of the distributed trash bags. This will encourage residents to sort out larger, recyclable items separately.

Remove trash bins on each floor of residential buildings and replace them with designated disposal areas on the ground floor. Have sanitation workers specifically monitor whether residents are mixing general waste and food waste in the same bag. If mixing is detected, the trash will be returned to the resident, or a fine will be imposed. To cut the cost of labor expenses, the waste disposal time does not need to be 24 hours but can be limited to only some hours in the morning and in the evening.

For the fine amount, the recommended range is between HKD 800 and HKD 1500. In Japan and South Korea, the fine for improperly disposing of waste is approximately 30% of the average monthly income of residents. If applying the same percentage to Hong Kong, the fine would be around HKD 5940. However, since this is the first time such a fine is being implemented, public acceptance may be low, making it inappropriate to set a very high fine. Therefore, this study references the fine amounts for

other violations in Hong Kong, such as littering in public places, improperly discarding cigarette butts, smoking in no-smoking areas, spitting, and illegal posters, all of which are set at HKD 1500. Considering that waste disposal is a common behavior in residents' daily lives, we suggest setting the fine between HKD 800 and HKD 1500.

To strengthen supervision, it is suggested to reduce the number of public trash bins to minimize the phenomenon of indiscriminate littering on the streets. Install surveillance cameras on roads to track and penalize citizens who dispose of various types of waste on the street surface.

#### 4.3.5 Evaluation of Alternative 3

Table 7: Alternative 3 Evaluation

| **Alternative 3** | | |
|---|---|---|
| **Criteria** | **Rating** | **Explanation** |
| Effectiveness | Very High | Alternative 3 has strong enforcement for every citizen, thus it has a very high effectiveness compared to other alternatives. |
| Equity | Low | The free distribution of garbage bags ensures universal accessibility of food waste disposal, which complies with the rule of equity. However, the high amount of fines will be a burden for low-income individuals, especially those who are very busy at work, struggling to earn a living, because waste sorting costs them extra time. |
| Acceptability | Low | Alternative 3 focuses more on establishing a coercive framework for waste sorting, lacking incentive mechanisms. Moreover, the mandatory requirement for waste sorting brings inconvenience and additional time costs to residents, which may face opposition.<br>Additionally, Alternative 3 may also face opposition from the IOs. While removing trash bins from each floor could bring convenience to cleaners, some residential complexes may not have sufficient space for centralized waste collection. |
| Fiscal burden | Medium | The main approach proposes the following:<br>Firstly, remove trash bins from building corridors and instead, implement centralized waste collection on the ground floor. This change means that cleaners no longer need to visit each floor for cleaning; instead, they can focus on monitoring and clearing waste at designated points. Overall, labor costs would remain largely unchanged, without incurring additional expenses for property management and the government.<br>Secondly, the government distributes free trash bags for both |

| | | |
|---|---|---|
| | | kinds of waste. The current policy already includes the free distribution of general waste bags. The additional provision of food waste bags would result in a slight increase in costs. Furthermore, Alternative 3 suggests reducing the number of public trash bins on the streets, which would help lower costs. However, the installation of surveillance cameras and the enforcement of penalties for individuals who deliberately discard personal waste on the streets would incur additional operational and labor costs. |

Overall, although this alternative has a strong enforcement, which leads to high effectiveness, and the proposed measures are targeted at figuring out the implementation problem, it still has low equity and acceptability due to placing burdens on residents.

## 4.4 Alternative 4: Information Campaign

### 4.4.1 Analysis of Existing Problems

Currently, the Hong Kong government's information campaigns on waste reduction primarily focus on reducing food waste at the source, as seen in initiatives like the "Food Wise Hong Kong" campaign (Environment and Ecology Bureau, n.d.). However, there is relatively little information campaigns aimed at encouraging residents to participate in food waste sorting and recycling.

The Hong Kong government, environmental funds, and NGOs have conducted the following information campaign to promote food waste recycling:

Firstly, on the EPD's website, there are promotional videos and posters about "Household Food Waste Sorting." These materials provide information on the types of food waste that can and cannot be recycled, steps for handling household food waste, and how the waste is used for bioenergy generation at O·PARK. (EPD, 2024a)

Secondly, the EPD's website also features tutorial videos on using the "GREEN$ Electronic Participation Incentive Scheme" and FWSRBs. However, these videos do not explain the design details of the machines, such as built-in disinfection and deodorization features.

Thirdly, through the "Green@Community" project, the EPD has set up "Recycling Stations" in various districts. These stations also serve an educational purpose on environmental protection. Additionally, the "Green Outreach" team works within communities to promote and educate on waste recycling. However, the focus is mainly on the recycling of paper, metal, and plastic bottles, with less emphasis on food waste recycling. (Hong Kong Waste Reduction Website, 2025)

Lastly, the Environment and Conservation Fund provides financial support to NGOs for organizing food waste recycling education activities. According to their website, from 2017 to now, they have sponsored 22 publicity and education projects. In 2024-2025, they sponsored 3 projects by companies and NGOs to educate residents on using FWSRBs and promote food waste recycling. According to statistics, publicity and practice projects related to food waste account for only 11% of all sponsored activities. (Environment and Conservation Fund, 2025)

However, these information campaigns are still insufficient. Based on preliminary surveys and interviews, the report found that residents lack sufficient knowledge about food waste recycling facilities. When asked, "What factors may prevent you from using a smart food waste bin？" (question 13), 23% of respondents cited "The bin has an unpleasant smell," while 16% stated, "Even though you separate the food waste, in the back end they will be burnt or landfilled with other wastes." However, according to the manufacturer, smart food waste recycling bins are designed to be sealed, preventing leakage of waste, and are equipped with odor control features such as UV lamps, deodorant spray systems, and smart air sanitizers (Baguio Green Group, n.d.). Our on-site observations confirmed that these bins do not emit any unpleasant odors.

Additionally, when asked, "Would you like to buy a household food waste treatment machine (which can convert food waste into dry organic powder or grind it for flushing)?" (question 17), 60% of respondents answered "No." This reluctance may stem from the high price of household food waste treatment machines (market prices range from HKD 1,500 to 7,500) or from a lack of understanding of how these devices work and their potential value to users.

### 4.4.2 The Practices Alternative 4 Proposed

To bolster local food waste recycling, this report recommends an 'Information Campaign'. This initiative will pursue a dual strategy: refining existing publicity methods and launching targeted public awareness campaigns.

Regarding the improvement of publicity methods, this plan recommends placing posters in areas where residents' attention is likely to linger, such as lift lobbies. The content of these posters will be more practical, for instance, informing residents about potential monetary rewards for participating in recycling. Concurrently, reminder posters with slogans like "Have you recycled your food waste?" will be placed near rubbish bins to constantly remind the public. Furthermore, the plan suggests upgrading existing smart food waste bins to display the amount of food saved on a screen each time food waste is deposited, visually nudging residents to participate in food waste recycling.

Concerning public awareness campaigns, this plan emphasizes a clearer targeting of audiences. Based on interviews with Southern District councilors, low-income groups, many of whom are elderly residents in public housing estates, show greater interest in monetary rewards. For this demographic, street booths and on-site guidance are more effective methods of outreach. For middle- and high-income groups, enhancing environmental awareness is more crucial. Therefore, workshops and seminars are

more suitable. Additionally, given that waste disposal in many middle- and high-income households is handled by foreign domestic helpers, changing the behavior of these helpers would be a more targeted approach. Consequently, this plan will also provide multi-language guides and relevant workshops for foreign domestic helpers.

### 4.4.3 Evaluation of Alternative 4

Table 8: Alternative 4 Evaluation

| **Alternative 4** | | |
|---|---|---|
| **Criteria** | **Rating** | **Explanation** |
| Effectiveness | Low | Information campaigns raise awareness but often don't directly change long-term behavior on their own. People may understand the benefits of recycling but still not participate due to habit or inconvenience. Posters and information are helpful, but without easier recycling access or stronger incentives, recycling rates might not significantly increase. This approach works best when it supports other, more direct actions, not just as a standalone measure. |
| Equity | Very High | This campaign scores very high on equity because it aims to reach everyone. It uses different languages and tailors messages for diverse groups, like the elderly and foreign domestic helpers. It gives everyone the knowledge to participate, making it fair and inclusive. No group is left out or put at a disadvantage. |
| Acceptability | High | The public generally welcomes information campaigns. They are seen as helpful and positive, not forceful. People are usually open to guidance on environmental issues. The campaign's use of encouraging messages and voluntary workshops means it's unlikely to face strong opposition. This broad support makes it easy to implement. |
| Fiscal burden | High | The cost of an information campaign is low. Expenses mainly cover designing and printing materials (posters, guides) and running workshops. These costs are small compared to building new facilities or major tech upgrades. Digital outreach can further reduce expenses. It's an affordable option that doesn't heavily strain public funds. |

# Chapter 5: Policy Recommendations

## 5.1 Trade-Off Analysis: Why the Hybrid Approach Wins

Table 8: Alternative Evaluation Comparison

| | Effectiveness | Equity | Acceptability | Fiscal Burden |
|---|---|---|---|---|
| Status Quo | medium | medium | medium | low |
| Expansion of Existing Programs | high | high | high | low |
| Fine | high | low | low | medium |
| Information Campaign | low | high | high | high |

Based on an in-depth analysis of four policy alternatives, several significant hurdles have emerged, highlighting the complexities that make addressing the food waste recycling issue in the Southern District particularly challenging. Including limited bin coverage, low resident awareness, poor bin maintenance, unappealing incentives and stakeholder resistance. The recommended strategy for enhancing food waste management in Hong Kong's Southern District is a hybrid approach that integrates the expansion of existing recycling programs with a targeted information campaign. This dual strategy addresses the primary barriers identified in the research—limited coverage of FWSRBs, low resident awareness, and stakeholder resistance—while balancing effectiveness, equity, and feasibility within the Southern District's unique context.

