

立法會
Legislative Council

LC Paper No. CB(1)1249/17-18(04)

Ref: CB1/PL/EA

Panel on Environmental Affairs

Meeting on 19 July 2018

**Background brief on the implementation of
Organic Resources Recovery Centres
prepared by the Legislative Council Secretariat**

Purpose

This paper provides background information on the implementation of Organic Resources Recovery Centres ("ORRCs") in Hong Kong.¹ It also gives a summary of the major views and concerns expressed by Members when related issues were discussed by the relevant committees of the Legislative Council ("LegCo").

Background

Food waste challenge in Hong Kong

2. Food waste is any waste, whether raw, cooked, edible or associated with inedible parts, generated during food production, distribution, storage, meal preparation or consumption of meals. In Hong Kong, around one third of food waste originates from the commercial and industrial ("C&I") sector and the remaining comes from households.²

3. Disposal of biodegradable food waste at landfills is unsustainable and environmentally undesirable as it depletes the limited landfill space, generates leachate and greenhouse gases, and squanders the useful organic contents of food waste. To tackle the food waste problem, the

¹ ORRCs were previously known as "Organic Waste Treatment Facilities".

² In 2016, 10 345 tonnes of municipal solid waste were disposed of at landfills each day, some 35% of which were food waste.

Administration has adopted a multi-pronged approach with focus on avoidance of food waste generation, and waste reduction at source.

Hong Kong: Blueprint for Sustainable Use of Resources 2013-2022

4. Based on the 2005 Policy Framework on the Management of Municipal Solid Waste (2005-2014) ("the Policy Framework"),³ the Administration published in May 2013 the "Hong Kong: Blueprint for Sustainable Use of Resources 2013-2022" ("the Blueprint") mapping out a comprehensive strategy, targets, policies and action plans for waste management (including food waste management) up to 2022. The Blueprint set the targets to reduce the per-capita municipal solid waste ("MSW") disposal rate to landfills by 40% by 2022, using 2011 as the base.

A Food Waste & Yard Waste Plan for Hong Kong 2014-2022

5. In February 2014, the Administration issued "A Food Waste & Yard Waste Plan for Hong Kong 2014-2022" ("Food Waste Plan"). As a companion document to the Blueprint, the Food Waste Plan outlined the Administration's target of reducing food waste disposal at landfills by 40% by 2022 (using 2011 as the base), and articulated four specific strategies for handling food waste, including:

- (a) *reduction at source* which aims at driving behavioural change through measures such as the Food Wise Hong Kong Campaign, and the quantity-based MSW charging scheme to be implemented;
- (b) *reuse and donation* aiming at encouraging the commercial sectors to donate food waste to food donation organizations, and promoting the use of the Environment and Conservation Fund to support food waste recycling projects;⁴

³ The Administration published the Policy Framework in December 2005, which set out a comprehensive strategy consisting of a series of tried and proven policy tools and measures to tackle the waste problem, with emphasis of the way forward on municipal solid waste management for the decade from 2005 to 2014 based on community participation and the "polluter-pays" principle.

⁴ The Environment and Conservation Fund came into operation in August 1994 after enactment of the Environment and Conservation Fund Ordinance (Cap. 450) in June 1994. Local non-profit making organizations are eligible to apply for funding support to undertake educational, research and technology demonstration projects and activities in relation to environmental and conservation matters, as well as community waste recovery projects.

- (c) *recyclable collection* aiming at carrying out a study on food waste collection and delivery; and
- (d) *food waste-to-energy* aiming at setting up a network of ORRCs to recycle food waste into renewable energy (electricity or biogas) and compost by advanced technology.

Organic Resources Recovery Centres

6. In the Food Waste Plan, the Administration proposed that a network of five to six ORRCs with a total recycling capacity of about 1 300 to 1 500 tonnes per day be established between 2014 and 2024 in phases. ORRC Phase 1 ("ORRC1") in Siu Ho Wan in North Lantau has commissioned in July 2018.⁵ The facility is government-funded and operated under a Design-Build-Operate ("DBO") contract. It receives and treats source-separated food waste generated by the C&I sector and collected from Lantau, Kowloon and Hong Kong Island with a daily treatment capacity of 200 tonnes.

7. The Administration plans to develop ORRC2 at Sha Ling of the North District. The facility will treat source-separated C&I food waste mainly collected from districts such as Sheung Shui, Fanling, Yuen Long and Sha Tin with a daily capacity of 300 tonnes. Subject to funding approval by the Finance Committee, the Administration aims to commence the construction works in the first quarter of 2019 for completion in the fourth quarter of 2021.

Director of Audit's Report No. 65

8. In May 2015, the Director of Audit commenced a review of the Government's efforts to reduce and recycle food waste, and the relevant findings were published in the Director of Audit's Report No. 65 ("the Audit Report") on 27 October 2015. The Audit Report has identified a number of areas for improvement by the Government to tackle the food waste problem. For instance, it was recommended that the Administration should be vigilant in monitoring the generation and disposal of food waste against the relevant targets and take early corrective actions in future. The Administration should also strengthen efforts to encourage more C&I premises and households to participate in food waste recycling schemes.

