

For discussion
22 November 2010

Legislative Council
Panel on Environmental Affairs

5172DR – Development of Organic Waste Treatment Facilities - Phase I
in Siu Ho Wan, North Lantau

PURPOSE

This paper sets out the background and scope of the project for the development of the Organic Waste Treatment Facilities (OWTF), Phase I in Siu Ho Wan, North Lantau and informs Members that the Administration would proceed with tendering for the design-build-operate contract of this project in the second quarter of 2011. Subject to the tender outcome, we intend to seek the funding approval of the Finance Committee by early 2012.

PROPOSAL AND JUSTIFICATION

2. To address our serious and imminent waste problem in a holistic manner, the Administration published “A Policy Framework for the Management of Municipal Solid Waste (2005-2014)” (Policy Framework) in December 2005, which sets out a comprehensive waste management strategy for the next ten years. The strategy adopts a three-tiered waste management hierarchy with avoidance and minimization as top priorities, followed by reuse, recovery and recycling, with bulk waste reduction and landfill disposal at the bottom of the hierarchy. A number of encompassing initiatives under this hierarchy are being launched for achieving the waste reduction and recycling targets as set out in the Policy Framework.

3. In 2009, Hong Kong generated about 18,000 tonnes of municipal solid waste (MSW) everyday. With the continuous expansion of the source separation and recycling programmes for MSW, we have seen a

significant increase in overall MSW recovery rate which has reached 49%. However, there are still some 9,000 tonnes of MSW which need to be disposed of at our three landfills each day. Of these, some 3,280 tonnes are food waste, constituting about 37% of the waste disposed and is the largest MSW category. Of the 3,280 tonnes food waste generated daily, some 960 tonnes are from the commercial and industrial (C&I) sources such as restaurants, hotels, wet markets, catering and food processing industries. In recent years, the amount of food waste arising from the C&I sector has been increasing steadily, the amount in 2009 was more than twice that in 2002.

4. The current practice of disposing of such organic waste at landfills is not sustainable as it leads to depletion of the limited landfill void space and formation of landfill gas and leachate that require proper treatment for the protection of the environment.

5. In the Policy Framework, it is proposed that biodegradable materials such as food waste from C&I establishments can be separated at source for biological treatment to produce renewable energy and compost products. We commissioned a Pilot Food Waste Treatment Facility in 2008 to acquire local information and experience on food waste recycling. In the 2009 Policy Address, the Administration announced the intention to develop recycling centre in phases to process and recycle food waste generated by the C&I sector. Building on the experience of the Pilot Facility, we plan to develop the OWTF in phases to treat source-separated organic waste from the C&I establishments and recycle them into energy and useful resources.

6. We conducted a site search in 2007 and identified two potential sites at Siu Ho Wan, North Lantau and Shaling, North District suitable for the development of OWTF. With its relatively more accessible location, we have selected the Siu Ho Wan site for the development of the first phase of OWTF. A plan showing the location of the proposed OWTF Phase I is at **Enclosure 1**.

7. The proposed OWTF Phase I will have a designed capacity of 200 tonnes per day and will provide treatment for source separated organic waste primarily coming from the C&I establishments located in districts

near Siu Ho Wan, such as Lantau Island, Tsuen Wan, Kwai Tsing, Sham Shui Po, Yau Tsim Mong and Kowloon City. It is anticipated that these C&I establishments would include hotels, food processing establishments, restaurants, shopping malls and wet markets.

8. The proposed OWTF Phase I will adopt anaerobic digestion and composting technologies to recycle organic waste into biogas and compost products. Biogas is a renewable energy and will be used to generate electricity. Apart from internal use by the OWTF Phase I, it is estimated that up to 28 million kWh of surplus electricity can be exported to the grid each year, which is adequate for use by 3,000 households. As regards the compost, we estimate that the OWTF phase I will produce up to 7,000 tonnes of compost each year.

9. The scope of this project comprises –

- (a) design, construction and operation of an organic waste treatment facility of capacity of 200 tonnes per day;
- (b) provision of ancillary facilities including an education/ visitor centre; and
- (c) environmental monitoring during the construction and operation stage.

10 Separately, we are considering the development of the second phase of OWTF and have identified a possible location in Shaling. It is proposed to have a treatment capacity of some 300 tonnes per day and would adopt similar technology as the first phase in Siu Ho Wan. Together, they would have a combined capacity of some 500 tonnes each day to treat the food waste that has been source separated from the C&I sector.

