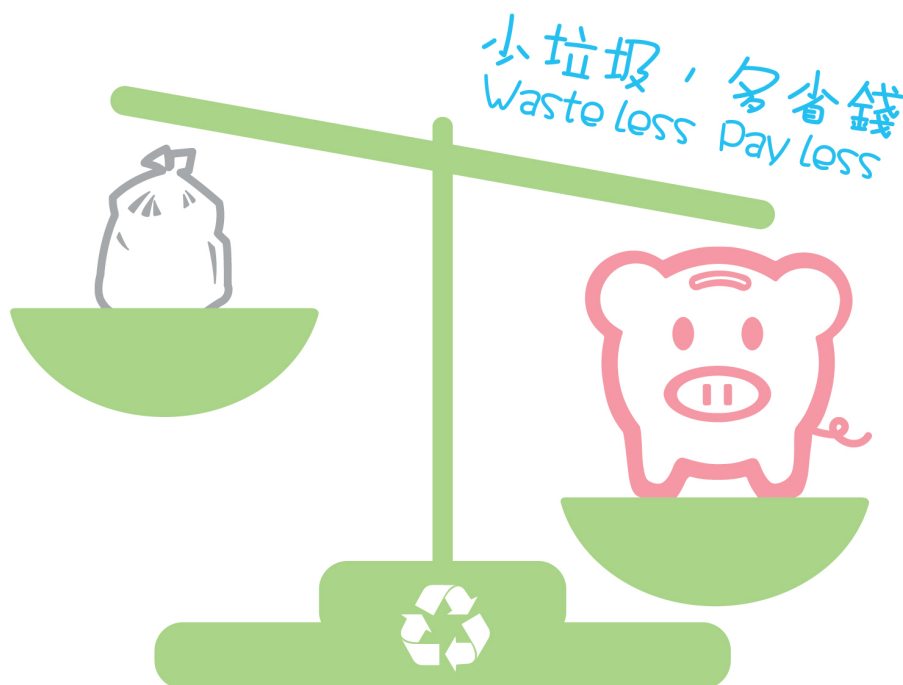


# Waste Reduction by Waste Charging · How to Implement?

Share your Views on  
Implementing Quantity-based  
Municipal Solid Waste Charging



可持續發展委員會  
Council for  
Sustainable Development

Invitation for Response  
Document

2013

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# FOREWORD

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## **BERNARD CHAN**

### ***Chairman***

*Council for Sustainable Development*

We are facing a major challenge in managing our waste, which is concomitant with our level of economic development as well as our habit and lifestyle.

In the past 30 years, our municipal solid waste (MSW) increased by nearly 80% while our population only increased by 36%. In other words, the waste that each of us creates has increased by 30%, and the quantity of which is higher than that of other Asian cities of comparable economic development level.

This is clearly not sustainable. We need to take more actions to reduce, reuse and recycle our waste products.

From the experiences of other cities, waste charging has been effective in incentivising people to reduce waste. In 2012, the Government conducted a public consultation to ascertain the support of the community for implementing quantity-based MSW charging in Hong Kong. In the "Hong Kong Blueprint for Sustainable Use of Resources 2013 – 2022" published by the Government in May 2013, it reaffirms that waste prevention and reduction at source is most desirable, and that waste charging is an important policy tool to achieve this objective.

Having considered the imminence and complexity of the issue with far reaching implications on the sustainability of our society, the Council for Sustainable Development (SDC) has decided to conduct this public engagement to foster in-depth discussion and solicit views of the community on how best to implement MSW charging for the sustainable development of Hong Kong. We are grateful to all the stakeholders who have participated in the Support Group formed by the SDC and attended the seven focus group meetings that we conducted between April and May 2013 to share their valuable views and comments which have served as the solid basis of this Invitation for Response (IR) document.

There is no doubt that MSW charging is a complicated and challenging issue that raises many questions and constraints, but solutions may not be immediately obvious. This IR document aims to provide every member of the community with the background on the waste subject and relevant issues that we should collectively deliberate with a view to identifying a way of waste charging that is feasible in our unique settings of Hong Kong.

I believe we can all do better by making small changes in our daily life – towards a simpler and less wasteful lifestyle – to make Hong Kong a more livable and sustainable home for us and our future generations.

# SYNOPSIS

## Waste Reduction by Waste Charging How to Implement?

Waste management is an imminent issue Hong Kong needs to tackle. Each day, around 13,400 tonnes of waste is generated in Hong Kong and sent to the landfills, of which nearly 67% (9,000 tonnes) is municipal solid waste (MSW), i.e. waste from the domestic as well as the commercial and industrial (C&I) sectors. This situation cannot continue.

Based on a multi-pronged waste management strategy, the Government published in May 2013 a comprehensive "Hong Kong Blueprint for Sustainable Use of Resources 2013-2022" which includes the tackling of our waste problem through a series of policies and measures. However, the key to waste reduction is in the hands of waste producers, i.e. all of us. Waste reduction is the responsibility of all members of our whole society.

We need to effectively induce behavioural changes of every citizen and business to reduce waste. From the experience of other cities, waste charging is an effective policy tool in incentivising people to reduce waste. The results of a public consultation conducted by the Environmental Protection Department in 2012 also affirmed the direction of a quantity-based MSW charging system for Hong Kong.



### MSW Charging in Hong Kong Context

The Council for Sustainable Development is conducting a public engagement to gauge views on how best to implement MSW charging in Hong Kong, considering our unique context as follows -

- High coverage of premises with building management, except for some village houses and old low-rise single-block buildings
- Predominance of high-rise buildings
- Existence of composite buildings with domestic and commercial occupants
- A mix of both public and private MSW collection services

In light of Hong Kong's relevant features and characteristics, four key considerations related to the implementation of MSW charging have been identified for deliberation by the public.

### Four Key Considerations

#### (1) Charging mechanism

In light of differences in the source of waste and the mode of building management, Hong Kong may consider adopting a hybrid approach in implementing a quantity-based MSW charging mechanism, similar to other cities.

##### Commercial and industrial waste

In line with international practices, C&I waste is proposed to be charged at landfills or Refuse Transfer Stations through a gate fee based on the weight of the waste to be disposed. If you are from the C&I sector, what do you think about implementing this proposal in Hong Kong?

**Waste Reduction is the Responsibility of ALL.**



## Domestic waste

Three possible charging mechanisms for domestic waste produced in multi-storey residential buildings with property management are identified and their implications are listed for consideration as follows.

	Household by Volume	Building by Weight   Building by Volume
Mechanism	<ul style="list-style-type: none"> <li>Each household to use pre-paid designated garbage bags and take them out at a designated time and place every time for disposal under monitoring</li> </ul>	<ul style="list-style-type: none"> <li>Building management to collect waste and pay collectively to the government based on the weight / volume of waste disposed by the whole building</li> <li>Additional arrangements be devised and agreed between building management and residents to share the charge in line with quantity-based principle</li> </ul>
Implications	<ul style="list-style-type: none"> <li>More direct incentive to reduce and recycle waste</li> <li>Inconvenience</li> <li>Likelihood for fly-tipping</li> <li>Much enhanced monitoring</li> </ul>	<ul style="list-style-type: none"> <li>Relatively less direct incentive for individual households to reduce and recycle waste</li> <li>Additional responsibility and role by building management</li> <li>The society needs to consider the capital costs for installing weighing and associated devices for weight-based mechanism</li> </ul>

### If you live in a multi-storey building with property management, which mechanism above would you prefer?

For waste generators in buildings without management bodies, the waste generators or the garbage collectors would have to take the garbage out to a nearby specified place such as a Refuse Collection Point (RCP), using a pre-paid designated bag or having the garbage weighed and charged for disposal. The existing RCPs may require conversion into facilities which are manned and/or machine-equipped. If you live in such premises, would you agree with this arrangement?

### (2) Coverage of charging scheme

Charging all sectors, i.e. both the domestic and the C&I sectors, in one go is most consistent with the spirit of shared responsibility and fairness in waste reduction. Nevertheless, implementation of charging by phases has the general advantage of putting in place MSW charging in sectors where implementation is more feasible to gain some charging experience first. Which approach would you prefer?

### (3) Charging level

MSW charging is for encouraging waste reduction, not for cost recovery. What charging level can effectively induce waste reduction? Do you support having a certain threshold for waste disposal under which no MSW charge shall need to be paid or that you will be rewarded in any form? What other measures can further incentivise people in reducing, separating and recycling waste under an MSW charging scheme? We welcome your views.

### (4) Recycling

Following the implementation of MSW charging, there will be a greater incentive for people and businesses to separate recyclables at source, while raising the need for community recycling facilities as well as a vibrant local recycling industry. What is your view on whether/what additional measures and/or resources are needed to support recycling activities/facilities?

We sincerely welcome your views on the above issues and any other ideas you may have in implementing MSW charging in Hong Kong. Please let us have your views by January 24, 2014. You may complete the questionnaires on pages 32-35 and take part in our engagement events. Updated details of the events are available at [www.susdev.org.hk](http://www.susdev.org.hk). For further information, you may call the Public Engagement Hotline: 2788 5673.

## 1.1

# OUR WASTE PROBLEM

### What is the Waste Problem in Hong Kong?

Like any city, we are faced with major challenges to managing waste. Hong Kong generates different types of waste including municipal solid waste (MSW), construction waste and special waste (such as animal carcasses and livestock waste, etc.) (see Figure 1). Each day, around 13,400 tonnes of waste sufficient to fill up over four Olympic-sized swimming pools is sent to the landfills in Hong Kong, of which MSW took up nearly 67% (or 9,000 tonnes). To reduce MSW, which is waste from the domestic sector as well as the commercial and industrial (C&I) sector, the concerted efforts of every citizen and businesses are required to use our precious resources in a sustainable and responsible manner and to adopt a "Use Less, Waste Less" lifestyle.



