



Report on

Waste Audit for

The Legislative Council Complex
(Executive Summary)



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1. Introduction

Commissioned by the Legislative Council Commission (“the Commission”), Business Environment Council Limited (“BEC”) has conducted a detailed study on the Municipal Solid Waste (“MSW”) generation and waste management practices by the Commission (“the Study”) in May and June 2019. The Study included both quantitative and qualitative analysis on MSW generated from the Legislative Council (“LegCo”) Complex at Tamar, Admiralty. The findings of the Study, particularly the results of on-site waste audits, are summarised in this report.

1.1 Objectives

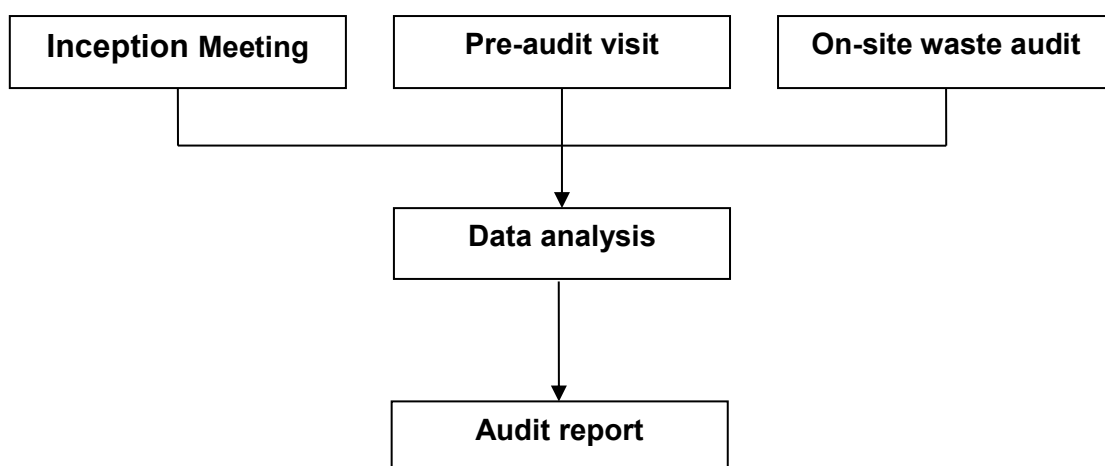
The key objectives of the Study are:

1. To determine the composition and quantities of waste (including recyclables) disposed of from the LegCo Complex;
2. To review the levels of correct segregation of waste;
3. To identify areas where waste reduction can be improved;
4. To characterise the waste discarded by users of the LegCo Complex and review the effectiveness of the current waste management strategies;
5. To evaluate the financial implication of the municipal solid waste charging for the Commission.

2. Methodology

The approach of the waste audit covered 3 major stages as depicted in Figure 1 shown as below:

Figure 1 - Approach of the waste audit



At the outset of the waste audit, an inception meeting and pre-audit visit were arranged on 2 May 2019. Based on observations and discussions during pre-audit visit and the inception meeting, BEC developed a detailed audit plan to provide a total of 3 waste audit sessions on-site. Both qualitative and quantitative information on waste composition were collected during the on-site waste audit for data analysis and reporting.

The waste audit sessions for the LegCo Complex within the scope are diverted into full capacity use, half capacity use and minimum capacity use of the LegCo Complex. Each type of the premises capacity use required 1 waste audit session.

Table 1 – Audit Schedule

Date	Genre of premises capacity use	Source of waste	Audit location
22 May 2019	Full capacity use (Wednesday, with weekly Legislative Council meeting)	LG/F, G/F, GM/F, 1/F, 1M/F, 2/F – 10/F (total 14 floors)	- On-site waste audit: next to the Refuse Collection Point of the LegCo Complex - On-site spot check of recycling facilities: G/F, 1/F, 1M/F, 2/F, 5/F, 6/F, 9/F
3 June 2019	Half capacity use (Monday, with some Committee meetings)		
6 June 2019	Minimum capacity use (Thursday, a Council meeting from 9am to 2:45pm)		

Before each session of waste audit, the refuse bags were labelled to indicate the floor information of waste. During waste audit, the refuse bags were weighed and recorded with their floor labels. After measuring the total weight of refuse, refuse bags of the same floor were grouped together for sorting, which was according to the waste category. The sorted waste was then weighed and recorded with their floor labels.