11 Relying on the two phases of the OWTF would not be enough to tackle the food waste problems from the C&I sector. In order to tackle this problem more effectively, we also need to enlist the support of the C&I sector in food waste reduction and treatment. On this front, we have been implementing a Food Waste Recycling Partnership Scheme¹. Under

¹ The Partnership Scheme has been joined by the major food and property management associations such as the Hong Kong Federation of Restaurant and Related Trades, the Hong Kong Hotels Association, the

this Partnership Scheme, educational programmes are being conducted to help train the management and frontline staff of the C&I establishments on good food waste reduction and management practices. A Code of Practice on the management of food waste would be produced to provide useful guides on food waste avoidance, reduction and source separation for recycling. In addition, sharing sessions and seminars would be held with the partners to help consolidate the experience gained on the avoidance and proper treatment of food waste.

12. Separately, we are also promoting the wider use of on-site treatment equipment to deal with food waste generated in the shopping centres, food processing companies and major restaurants and eateries. Currently, some food waste generators such as shopping malls and hotels have already installed such facilities of different scales. We support the installation of these equipment to reduce food waste disposal and we would provide technical advice to the C & I sector interested in using such equipment on areas such as means of source separation of food waste and the requirements of relevant environmental legislation. With the efforts made, we believe that a considerable portion of food waste could be treated daily by the C&I sector on-site.

13. In addition, we have been launching various education and publicity activities to enhance the awareness of the public and the business sectors about food waste avoidance and reduction. Our initiatives to encourage food waste reduction include inviting all schools to sign a Green Lunch Charter to stop using disposable containers and adopt the central portioning approach where possible, so as to reduce food waste and protect the environment. Moreover, by making use of the Environment and Conservation Fund (ECF), we have been supporting various education and promotion programmes for food waste reduction. For example, in 2008, the ECF supported the “Save Food Day” activities to promote good eating culture and habit, and to encourage the public to reduce the portion of their food should they wish to eat less so as to avoid food wastage.

14. As for the food waste from the domestic side, the amount of domestic food waste disposal in the last two years has decreased slightly.

We would continue with our education and publicity effort to encourage further household food waste reduction. Collection of food waste from domestic households for treatment is difficult at this stage. It is because the majority of households in Hong Kong are resided in multi-storey multi-tenant buildings. Most of these buildings do not have space available for dedicated food waste containers at both the household and building levels. Besides, frequent food waste collection efforts would be required to get the source separated food waste from the households in the multi-storey multi-tenant buildings. This difficulty is aggravated by the hot and humid weather of Hong Kong that could easily cause potential hygiene and odour problems. In view of the above difficulties, we aim to target at source separated food waste from the C&I establishments first as their food waste is more easily to be source separated. Nevertheless, we would not lose sight of the food waste problem in the domestic sector and would work closely with the relevant stakeholders, including the domestic sector, property management companies and green groups to encourage households to generate less food waste and to develop trial schemes to explore how food waste in the domestic sector could be effectively collected and disposed of through on-site food waste treatment facilities.

FINANCIAL IMPLICATIONS

15. We estimate the capital cost of the proposed works for the OWTF phase I to be about \$489 million in MOD prices².

16. We estimate that the design and construction of the proposed works will create about 90 jobs (60 labourers and 30 professional/technical staff) providing a total employment of 1,500 man-months. In addition, we estimate that the operation of the OWTF Phase I will create about 35 permanent jobs (10 labourers and 25 professional/technical staff)³.

² & ³ These figures represent the latest estimates of the capital costs and new job opportunities. We will finalize these figures based on return tender price and include the cost breakdown prior to submitting the proposal to the Public Works Subcommittee for consideration.

17. The diversion of some 73,000 tonnes of food waste from landfill disposal every year can save the disposal cost at landfills. The notional saving can be up to \$10.5 million per year⁴.

PUBLIC CONSULTATION

18. The site straddles two District Councils. i.e. Tseun Wan District Council and Islands District Council. We have adopted a continuous public involvement process with the District Councils. We started to consult the two District Councils in 2009 on the progress of the project development and organized site visits in early 2010.

19. We consulted the Tsuen Wan District Council and Islands District Council on the findings of the Environmental Impact Assessment (EIA) study of the OWTF Phase I project on 26 January 2010 and 8 February 2010 respectively. The two District Councils expressed support of the proposed project.

ENVIRONMENTAL IMPLICATIONS

20. This project is a designated project under the EIA Ordinance (Cap 499) and an environmental permit (EP) is required for its construction and operation. The EIA report of this project was approved under the EIA Ordinance on 24 February 2010. The EP was issued by the EIA Authority on 21 June 2010. The project would comply with the established standards stipulated under the EIA Ordinance.

21. The setting up of the OWTF Phase I could divert some 73,000 tonnes of food waste from landfill disposal each year which could help extend the life span of landfills, reduce landfill gas and leachate.

22. In addition, the OWTF Phase I will have a capacity of treating some 200 tonnes of food waste each day and turn them into useful products including 20 tonnes of compost each day and production of

⁴ The average costs for disposal of waste at landfills in 2009-10 was about \$145 per tonne.

biogas that could generate electricity for use by 3,000 households. The compost can be used in a variety of activities including agriculture, horticulture, landscaping, plant nursery and organic farming.