The hybrid approach, combining Alternative 2 (Expansion of Existing Programs) and Alternative 4 (Information Campaign), emerges as the most effective and balanced solution for the Southern District Expansion of Existing Programs directly improves infrastructure by expanding FWSRB coverage, particularly in underserved private estates, and increases recycling rates through optimized application processes and upgraded incentives. Information Campaign complements this by addressing the awareness gap—70% of residents are unaware of or lack access to recycling bins—through targeted campaigns that encourage usage. Together, they tackle both structural and behavioural barriers, surpassing the standalone limitations of Alternative 1(Status Quo), medium effectiveness, and Alternative 3(Mandatory waste sorting without charging), low acceptability.

Maintaining the Status Quo, this approach has laid a foundation, it lacks the scale and ambition needed to meet landfill reduction targets or address the district's diverse needs, making it a short-term fix rather than a sustainable solution. In the Southern District, it has spurred modest participation in public estates with FWSRBs, but coverage remains patchy, with only a few private estates across Hong Kong equipped with bins. For Alternative 3（Mandatory waste sorting without charging), Hong Kong's cultural aversion to regulatory mandates—evidenced by public opposition to the 2024 waste charging scheme—poses a significant barrier. Implementation would demand substantial investment in enforcement infrastructure, such as the district-wide surveillance, and risk alienating low-income residents unable to afford fines or additional effort, rendering it politically and socially untenable.

Both Alternative 2 (Expansion of Existing Programs) and Alternative 4 (Information Campaign) score high on equity. Expansion of Existing Programs ensures broader access to FWSRBs across housing types, while Alternative 4's inclusive outreach (e.g., multi-language guides, tailored messaging) ensures all residents, regardless of income or background, can participate. This avoids the inequity of Alternative 3 (Mandatory waste sorting without charging), which burdens low-income groups. The hybrid approach leverages the high acceptability of both alternatives. Alternative 2 (Expansion of Existing Programs) mitigates IO concerns through simplified processes and incentives, while Alternative 4 (Information Campaign)'s voluntary, soft measures minimize resistance. This contrasts with Alternative 3(Mandatory waste sorting without charging), low acceptability due to inconvenience and enforcement-heavy tactics. With Expansion of Existing Program's fiscal burden now rated low (despite increased costs for FWSRBs and incentives) and information Campaign's low-cost structure, the hybrid approach remains financially viable. It avoids the medium fiscal burden of Mandatory waste sorting without charging balancing investment with cost-effective education.

The above trade-off analysis showing that the hybrid approach combining expansion of existing programs and information campaign, it outperforms the Alternative 1(status quo) by proactively addressing gaps in coverage and awareness, while avoiding the drawbacks of Alternative 3 (Mandatory waste sorting without charging)'s coercive measures. It integrates infrastructure improvements with behavioural nudges, offering a comprehensive and sustainable solution.

### 5.2 Policy Recommendations for the Southern District Council

Therefore, the policy recommendations are suggesting the southern District Council adopt a hybrid policy combining the expansion of FWSRB programs with a robust information campaign. Southern District Council members are pivotal in implementing the hybrid policy approach to enhance food waste management. This approach integrates the expansion of

FWSRBs with a robust information campaign to overcome key challenges: limited bin coverage, low resident awareness, stakeholder resistance, space constraints in single-block private estates, unappealing incentives, and hygiene concerns. This approach will enhance food waste recycling by improving access, incentivizing participation, and raising awareness among residents.

- **5.2.1 Advocating for Resources**

Southern District Council Members could lobby the government for advocate for resources, such as the subsidies or funding to support FWSRB expansion and campaign materials. For example, submit a formal proposal to the Environment and Ecology Bureau, requesting subsidy annually for subsidies covering FWSRB installation and maintenance, and request subsidy form their political party for campaign materials, including multilingual flyers, videos, and digital ads targeting the residents.

- **5.2.2 Launching a Targeted Information Campaign**

With the resources, The Southern District Council Members could launch a targeted information campaign, a multi-channel campaign will educate residents on food waste recycling's environmental and economic benefits, tailored to the district's diversity. Low-income areas will host street booths and Cantonese-language demonstrations, while middle- and high-income zones will feature seminars and social media drives. Multilingual workshops for domestic helpers, who usually manage household waste, will bridge cultural gaps. Schools could adopt a "Recycle Rangers" program, engaging students in hands-on sorting activities to instill lifelong habits.

- **5.2.3 Enhancing the Green Points System**

Besides advocating for resources, Southern District Council Members could also write a policy brief to the government to enhance the green points system. For example, the current reward system will be modernized with digital e-vouchers redeemable at popular retailers (e.g., HKD 50 at ParknShop or 7-Eleven), partnerships with trendy brands like Sanrio or Chikawa for themed merchandise, and estate-wide competitions offering prizes like free utilities for a month. A mobile app will track points and gamify recycling, appealing to tech-savvy youth and busy professionals.

- **5.2.4 Facilitating Collaboration with Stakeholders**

Another approach could facilitate collaboration, bridge communication and coordination between IOs, residents, waste management authorities, and the EPD to simplify FWSRB adoption. For example, it could host quarterly forums with IOs from different private estates,

e.g., South Horizons, Shouson Hill and other single-block building, addressing cost concerns and providing application templates for the Recycling Fund. And discuss the partnership with the EPD government to reduce approval times for FWSRB applications from 3 months to 1 month by, targeting new installations annually, release the burden for the private estate's owners. And approaching the private estates owners actively, through establish a dedicated hotline by for IOs to seek technical support, aiming to assist them with the application of the FWSRB.

- **5.2.5 Introducing Smart Recycling Bins in Government Premises**

Next is introduce smart recycling bins in government premises. This approach is targeting residents of single-block private estates in city centers, visitors to government facilities, and nearby communities. It could install FWSRBs in government facilities like community centres, town halls, and sportsgrounds to provide recycling access for residents of single-block private estates, especially in urban centres. IT could conduct a site survey to identify high-traffic government premises, e.g., Aberdeen Sports Centre, Stanley Community Hall, within 500 meters of single-block estate clusters. It also could launch information campaign, using posters and mobile apps to direct residents to these bins.

By tackling the Southern District's specific barriers—limited bin access, low awareness, weak incentives, and stakeholder resistance—this hybrid strategy offers a pragmatic, scalable model for food waste management. It aligns with Hong Kong's 2035 sustainability vision, balancing immediate action with cultural sensitivity and economic feasibility, and positions the city to reclaim its status as a leader in urban innovation.

# Chapter 6: Conclusion

This report claims that inadequate food waste management presents a significant challenge for Hong Kong, particularly in the Southern District, which encompasses diverse residential areas with a large population, including low, middle, and high-income households. These communities face unique issues related to residential food waste, such as limited access to recycling infrastructure in public housing estates like Wah Fu Estates and higher waste generation in affluent areas like Shouson Hill due to lifestyle differences. There is an urgent need for effective food waste recycling and management in Hong Kong, as current collection and recycling efforts are insufficient. Under the present circumstances, a substantial portion of food waste remains mixed with general waste, overwhelming landfills and hindering sustainable waste processing. The urgency of this issue is evident as landfills, such as the Northeast New Territories facility, are projected to reach capacity by 2026, amplifying environmental and economic pressures.

In terms of policy framing, the definition of the problem highlights that a significant portion of food waste is mixed with general waste, preventing it from being processed separately. This underscores the choice of the Southern District of Hong Kong as the focus of the analysis. The representative demographics of this area, which include a wide range of income groups and populations, make it an ideal setting for research. This section also explains why it emphasize the discussion of food waste collection and the necessity of segregating food waste for proper processing, as this separation is critical to reducing landfill strain and enabling recycling into energy or compost.

For research methodology, it employed a combination of surveys and interviews. The survey consists of three sections: basic information, food waste disposal practices, and willingness to participate, aimed at gathering opinions from residents across different income levels. The interviews included discussions with academic experts, district council members, and representatives from IOs, providing a comprehensive view of the barriers and opportunities for improving waste management in the district.