Table 2 – Waste categories for the on-site waste audit

Code	Waste categories	Descriptions
R1	Food waste	Uncooked / cooked food, leftovers, food debris, etc.
R2	Paper	Newspapers, office paper, corrugated paper packaging, etc.
R3	Plastics	Plastics bottles, bags, containers, etc.
R4	Metals	Aluminium can, metal wires, metal containers, etc.
R5	Glass bottles	Glass bottles / glass containers
R6	Reusable items	Stationery and consumables which can still function/ be used of without any damage; clothes and textiles; furniture
R7	Other recyclables	Rechargeable batteries, compact fluorescent tubes/ lamps (CFLs), printer toners/ ink cartridges, waste electrical and electronic equipment (WEEE), wood and pallets, yard waste
W1	Non-recyclable waste I	Waste can be directly disposed of at landfills (e.g. Contaminated recyclables, broken items, polyfoam, tetra-packs, thermal paper, laminated materials, used tissue paper, used disposable items, non-recyclable batteries)*
W2	Non-recyclable waste II	Waste cannot be directly disposed of at landfills (e.g. clinical waste, chemical waste, construction waste, etc)**

* During waste audit, once a garbage was identified to be generated from washroom, no sorting was conducted, and all content within the bag was categorized as W1

** During waste audit, type and weight of W2 identified were marked in detail as remarks

For each session of waste audit, there were also spot checks (inspection) of recycling facilities at selected floors and different locations of recycling facilities in the LegCo Complex. The recyclables in recycling bins were weighed, inspected and recorded, to see if there was any wrongly sorted or uncleaned recyclables inside the recycling bins.

Studied floors included G/F, 1/F, 1M/F, 2/F, 5/F, 6/F and 9/F.

3. Result and Discussion

Based on the waste audit sessions, results showed that the LegCo Complex generated around 235.41 kg, 216.52 kg and 121.76 kg of MSW under the premises capacity use of full use, half use and minimum use, respectively. These indicated a linear trend that the higher the capacity use of the LegCo Complex, the more the MSW was generated. Also, an average of 33.95% of recyclables were found amongst the audited waste samples. Overall, this is a relatively high amount of recyclables being disposed to landfills.

From the waste samples, food waste (R1) is found to be the most dominant source of recyclables, in terms of weight, which accounted for around 56.93% to 65.63% of the recyclables in the audited waste samples. Yet, it is worth noticing that the waste audit days were close to traditional Chinese festival day, the Dragon Boat Festival. A significant amount of festive food, such as rice dumpling and wrapping leaves, were found amongst the food waste. On the other hand, non-recyclable waste I (W1) was the dominant type of waste of all the waste audit sessions.

Paper (R2), plastics (R3) and other recyclables (R7) were generally the second, third and fourth highest amount of recyclables, respectively. For other recyclables (R7), as based on the waste audit results, majority of them were yard waste which might be collected at the underbrush near the carpark areas at G/F. On the other hand, minimal glass bottle (R5) and reusable item (R6) were identified during the waste audit session.

Comprehensively, 1/F, 8/F, GM/F, 7/F and 10/F were the top 5 contributors of waste generation of the LegCo Complex. Areas such as LegCo Members' offices, the Secretariat's offices, Press Room, Dining Hall, Ante-Chamber, Technical Rooms, Public Officers' Office, SI rooms and TVR rooms are potential function groups and facilities to be focused for future optimisation of waste reduction. In addition, stakeholders such as staff members of the Secretariat's offices and the LegCo Members' offices are target key stakeholders to get in touch with a higher priority, for waste reduction and enhancement of resource recovery.

4. Financial implication of the MSW charging

Under the Scheme, waste collected by Refuse Collection Vehicles (“RCVs”) with compactors would be charged via prepaid designated bags, with a cost of HKD \$ 0.11 / litre (bag-based charging). Meanwhile, charging by “designated garbage bags” will most likely be adopted / be applicable for the LegCo Complex.

