

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

### **Purpose**

This paper briefs members on our proposed study (the Study) to review waste generation and waste management practice for designing a practicable MSW charging scheme.

### **Background**

2. At the meeting of the Subcommittee on 30 April 2007, members were briefed on the findings of a three-month trial in February 2007 to examine the logistical arrangement for introducing a variable rate charging scheme using designated garbage bags. Subsequently, we proceeded to examine in further details the key issues identified during the trial, including possible flytipping and enforcement problems and the need for complementary measures such as provision of source separation facilities to encourage compliance and waste recovery. Drawing reference from overseas experience, we noted a key prerequisite for a successful variable rate scheme is the readiness to trace MSW to its source. Given Hong Kong's multi-storey multi-tenant household setting, a variable rate charging scheme would likely be subject to implementation difficulties in terms of ascertaining the amount and sources of MSW on individual household basis. It would be necessary to examine alternative means of charging, such as a fixed charge or flat rate system while building in appropriate incentives to encourage waste reduction and recycling.

3. At the meeting of 24 September 2007, members were briefed on the above findings and observations of the trial scheme. While generally concurring with the findings and observations, some members suggested that the feasibility for introducing a variable rate charging scheme for C&I buildings should not be precluded. To take the matter forward, members agreed that a comprehensive territory-wide baseline survey should be conducted to collect information on the waste generation and waste collection modes under different types of buildings and commercial and industrial (C&I) operations. The information collected would form the basis for the development of a MSW charging scheme for domestic and C&I waste.

## **Objectives of the Study**

4. We plan to commission a consultant to conduct the Study, and its objectives are as follows -

- (i) to quantify the general pattern of waste generation and to establish the waste management practices among different types of buildings and across different trades;
- (ii) to identify suitable proxy variable(s) by reference to overseas practices, and to establish the correlation of waste generation with the proxy variable(s) (which may include, for example, electricity consumption level, water consumption level, size of premises); and to develop charging formulae for domestic waste and C&I waste based on a “proxy variable”<sup>1</sup> approach;
- (iii) to propose unit charging rates for specific groups/types of trades with reference to the recommended proxy variable(s); and to propose a practicable and cost-effective billing system for MSW charging; and
- (iv) to examine, as an alternative approach, the feasibility of introducing a volume based charging scheme for premises in C&I buildings on a building basis.

## **Outline of the Study**

5. The Study will comprise a desktop review, a baseline survey and the design of a practicable charging scheme and the billing system.

### **Desktop Review**

6. The consultant will be required to collect information and data on the population, buildings and trades in Hong Kong and design a comprehensive survey plan covering –

- (i) different types of buildings and various trades for establishing the waste generation pattern and waste management practices (including waste collection, recycling and disposal), as well as the correlation of waste generation with the proxy variable(s) for domestic waste and

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<sup>1</sup> A “proxy variable” approach adopts a proxy (e.g. electricity consumption, water consumption level or size of premises) as an indicator of waste generation for reference in calculating the MSW charge to be levied.

different groups/types of trades; and

- (ii) various trades for developing the charging formulae for C&I waste and the unit charging rates for specific groups/types of trades, in particular for trades with disproportionately small or large quantity of waste generation in relation to the proposed proxy variable(s).

### Baseline survey

7. The baseline survey consists of two parts, namely the “building-based survey” and “trade specific survey”. The survey may include questionnaire surveys, interviews, site visits and on-site measurements.

#### *Building-based Survey*

8. The consultant will be required to collect waste generation data, waste management practice and other relevant information for different types of buildings, e.g. residential, composite, and C&I buildings. For composite buildings, the consultant will need to examine the extent of the mixing of domestic waste and C&I waste, and assess how it may affect the design of the charging scheme.

9. The survey should cover a good mix of different types of at least 500 buildings (proposed breakdown in Annex A), which include, but are not limited to, public rental housing estates, private housing estates, single-block residential buildings, composite buildings with both residential and C&I premises, commercial buildings, industrial buildings and shopping malls/complexes.