Evaluation criteria encompass four key areas: Fiscal Burden, assessing financial implications; Effectiveness, measuring impact on waste reduction; Acceptability, evaluating likelihood of adoption; and Equity, ensuring fairness across communities. After assessing these criteria, the report proposes four policy alternatives to assist the Hong Kong government in addressing this crisis: (a) Status Quo, maintaining current efforts; (b) Expansion of Existing Programs; (c) Mandatory waste sorting without charging and (d) Information Campaigns, raising awareness about recycling technologies and benefits. Each alternative was analysed for its strengths and limitations.

Based on the insights and analyses presented, this report recommends a hybrid approach combining Alternative 2 (Expansion of Existing Programs) and Alternative 4 (Information Campaigns). Specifically, to expand existing programs, key measures include increasing the density of FWSRBs in private estates and government premises, simplifying application processes for bin installation, improving management and maintenance, and enhancing incentives like the Green Points system with e-vouchers. To implement the information campaign, strategies involve using posters, street promotions, and community events to educate residents about reward measures, the use of smart bins, and the back-end processing of food waste into energy, targeting the 70% awareness gap identified in the research.

Food waste represents a complex and wicked policy issue with significant implications for sustainability. The food waste crisis in Hong Kong is urgent, as landfilling food waste generates methane emissions, pollutes ecosystems, and strains public resources. The Hong Kong government must swiftly adopt this hybrid strategy to address infrastructure and awareness gaps, ensuring the long-term sustainability of food waste recycling and setting a precedent for city-wide reform.

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# Appendix A: Questionnaire Questions

## 關於香港南區厨餘垃圾管理調查問卷

### Survey about Food Waste Management in the Southern District of Hong Kong

我們是香港科技大學公共政策專業的學生，正在進行一項關於香港南區厨餘垃圾管理的課程研究。本問卷的目的是調查南區居民目前的廚餘垃圾處理方式，並評估他們參與廚餘垃圾收集計劃的意願。此外，問卷還旨在識別居民在面對提議的廚餘垃圾管理替代方案時可能遇到的障礙。您的參與將有助於我們分析當前的垃圾處理情況，並提出切實可行的改善方案。問卷的所有回答將會保密，僅用於學術研究。謝謝您的支持和合作！

We are the students from the Faculty of Public Policy of HKUST, we are doing a course project about the food waste management in the Southern District of Hong Kong. The purpose of this survey is to investigate the current food waste disposal practices of residents in the Southern District and assess their willingness to participate in food waste collection programs. Additionally, the survey aims to identify potential obstacles residents may face regarding the proposed alternatives for food waste management. Your participation will help us analyze the current waste management situation and propose practical improvement solutions. All responses will be kept confidential and used solely for academic research. Thank you for your support and cooperation!

香港科技大學 THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY

PPOL DIVISION OF PUBLIC POLICY 公共政策學部

**請用⭕圈出你贊同的選項 (Please use ⭕ to circle the choices you agree with)**

### I. Basic information 基本訊息

1. What is your gender? 您的性別是？

A. Male 男
B. Female 女
C. Others 其他

2. What is your age? 您的年齡多大？

A. <18
B. 18-24
C. 25-34
D. 35-44
E. 45-54

F. 55-64

G. >65

3. What is your education level? 您的教育水準如何？

A. No Schooling / Kindergarten 不上學 / 幼稚園

B. Primary (P.1 – P.6) 小學 （P.1 – P.6）

C. Junior Secondary (F.1 – F.3) 初中 （F.1 – F.3）

D. Senior Secondary (F.4 – F.6 / F.7) 高中 (F.4 – F.6 / F.7)

E. Technical / Vocational Training 技術 / 職業培訓

F. Bachelor's Degree 學士學位

G. Master's Degree 碩士學位

H. Doctoral Degree 博士學位

I. Other (Specify) 其他 （請註明）: _____

4. What is your income level? 您的收入水準如何？

A. <HK$10,000

B. HK$10,001 – 15,000

C. HK$15,001 – 20,000

D. HK$20,001 – 30,000

E. HK$30,001 – 40,000

F. HK$40,001 – 50,000

G. HK$50,001 – 60,000

H. HK$60,001 – 70,000

I. >HK$70,000

5. What type of housing estate do you reside in? 您住在什麼類型的住宅區？

A. Public Housing 公屋

B. Large Private Estate (1,000 or more households) 大型私人屋邨（1,000 戶或以上）

C. Small Private Estate (lower than 1,000 households) 小型私人屋邨（少於 1,000 戶）

D. Other (please specify) 其他（請註明）: _____

6. How many people do you live together with? (Please fill in 1 if you live alone) 您和多少人住在一起？（如果您獨居，請填寫 1）

_____

## II. Food Waste Disposal Practices 居民廚餘垃圾處理方式現狀調查

7. Does your housing estate currently have smart food waste bins? (Single-choice)

您所在的屋苑目前是否有智能廚餘垃圾回收桶？(單選)



A. Yes 是
B. No 否
C. Not sure 不清楚

8. Who usually takes out the trash in your household? (Single-choice)
您家中一般是誰丟垃圾？（單選）

A. Male head of the household 男主人
B. Female head of the household 女主人
C. Parents 父母
D. Domestic helper/Filipino domestic worker 菲傭
E. Other (please specify) 其他（請具體說明）_____

9. How does your household currently manage food waste? (Single-choice)
您家中目前一般如何處理廚餘垃圾？(單選)

A. Sort and dispose of it in the smart food waste recycling bin to earn “Green Points”
分類並丟進智能廚餘垃圾回收桶並獲得「綠綠賞」積分
B. Sort and dispose of it in the food waste bin downstairs
分類並丟進樓下的廚餘垃圾桶
C. Dispose of it with regular waste
與其他垃圾一起丟掉
D. Use a home food waste disposal machine
使用家用廚餘垃圾處理器
E. Directly pour it down the drain or similar facilities
直接倒入下水道
F. Other (please specify) 其他（請具體說明）: _____

10. How often does your household dispose of food waste? (Single-choice)
您家丟垃圾的頻率為？（單選）

A. Multiple times a day 每天多次
B. Once a day 每天一次
C. 3-6 times a week 每週3-6次
D. 1-2 times a week 每週1-2次
E. Once every few weeks 幾週一次

11. What do you think are the consequences of not properly managing food waste? **(Multiple-choice)**
您認為不妥善處理廚餘垃圾會有哪些危害？**（多選）**

A. Resource wastage 浪費資源
B. Environmental pollution 污染環境
C. Disease transmission 疾病傳播
D. Increased greenhouse gas emissions 增加溫室氣體排放
E. Negative impact on community cleanliness 對社區清潔度的負面影響
F. Other (please specify) 其他（請具體說明）: _____

12. What challenges do you face with sorting food waste? **(Multiple-choice)**
您認為對廚餘垃圾進行分類處理有何挑戰？**（多選）**

A. Inconvenient storage / prone to rotting / unpleasant odors
儲存不便，易腐爛或氣味難聞
B. Lack of space for sorting and storing waste
家中缺乏足夠空間進行分類存放
C. Lack of knowledge about food waste sorting/uncertainty about sorting standards
缺乏對廚餘垃圾分類的相關知識，不確定分類標準
D. Unawareness of convenient home tools (e.g., Squeezing, Food Waste Disposer, Oil Solidification)
不知道有哪些簡便的家用工具可以處理廚餘垃圾（如家用廚餘機，廢油凝固劑）
E. Belief that sorting is unnecessary / concern about proper disposal after sorting (e.g., ultimately ending up in landfill)
認為分類處理沒有必要，擔心最終仍會進行填埋等不恰當處理
F. Lack of food waste bin in the community
社區內缺乏專門的廚餘垃圾回收桶
G. Other (please specify) 其他（請具體說明）: _____

## III. Willingness to participate 參與意願

13. If there is a smart food waste bin in your housing estate, which of the following may prevent you from using it? **(Multiple-choice)**
如果您的屋苑內有智慧廚餘回收機，以下哪個選項可能會減少您的使用意願？**（多選）**

A. The bin is far away from your block
垃圾桶離您的樓棟很遠
B. The bin has an unpleasant smell
垃圾桶有難聞的氣味
C. Food waste disposal is less important than other real-life problems
食物垃圾處理不如其他現實生活中的問題重要
D. Inconvenience in separating food waste from other wastes
不便將廚餘與其他廢棄物分開
E. Even though you separate the food waste, in the back end they will be burnt or landfilled with other wastes
即使您將食物垃圾分類，它們在最後也會被與其他垃圾一起填埋或焚燒

