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23 December 2015

Public Accounts Committee
Legislative Council Secretariat
Legislative Council Complex
1 Legislative Council Road
Central, Hong Kong

(Attn: Mr. Anthony CHU)

Dear Mr. CHU,

**Public Account Committee
Consideration of Chapter 2 of the Director of Audit's Report No. 65**

Reduction and Recycling of Food Waste

In response to your letter dated 15 December 2015, the Administration would like to provide the requested information for Members' reference.

Yours sincerely,

(Ms Vivian CHAN)

for Director of Environmental Protection

Encl.

- c.c. Secretary for the Environment (fax no. 2537 7278)
- Secretary for Education (fax no. 2810 7235)
- Chief Executive, Hospital Authority (fax no. 2576 5050)
- Commissioner of Correctional Services (fax no. 2583 9307)
- Director of Housing (fax no. 2761 6700)
- Director of Food and Environmental Hygiene (fax no. 2524 1977)
- Secretary for Financial Services and the Treasury (fax no. 2147 5239)
- Director of Audit (fax no. 2583 9063)

Reply to PAC on further questions on Food Waste

Reduction in food waste

- (a) **with reference to paragraph 1.5 of the Audit Report, the reason(s) for per-capita-per-day domestic food waste generation of Hong Kong was 85% higher than those of Taipei and Seoul in 2013, and the updated figures for 2014;**

Reply:

International experiences show that the most appropriate strategy and measures for food waste management for a city are governed by the socio-economic characteristics and the nature of economy of a particular city, the eating culture and habits as well as the institution and policy setting. Hong Kong is primarily a service economy with a strong tourist component and has only a very limited agricultural base to provide suitable outlets (e.g. animal feed or compost) for food waste. This is different from other cities (e.g. Taipei) with a relatively large agricultural base around the city providing an important outlet for food waste. Also other cities have put in place municipal waste charging in 1990s or early 2000s which has proven to be very effective in reducing waste generation. Given the differences in socio-economic characteristics and the different stage of the policy development, the food waste management practices among different cities therefore cannot be readily compared.

In line with the comprehensive strategy elucidated in the 2005 Policy Framework on Municipal Solid Waste Management, the Government has adopted a three-pronged approach with concurrent actions on

- (1) avoidance and reduction in food waste generation through education and awareness raising, (e.g. food waste reduction and recycling programmes with District Councils, Food Wise Hong Kong Campaign)
- (2) development of practices and experiences on source separating and recycling the unavoidable food waste to useful resources (e.g. food waste recycling partnership programme with the

commercial and industrial sector, on-site composters in schools/local communities by NGOs/government departments, food waste recycling projects in private housing estates, , and

- (3) the development of food waste treatment capacity (e.g. organic waste treatment facilities phase 1 and 2, the private sector food waste treatment facilities in the Ecopark).

Chart A and B below show the trend of food waste in Hong Kong since 2004, and the key actions and measures taken on education and awareness, promotion of at source separation and recycling, as well as preparation for treatment facilities on food waste treatment. It is worthy to note that the combined efforts of these actions and measures have helped to moderate or stabilise the rate of growth of food waste disposal despite the continuing rise in the economy and population in Hong Kong.

To consolidate the efforts and measures, we published the "A Food Waste and Yard Waste Plan for Hong Kong (2014-2022)" in February 2014 with a target of reducing food waste disposal at landfills by 40% in 2022. As an initial indication, the amount of food waste disposed of at landfills in 2014 was slightly reduced to 1.329 million tonnes, representing some 0.2% reduction in comparison with the 1.331 million tonnes in 2013. Using a per capital basis, it also represents a reduction of some 1.0%, from 0.508 kg/person/day in 2013 to 0.503 kg/person/day in 2014.