#### *Trade Specific Survey*

10. The consultant will be required to examine the variation of waste generation with the proposed proxy variable(s) for various trades, especially for those trades which generate disproportionately small or large quantity of waste. To this end, we propose that the consultant should conduct surveys of at least 2 500 C&I premises (proposed breakdown in Annex A). The consultant will also be required to examine the waste composition and waste collection practice for food waste from restaurants and food premises, and consider whether it is feasible to require separate collection of food waste from other non-food waste.

### Design of a practicable charging scheme and the billing system

11. The consultant will be required to examine the variation of waste generation/ disposal with the proposed proxy variable(s) for domestic

premises and C&I premises of different trades. The consultant should then develop the charging formulae for domestic waste and C&I waste based on a “proxy variable” approach, and the unit charging rates for specific groups/types of trades with reference to the recommended proxy variable(s), taking into account the diversity of the waste generation pattern among the trades.

12. The consultant will be asked to recommend a practicable and cost-effective billing system for MSW charging based on the recommended proxy variable(s), taking into account the constraints of the existing account systems and that some premises may not have an individual account.

13. As suggested by members, the consultant will be asked to examine the feasibility of adopting a volume-based approach for levying a MSW charge on C&I premises as an alternative to a “proxy variable” approach and, where appropriate, recommend the complementary arrangement to verify the actual quantity of waste collected.

### **Overall Programme**

14. The Study shall last for about 16 months (see Annex B). Taking into account the lead time for the selection of consultant and the mobilization period, the overall programme is estimated to last for about 20 - 24 months.

### **Advice Sought**

15. Members are invited to comment on the proposal as set out in paragraphs 4 to 14.

Environmental Protection Department  
March 2008


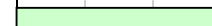

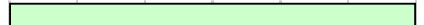


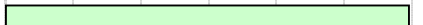
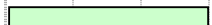
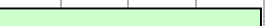
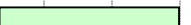

**Baseline Survey****A. Breakdown of the 500 Buildings for the Building-based Survey**

	<b>Types of Buildings</b>	<b>Sample Size</b>
1.	Public & Private housing estates	100
2.	Single-block residential buildings	30
3.	Composite buildings with both residential and C&I premises	50
4.	C&I buildings	180
5.	Shopping malls/complexes	80
6	Others (e.g. villas, village houses)	60
	<b>Total</b>	<b>500</b>

**B. Breakdown of the 2500 C&I Premises for the Trade Specific Survey**

	<b>Target Trades</b>	<b>Sample Size</b>
1.	Restaurants & fast food shops, etc.	625
2.	Wet markets	100
3.	Bleaching & dyeing, garment washing and laundry	90
4.	Manufacturing of beverage, dairy products, ice, etc.	30
5.	Manufacturing of paper, cement, plaster, etc.	15
6.	Manufacturing industries other than items 5 & 6	400
7.	Retail sector	420
8.	Community, social & personal services (e.g. schools, hospitals, nurseries, barber & beauty shops, etc.)	360
9.	Others (e.g. business offices, transport, storage and communications)	460
	<b>Total</b>	<b>2500</b>

**Overall Study Programme**

	Task	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<b>1.</b>	<b>Desktop review</b>																
1.1	Desktop study																
<b>2.</b>	<b>Baseline survey</b>																
2.1	Building-based survey																
2.2	Trade specific survey																
<b>3.</b>	<b>Design of the charging scheme</b>																
3.1	Establish the waste generation pattern and waste management practice																
3.2	Examine the feasibility of charging C&I premises based on a volume-based approach																
3.3	Develop charging formulae for domestic and C&I waste based on a “proxy variable” approach																
3.4	Propose billing system for MSW charging																
<b>4.</b>	<b>Report Preparation</b>																
4.	Report Preparation														