14. To what extent will you support waste classification and waste charging schemes? (Waste classification and waste charging scheme requires residents to buy different garbage bags for different kinds of waste, and classify the wastes accordingly). **Please fill in with scale 0%-100%**
您將在多大程度上支持廚餘垃圾分類和收費計劃？（廚餘垃圾分類和收費計劃要求居民為不同種類的廢物購買不同的垃圾袋，並據此對廢物進行分類）**請填寫程度0%-100%**

_____

15. If the waste charging scheme is imposed, how much are you willing to pay for a garbage bag for food waste (2L)? (Single-choice)
如果實施廢物收費計劃，您願意為一個廚餘垃圾專用袋（2L）支付多少費用？（單選）

A. < HK$0.5
B. HK$0.5-1
C. HK$1-1.5
D. HK$1.5-2
E. >HK$2

16. To what extent would you participate in a food waste information campaign, which may introduce the necessity of recycling food waste, daily life skills of disposing of food waste, and so on? **Please fill in with scale 0%-100%**
你會在多大程度上參與社區廚餘垃圾資訊活動（活動會介紹回收廚餘的必要性、處理廚餘的日常生活技巧等）？**請填寫程度0%-100%**

_____

17. Would you like to buy a household food waste treatment machine (It can convert oil and other wet waste into a dry organic powder or be installed under the sink to break up food waste and flush it away) and how much would you like to pay? The current market price of these machines in Hong Kong ranges from HKD

1500-7500. (Single-choice)

您願意購買一台家用廚餘處理機嗎（它可以將油和其他濕廢物轉化為乾燥的有機粉體，或安裝在水槽下方將廚餘打碎後沖走），您最多願意支付多少錢？（單選）

這些機器目前在香港的市價介乎 HKD 1500-7500 之間。



A. No, I will not buy 不，我不會買
B. Yes, less than 1500 HKD 是的，少於 1500 港元
C. Yes, 1500-3000 HKD 是的，1500-3000 港元
D. Yes, 3001~7000 HKD 是的，3001~7000 港元
E. Yes, more than 7000 HKD 是的，超過 7000 港元

Thank you for taking the time to participate in our questionnaire. Once again, thank you for your support and cooperation!

感謝您抽出寶貴的時間參與我們的問卷調查。再次感謝您的支持與合作！

# Appendix B: Interview Questions

**PAE-Guiding Questions for Interview**

**(Questions for Professors)**

**Interview Questions:**

Background & Basics

1. What do you think about the HKSAR Government's **current policies on food waste collection and recycling?**
    1) Can Hong Kong's current policies meet the **demand**?
    2) Why can't Hong Kong implement food waste collection like Japan and Korea?
    3) What are the **advantages and limitations** of Hong Kong's current policies?
2. How do you think we should approach the issue of food waste collection and recycling?
    1) Are there any **proposed perspectives**?
    2) Are there any **alternatives** to the current policies?
3. What are the **greatest challenges and bottlenecks** for the alternatives?

***Technical related questions (When meeting with related knowledge professors)**

1. Can you briefly explain the **basic process** of food waste treatment? What are the steps involved from collection to final disposal?
2. After food waste treatment, is it possible to **convert it into energy**, such as electricity? If so, what are the **specific technological pathways**?
3. Is the demand for converting food waste into energy influenced by **geographic location and technological capabilities**? What are Hong Kong's conditions in this regard?
4. How effective do you think Hong Kong can be in terms of food waste treatment and energy conversion? Can it bring **significant environmental and economic benefits**?

A.O.B.

1. Any other thoughts you would like to share with us?

**PAE-Guiding Questions for Interview**

**(Questions for DC Members)**

**Interview Questions:**

Background & Basics

1. What do you think about the HKSAR Government's **current policies on food waste collection and recycling**?
    1) Can Hong Kong's current policies meet the **demand**?
    2) Why can't Hong Kong implement food waste collection like Japan and Korea?
    3) What are the **advantages and limitations** of Hong Kong's current policies?
2. How do you think we should approach the issue of food waste collection and recycling?
    1) Are there any **proposed perspectives**?
    2) Are there any **alternatives** to the current policies?
3. What are the **greatest challenges and bottlenecks** for the alternatives?

***Practical and Community-oriented Questions:**

1. What **difficulties** have you encountered in food waste collection and recycling in **residential areas**? Are there **specific challenges** related to the efficiency of collection?
2. Do you find that residents are generally willing to cooperate with food waste collection initiatives? What **factors influence their willingness** to participate?
3. How do you think **different income groups** perceive food waste collection? For example, do wealthier residents prioritize environmental concerns more than lower-income residents, who may focus more on cost savings?
4. Can you identify any **specific differences in attitudes** toward food waste collection between residents in public housing and those in private housing?
5. What **incentives** do you believe would be most effective in encouraging residents to participate in food waste collection programs?
6. How can we **better tailor** food waste collection initiatives to meet the needs and concerns of different community demographics?

A.O.B.

1. Any other thoughts you would like to share with us?

**PAE-Guiding Questions for Interview**

**(Questions for green group members)**

**Interview Questions:**

Background & Basics

1. What do you think about the HKSAR Government's **current policies on food waste collection and recycling**?
    1) Can Hong Kong's current policies meet the **demand**?
    2) Why can't Hong Kong implement food waste collection like Japan and Korea?
    3) What are the **advantages and limitations** of Hong Kong's current policies?
2. How do you think we should approach the issue of food waste collection and recycling?
    1) Are there any **proposed perspectives**?
    2) Are there any **alternatives** to the current policies?
3. What are the **greatest challenges and bottlenecks** for the alternatives?

***Special questions for green group members:**

1. What **specific food waste collection or recycling initiatives** has your organization implemented? Can you share some successful examples?
2. What **challenges** have you encountered while promoting these food waste initiatives? Are there any particular obstacles that have been difficult to overcome?
3. How have **stakeholders,** such as local businesses, government agencies, or community members, responded to your initiatives? Have you faced significant opposition, and if so, what were the **main concerns**?
4. How do you **address the differing perspectives** or objections from various stakeholders regarding food waste management?
    1) Have you **collaborated with other organizations or groups** to enhance your food waste initiatives? If so, what has that experience been like?
    2) In your experience, how receptive are residents to participating in food waste collection and recycling programs? Are there **common misconceptions** that need to be addressed?

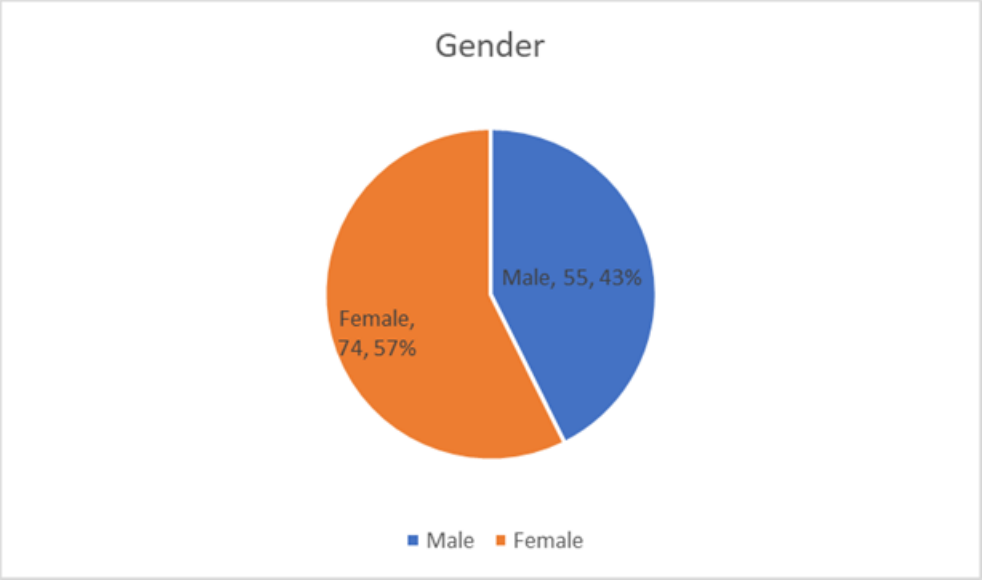
A.O.B.