**13,400 tonnes  $\cong$  4 Olympic-sized swimming pools**

Municipal solid waste 8,996 tonnes per day **67%**  
Overall construction waste 3,331 tonnes per day **25%**  
Special waste 1,131 tonnes per day **8%**

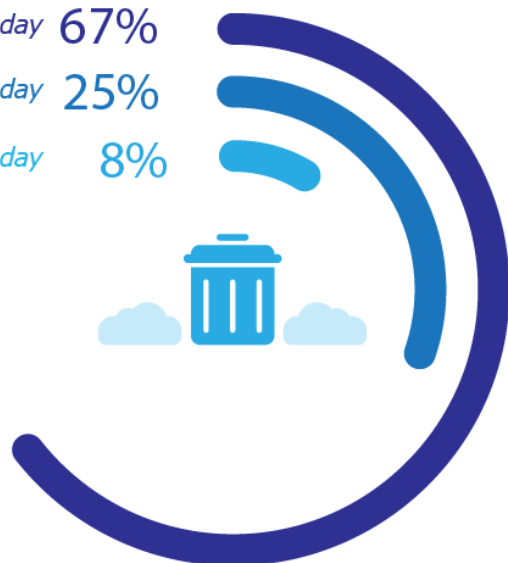


Figure 1 Waste disposal at landfills in 2011

Source: "Monitoring of Solid Waste in Hong Kong - Waste Statistics for 2011" by Environmental Protection Department, HKSARG

- Hong Kong's daily per capita domestic waste generation is higher than that of other Asian cities of comparable economic development level.
- In the past 30 years, our MSW increased by nearly 80% while our population only increased by 36% (and our per capita MSW increased by 30%).
- The increased waste load has put much pressure on the whole spectrum of our waste management chain.

## WE NEED PROMPT AND TARGETED ACTIONS TO REDUCE WASTE

Managing waste includes initiatives and actions to prevent, reduce and recycle waste. Over the past years, the Government and different sectors of the community have been concertedly working towards reducing and recycling waste. Our MSW recovery rate has steadily improved over the past years. Besides, since the implementation of quantity-based construction waste charging in 2006, over 90% of our construction waste in recent years has been classified as public fill which can be gainfully reused as construction materials or for reclamation purpose.

While we have improved in waste recovery in recent years, we are still generating large quantities of waste which is not conducive to solving our waste problem. Every member of Hong Kong should take responsibility and we should do our best in reducing waste and in reusing and recycling materials to the benefit of both ourselves and future generations.

## Waste reduction is the **RESPONSIBILITY OF ALL**



## 1.2

# HONG KONG'S WASTE MANAGEMENT STRATEGY

## Overall Waste Management Strategy

As sustainability gains growing priority in Hong Kong's development agenda, Hong Kong's waste management policy has evolved over the past few decades from largely to collect and handle waste, into the current **multi-pronged waste management hierarchy** which involves waste prevention, waste reduction through the promotion of 3Rs (i.e. reduce, reuse and recycle) and waste treatment facilities, with the ultimate objective of creating a sustainable waste management system befitting a city of Hong Kong's stature.

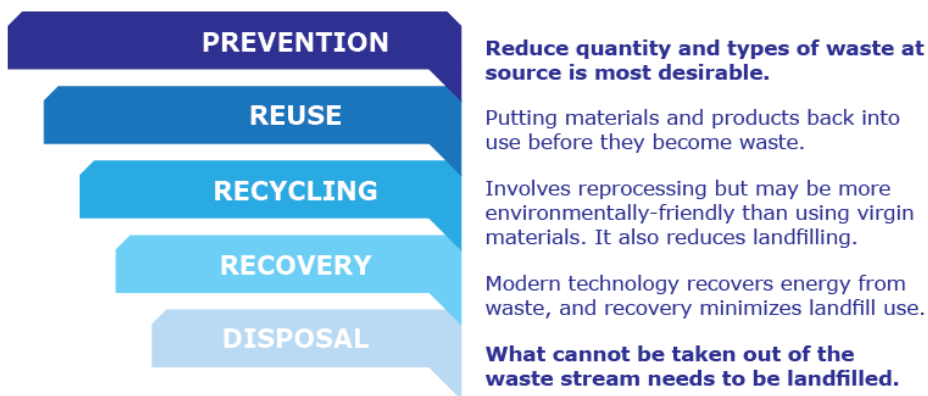


Figure 2 Waste Management Hierarchy  
Source: "Hong Kong Blueprint for Sustainable Use of Resources 2013-2022" by Environment Bureau, HKSARG

## MSW Reduction Targets

The Government has laid out in the "Hong Kong Blueprint for Sustainable Use of Resources 2013-2022" the targets to **reduce MSW disposal rate on a per capita basis by 20% in 2017 and by 40% in 2022**, compared to 2011 (Figure 3), and to increase the waste recycling rate from 48% in 2011 to 55% by 2022.

The proportion of waste to be landfilled is also targeted to be reduced from 52% in 2011 to around 22% in 2022 (Figure 3), thereby significantly reducing our reliance on landfills for waste disposal.

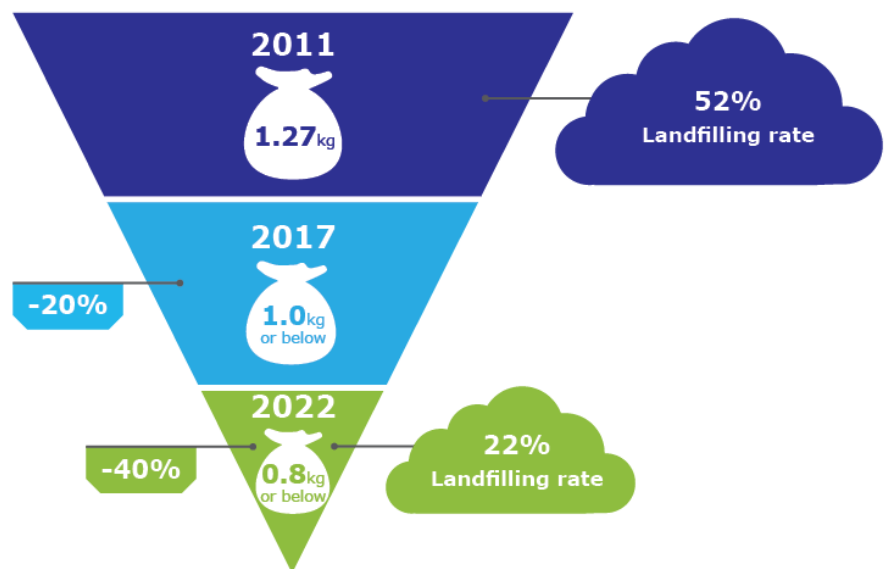


Figure 3 Government's MSW reduction targets and target result of transforming management structure including the reduction of landfilling rate  
Source: "Hong Kong Blueprint for Sustainable Use of Resources 2013-2022" by Environment Bureau, HKSARG

## 1.3

# GOVERNMENT ACTIONS ON DIFFERENT FRONTS

Based on the multi-pronged waste management hierarchy as shown in Figure 2, the **Government has been acting to reduce waste and relieve pressure on landfills**, along with an action agenda built upon policies and measures, enhanced social mobilisation with various waste management programmes and provision of the necessary waste infrastructure. Figure 4 outlines some of the key initiatives (**see Annex II for the timeframe and details of key waste management initiatives**).



Figure 4 Some key Government initiatives in waste reduction and management

**“ The key actions on Producer Responsibility Schemes, as well as programmes and funding to support waste reduction and recycling are essential and key impetus to building up a comprehensive system for the implementation of MSW charging in Hong Kong. ”**

## 1.4

# NEED FOR BEHAVIOURAL CHANGE

The vision of sustainable waste management for Hong Kong can only be achieved with the concerted efforts of both the Government and every member of the community. While the Government is striving to enhance public policies and provide the required waste infrastructure, our citizens are generating huge amounts of waste every day. Many resources that can be reused, recovered and recycled are going straight down our waste stream so easily. To avert this unsustainable trend, we need to change our daily behaviour - to cut down on unnecessary consumption and to **Reduce, Reuse** and **Recycle** more. At the same time, the Government is striving to incrementally enhance the support for recycling, in preparation for the implementation of MSW charging in Hong Kong in a few years' time.

### Charging Drives Change

As local and overseas experiences show, charging is an effective incentive for inducing the necessary behavioural change in every citizen and the C&I sector, as well as encouraging our participation in waste prevention, reuse and recycling.

**MSW charging is for encouraging waste reduction, NOT for cost recovery.**



Local experiences on charging include the **Environmental Levy Scheme on Plastic Shopping Bags** which has reduced up to 90% of plastic shopping bags distributed by registered retailers since implementation.



Another local experience is the **Construction Waste Disposal Charging Scheme** which has reduced the amount of construction waste by nearly 50% since implementation.



## Public Consultation on MSW Charging in 2012



The Environmental Protection Department conducted a public consultation from January to April 2012 on whether Hong Kong should implement MSW charging.

**Over 60% of submissions supported the introduction of MSW charging**

While a quantity-based MSW charging system is affirmed as the broad direction, in view of its complexities and far-reaching implications, the Council for Sustainable Development has been invited to conduct a public engagement to gauge views on how best to implement MSW charging for the sustainability of Hong Kong.

In **South Korea**, the per capita waste disposal rate dropped by **40%** in a few years' time after they implemented the quantity-based waste fee system in 1995.

In **Taipei City**, the per capita disposal rate of household garbage dropped by **65%** in 2011 as compared with 2000, the year they implemented the quantity-based waste fee system.

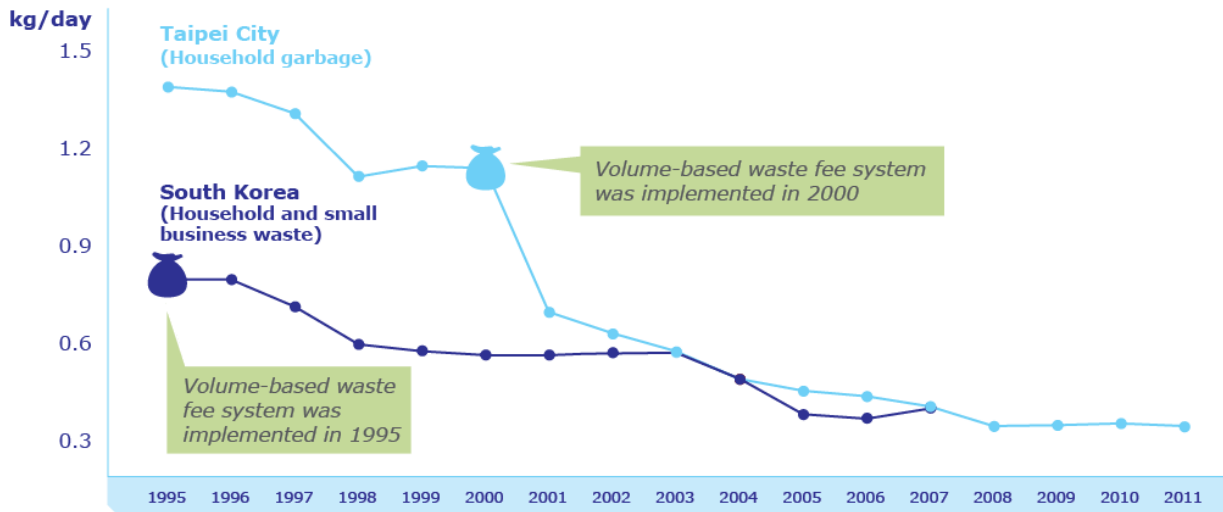


Figure 5 Waste disposal rates in South Korea and Taipei City (per capita)  
 Source: "Hong Kong Blueprint for Sustainable Use of Resources 2013-2022" by Environment Bureau, HKSARG

# The Opportunities

## Changing Our Behaviours

Experiences of other jurisdictions show that MSW charging can be a direct and effective economic incentive for inducing behavioural change that reduces waste generation at source. It can also encourage people to reuse and recycle more so as to reduce their waste fees.

