

**For discussion on
19 July 2018**

**LEGISLATIVE COUNCIL
PANEL ON ENVIRONMENTAL AFFAIRS**

5173DR – Organic Resources Recovery Centre Phase 2

PURPOSE

This paper seeks Members' views on the proposed project under 5173DR – Organic Resources Recovery Centre Phase 2 (ORRC2) and briefs Members on the progress and way forward of the Government's efforts in tackling the food waste problem.

PROJECT SCOPE

2. The proposed scope of works under **5173DR** comprises –
 - (a) the design and construction of facilities for the ORRC2 in Sha Ling of the North District; and
 - (b) the implementation of related environmental mitigation measures and environmental monitoring.

The location and conceptual design of the proposed works are shown at **Enclosures 1** and **2** respectively.

BACKGROUND

3. In 2014, the Government published "A Food Waste & Yard Waste Plan for Hong Kong 2014-2022" (Food Waste Plan) to set out four strategies for the reduction of food waste, namely reduction at source, food donation, food waste collection and recycling, and turning food waste into energy.

4. Under the Food Waste Plan, the Government plans to build a network of five to six ORRCs in the territory to recycle food waste into renewable energy, such as electricity or biogas, to reduce greenhouse gas emissions and mitigate global climate change. The Food Waste Plan will also extend the life

span of landfills and reduce potential associated environmental nuisance. Treated food waste will be turned into quality compost, which can be used for landscaping or agricultural applications. Completed and commissioned in July 2018, the Organic Resources Recovery Centre Phase 1 (ORRC1) in Siu Ho Wan of Lantau under the Food Waste Plan treats source-separated food waste generated by the commercial and industrial (C&I) sectors and collected from Lantau, Kowloon and Hong Kong Island with a daily capacity of 200 tonnes.

5. As mapped out in the Food Waste Plan, we propose to construct the ORRC2 in Sha Ling of the North District. About 2.5 hectares in area, the selected site was formerly used as a livestock waste composting plant which has ceased operation. The ORRC2 will adopt anaerobic digestion and composting technologies that are similar to those of the ORRC1. The ORRC2 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. It is expected that ORRC2 will produce about 30 000 cubic metre of biogas daily which is a renewable energy. In addition to providing energy and heat for its own facilities, the surplus biogas can be converted to about 5 million cubic metre of bio-methane or 24 million kwh electricity annually. We will provide the surplus electricity to nearby government facilities. The remaining surplus biogas will either be converted to bio-methane as town gas or fed into the power grids of the power companies. The ORRC2 will also produce around 10 000 tonnes of compost annually. We will reserve some for use by government departments, farmers and members of the public.

6. To provide more accurate project estimates and expedite the progress of project delivery, we have adopted the parallel tendering arrangement under established procedures before securing funding for the proposed works. The tendering exercise has been completed. The contract will only be awarded after the Finance Committee (FC) has approved the funding. After consulting Members, we will submit the proposed works to the Public Works Subcommittee (PWSC) for consideration before seeking funding approval from the FC. Subject to funding approval of the FC, we aim to commence the proposed works in the first quarter of 2019 for completion in the fourth quarter of 2021. The contractual operation period of the ORRC2 will be 15 years.

FINANCIAL IMPLICATIONS

7. We estimate the design and construction costs of the proposed works to be \$2,453 million in money-of-the-day prices.

PUBLIC CONSULTATION

8. On 13 December 2012, we briefed the North District Council (NDC) on the preliminary idea and content of the proposed project and its members supported the project in principle. On 14 June 2018, we consulted the NDC again on the specific content and design of the project, as well as results of the environmental and traffic impact assessments concerned. The NDC supported the proposed project.

ENVIRONMENTAL IMPLICATIONS

9. The proposed project is a designated project under Schedule 2 of the Environmental Impact Assessment (EIA) Ordinance (Cap. 499), and requires an environmental permit (EP) for its construction and operation. The EIA report for the proposed project was approved under the EIA Ordinance with an EP was issued in December 2013.

Measures implemented during construction

10. To reduce impacts on the environment during the construction stage, we will control noise, dust and site run-off to levels within established standards and guidelines through the implementation of mitigation measures such as using quiet construction plant, spraying water to reduce dust emissions, as well as proper control and treatment of site run-offs. An Environmental Monitoring and Audit Programme will also be conducted to ensure the effectiveness of the mitigation measures recommended in the EIA report.