1. Any other thoughts you would like to share with us?

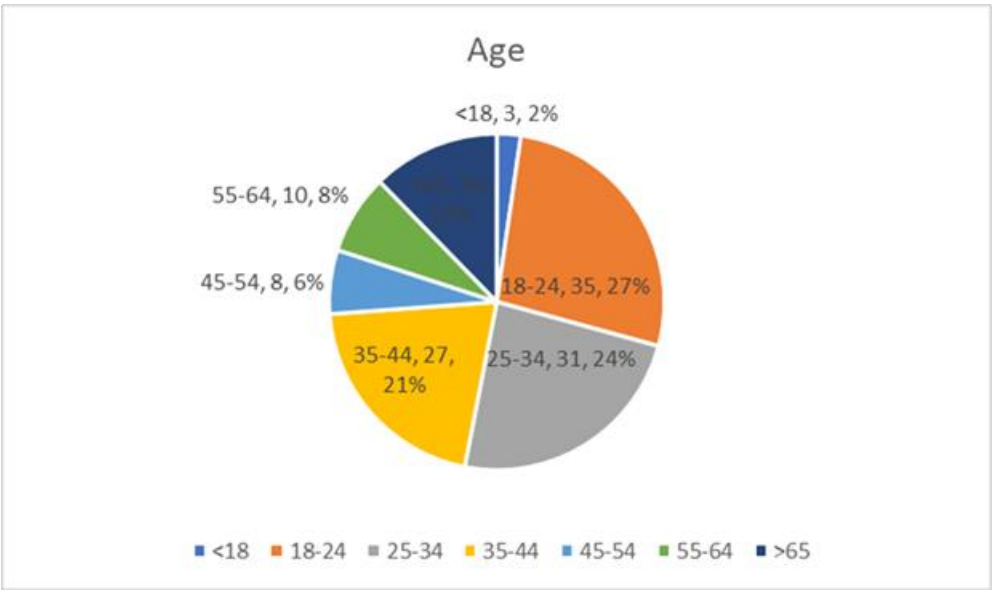
# Appendix C: Results of Questionnaire

## Part I: Demographic Statistics

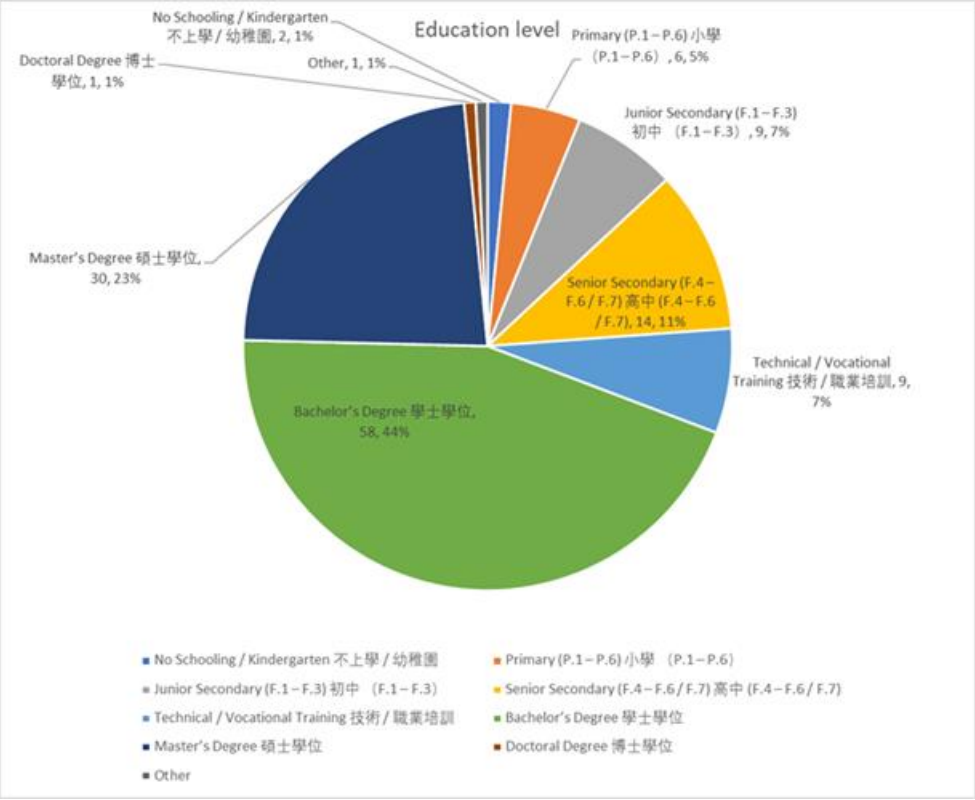
1. Gender



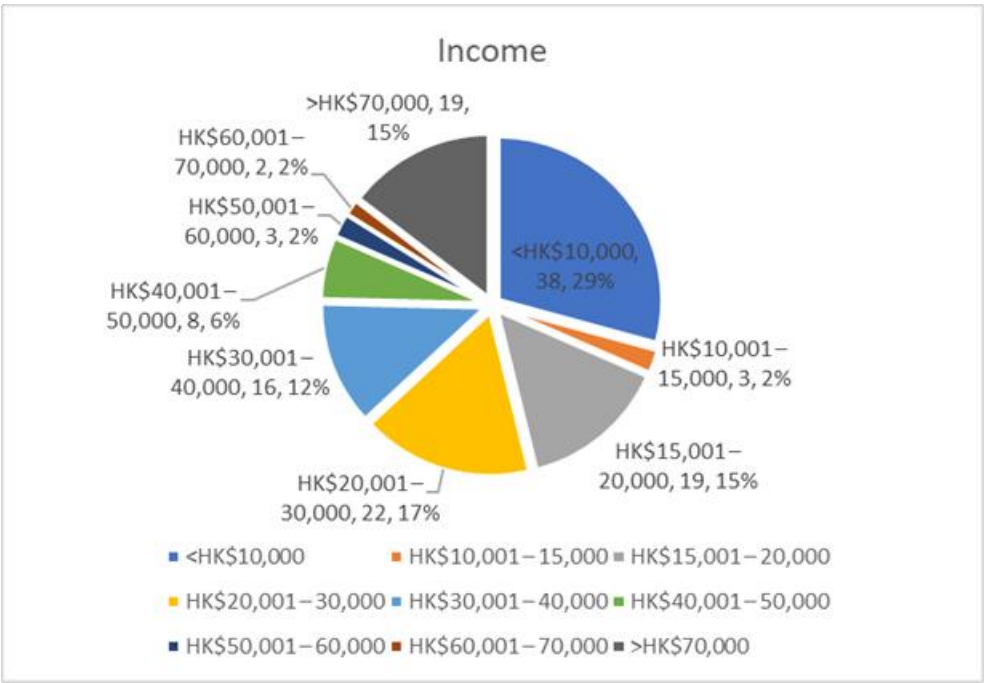

2. Age



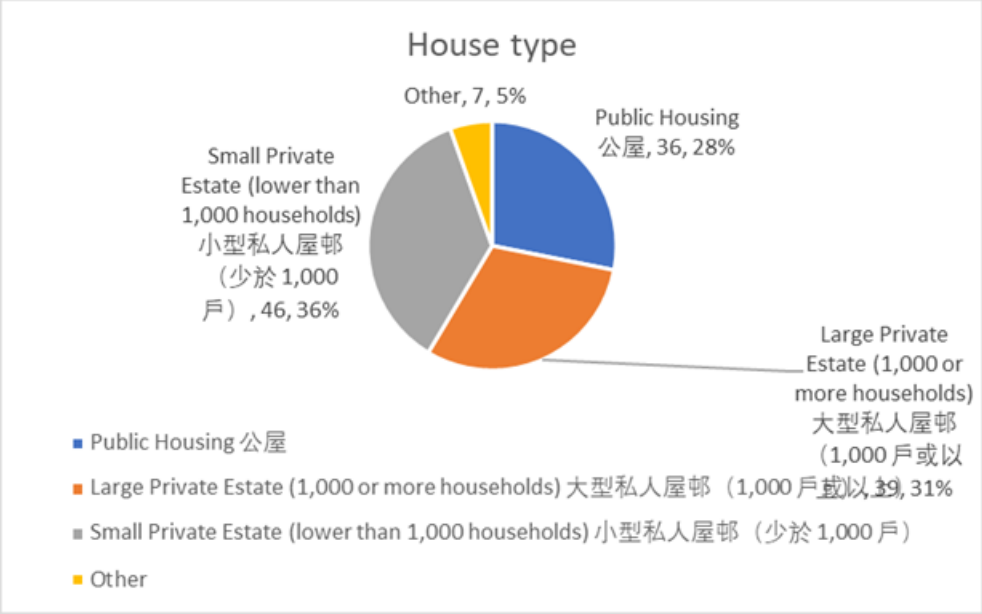

3. Education Level




4. Income Level




5. Housing Type

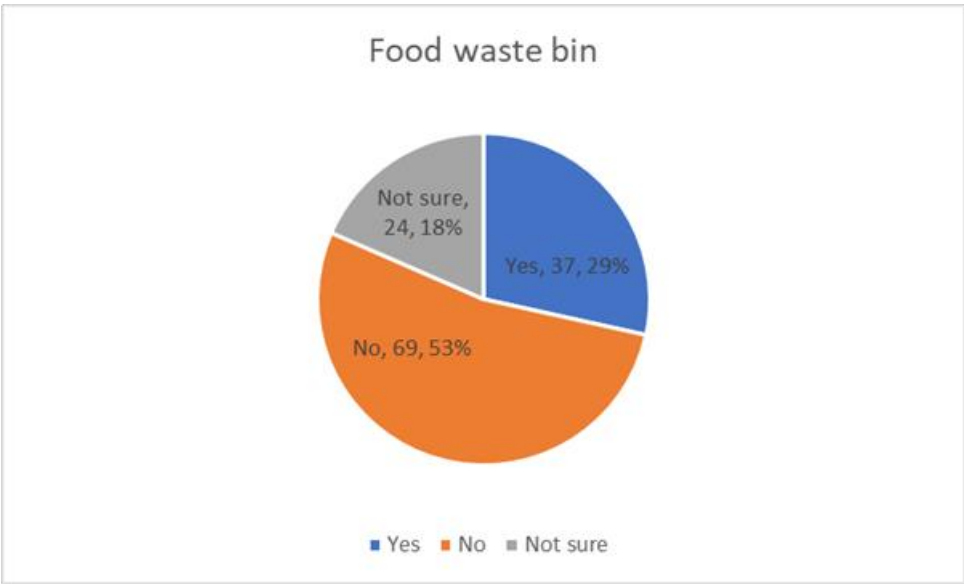


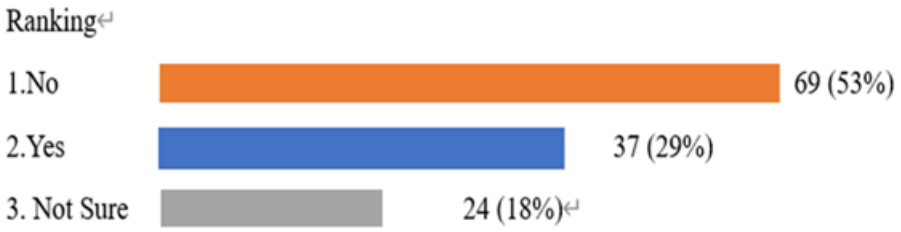

6. Family Size (Specific Number)

| | |
|---|---|
| Mean | 3.0234375 |
| Min | 1 |
| Median | 3 |
| Max | 8 |
| Range | 7 |
| SD | 1.50761009 |

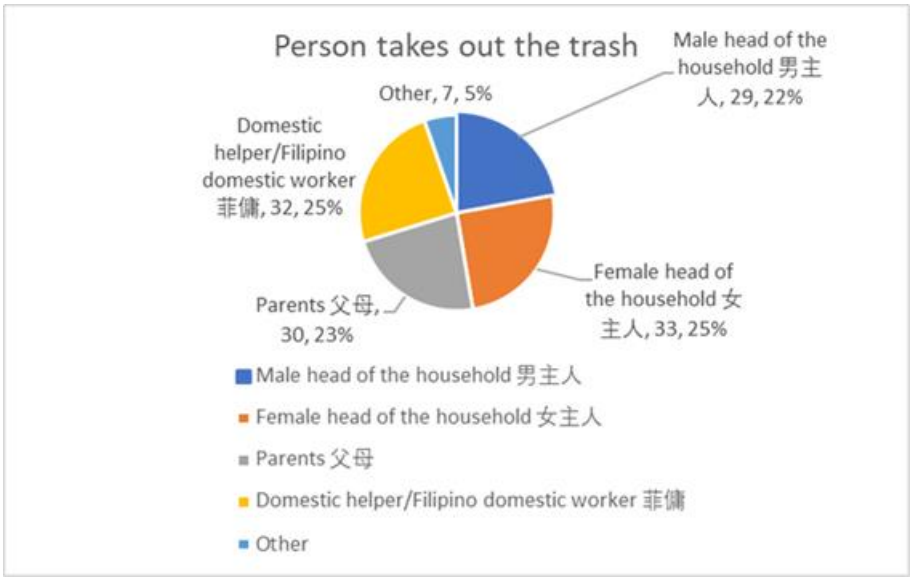
**Part II: Food Waste Disposal Practices**

7. Does your housing estate currently have smart food waste bins? (Single-choice)