### Think before you buy



### Use fewer



### Donate



## Fostering a Sustainable Lifestyle

It is time for us to rethink our current lifestyle of high consumption and foster one that is simpler, healthier and less wasteful.

- Think before you buy to avoid wastage
- Use fewer disposable non-essentials
- Donate surplus items to others in need

There are plenty of simple changes of habit you can make to benefit yourself and the community. It takes just a bit of effort and creativity. As a start, the Waste Reduction Website by the Environmental Protection Department provides a one-stop portal of practical tips on how to reduce, reuse and recycle waste:

<https://www.wastereduction.gov.hk>

## Improving Resource Management

Waste can be regarded as resources misplaced. MSW charging can also drive for better resource management. The Government has set up a Steering Committee to Promote the Sustainable Development of the Recycling Industry to step up concerted efforts in reducing waste at source and promoting the development of the recycling industry. The Steering Committee is studying multi-pronged measures to induce behavioural change of the whole community, particularly the domestic and C&I sectors, in better utilising our resources in the years to come.

## Benefitting Our Economy and Society

Wider benefits on a community level can also be brought about. For example, the increase in recyclable materials would further foster the development of the recycling industry and green trades, give rise to business opportunities and create green jobs, etc. benefitting different strata of our society.

# 02 Municipal Solid Waste Charging

## 2.1 QUANTITY-BASED CHARGING MECHANISMS

Different models of waste charging are applied in different jurisdictions, in light of their unique nature and circumstances. The results of the public consultation on MSW charging conducted by the Government in 2012 revealed that people in Hong Kong were in favour of implementing a **quantity-based charging** mechanism which establishes a direct link between the amount of charge and the quantity of waste requiring treatment or disposal, and is regarded as a very effective means for waste reduction.

Over **60%** considered charging necessary and nearly **60%** opted for quantity-based charging.

### Two Different Ways of Quantity-based Charging



**Weight-based Mechanism**

Waste charge is based on the **weight** of the waste (e.g. in kilograms), and the waste is weighed at the collection point or disposal facility.

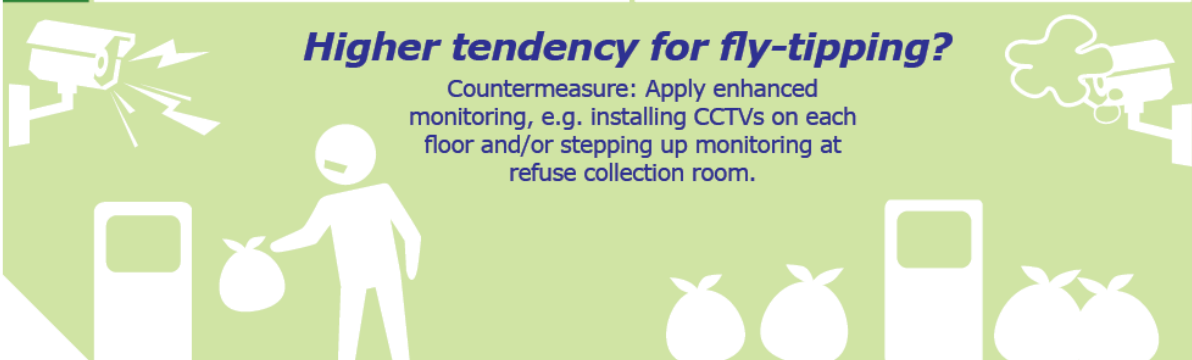
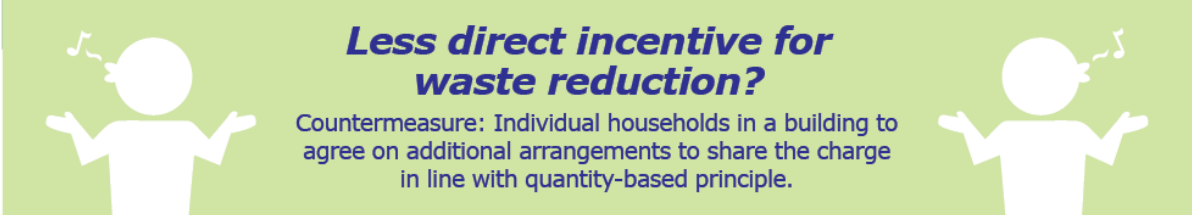


**Volume-based Mechanism**

Waste charge is based on the **volume** of waste e.g. by the number and/or volume of designated bags or garbage bins in terms of the volume and/or collection frequency.

# The more you reduce and recycle, the less you throw away, the less you pay!

The weight-based mechanism has been commonly applied to commercial and industrial waste. For domestic sector, both weight-based and volume-based mechanism can be applied at **household** level or at **building** level. The following table lists out some generic features of weight-based and volume-based mechanism when implemented at household level and at building level respectively:

	Weight-based Mechanism	Volume-based Mechanism
At Household Level	<p>May involve an individual household taking the waste to a designated place e.g. refuse room of the building/estate, or to a nearby refuse collection point for weighing and disposing the waste.</p>	<p>May involve an individual household using the pre-paid designated garbage bag and taking the waste to a designated place e.g. refuse room of the building/estate, or to a nearby refuse collection point for disposing the waste.</p>
<p><b>Higher tendency for fly-tipping?</b>            Countermeasure: Apply enhanced monitoring, e.g. installing CCTVs on each floor and/or stepping up monitoring at refuse collection room.</p> 		
At Building Level	<p>May involve the pooling of waste from individual households for collective weighing and charging on a building/estate basis.</p>	<p>May involve the pooling of waste from individual households to the garbage bin of the building/estate, and to be charged based on the volume of the bin and/or collection frequency.</p>
<p><b>Less direct incentive for waste reduction?</b>            Countermeasure: Individual households in a building to agree on additional arrangements to share the charge in line with quantity-based principle.</p> 		

# 03

## Implementation in Hong Kong Context

### 3.1

## UNIQUENESS AND CHARACTERISTICS OF HONG KONG SETTING

Hong Kong is highly densely populated with 2.3 million households, all sharing an approximate 1,100 square kilometers of land. We have **multi-storey and multi-tenant buildings**, and composite establishments housing both domestic and commercial and industrial (C&I) occupants, which are usually closely situated to one another. On the other hand, our MSW collection system is developed primarily for **removing MSW in an efficient manner to ensure environmental hygiene**. We should put into perspective the unique characteristics of Hong Kong in deliberating and developing an MSW charging scheme suitable for us.



**41.8%**

Collection by Private Waste Collectors Direct

*(Domestic: ~800 tonnes per day; C&I: ~3,000 tonnes per day)*



**40.6%**

Collection by Food and Environmental Hygiene Department's Collection Fleet or its Contractors

*(Domestic: ~3,700 tonnes per day)*



**17.6%**

Disposal at Refuse Collection Points

*(~1,600 tonnes per day)*

Figure 6 MSW Collection in Hong Kong

# Key Features of Hong Kong's Context



## High Coverage of Premises with Building Management

- Over 90% of the households in Hong Kong live in buildings with building management service.



- On the other hand, most village houses and many old low-rise single-block buildings in Hong Kong do not have building management bodies for coordinating waste collection activities.



## Predominance of High-rise Buildings

- Some 88% of the households in Hong Kong live in multi-tenant buildings of more than 10 storeys. Door-to-door MSW collection is not common, and MSW is usually left in refuse rooms or communal areas, or dropped down refuse chutes, which poses difficulty in tracing waste to individual households.



## Composite Buildings

- There are also some 11,000 composite buildings with multiple occupants from both domestic and C&I sectors, making it difficult to distinguish between waste from individual households or C&I premises.

## Mix of Public and Private Waste Collection

- MSW collection services in Hong Kong are operated by both the Food and Environmental Hygiene Department (FEHD) of the Government and private waste collectors.
- FEHD collects some 85% of domestic waste, including those disposed of at Refuse Collection Points (RCP) direct (these mainly include buildings with no management body such as old single-block buildings or village houses, etc.).
- C&I waste is mainly collected by private waste collectors along with a small portion of domestic waste.



## 3.2

# OPTIONS AND KEY CONSIDERATIONS

### The “Hong Kong Way”?

Different jurisdictions (e.g. **Taipei City, Seoul**) have developed their own MSW charging systems to meet their own situation and cultures<sup>1</sup>. For Hong Kong’s unique setting, we should also develop an MSW charging model that suits our context, and which is **practicable, enforceable and is effective in reducing waste**, in order to trigger our behavioural change to use less and waste less.

The Council for Sustainable Development has set up a Support Group of stakeholders and conducted seven focus group meetings in April and May 2013 to thrash out all the priority issues for this engagement process (please see Appendix I for details). With this ground work and foundation laid, the following issues are identified in this document for in-depth and focused discussion and deliberations by the public. The implications for each of these issues and the relevant questions to be asked are set out in the sections below.



Note 1 Given the different circumstances of different cities, there may not be any single system that can meet the needs of different cases.

## 3.2.1 Charging Mechanism

As mentioned in Chapter 2, there are different ways to implement quantity-based charging and a **key consideration** arising from the focus group discussion is the need to find a way of charging that is **feasible in our unique settings of Hong Kong**. In line with international practices, C&I waste is proposed to be charged at landfills or refuse transfer stations by weight. In addition, three possible charging mechanisms for domestic MSW are identified below. The focus group meetings also suggested that the choices may not be limited to these charging mechanisms, but could also consider a combination of mechanisms to cater for different residential settings in Hong Kong.



**C&I waste by weight**



**A. Domestic waste by household by volume**



**B. Domestic waste by building by weight**



**C. Domestic waste by building by volume**

## Commercial and Industrial Waste

### C&I waste by weight



Currently, most C&I waste (some 3,000 tonnes per day) and a small portion of domestic waste (about 800 tonnes per day) is collected by private waste collectors. The C&I sector needs to purchase the services of private waste collectors who will transport the waste to either the Refuse Transfer Stations (RTS) or landfill. The private waste collector needs to pay a gate fee of HK\$30 – 110 per tonne, depending on the location, to dispose of the waste at the RTS. This charge only includes the compacting and delivery cost of the waste from RTS to the landfills. Private waste collectors do not need to pay any charges or fees if they dispose of the waste at the landfills directly. Therefore, currently the fee charged by private waste collectors is mainly the transportation costs of delivering the waste.