⁵ A funding of \$1,589.2 million in money-of-the-day prices for the design and construction of ORRC1 was approved by the Finance Committee of LegCo on 24 October 2014.

9. The Public Accounts Committee of LegCo noted the findings and observations of the Audit Report, and emphasized that the Administration must develop a comprehensive plan to encourage the public and private sectors to handle their food waste in a proper manner so that an adequate amount of food waste would be collected and transported to ORRCs for treatment.

Major views and concerns expressed by Members

10. Issues relating to ORRCs were raised when the Administration sought Members' views on a staffing proposal to create a supernumerary directorate post in the Environmental Protection Department to strengthen the leadership and manpower support for implementing the Food Waste Plan at the meetings of the Panel on Environmental Affairs ("the Panel"), Establishment Subcommittee and Finance Committee on 24 October and 30 November 2016, and 11 February 2017 respectively. Related questions were also asked during examination of the Estimates of Expenditures 2017-2018 and 2018-2019. The major views and concerns expressed by Members on related issues are summarized in the ensuing paragraphs.

Traffic impact of the proposed Organic Resource Recovery Centre at Sha Ling

11. Members expressed concern about the potential adverse traffic impact on the local community arising from the proposed development of ORRC2 at Sha Ling of the North District, in the light of the experience in the implementation of the Waste Diversion Plan in January 2016 to divert municipal solid waste from disposal at the Southeast New Territories Landfill, and taking into account the potential heavy traffic demand associated with the future development of a large-scale columbarium at the Sandy Ridge Cemetery in Sha Ling.

12. The Administration advised that the feasibility studies and environmental impact assessment studies (including Traffic Impact Assessment) conducted for ORRC2 had taken into account the aggregate traffic demand arising from ORRC2 and other existing/planned facilities in the vicinity (including the future development of the columbarium at the Sandy Ridge Cemetery), and confirmed that there would not be significant adverse traffic impact on the rush hour traffic associated with the operation of ORRC2, in particular as most of the food waste collection and delivery

activities would be carried out after the business hours of food establishments.⁶

Meeting the design capacity of the Organic Resources Recovery Centres

13. Members were concerned about how the Administration would ensure that sufficient food waste could be collected from the food waste collection network for treatment by ORRCs with a view to maximizing the utilization of the facilities and achieving significant reduction of food waste disposal at landfills.

14. The Administration advised that an inter-departmental working group had been set up to explore suitable arrangements to source separate, collect and deliver for off-site recycling the food waste generated from the C&I food waste generating establishments under the management of the Food and Environmental Hygiene Department and the Hong Kong Housing Authority/Housing Department including markets, cooked food venues and shopping malls. In the private sector, the Administration had been liaising proactively with the major C&I stakeholders and potential food waste collectors to work out suitable practices on separating, collecting and transporting food waste to ORRCs for onward recycling. The Administration further advised that upon commissioning, ORRC1 and ORRC2 together were expected to handle almost half of the daily food waste generated by the C&I sector.

15. Regarding the operation cost of ORRC1 and the fees payable to the contractor, the Administration advised that the operation of the facility was funded under the General Revenue Account for a contractual period of 15 years. The DBO contract would provide for price adjustments for the entire contract period including the operation period. The annual recurrent expenditure arising from the proposed works was around \$72.4 million, equivalent to about \$992 per tonne of repair, maintenance and operation costs comprising (a) waste receiving, pre-treatment, anaerobic digestion, biogas cleaning and storage systems (about \$546 per tonne); (b) composting system (about \$109 per tonne); (c) power generation and surplus electricity export systems (about \$99 per tonne); and (d) fire services, environmental and pollution control systems (about \$238 per tonne). Under the ORRC1 contract, the contractor had the obligation to repair, renew, replace the major systems during the operation period and ensure the major systems to have a residual service life of at least 5 years at the expiry of the operation period of 15 years. The cost of such repair, renewal and replacement was included in

⁶ The Administration estimated that there would be about 70 round trips of food waste collection vehicles between ORRC2 and the various collection points on a daily basis.

the operation cost of ORRC1. There would be a basic fee payable to the contractor for treating the first 50 tonnes of food waste, while the treatment of the remaining food waste would be charged on a quantity basis.

16. Members enquired about how the Administration would monitor the performance of ORRC contractors to ensure cost-effectiveness of the facilities, the Administration advised that each ORRC contractor would be subject to stringent monitoring in accordance with the terms of the relevant DBO contract, the established standards stipulated under the Environmental Impact Assessment Ordinance (Cap. 499) and the environmental permit concerned.