8. Who usually takes out the trash in your household? (Single-choice)



Ranking

1. Female head of the household

33 (25%)

2. Domestic helper

32 (25%)

3. Parents

30 (23%)

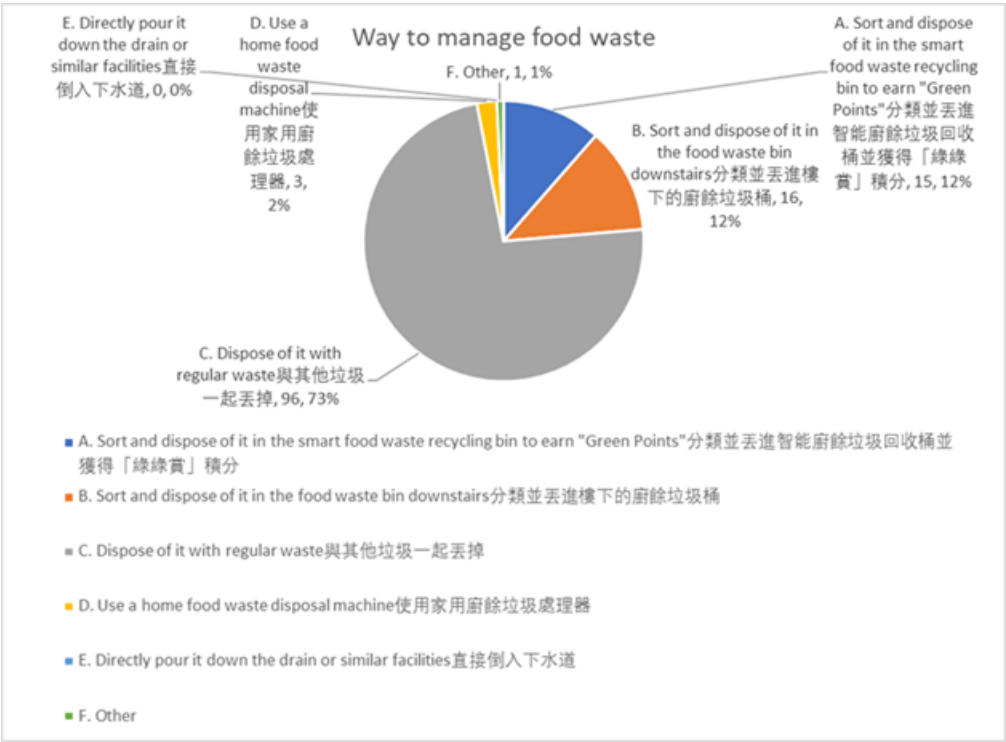
4. Male head of the household

29% (22%)

5. Other

7 (9%)

9. How does your household currently manage food waste? (Single-choice)



Ranking

1. Disposal of it with regular waste

96 (73%)

2. Sort and dispose of it in the food waste bin downstairs

16 (12%)

3. Sort and dispose of it in the smart food waste recycling bin to earn "Green Points"

15 (12%)

4. Use a home food waste disposal machine

3 (2%)

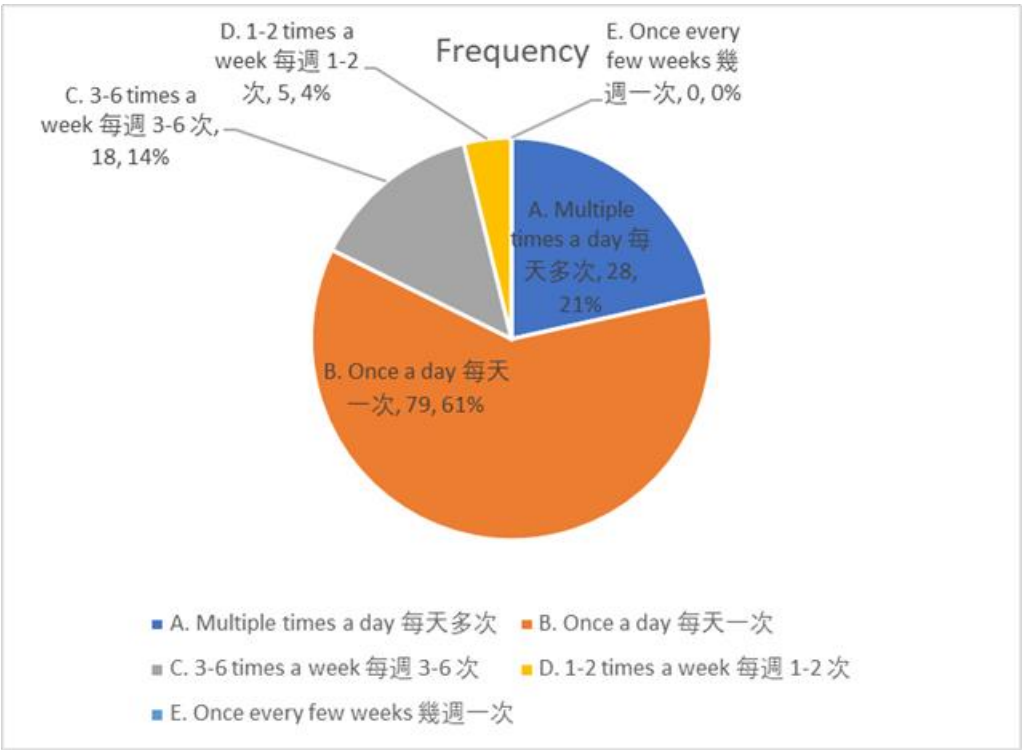
5. Other

1( 1%)