In line with international practices, C&I waste is proposed to be charged at landfills or RTS by weight.

### Implications

- **Additional responsibility and role** to be played by private waste collectors. This may include the private waste collectors to pay collectively for the loads of waste transported to the landfills or refuse transfer stations based on the weight of waste (i.e. gate fee), as well as devising measures of sharing the charge with the individual waste producers.
- Possibly **capital investments are expected** for the installation of weighing and associated devices at refuse collection vehicles to cost the weight of waste of each client by the private waste collectors.

### Do you know?

In a number of other jurisdictions such as the **United States, Canada, most European countries, Japan, South Korea and Singapore**, a gate fee system has been adopted for C&I waste. Accordingly the norm for the C&I sector is a quantity-based charging system by weight.

## ? QUESTION FOR YOU

How acceptable is it to you to (continue) hiring private waste collectors to collect your commercial and industrial (C&I) waste, and the private waste collectors will pay the Government the waste charge (e.g. gate fee by weight) which you will need to share?



# Domestic Waste<sup>1</sup>

## A. By household by volume



This is essentially charging at household level, which means each household will need to use the pre-paid designated garbage bag, and to bring the designated bag to a specified collection point for disposal under monitoring, e.g. refuse collection room of a building or the Government's refuse collection point, within a prescribed period of time.

### Implications

- **More direct incentive** to reduce and recycle waste
- **Inconvenience** – to use pre-paid designated garbage bag, and dispose at specified collection place within a prescribed period of time
- **More likely for fly-tipping**
- **Need for much enhanced monitoring** – possibly to install CCTV at each floor level of building; possibly to step up monitoring at the refuse collection room of the building to prevent fly-tipping by non-tenants and/or disposal of non-designated garbage bags; possibly to withdraw/reduce the number of public litter bins and/or to redesign the public litter bins to avoid illegal dumping
- **Need for increased enforcement actions and penalty** against non-compliances



Pre-paid designated garbage bags

### Do you know?

**Taipei City** adopts a “hybrid” charging system. For **domestic waste**, the **Taipei City** residents in low density premises (e.g. low-rise buildings or bungalows/single-storey buildings, etc.) have to use pre-paid designated garbage bags and hand them over to the municipal waste collection fleet at designated times and venues along designated garbage collection routes in the afternoons or evenings. Members of the collection fleet are duly authorised to perform checks and reject waste not placed in designated bags. For households in **multi-storey buildings**, ordinary garbage bags can be used but waste generated by households in the same building has to be bundled together and put into large designated bags by cleansing service operators for collection by the municipal service at designated times and venues. To prevent fly-tipping, nearly 99% of the refuse collection points in **Taipei City** were closed under the charging scheme. For **C&I waste**, a weight-based charging is adopted through the “gate fee” at waste disposal facilities.

In **Seoul**, people living in multi-storey apartment complexes must bring waste (in designated bags and at designated times) to communal collection containers (in open spaces outside their buildings) for disposal. Community surveillance is important (as in **Taipei City**). In **Seoul**, successful reports will be awarded a significant portion of the total fine.

**Note 1** MSW charging now being considered does not apply to domestic bulky waste which comprises mainly durable household items such as mattresses and furniture. Currently, such waste is accepted at the Refuse Collection Points for collection by the Food and Environmental Hygiene Department and ultimately disposed at landfills at no charge. In 2011, the disposal of domestic bulky waste at landfills was about 480 tonnes per day, accounting for 9% of the total daily domestic waste disposal. Since the handling of bulky waste is significantly different given its size, the Environmental Protection Department would defer in-depth consideration of the need of charging until a charging mechanism for MSW in general has been put in place. This is in line with the practice in Taipei City where the disposal of bulky waste is free of charge.

## Domestic waste

### B. By building by weight



based on the total weight of the garbage disposed by the building.

The charging is based on the amount of waste disposed by the building/estate as a whole. This will mean an agent e.g. building management, collecting the waste from individual households and paying the Government collectively based on the volume/weight of waste disposed by the building.

### C. By building by volume



based on the number and/or volume of the garbage bin used by the building.

Need for **additional arrangements** to be devised and agreed between the building management and residents **to embody the quantity-based principle and to enhance the incentive to waste reduction, separation and recycling** by individual households, e.g. household to procure designated bags from building management for waste disposal.

## Implications

- **More feasible and practicable** for Hong Kong with the majority of population residing in multi-storey buildings
- **Relatively less direct incentive** by individual households to reduce and recycle waste
- **Additional responsibility and role** to be played by building management
- Under the “by weight” mechanism, **large capital costs are expected** for the installation of weighing and associated devices at refuse collection vehicles and the garbage bins. The issue of who will bear the capital costs would need to be considered
- Under the “by volume” mechanism, **possible drawback of “unfairness”** as some buildings may have the resources to use waste compactors<sup>1</sup> which however do not necessarily reduce the actual amount of waste generated
- Possibly to **withdraw/reduce** the number of the public litter bins and/or to **redesign** the **public litter bins** to avoid illegal dumping
- **Need for stepped up monitoring and enforcement actions** against non-compliances

## Do you know?

In many **European** countries such as **Germany** and **Ireland**, weight-based charging is commonly applied through the widely-tested technologies of an electronic tag or radio-frequency identification (RFID) chip installed onto the garbage bin. The tag or chip contains relevant information of the bin owner. During waste collection, the tag or chip is scanned whilst the bin is weighed by the weighing devices on board of the refuse collection vehicle, and the bin owner is then billed accordingly.



Source of photo:IVAREM

On the other hand, in the **United States (US)**, quantity-based charging system (known as Pay As You Throw (PAYT)) was available to about 25% of the **US** population including 30% of the largest cities in the **US**, leading to reductions of 4.6 - 8.3 million tonnes of municipal solid waste from landfills annually. Common types of charging systems include the bin system and the bag system. In general, larger communities and urban/suburban communities tend to use bin system while smaller/rural communities are more likely to use bag system.

**Note 1** A waste compactor is used to reduce the volume of the garbage substantially. This can help to reduce the frequency of garbage collection/transportation. However, glass bottles and jars should not be placed in a waste compactor because they can shatter under the weight of the compactor.



## Domestic waste from buildings without building management

In Hong Kong, there exist buildings such as single-block residential buildings and village houses that do not have building management bodies.

Waste generators or garbage collectors would have to take the garbage out to nearby specified place for disposal e.g. Government's refuse collection points (RCP).

If the "by volume" mechanism is adopted, only waste in pre-paid designated garbage bags can be disposed at specified RCP. If the "by weight" mechanism is adopted, the garbage will be weighed at the specified RCP for charging purpose.



Current Refuse Collection Point in urban district



Current Refuse Collection Point in rural area

### Implications

- Need to undergo **conversion for the existing RCPs (some 3,000) into facilities which are manned and/or machine-equipped**. May be quite difficult for a number of the RCPs due to the site and other constraints
- Possibly **large amount of resources required from our society** for the above conversion work
- May **create job opportunities** for low-skilled labourers, as well as the opportunity to upgrade some of the facilities
- Garbage collectors need to **adjust their mode of waste collection** from waste generators and delivery to FEHD's RCPs
- Possibly to **withdraw/reduce** the number of the public litter bins and/or to **redesign** the **public litter bins** to avoid illegal dumping
- **Need for stepped up monitoring and enforcement actions** against non-compliances



## ? QUESTIONS FOR YOU

### SCENARIO 1 - For waste producers in buildings/premises WITH building management

Which mechanism of charging do you prefer?



#### A. Household by volume

**Individual waste producer** to use pre-paid designated bags for disposing waste and to bring them to a specified collection point every time for disposal under monitoring, e.g. refuse collection room of a building or the Government's refuse collection point, within a prescribed period of time.



#### B. Building by weight

**Building management** to collect waste and pay collectively to the government based on the **weight of waste** disposed by the whole building. Additional arrangements be devised and agreed between building management and residents to share the charge in line with quantity-based principle.



#### C. Building by volume

**Building management** to collect waste and pay collectively to the government based on the **volume of waste** disposed by the whole building. Additional arrangements be devised and agreed between building management and residents to share the charge in line with quantity-based principle.

### SCENARIO 2 - Buildings/premises WITHOUT building management and the waste being collected by garbage collectors/self-arrangement

Could you accept to bring your garbage to a nearby designated place every time for disposal under monitoring (e.g. refuse collection points), within a prescribed period of time?

**YES** Which charging mechanism do you prefer, volume-based or weight-based?

**NO** Why?



## 3.2.2 Coverage of Charging Scheme

In view of the complexities envisaged in implementing an MSW charging scheme in Hong Kong, another key consideration arising from the focus group meetings is the coverage and schedule of implementation of the scheme. In principle, two approaches are identified -

### Charging all sectors in one go

#### Implications

- **Charging all sectors in one go** is most consistent with the spirit of shared responsibility and fairness in waste reduction among all of us in Hong Kong.
- Doing this also obliterates the shifting of waste to non-charging sectors to circumvent the charge.

VS

### Charging different sectors by phases

#### Implications

- A **phased charging approach** has the general advantage of putting in place MSW charging in sectors where implementation is more feasible, allowing us to gain some charging experience before extending the scheme to other sectors.
- However, the focus group discussions suggest that apparently there are no commonly shared views on which sector the charging can be more easily applied first. Fairness is also one of the major reasons against a phased approach.
- C&I waste is often mixed with domestic waste in composite buildings and there is no practical way to easily distinguish the waste source.

## Do you know?

- The details including the coverage adopted by different jurisdictions in implementing waste charging scheme have been devised to suit not only their agenda in waste management but also their unique demographic factors such as territorial size, population distribution, profile of commercial and industrial activity and other relevant factors, etc.
- In 1991, all municipalities in **Taiwan** implemented a system of waste charging based on “water fee” (switched to “water consumption” in 1994). Different municipalities have their own rates calculated based on their respective waste management costs. Starting from 2000, **Taipei City** switched to the quantity-based waste charging mechanism, which was extended to **New Taipei City** in end-2010.
- In **South Korea**, a national MSW charge (designated garbage bag) was implemented in 1995 to replace the fixed charge system. Each municipality sets their own bag rates and designs a system that best fits their unique situation. In rural areas, where houses are scattered and illegal dumping is common, residents are not required to use designated bags. Instead, community waste collection bins are installed and the waste charge is levied on the whole community and shared by each household.
- In **Taipei City** and **South Korea**, commercial and industrial bodies dispose of their waste through engaging private collectors<sup>1</sup>. These private waste collectors would collect the waste from C&I bodies and deliver it to the disposal facilities for disposal. The private waste collectors are required to pay “gate fees” at the reception of the disposal facilities for the disposal of the waste.