11. At the planning and design stages, we have considered ways to minimise generation of construction waste. The contractor will be required to reuse inert construction waste (e.g. excavated soil) on site or in other suitable construction sites as far as possible to minimise the disposal of inert construction waste at public fill reception facilities¹. We will also encourage the contractor to maximise the use of recycled/recyclable inert construction waste, and the use of non-timber formwork to further reduce the generation of construction waste.

12. During construction stage, the contractor will have to submit for approval by the Civil Engineering and Development Department (CEDD) a plan

¹ Public fill reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N). Disposal of inert construction waste at public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

setting out the waste management measures, which will include appropriate mitigation means to avoid, reduce, reuse and recycle inert construction waste. We will ensure that the day-to-day operations on site comply with the approved plan, and will require the contractor to separate the inert portion from non-inert construction waste on site for disposal at appropriate facilities. The disposal of inert construction waste and non-inert construction waste at public fill reception facilities and landfills respectively will be controlled through a trip-ticket system.

13. We estimate that the proposed works will generate 29 000 tonnes of construction waste. Of these, we will reuse 5 000 tonnes (17%) on site and deliver 23 200 tonnes (80%) of inert construction waste to public fill reception facilities for subsequent reuse. The remaining 800 tonnes (3%) of non-inert construction waste will be disposed of at landfills. The total cost for accommodating the above construction waste at public fill reception facilities and landfills is estimated to be about \$1.8 million (based on a unit charge rate of \$71 per tonne for disposal at public fill reception facilities and \$200 per tonne at landfills as stipulated in the Waste Disposal (Charge for Disposal of Construction Waste) Regulation (Cap. 354N)).

Measures implemented during operation

14. We will exercise strict control over odour nuisance which may arise during the operation stage. The food waste treatment process will be carried out mostly indoor or within enclosed area with negative pressure exhaust fans installed to prevent odour dispersion. Adequate equipment will be in place to filter and purify the exhaust air, with advance air monitoring systems and procedures adopted to ensure that stack emissions comply with the designed parameters and the standards stipulated by the Environmental Protection Department (EPD), so that no nuisance or impact will be caused on the surrounding environment. Moreover, food waste collection vehicles (FWCVs) are designed to be fully enclosed to prevent any odour emissions or leachate drippings during the delivery of food waste.

15. Any waste water generated during the operation will first be treated by on-site sewage treatment facilities to meet relevant discharge standards before being discharged through public sewers to public sewage treatment facilities for final treatment and discharge. We will ensure that the proposed project will not affect the water quality of the surrounding area including fish ponds and water channels.

TRAFFIC IMPLICATIONS

16. We expect that upon commissioning of the ORRC2, there will be about 70 round trips of FWCVs between the ORRC2 and the various collection points on a daily basis. Based on the existing patterns of food waste generation in commercial and industrial operations, FWCVs will mainly travel during non-peak hours via Man Kam To Road and Kong Nga Po Road. Findings of the traffic impact assessment have concluded that all the major road junctions in the vicinity of the ORRC2 have sufficient traffic capacity. As to traffic conditions around the nearby Sandy Ridge Cemetery during the Ching Ming Festival and Chung Yeung Festival, special arrangement will be made for delivery of food waste to the ORRC2 outside grave-sweeping hours (i.e. after 5 p.m.) during the two festive periods to avoid causing cumulative traffic impact on the road network concerned. Therefore, the ORRC2 will not cause any unacceptable traffic impact on the roads nearby.

17. The Government understands that local communities are concerned about the overall traffic problem faced by the North District. In this connection, the CEDD is planning to improve a number of major road junctions in the Sheung Shui and Fanling new towns include widening a section of Kong Nga Po Road (some 1.8 kilometres in length) between the junction of Man Kam To Road and the proposed police facilities in Kong Nga Po to not only comply with existing road standards (including the provision of additional footpaths and street lighting) but also enhance road safety and capacity. Moreover, it was predicted that the daily cross-boundary traffic between Hong Kong and Shenzhen via Man Kam To would be diverted to the new Liangtang/Heung Yuen Wai Boundary Control Point upon its commissioning. This will help alleviate the traffic congestion along Man Kam To Road. Meanwhile, the EPD will review the existing routes adopted for waste delivery to the North East New Territories (NENT) Landfill. Some delivery vehicles travelling from Sha Tin and Tai Po to the NENT Landfill via Tolo Highway will use the alternative route Lung Shan Tunnel instead to reach the NENT Landfill direct. This will in turn further reduce the daily traffic volume along Sha Tau Kok Road in Fanling by some 200 vehicle trips and help relieve traffic pressure in the North District. Implementation of the traffic improvement measures proposed above will be beneficial to the traffic conditions in Sheung Shui and Fanling.