Premises	Estimated number of prepaid garbage bags needed each day (based on waste audit sessions)	Designated volume of prepaid garbage bags	Estimated MSW charging fee charged per working day	Estimated MSW charging fee charged per year*
The LegCo Complex	40 - 62 ¹	30 litres	\$132 - \$204.6	\$32,340 - \$50,127

* Assuming no waste is disposed on weekends and during public holidays (total 120 days excluded)

¹ The estimated number of prepaid garbage bags needed each day is based on records of waste audit sessions: Day-1 62 bags collected, Day-2 62 bags collected, Day-3 40 bags collected.

5. Recommendations

To have better preparation against the up-coming MSW waste charging scheme legislation, the Commission should develop a strategic sustainable governance, implement more green initiatives, organise programmes to raise stakeholders' environmental awareness (e.g. waste charging trial scheme) and engage key stakeholders to increase the effectiveness of waste recycling and reduction efforts in the LegCo Complex. In terms of waste generation, BEC has identified main areas of concerns and improvement to optimise waste reduction, and recommend pragmatic waste management practices for the LegCo Complex.

The Secretariat is recommended to install the waste weighing system at the refuse collection point to record the waste quantity on a daily basis. The data collected will be useful for the LegCo Complex to benchmark its waste performance externally and internally to obtain more accurate information on waste and recyclables quantity generated at the LegCo Complex. Furthermore, the Commission is recommended to publicise the waste management performance internally to inform and engage key stakeholders (e.g. the LegCo Members, public citizens, the Secretariat offices, etc.) for demonstration of their commitment on waste management and sustainability performance. Publication of such information externally may also help demonstrating and promoting of waste management.

Almost 99% of the recyclables recovered in 2018/19 were paper. Yet, paper reduction at source would still be a preferable approach in the hierarchy of waste management. Hence, the Commission is recommended to go paperless, limit the printing of documents, set up paper saving target and conduct paper audit to track paper usage.

To echo with the Government's plan for waste management, and since food waste was identified as the dominant source of recyclables identified during waste audit sessions, the Commission is recommended to work with the catering contractor to offer portioned food and provide incentives, to post educational sign, to conduct periodical study to monitor and understand more of food waste generation at the LegCo Complex, and to develop initiatives themes on food waste reduction. In addition, the LegCo Complex is also recommended to encourage food waste resource recovery such as through installing of a centralised food waste decomposer and to facilitate the food waste collection at the LegCo Complex.

In long term, the LegCo Complex is advised to enhance key stakeholders' engagement and raise their environmental awareness on the importance of waste management and reduction. These can be conducted through organising various training workshops, programmes and waste reduction events to educate stakeholders on waste management. Additionally, circulating the concept of BYOB, providing reusable food container / cutleries and practicing the phasing out of individual trash bins may also help reducing waste at source.

Lastly, the Commission is recommended to enhance the recyclability through education and promotions.

The Commission is suggested to post conspicuous educational signage and promote through e-circular to remind conducting of clean and correct recycling. Regular seminars and training workshops can also be organised to educate staff members on proper recycling.

6. Conclusion

In this Study, BEC conducted the waste audits to understand the waste and recyclables compositions of the LegCo Complex. A total amount of 573.69 kg of waste to landfills was audited in the 3 waste audit sessions. Results indicate that the higher the capacity use of the LegCo Complex, the more the waste to be generated. Besides, based on the results, an approximate of around 25.24% to 38.58% of the waste identified were potential recyclables to be recovered. Though, a resource recovery rate of 57.01% was achieved in 2018/19, as according to the data provided by the Secretariat, there are still rooms for improvement to enhance the recycling and sustainability performances of the LegCo Complex. Apart from identifying different opportunities to improve the recycling performance, to respond and prepare for the upcoming MSW charging scheme, it is recommended that the Commission should also develop strategic sustainable governance, through establishing a systematic waste monitoring and reporting system. The data collected will be useful for the LegCo Complex to benchmark its waste performances, as well as for evaluating the effectiveness of the waste management measures and facilitate decision making.