6. Directly pour it down the drain or similar facilities

0 (0%)

10. How often does your household dispose of food waste? (Single-choice)



Ranking↵

1. Once a day↵

79 (61%)↵

2. Multiple times a day↵

28 (21%)↵

3. 3-6 times a week↵

18 (14%)↵

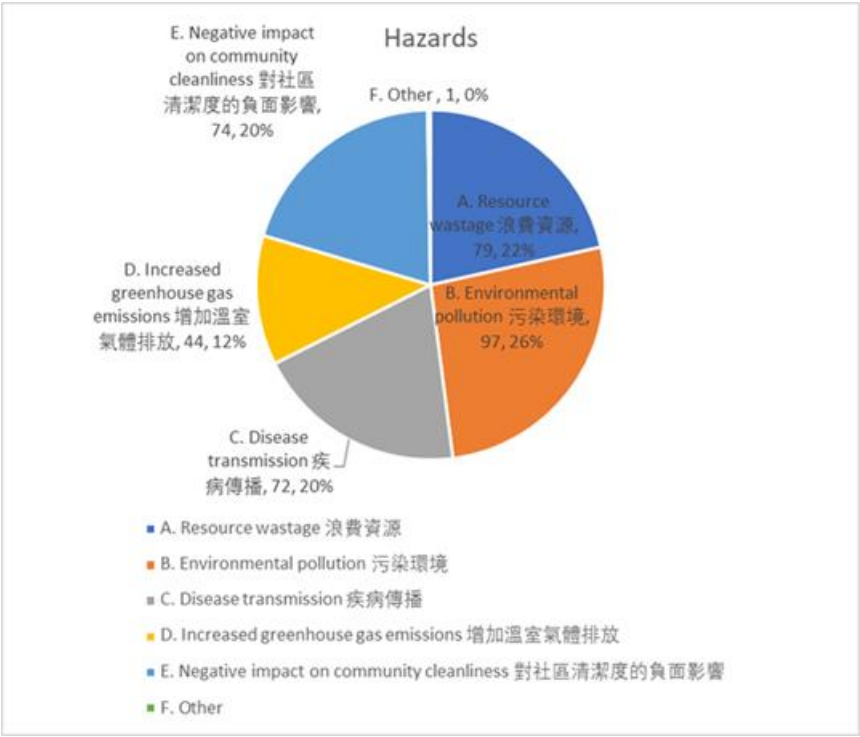
4. 1-2 times a week↵

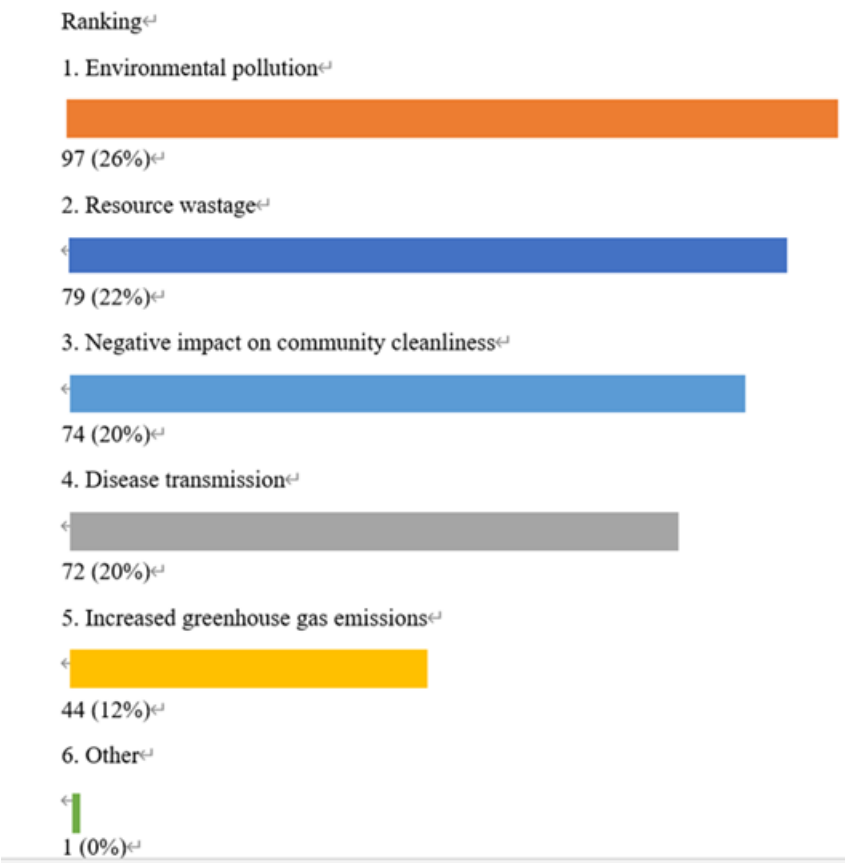
5 (4%)↵

5. Once every few weeks↵

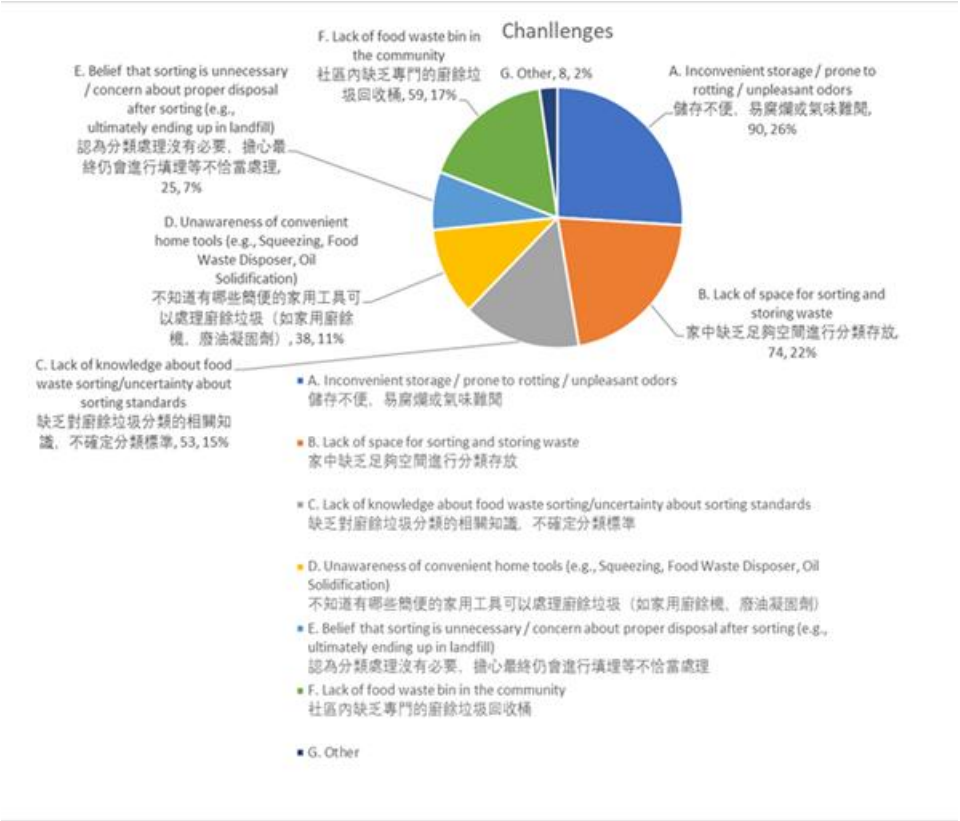
0 (0%)↵

11. What do you think are the consequences of not properly managing food waste? (Multiple-choice)






12. What challenges do you face with sorting food waste? (Multiple-choice)



Ranking

1. Inconvenient storage / prone to rotting / unpleasant odors

90 (26%)

2. Lack of space for sorting and storing waste

74 (22%)

3. Lack of food waste bin in the community

59 (17%)

4. Lack of knowledge about food waste sorting/uncertainty about sorting standards

53 (15%)

5. Unawareness of convenient home tools (e.g., Squeezing, Food Waste Disposer, Oil Solidification)

38 (11%)

6. Belief that sorting is unnecessary / concern about proper disposal after sorting (e.g., ultimately ending up in landfill)