## ? QUESTION FOR YOU

Do you consider that the MSW charging scheme should be implemented to **all sectors** (i.e. both the domestic and the C&I sectors) **in one go**, or to be implemented to **different sectors by phases**?

**Note 1** In Taipei City, C&I bodies have the option of using pre-paid designated bags if the waste to be disposed is under 30kg per day. A similar option exists for C&I bodies in South Korea if the waste to be disposed is under 300kg per day.

## 3.2.3 Charging Level

It is **not** the Government's intention to achieve **cost recovery** of waste disposal and treatment by MSW charging. Rather, **the charging level should be determined by its effectiveness in inducing behavioural changes to reduce and recycle waste.**

Given that the level of the MSW charge will have a big impact on the success of the charging scheme, this issue should be carefully deliberated to make the scheme acceptable to all, whilst maintaining its effectiveness. The level of MSW charge has not been decided, and you are invited to tell us at what level the MSW charge should be set to effectively encourage waste reduction.

### Commercial and Industrial Waste



One tonne of MSW can roughly load up seven and a half 660-litre refuse bins, commonly used in Hong Kong as shown.

In **Singapore**, disposal of C&I waste is charged under a weight-based approach, and the gate fee for this type of waste is equivalent to **HK\$461 - 485 per tonne<sup>1</sup>**, depending on the location of the facilities. For Hong Kong, we have to consider a level of charging rate that is appropriate for effecting changes in waste reduction and recycling behaviour for C&I waste producers.

**ONE TONNE  $\cong$  7.5 Refuse Bins (660-litre each in volume)**



### **?** QUESTION FOR YOU

What level of MSW charge per tonne do you consider appropriate in effecting changes in your waste-reducing and recycling behaviour?

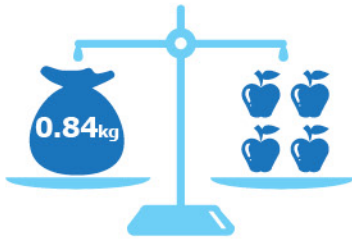
**Note 1** Assuming a C&I premises generates one 660-litre bin of waste per day, and with reference to the charge for C&I waste in Singapore, the waste charge equated to Hong Kong dollar will be around HK\$2,000 per month.

# Domestic Waste



In Taipei City, the charge for a 5-litre pre-paid garbage bag is about HK\$0.5

Our neighbouring jurisdictions including **Taipei City** and **Seoul** are charging for domestic waste at a rate of around **HK\$0.1 per litre** (equivalent to **around HK\$500 per tonne**) for volume-based charging. In **Taipei City**, the waste cost of each household on average decreased from NT\$120 per month (around HK\$30) to NT\$40 per month (around HK\$10) after a few years with efforts in reducing waste at source and recycling.



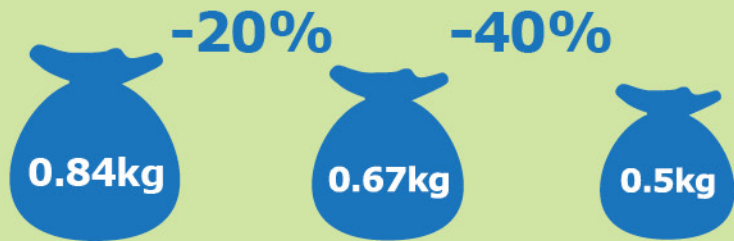
If we adopt a rate similar to that of **Taipei City** for a household in Hong Kong that typically uses one 10 – 20 litre garbage bag per day, the charge would be **around HK\$30 – 60 per month per household**. If the household manages to do better in reducing and recovering waste, the waste charge it would need to pay would be lower.

Figure 7 Domestic waste disposal per person per day in Hong Kong  
 Source: "Monitoring of Solid Waste in Hong Kong - Waste Statistics for 2011" by Environmental Protection Department, HKSARG

## Illustration

(Calculation with reference to the MSW charge rate of Taipei City)

Domestic waste disposal of a person per day



Waste charge (approx.) for a person per day	HK\$0.42	HK\$0.34	HK\$0.25
Waste charge (approx.) for a 3-person household per month	HK\$39	HK\$32	HK\$23

## Waste Less, Pay Less!

We need to consider what level of charging rate is appropriate for inducing a behavioural change in waste reduction and recycling by domestic waste producers in Hong Kong.

## ? QUESTION FOR YOU



What level of MSW charge per household per month (assuming three persons in a household) do you consider appropriate in effecting changes in your waste-reducing and recycling behaviour?



## Incentives and Relief



### Incentives?

In relation to the discussion on the charging level, a view commonly shared in the focus group meetings is the need to build into the MSW charging scheme **further incentives** to increase its effectiveness in promoting recycling and reducing waste generation within the community.

An approach raised is the establishment of a **threshold MSW disposal level**, under which no MSW charge shall need to be paid or a recognition award can be given such as “best estate or best building in waste reduction”. The threshold level may be set at a target that is achievable and may be revised to induce greater behavioural change over time, which may tie in with the MSW reduction targets as laid out in the “Hong Kong Blueprint for Sustainable Use of Resources 2013 – 2022”. In view of the difficulty in collecting actual disposal figures for individual households, the above measure may be more feasible to be implemented through charging at building level.

### Relief?

The implementation of MSW charging also gives rise to concerns over its impacts to the low income groups in our society. Relief measures are not commonly seen in jurisdictions with quantity-based MSW charging, as it could be viewed as granting exemptions from paying the MSW charge to certain groups and weakening the incentive to induce behavioural changes, as well as stirring up the issue of fairness within the community. On the other hand, some people consider that there may be a need to look after the underprivileged through other means when quantity-based MSW charging is applied.

### Rates?

Some views and questions were expressed at the focus group meetings about any possible downward adjustment or a rebate of the government rates, should an MSW charge be introduced.

Rates are part of the government’s general revenue while the policy objective of waste charging is to induce behavioural changes on waste reduction rather than cost recovery. The differences in the underlying objectives and principles of these measures should be kept into perspective in the related deliberations.

**MSW charging is for waste reduction,  
not for cost recovery.**





## Do you know?

Relief measures are **not common** in jurisdictions that have implemented waste charging. Only very few examples can be found.

In **Ireland**, **tax relief** is available if the resident pays service charges to a local authority or independent contractors of domestic refuse collection services. The relief is granted in each tax year in respect of charges paid in the previous tax year. Since 2007, an upper limit of €400 per year applies to tax relief on domestic waste charges.

In **Monaghan County of Ireland**, there is a Waste Management Hardship Fund which is a refuse waiver scheme provided by the Monaghan County Council (local authority). A small annual budget is set aside each year for this fund: the provision for 2007 is €20,000. In order to qualify for assistance from the Fund, applicants must satisfy the Council that their circumstances are worse than the majority of other low-income householders. Applications are assessed on a case-by-case basis, and the Council only makes a contribution towards the refuse collection cost – usually 50%.

## QUESTION FOR YOU

Do you support having a certain threshold for waste disposal under which no MSW charge shall need to be paid or that you will be rewarded in any form? How would you be incentivised to do better in reducing, separating and recycling waste under the MSW charging scheme?

## 3.2.4 Recycling



Another consideration raised in the focus group meeting relates to recycling. Success in recycling depends on the costs (collection, transportation, separation and processing), the availability of land or facilities for recycling, and the availability of buyers and markets. Recyclers in Hong Kong have mainly focused on recyclables such as metals and paper that have higher market value.

The Government has implemented a basket of initiatives to support recycling activities and the local recycling industry, which include **promoting source separation of waste, developing Ecopark**, etc. (please see Annex II for more details).

Following the implementation of MSW charging, there will be a bigger incentive for people and businesses to separate recyclables at source, providing a larger pool for recycling while raising the demand for community recycling facilities. To handle the increased quantity of recyclable materials effectively also requires a more vibrant local recycling industry. The Government has already set up a **Steering Committee to Promote the Sustainable Development of the Recycling Industry** to study how to support the local recycling industry. Any further measures would go hand in hand with the recycling programmes that the Government has already been organising together with various stakeholders, e.g. District Councils, local communities, non-governmental organisations, businesses, building management bodies, schools, etc.



Enhanced measures to promote recycling in preparation for waste charging in Hong Kong include, inter alia -

### **Provision of communal tri-color recycling bins at domestic establishments**



Currently 80% of our population has been covered by recycling facilities. Waste separation and recovery facilities have been set up in housing estates and residents' buildings, on individual floors and/or in common areas. The types of waste collected for reuse and recycling have been broadened, including waste paper, metals, plastics, old clothes, waste electrical and electronic appliances (including computers), etc. in order to reduce the amount of waste requiring disposal and at the same time increase the waste recovery rate. Similar arrangements have also been extended to commercial and industrial buildings.

### **Provision of recycling bins for glass beverage bottles**



Provision of recycling bins for glass beverage bottles covering about 70% of the population by end of 2015.

### **Rolling-out of Food Waste Recycling Scheme in about 50 housing estates**



Through the support of the Environment and Conservation Fund, the Food Waste Recycling Scheme rolled out in July 2011 will support food waste reduction and on-site food waste recycling projects in about 50 private housing estates. Up to July 2013 the funding applications of 24 housing estates have been approved, and ten of these estates have already implemented food waste reduction and recycling.

### **Legislation for Producer Responsibility Scheme (PRS) for Waste Electrical and Electronic Equipment (WEEE)**



Preparation of legislation for a new PRS for WEEE with a view for submission to the Legislative Council in the current legislative session (2013-2014).

### **A new mobile app on the location of recycling facilities**



In addition to serving as a platform to facilitate mobile device users to locate waste separation bins in the public places all over Hong Kong, the mobile app will convey information about waste reduction and recycling to the general public. It helps to arouse the interest of the general public and create an atmosphere in the community on waste reduction and recycling. The mobile app is targeted for launching in Q1 2014.

## **? QUESTION FOR YOU**

Do you consider additional measures and/or resources are needed to support recycling activities/facilities? If so, any specific suggestions?