SETTING UP HOTLINE

18. As a contractual requirement, the contractor of the ORRC2 will set up a round-the-clock hotline to address public enquiries or complaints about the construction or operation of the ORRC2, and will have to report the progress of

any improvement effort thus required to the EPD. Under the statutory requirements of the EP concerned, the contractor will also have to run a dedicated website to which environmental monitoring data on the construction and operation of the ORRC2, as well as details of the proposed project, will be uploaded for public inspection to enhance transparency of the project.

HERITAGE IMPLICATIONS

19. The proposed project will not affect any heritage site, i.e. all declared monuments, proposed monuments, graded historic sites and buildings, sites of archaeological interest and government historic sites identified by the Antiquities and Monuments Office.

LAND ACQUISITION

20. The proposed project only involves government land and does not require any land acquisition.

WORK AHEAD UNDER THE PROJECT

21. We plan to submit the proposed works under **5173DR** to the PWSC for consideration as early as possible before seeking funding approval from the FC.

PROGRESS AND WAY FORWARD OF THE FOOD WASTE PLAN

22. The Government has pursued a series of initiatives to reduce food waste in accordance with the Food Waste Plan. These initiatives include implementing the Food Wise Hong Kong Campaign (FWHKC), Food Waste Reduction Activities, Food Waste Recycling Partnership Scheme and Food Waste Recycling Projects at Housing Estates, as well as providing funding support for non-government organisations and schools to install food waste treatment facilities, conducting food waste recycling trial schemes in public housing estates, encouraging food donation, and launching a study on food waste collection and delivery, along with establishing ORRCs. The progress of the initiatives is set out at **Enclosure 3**.

23. As food waste reduction at source will remain a priority of our work in future, we will carry on with the FWHKC to further enhance public

understanding of and participation in reducing, separating and recycling food waste at source, thereby cutting down the food waste generated at source. We will start a new phase of the FWHKC to maintain the impetus for fostering a “food wise” culture while promoting the separation and recycling of food waste.

24. In addition, having earmarked \$5 million for providing some 100 schools with small-scale food waste treatment facilities, the Environment and Conservation Fund have invited schools in writing to join the programme as a means of nurturing the “food wise” culture among students to encourage their separation and recycling of food waste. With applications from over 90 schools to participate in the programme so far, we will carry out the programme in the next school year, draw experience from its implementation and then consider extending the programme to more schools.

25. A substantial amount of food waste will still have to be recycled and processed even if the community at large strives for bringing down food waste at source. Therefore, it is necessary for us to boost our overall capacity on food waste treatment as soon as possible. Some of the options and measures under consideration are:

- (a) searching for land to develop the other facilities in the ORRC network;
- (b) exploring the construction of additional “food waste / sewage sludge anaerobic co-digestion” facilities at existing and future secondary sewage treatment works – we will launch the “Food Waste / Sewage Sludge Anaerobic Co-digestion” Trial Scheme (Trial Scheme) at the Tai Po Sewage Treatment Works (STW) in 2019. Food waste pre-treatment facilities will be constructed at the current site of the Shuen Wan Leachate Pre-treatment Works in Tai Po, providing pre-treatment for up to 50 tonnes of food waste per day. The pre-treated food waste will then be delivered to the existing sewage sludge anaerobic digestion system at the Tai Po STW for anaerobic co-digestion. The Trial Scheme serves to establish the technology of using food waste and sewage sludge for anaerobic co-digestion, thereby strengthening our comprehensive capacity to manage food waste in an expeditious manner. Meanwhile, review is underway concerning the expansion of the Trial Scheme to cover the Shatin STW, where the technical requirements for separating, collecting and recycling household food waste at source will be tested out to prevent food waste from mixing with other household waste;

- (c) looking for sites to develop more food waste treatment facilities for enhancement in treatment capacity on the whole. After preliminary treatment, food waste can be delivered to various STW for “food waste / sewage sludge anaerobic co-digestion” to achieve greater overall treatment capacity with less land requirement but higher cost-effectiveness; and
- (d) studying the feasibility of processing food waste at the Sludge Treatment Facility in Tuen Mun (i.e. T-PARK) to convert waste into energy.

ADVICE SOUGHT

26. Members are invited to comment on the proposed project as well as the progress and way forward of the Food Waste Plan.

**Environment Bureau
Environmental Protection Department
July 2018**