Compost market and electricity output

17. On Members' enquiry about the outlets of the compost produced by ORRCs, the Administration advised that in formulating the Food Waste Plan in 2014, it had taken into account the size of the compost market in Hong Kong. It was envisaged that that the food waste would mainly be used by ORRCs for generating electricity, while the residual amount would be used to produce compost for local markets such as organic farming, planting at estate gardens, roadside planting and landscape composting. The Administration would also consider distributing the compost for use by non-profit-making organizations, schools and members of the public.

18. Members stressed that ORRCs should generate surplus electricity to achieve the objective of turning food waste to energy. The Administration advised that biogas produced by recycling of food waste in ORRC1 would generate renewable energy output in the form of electricity. According to the feasibility study report of ORRC1, about 21 million kWh of electricity would be generated by the facility each year. It was estimated that after meeting the internal demand of ORRC1, about 14 million kWh per year of surplus electricity could be exported upon full operation.

Council questions

19. At the Council meeting of 7 December 2016, Mr Kenneth LEUNG raised a question about the latest works and planning progresses of ORRCs. At the Council meetings of 14 December 2016 and 30 May 2018, Mr CHAN Hak-kan enquired about the details of the Administration's targeted measures to reduce food waste at source, and the measures to boost the recovery rates of food waste respectively. The questions and the Administration's replies are hyperlinked in the **Appendix**.

Latest development

20. The Administration will brief the Panel on the funding proposal for the development of ORRC2 at the meeting on 19 July 2018.

Relevant papers

21. A list of relevant papers is in the **Appendix**.

Council Business Division 1
Legislative Council Secretariat
17 July 2018

List of relevant papers

Date	Event	Paper
17 October 2014	Meeting of the Finance Committee	<p>Administration's paper on 5172DR – Organic waste treatment facilities phase 1 (FCR(2014-15)49)</p> <p>Minutes of meeting (LC Paper No. FC128/14-15)</p> <p>Minutes of meeting (LC Paper No. FC129/14-15)</p>
24 October 2014	Meetings of the Finance Committee	<p>Administration's paper on 5172DR – Organic waste treatment facilities phase 1 (FCR(2014-15)49)</p> <p>Minutes of meeting (LC Paper No. FC139/14-15)</p> <p>Minutes of meeting (LC Paper No. FC140/14-15)</p>
24 October 2016	Meeting of the Panel on Environmental Affairs ("EA Panel")	<p>Administration's paper on implementation of measures to reduce and recycle food waste - progress and manpower arrangements (LC Paper No. CB(1)19/16-17(05))</p> <p>Administration's supplementary paper on the implementation of measures to reduce and recycle food waste – progress and manpower arrangements (LC Paper No. CB(1)182/16-17(02))</p> <p>Background brief on strategies and measures to reduce and recycle food waste prepared by the Legislative Council Secretariat (LC Paper No. CB(1)19/16-17(06))</p> <p>Minutes of meeting (LC Paper No. CB(1)210/16-17)</p>

Date	Event	Paper
30 November 2016	Meeting of the Establishment Subcommittee	Administration's paper on Proposed creation of a supernumerary post of Principal Environmental Protection Officer (D1) in the Environmental Protection Department with immediate effect upon approval by Finance Committee up to 31 March 2019 to lead the Food Waste Management Group for implementing the strategies as set out in the Food Waste Plan (EC(2016-17)19) Minutes of meeting (LC Paper No. ESC30/16-17)
11 February 2017	Meeting of the Finance Committee	Minutes of meeting (LC Paper No. FC247/16-17) (LC Paper No. FC248/16-17)
5 April 2017	Special meeting of the Finance Committee for examination of Estimates of Expenditure 2017-2018	Written questions raised by Members and Administration's replies (Reply serial numbers: ENB099 and 228)
July 2017*	Meeting of EA Panel	Administration's paper on implementation arrangements for municipal solid waste charging (LC Paper No. CB(1)1347/16-17(02))
17 April 2018	Special meeting of the Finance Committee for examination of Estimates of Expenditure 2018-2019	Written questions raised by Members and Administration's replies (Reply serial numbers: ENB076, 097 and 236)

*Issue date of paper

Hyperlinks to relevant documents:

Government bureau/department	Document
Environment Bureau	Hong Kong: Blueprint for Sustainable Use of Resources 2013-2022 A Food Waste & Yard Waste Plan for Hong Kong 2014-2022

Hyperlinks to Director of Audit's Report No. 65 and Public Accounts Committee report:

Date of issuance	Reports
27 October 2015	Director of Audit's Report No. 65 Chapter 2 on "Reduction and recycling of food waste"
17 February 2016	Public Accounts Committee Report No. 65 Chapter 2 of Part 8 on "Reduction and recycling of food waste"
25 May 2016	The Government Minute in response to the Report of the Public Accounts Committee No. 65 of February 2016

Hyperlinks to relevant Council Questions:

Date	Council Questions
7 December 2016	Press release on Council question (written) raised by Mr Kenneth LEUNG
14 December 2016	Press release on Council question (written) raised by Mr CHAN Hak-kan
30 May 2018	Press release on Council question (oral) raised by Mr CHAN Hak-kan