# 04

## Share Your Views

**MSW charging** is a policy that would have a major impact on everyone in Hong Kong and on the whole waste collection system. Implementation of charging could also lead to a series of practical issues. In view of this, the Council for Sustainable Development (SDC) hopes to fully engage the public and relevant stakeholders to adequately deliberate the issues and to work out a practicable way forward on the charging scheme. We sincerely encourage you to make reference to the key discussion points in this Invitation for Response (IR) document and send us your views to the questions appended on the following pages on or before January 24, 2014. Apart from the issues that have been covered in this document, you are welcome to express your views on other issues relevant to the implementation of MSW charging in Hong Kong through the channels listed in the "Contact Us" section.

Apart from providing written responses based on this document, you are also encouraged to participate in the public engagement activities and other related events. You may wish to visit the SDC's dedicated website at [www.susdev.org.hk](http://www.susdev.org.hk) for updated information on the public engagement programmes.

Please note that the SDC would wish, either during private or public discussion or in any subsequent reports, to be able to refer to and attribute views submitted in response to this IR document. Any request to treat all or part of a response in confidence will be respected, but if no such request is made, it will be assumed that the response is not intended to be confidential and the SDC may disclose or publish all or part of the views received as well as the identity of the source.



# QUESTIONS FOR YOU

Please send the answers to us on or before January 24, 2014 by one of these means:  
e-mail: [comments@susdev.org.hk](mailto:comments@susdev.org.hk) | online: [www.susdev.org.hk](http://www.susdev.org.hk) | fax: 3150 8168  
mail: Sustainable Development Division, 46/F, Revenue Tower, Wanchai

## For Commercial and Industrial Waste Producers

This is an anonymous form for the purpose of gauging public views about the possible implementation details of taking forward the **municipal solid waste (MSW) charging scheme** in Hong Kong.

\*Please indicate your views to the corresponding question by ticking **ONE** box only.

### Charging Mechanism (see Section 3.2.1)

A1 How acceptable is it to you to (continue) hiring private waste collectors to collect your commercial and industrial (C&I) waste, and the private waste collectors will pay the Government the waste charge (e.g. gate fee by weight) which you will need to share?

- Very acceptable     Somewhat acceptable     Not very acceptable     Not at all

Views and/or other suggestions: \_\_\_\_\_

\_\_\_\_\_

### Coverage of Charging Scheme (see Section 3.2.2)

A2 Do you consider that the MSW charging scheme should be implemented to all sectors (i.e. both the domestic and the C&I sectors) in one go, or to be implemented to different sectors by phases?

- To all sectors in one go     To different sectors by phases     No comment

If you consider that it should be implemented by phases, do you have any specific suggestions on how to do so?

\_\_\_\_\_

\_\_\_\_\_

### Charging Level (see Section 3.2.3)

A3 What level of MSW charge per tonne do you consider appropriate in effecting changes in your waste-reducing and recycling behaviour? (please see page 25 for illustration)

a. HK\$400 to HK\$499

b. HK\$500 to HK\$599

c. HK\$600 to HK\$699

d. Others, please specify: \_\_\_\_\_

A4 Do you support having a certain threshold for waste disposal under which no MSW charge shall need to be paid or that you will be rewarded in any form?

- Very strongly     Strongly     Moderately     Weakly     Not at all

How would you be incentivised to do better in reducing, separating and recycling waste under the MSW charging scheme?

\_\_\_\_\_

\_\_\_\_\_



**Recycling** (see Section 3.2.4)

A5 Do you consider that additional measures and/or resources are needed to support recycling activities/facilities?

- Yes                       No                       No comment

Do you have any specific views/suggestions?

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**Others**

A6 Other comments and suggestions: \_\_\_\_\_

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# QUESTIONS FOR YOU

Please send the answers to us on or before January 24, 2014 by one of these means:  
e-mail: [comments@susdev.org.hk](mailto:comments@susdev.org.hk) | online: [www.susdev.org.hk](http://www.susdev.org.hk) | fax: 3150 8168  
mail: Sustainable Development Division, 46/F, Revenue Tower, Wanchai

## For Domestic Waste Producers

This is an anonymous form for the purpose of gauging public views about the possible implementation details of taking forward the **municipal solid waste (MSW) charging scheme** in Hong Kong.

\*Please indicate your views to the corresponding question by ticking **ONE** box only.

### Charging Mechanism (see Section 3.2.1)

For waste producers in buildings/premises **WITH** building management

B1 Which mechanism of MSW charging do you prefer?

- a. Individual waste producer to use pre-paid designated bags for disposing waste and to bring them to a specified collection point every time for disposal under monitoring. e.g. refuse collection room of a building or the Government's refuse collection point, within a prescribed period of time.
- b. Building management to collect waste and pay collectively to the government based on the weight of waste disposed by the whole building. Additional arrangements be devised and agreed between building management and residents to share the charge in line with quantity-based principle.
- c. Building management to collect waste and pay collectively to the government based on the volume of waste disposed by the whole building. Additional arrangements be devised and agreed between building management and residents to share the charge in line with quantity-based principle.
- d. Others, please specify: \_\_\_\_\_

OR

For buildings/premises **WITHOUT** building management and the waste being collected by garbage collectors/self-arrangement

B2 How acceptable is it to you to bring your garbage to a nearby designated place every time for disposal under monitoring (e.g. refuse collection points), within a prescribed period of time?

- Very acceptable     Somewhat acceptable     Not very acceptable     Not at all

B3a If acceptable, which charging mechanism do you prefer?

- Volume-based     Weight-based     No preference

B3b If no, why? \_\_\_\_\_

### Coverage of Charging Scheme (see Section 3.2.2)

B4 Do you consider that the MSW charging scheme should be implemented to all sectors (i.e. both the domestic and the C&I sectors) in one go, or to be implemented to different sectors by phases?

- To all sectors in one go     To different sectors by phases     No comment

If you consider that it should be implemented by phases, do you have any specific suggestions on how to do so?

---

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### Charging Level (see Section 3.2.3)

B5 What level of MSW charge per household per month (assuming three persons in a household) do you consider appropriate in effecting changes in your waste-reducing and recycling behaviour? (Please see page 26 for illustration)

- a. HK\$30 to HK\$44  
 b. HK\$45 to HK\$59  
 c. HK\$60 to HK\$74  
 d. Others, please specify: \_\_\_\_\_

B6 Do you support having a certain threshold for waste disposal under which no MSW charge shall need to be paid or that you will be rewarded in any form?

- Very strongly       Strongly       Moderately       Weakly       Not at all

How would you be incentivised to do better in reducing, separating and recycling waste under the MSW charging scheme?

\_\_\_\_\_  
\_\_\_\_\_

### Recycling (see Section 3.2.4)

B7 Do you consider that additional measures and/or resources are needed to support recycling activities/facilities?

- Yes       No       No comment

Do you have any specific views/suggestions?

\_\_\_\_\_  
\_\_\_\_\_

### Others

B8 Other comments and suggestions: \_\_\_\_\_

\_\_\_\_\_

### Demographics

The following information is to assist in identifying how income and building management relate to views on the charging system. You are invited to fill in the following:

My household income is in the range of -

- Under HK\$10,000       HK\$10,000-\$19,999       HK\$20,000-\$39,999  
 HK\$40,000 or above       Cannot or do not wish to answer

In my household -

- I am the only person       There are 2 people       There are 3 people  
 There are 4 people       There are 5 or more people       Cannot or do not wish to answer

My residential building -

- Has building management       Does not have management and has multiple occupants  
 Does not have management but my household occupies the whole building  
 Cannot or do not wish to answer

# ANNEX I

## Waste Background in Hong Kong

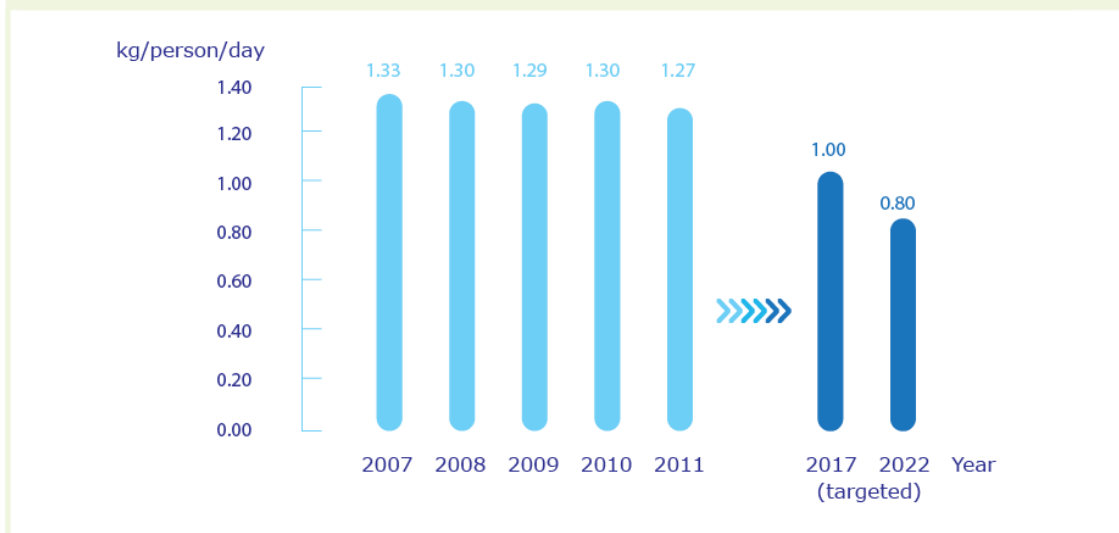
Table 1: How waste is classified in Hong Kong

<b>Municipal Solid Waste (MSW)</b>	<b>Overall Construction Waste</b>	<b>Special Waste</b>
Includes domestic waste, commercial waste and industrial waste(Note)	Includes waste or surplus materials arising from construction activities as well as waste concrete	Waste that requires special disposal arrangement and includes animal carcasses, chemical waste, clinical waste, livestock waste, grease trap waste, sewage treatment and waterworks treatment sludge, etc

Source: "Monitoring of Solid Waste in Hong Kong - Waste Statistics for 2011" by Environmental Protection Department, HKSARG

- Note 1 Domestic waste refers to household waste, waste generated from daily activities in institutional premises and refuse collected from public cleansing services.
- Note 2 Commercial waste is waste arising from commercial activities taking place in shops, restaurants, hotels, offices, markets in private housing estates, etc.
- Note 3 Industrial waste is waste arising from industrial activities and does not include construction waste and chemical waste.