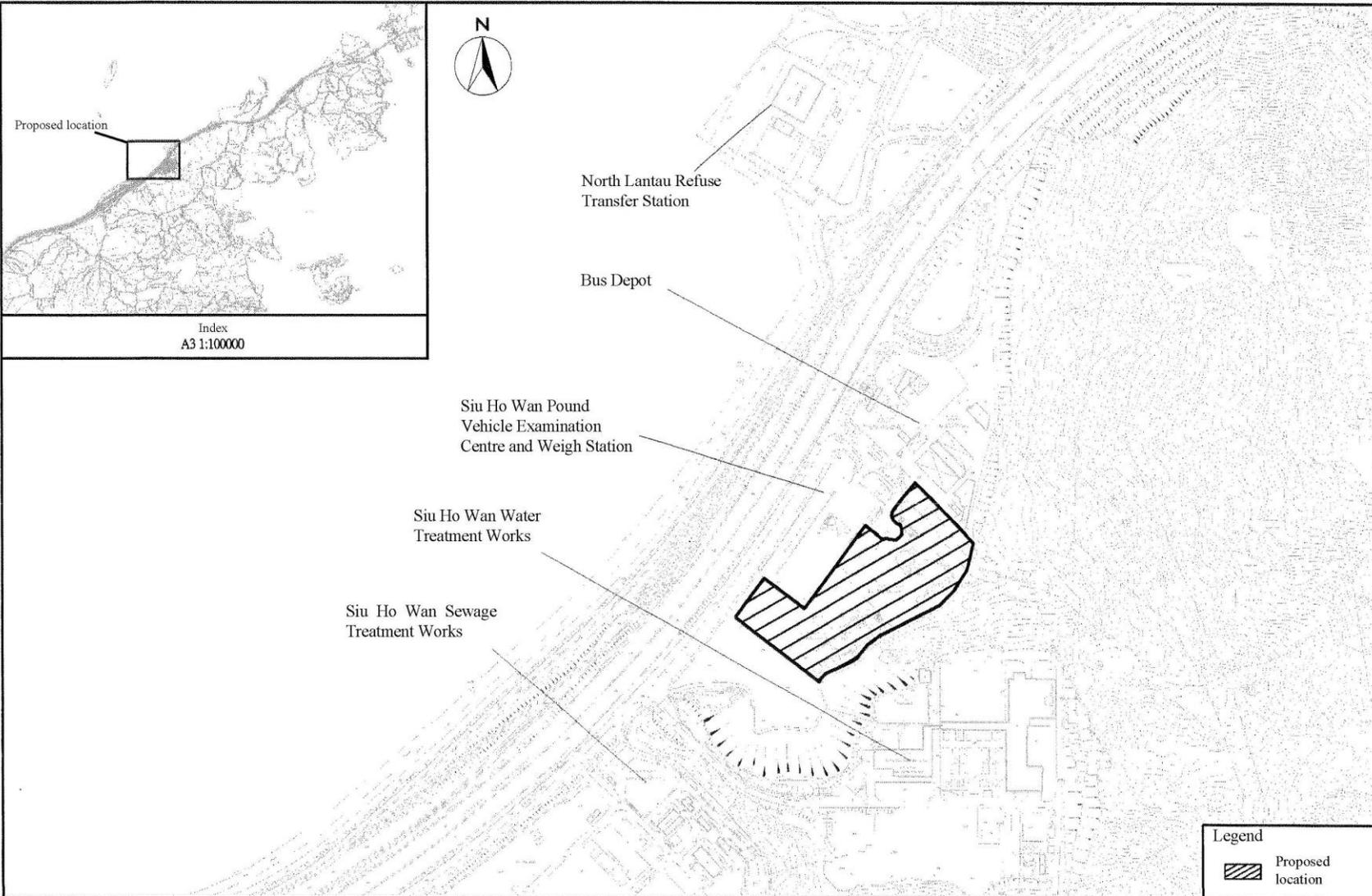
23. Renewable energy derived from OWTF Phase I will help replace use of fossil fuel for electricity generation. The reduction of using fossil fuel for electricity generation, coupled with less organic waste being landfilled, would contribute to the reduction of some 25,000 tonnes greenhouse gas emission each year.

ADVICE SOUGHT

24. Members are invited to note the scope of the project and our proposal of proceeding with tendering for the design-build-operate contract in the second quarter of 2011.

**Environmental Protection Department
November 2010**

Enclosure 1: Location Plan of OWTF Phase I



Proposed location of the Organic Waste Treatment Facilities Phase I

SCALE	A3 1:3700	DATE	OCT 2009
CHECK	KYTT	DRAWN	DNCY
JOB NO.	60047803	FIGURE NO.	1
		REV	-