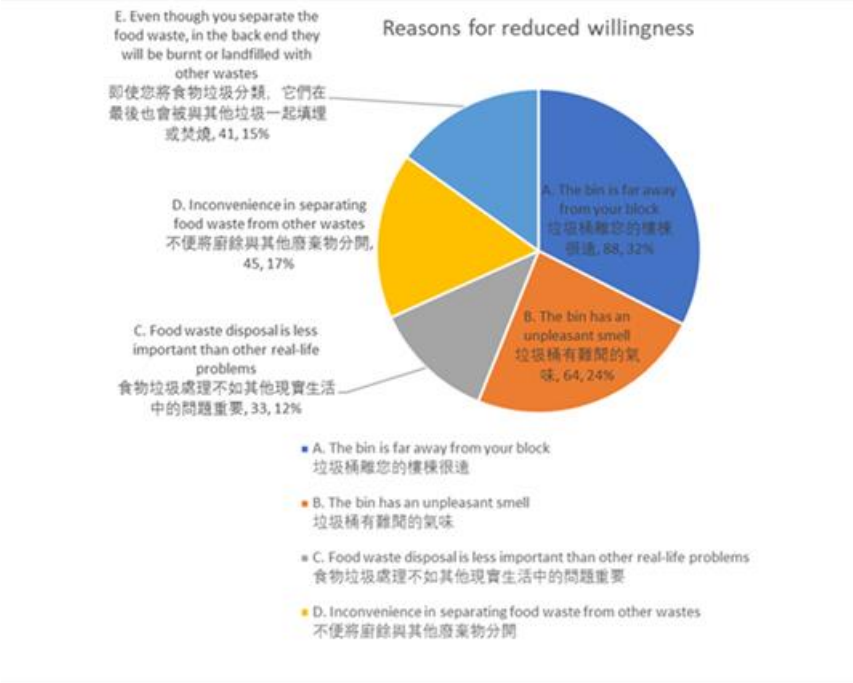
25 (7%)

7. Other

8 (2%)

## Part III: Willingness to participate

13. If there is a smart food waste bin in your housing estate, which of the following may prevent you from using it? (Multiple-choice)




Ranking

1. The bin is far away from your block

88(32%)

2. The bin has an unpleasant smell

64 (24%)

3. Inconvenience in separating food waste from other wastes

45 (17%)

4. Even though you separate the food waste, in the back end they will be burnt or landfilled with other wastes

41 (15%)

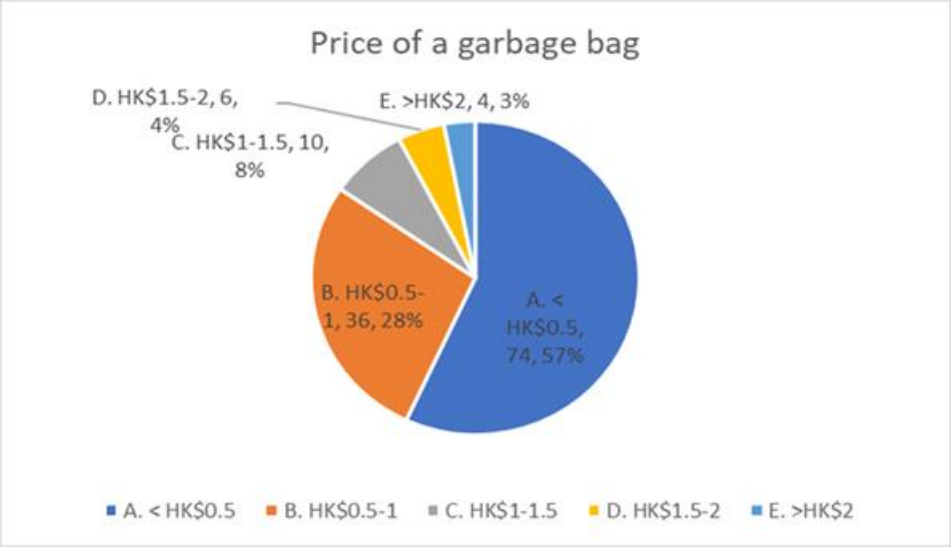
5. Food waste disposal is less important than other real-life problems

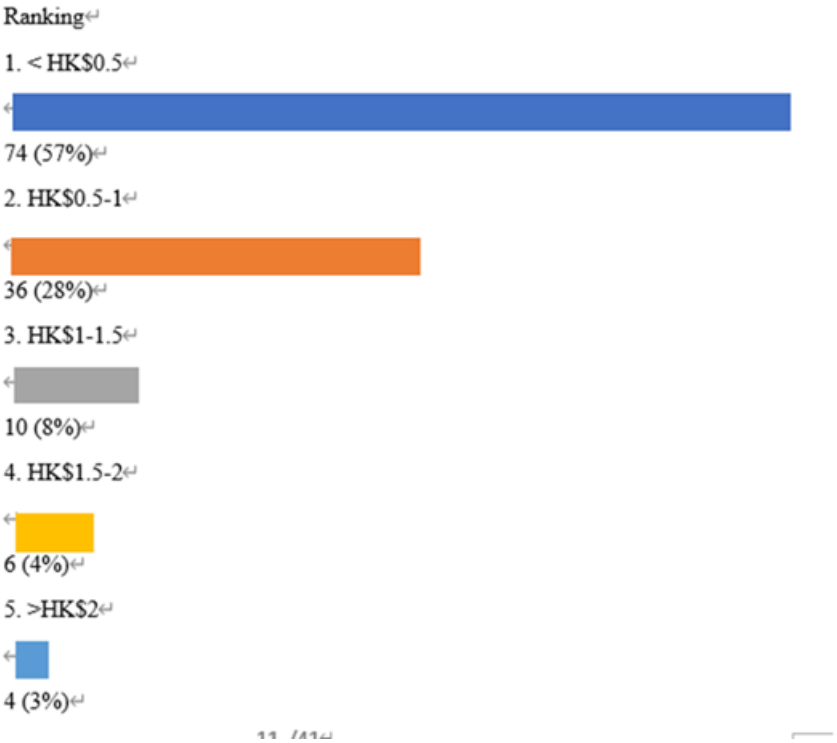
33 (12%)

14. To what extent will you support waste classification and waste charging schemes? (Waste classification and waste charging scheme requires residents to buy different garbage bags for different kinds of waste, and classify the wastes accordingly). Please fill in with scale 0%-100%

| | |
|---|---|
| Mean | 51% |
| Min | 0% |
| Median | 50% |
| Max | 100% |
| Range | 100% |
| SD | 36% |

15. If the waste charging scheme is imposed, how much are you willing to pay for a garbage bag for food waste (2L)? (Single-choice)

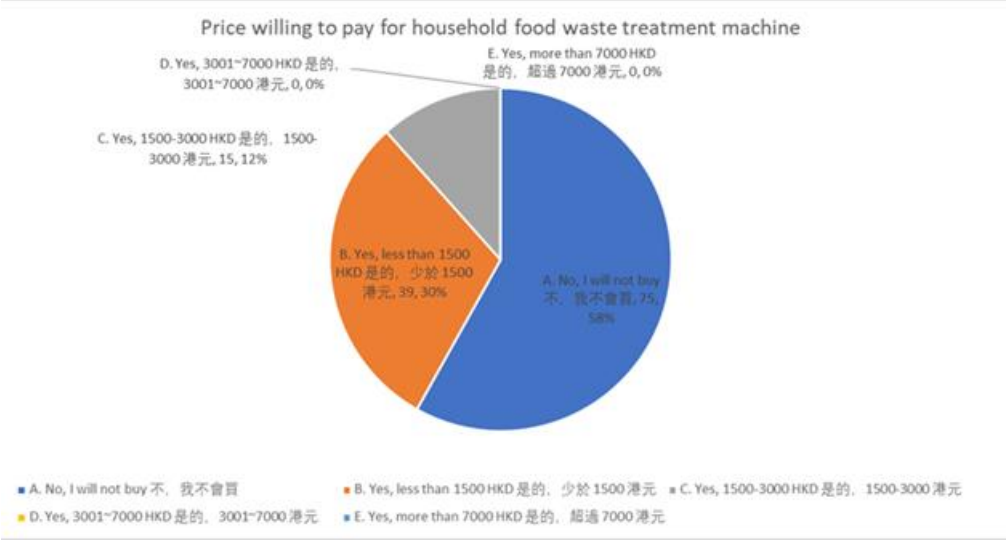





16. To what extent would you participate in a food waste information campaign, which may introduce the necessity of recycling food waste, daily life skills of disposing of food waste, and so on? Please fill in with scale 0%-100%

| | |
|---|---|
| Mean | 51% |
| Min | 0% |
| Median | 50% |
| Max | 100% |
| Range | 100% |
| SD | 31% |

17. Would you like to buy a household food waste treatment machine (It can convert oil and other wet waste into a dry organic powder or be installed under the sink to break up food waste and flush it away) and how much would you like to pay? The current market price of these machines in Hong Kong ranges from HKD 1500-7500. (Single-choice)




Ranking

1. No, I will not buy

75 (58%)

2. Yes, less than 1500 HKD

39 (30%)

3. Yes, 1500-3000 HKD

15 (12%)

4. Yes, 3001~7000 HKD

0 (0%)

5. Yes, more than 7000 HKD

0 (0%)