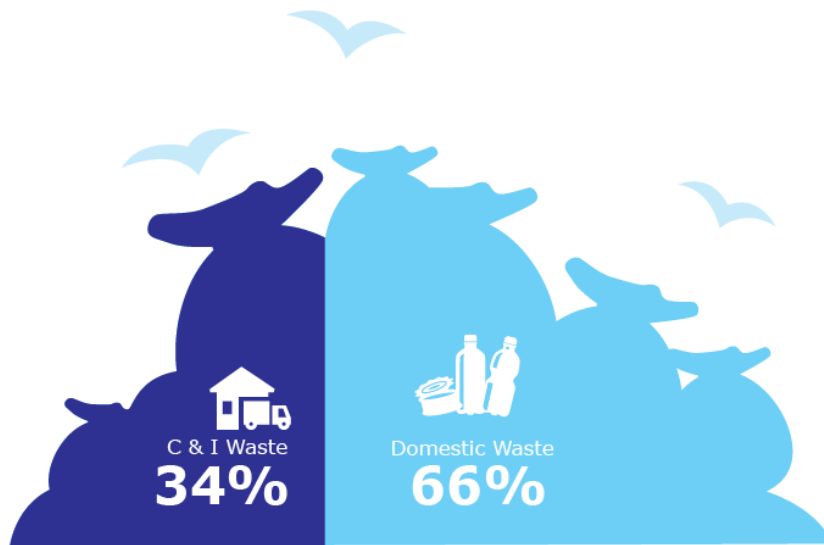
Table 2: Per capita disposal rates of municipal solid waste



Remark: The per capita rates (2007-2011) are calculated based on the population (mid-year) updated by the Census and Statistics Department in February 2012.

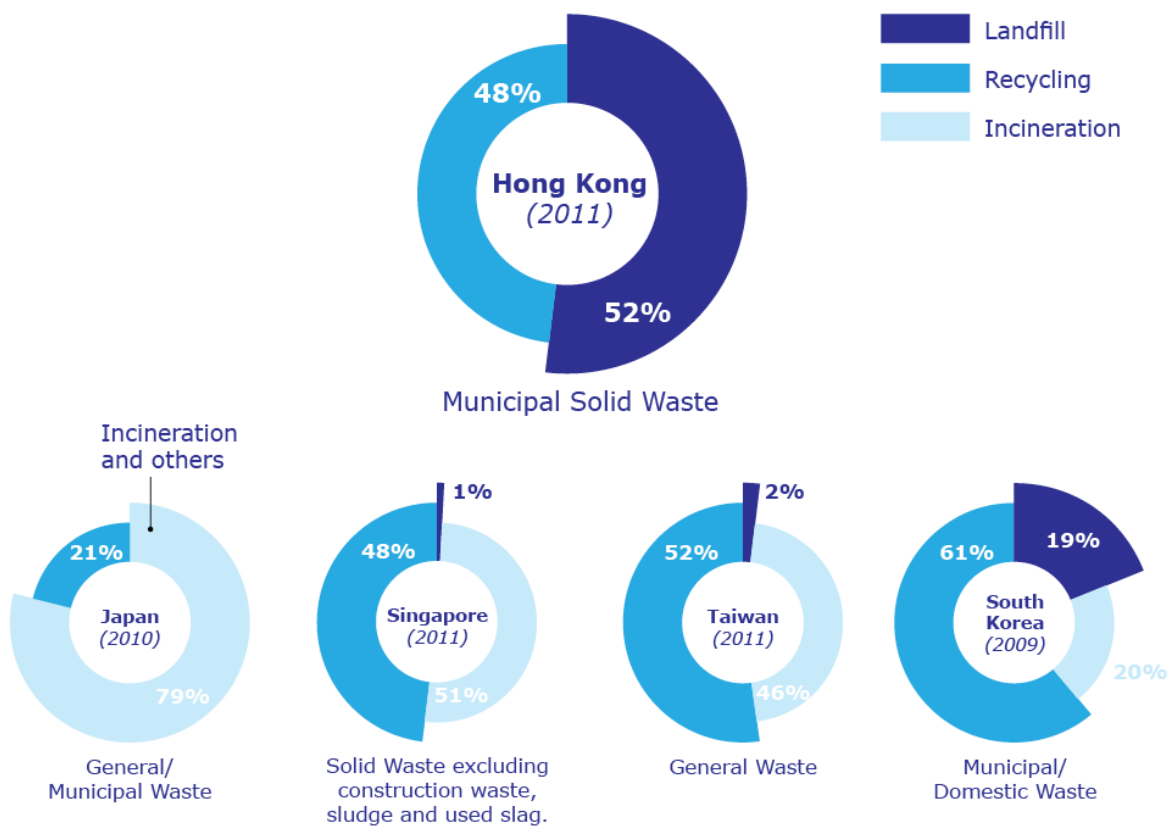
Sources: (1) "Monitoring of Solid Waste in Hong Kong - Waste Statistics for 2011" by Environmental Protection Department, HKSARG; and (2) "Hong Kong Blueprint for Sustainable Use of Resources 2013-2022" by Environment Bureau, HKSARG

Table 3: Disposal of municipal solid waste at landfills in 2011



Source: "Monitoring of Solid Waste in Hong Kong - Waste Statistics for 2011" by Environmental Protection Department, HKSARG

Table 4: Comparison of waste management structure with other Asian areas



Source: "Hong Kong Blueprint for Sustainable Use of Resources 2013-2022" by Environment Bureau, HKSARG



# ANNEX II

## Key Waste Management Initiatives in Hong Kong

Year		Initiative
<b>Policies and Measures</b>		
Since 1998		<b>Short term tenancy</b> - The Government has allocated suitable sites under short term tenancy to provide land resources to the recycling trade at an affordable cost.
2008 -		<b>The Building (Refuse Storage and Material Recovery Chambers and Refuse Chutes) Regulation</b> - Amended to make it mandatory that a refuse storage and material recovery room (no smaller than 1.5m x 1.5m) be provided on every floor of new domestic buildings and the domestic part of new composite buildings, in order to provide sufficient and accessible space for source separation of waste.
2009 -		<b>Environmental Levy Scheme on Plastic Shopping Bags</b> - The first stage was implemented to promote the bring-your-own-bag lifestyle and counter excessive use of plastic shopping bags. Extension of the scheme is currently undergoing the legislative process.
2013 -		<b>Producer Responsibility Scheme (PRS) for Waste Electrical and Electronic Equipment (WEEE)</b> - Currently undergoing the legislative process.
2013 -		<b>PRS for glass beverage bottles</b> - Public consultation has been completed. The Government is consolidating the views and opinions collected.
2013 -		<b>MSW charging</b> - SDC invited to conduct a public engagement to gauge views on how to implement MSW charging in Hong Kong.
2016-2018		<b>PRS on other waste</b> - To assess need and consider whether they can be part of PRS e.g. rubber tyres, wood, packaging materials, rechargeable batteries, etc.
<b>Social Mobilisation</b>		
2005 -		<b>Source Separation of Domestic Waste</b> - Launched territory-wide aiming to provide additional waste separation facilities on each building floor or in other areas of housing estates to facilitate source separation of waste by residents and broaden the types of recyclables to be recovered, including waste paper, metals, plastics, used clothes, used computers and electrical appliances. In 2007, the Programme was further extended to commercial and industrial buildings.
2010 -		<b>Food Waste Recycling Partnership Scheme</b> - Implemented with the commercial and industrial sectors for food waste reduction and recycling.
2010 -		<b>EcoPark WEEE Recycling Centre</b> - Set up with funding support from the Environment and Conservation Fund to enhance the reuse and recycling of WEEE generated in Hong Kong.
2010 -		<b>Plastic Resources Recycling Centre</b> - Set up at EcoPark with funding support from the Environment and Conservation Fund to provide recycling processing for limited quantities of locally collected plastic waste.
2011 -		<b>Community Recycling Network</b> - Established in collaboration with frontline Government departments and various sectors in the community. The network organises regular recycling promotional activities at its 530 recycling points. The collection of materials of lower market value such as plastics and WEEE is promoted through various means such as redemption vouchers.

# ANNEX II

2011 -		<b>Environment and Conservation Fund</b> – Subsidised educational and promotional programmes for food waste reduction and source separation of waste in private residences, as well as on-site treatment that turns unavoidable food waste into usable resources.
2012 -		<b>District Councils</b> – Provided with funding and assistance for educational and promotional campaigns to raise public awareness regarding waste reduction and recovery.
Late 2012 -		<b>Food Wise Hong Kong</b> – A Steering Committee was set up to draw up programmes to target households, businesses and schools etc. to prevent and reduce food waste; to support catering and related sectors, women and other groups on the food-related reduction projects; and encourage catering and related sectors to support food donation activities whenever possible.
<b>Infrastructure</b>		
Since mid-1990s		<b>Strategic landfills</b> – Established to provide environmentally sound waste disposal outlets at three strategic locations of the territory. Obsolete waste facilities were phased out.
1993 -		<b>Chemical Waste Treatment Centre</b> – Established at Tsing Yi upon the launch of regulatory control over chemical waste. It provides high temperature incineration, physical/chemical treatment and oil/water separation processes for various types of chemical waste. It is a centralised facility for Hong Kong's chemical waste, clinical waste as well as MARPOL waste (oily water and noxious liquid substances) from local vessels and ocean-going vessels visiting Hong Kong.
2007 -		<b>EcoPark</b> – Developed to provide the recycling trade with land for long term leasing at an affordable cost.
2006-2008		<b>Pilot Food Waste Composting Plant</b> – Built in Kowloon Bay and commissioned in 2008.
2013 -		<b>Community Green Stations (CGS)</b> – To pilot 5 CGS operated by non-governmental organisations to bring green living to communities, where waste prevention, reduction and reuse can be demonstrated and practised.
2013 -		<b>Sludge Treatment Facility</b> – To be commissioned at end-2013 to treat all of Hong Kong's sludge generated from the Harbour Area Treatment Scheme (HATS) and regional sewage treatment works.
2013-2015		<b>Waste separation and collection system</b> – To improve the waste separation and collection system.
2016-2018		<b>Organic Waste Treatment Facility (OWTF)</b> – To commission the 1st and 2nd OWTF.
2019-2022		<b>Integrated Waste Management Facility</b>

Source: "Hong Kong Blueprint for Sustainable Use of Resources 2013-2022" by Environment Bureau, HKSARG (URL: <http://www.enb.gov.hk/en/files/WastePlan-E.pdf>)

# ANNEX III

## Implementation of Municipal Solid Waste Charging in Other Jurisdictions

Driven by environmental and economic concerns, some jurisdictions outside Hong Kong have introduced charging schemes for MSW as well as other kinds of waste. However, there is no universal model of waste charging - different ways are being used to charge the waste being disposed of in different jurisdictions (see table below). Having reviewed the experiences of selected jurisdictions, waste charging mechanisms can be divided broadly as follows -

Quantity-based System	Proxy System	Fixed Charge
Based on quantity of waste disposed of (e.g. based on the <b>volume</b> of waste or the <b>weight</b> of waste). In effect, every unit of waste that is reduced, reused or recycled would result in direct savings.	Linked to an indicator (e.g. water consumption) – an indirect approach because the charge disregards the quantity of waste disposed of.	Fixed fee charged to individual waste producer within the same category (e.g. resident of the same district), disregarding the quantity of waste disposed of.

Jurisdictions	Waste Sources	Charging Approach
<b>Asia</b>		
Beijing, Guangzhou (China)	Domestic	Fixed charge
Seoul (South Korea)	Domestic and small commercial	Quantity-based system (volume-based through designated bags)
Singapore	Domestic	Fixed charge
	Commercial and industrial	Quantity-based system (weight-based through gate fee)
Taiwan - Taipei City, New Taipei City and Shihkang	Domestic and small commercial	Quantity-based system (volume-based through designated bags)
Majority of municipalities	Domestic and small commercial	Proxy system (water consumption)
Tokyo - Some western peripheral cities of Metropolitan Tokyo (Japan)	Domestic	Quantity-based system (volume-based through designated bags)
<b>Europe &amp; North America</b>		
Munich (Germany)	Domestic	Quantity-based system (volume-based through bin volume and collection frequency)
Tinglev (Denmark) <sup>1</sup>	Domestic	Quantity-based system (weight-based)
United States <sup>2</sup>	Domestic (covering ~25% of the population)	Quantity-based system (volume-based through bin volume and collection frequency)
	Commercial and industrial	Quantity-based system (weight-based through gate fee)

**Note 1** In Tinglev and Bogenese of Denmark, a weight-based charging mechanism for domestic waste involves a fixed fee plus a variable element per kilogram of waste disposed in excess of a fixed amount. Coupled with a comprehensive waste reduction policy and other measures, there was a reduction of 58% in residual waste in Tinglev and 60% in Bogenese after implementation of the weight-based scheme.

**Note 2** Back in the early 2000s, New York City of the United States (US) deliberated on whether it should implement quantity-based waste charging. The city decided to shelve the concept after considering the pros and cons. Unlike some other US municipalities in which single/two-family homes predominate, 60% of New York City's housing stock is multi-unit. In apartment buildings, it is considered generally impossible to enforce waste-related regulation at the tenant level and quantity-based user fees are difficult to institute, as waste is deposited often through chutes into a common area.

# APPENDIX I

## Public Engagement Process by the Council for Sustainable Development (SDC)

The SDC's public engagement is a bottom-up and stakeholder-led engagement process. The early key stage is the identifying of priority areas and issues relevant to the implementation of MSW charging in Hong Kong where future public deliberations would be based. To this end, a Support Group (SG) comprising representatives from relevant sectors has been formed in January 2013 to provide expert advice to the SDC on a more definitive scope of the issues for engagement.

Based on the SG's advice, the SDC proceeded to reach out further to stakeholders through focus group meetings (FGM). Seven FGMs were held between April and May 2013 with over 160 participants from a broad spectrum of sectors including domestic and residential; commercial and industrial; waste collection and recycling; green groups; youth and welfare groups; medical and health; professional organisations; academics and district personalities.

The views expressed by the FGMs as well as the advice from the SG had formed a solid foundation in ensuring that the SDC would provide sufficient background information and pose the right issues in this Invitation for Response (IR) document for the ensuing engagement process and participation by the wider community.

The next key stage is the rolling out of the engagement process to the community. The Hong Kong Productivity Council has been commissioned as the Programme Director for this engagement process. The SDC will also leverage on the synergy from 100 supporting organisations to help promote the public engagement and mobilise wider participation among different sectors of the community through their network. Throughout the four-month public involvement phase of the engagement process, all views collected will be recorded and analysed by an Independent Analysis and Reporting Agency (Social Sciences Research Centre of the University of Hong Kong) to ensure impartiality and independence. The findings from the public engagement process shall provide an important basis and reference for the subsequent preparation of the report of recommendations by the SDC for submission to the Government and to which the Government will respond, and thus marking the completion of the public engagement process.

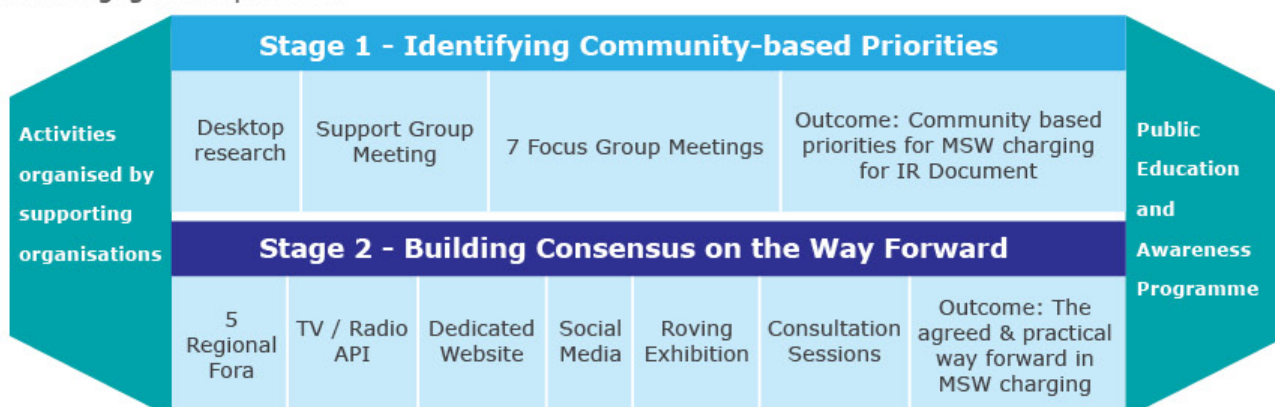


Figure 8 Different stages of the public engagement on MSW charging



# APPENDIX II

## Supporting Organisations

To widen the scope of engagement with different sectors of the community, SDC has invited organisations from a wide range of sectors to be supporting organisations of this public engagement exercise, where they will help disseminate information/messages about the engagement exercise to their members; promote the engagement exercise in their activities and programmes; and to encourage their members to participate and provide views and comments. The list of supporting organisations is as follows -

### Domestic and Recycling Sectors

Environmental Contractors Management Association  
Hong Kong Housing Society  
Hong Kong Recycle Materials & Re-production Business General Association  
Hong Kong Waste Disposal Industry Association  
The Federation of Hong Kong Property Management Industry Limited  
The Federation of Public Housing Estates  
The Hong Kong Association of Property Management Companies  
The Real Estate Developers Association of Hong Kong  
Urban Renewal Authority

### Commercial & Industrial Sectors

Business Environment Council  
Federation of Hong Kong Industries  
Federation of Hong Kong Kowloon New Territories Hawker Associations  
French Chamber of Commerce and Industry in Hong Kong  
Hong Kong Catering Industry Association  
Hong Kong Economic and Trade Association  
Hong Kong General Chamber of Commerce  
Hong Kong Retail Management Association  
Hong Kong Small & Medium Enterprises General Association  
Hong Kong Small and Medium Enterprises Association  
The Association for the Hong Kong Catering Services Management Ltd.  
The Chinese General Chamber of Commerce  
The Chinese Manufacturers' Association of Hong Kong  
The Federation of Environmental and Hygiene Services  
The Federation of Hong Kong Hotel Owners  
The Hong Kong Chinese Importers' & Exporters' Association  
The Hong Kong General Chamber of Small and Medium Business

### Green Groups, Education Sectors, Public Authorities, Professional Organisations, Medical & Health Sectors and Non-governmental Organisations (NGO)

Airport Authority Hong Kong  
Bo Charity Foundation  
Breakthrough Limited  
Buddhist Compassion Relief Tzu Chi Foundation Hong Kong  
Building Services Operation and Maintenance Executives Society  
Centre of Architectural Research for Education, Elderly, Environment and Excellence Limited  
Chartered Institute of Housing (Asia Pacific Branch)  
City University of Hong Kong  
EarthCare  
Environmental Management Association of Hong Kong  
Foodlink Foundation Limited  
Footprint  
Green Council  
Green Sense  
Greens Action  
Greenpeace  
Heung Yee Kuk New Territories  
Hong Kong Aided Primary School Heads Association  
Hong Kong Baptist University  
Hong Kong Dental Association  
Hong Kong Doctors Union  
Hong Kong Federation of Women  
Hong Kong Green Building Council  
Hong Kong Green Strategy Alliance  
Hong Kong Institute of Real Estate

Hong Kong Institute of Urban Design  
Hong Kong Organic Waste Recycling Centre  
Hong Kong Policy Research Institute Limited  
Hong Kong Productivity Council  
Hong Kong Subsidized Secondary Schools Council  
Hong Kong Waste Management Association  
Hong Kong Women Development Association Limited  
Hong Kong Women Workers' Association  
Hong Kong Young Women's Christian Association  
Hospital Authority  
Junior Chamber International Hong Kong  
Kadoorie Farm & Botanic Garden  
Lingnan University  
Po Leung Kuk  
Professional Green Building Council  
Rotary Club of Kowloon Northeast  
St. James' Settlement  
Subsidized Primary Schools Council  
Tai Po Environmental Association  
The Boys' & Girls' Clubs Association of Hong Kong  
The Chartered Institution of Water and Environmental Management Hong Kong  
The Chinese University of Hong Kong  
The Climate Group  
The Conservancy Association  
The Hong Kong Academy for Performing Arts  
The Hong Kong Award for Young People  
The Hong Kong Chapter of International Facility Management Association  
The Hong Kong Council of Social Service  
The Hong Kong Federation of Youth Groups  
The Hong Kong Institute of Architects  
The Hong Kong Institute of Education  
The Hong Kong Institute of Facility Management  
The Hong Kong Institute of Landscape Architects  
The Hong Kong Institute of Planners  
The Hong Kong Institute of Surveyors  
The Hong Kong Institution of Engineers  
The Hong Kong Polytechnic University  
The Open University of Hong Kong  
The University of Hong Kong  
Tung Wah Group of Hospitals  
Vocational Training Council  
Women Service Association  
World Green Organisation  
World Wide Fund for Nature Hong Kong  
Yan Chai Hospital  
Yan Oi Tong  
Zonta Club of Hong Kong  
Zonta Club of Hong Kong East  
Zonta Club of the New Territories

*\*By alphabetical order under each category*



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