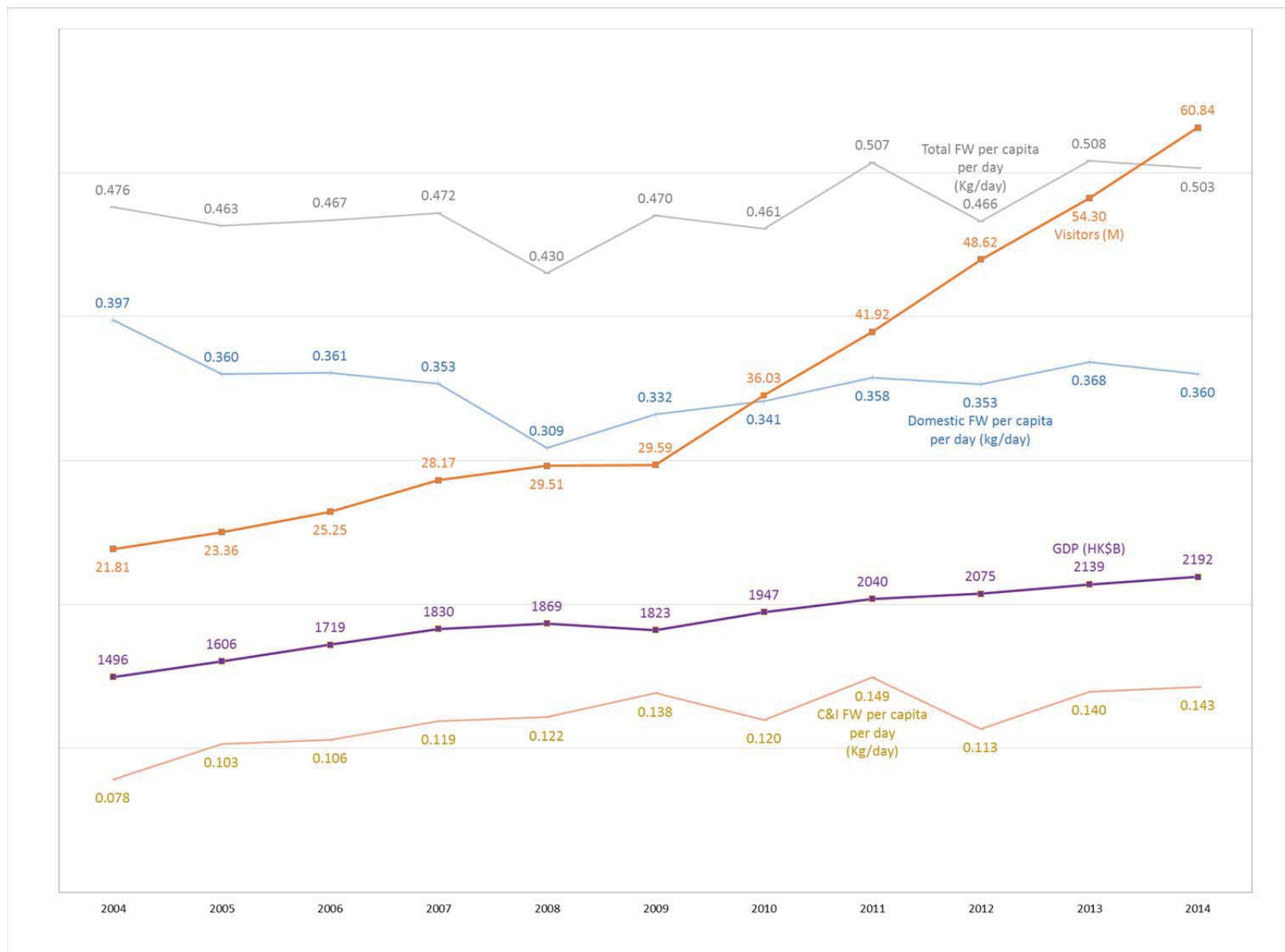


Chart A - The Trend of Food Waste in Hong Kong Since 2004

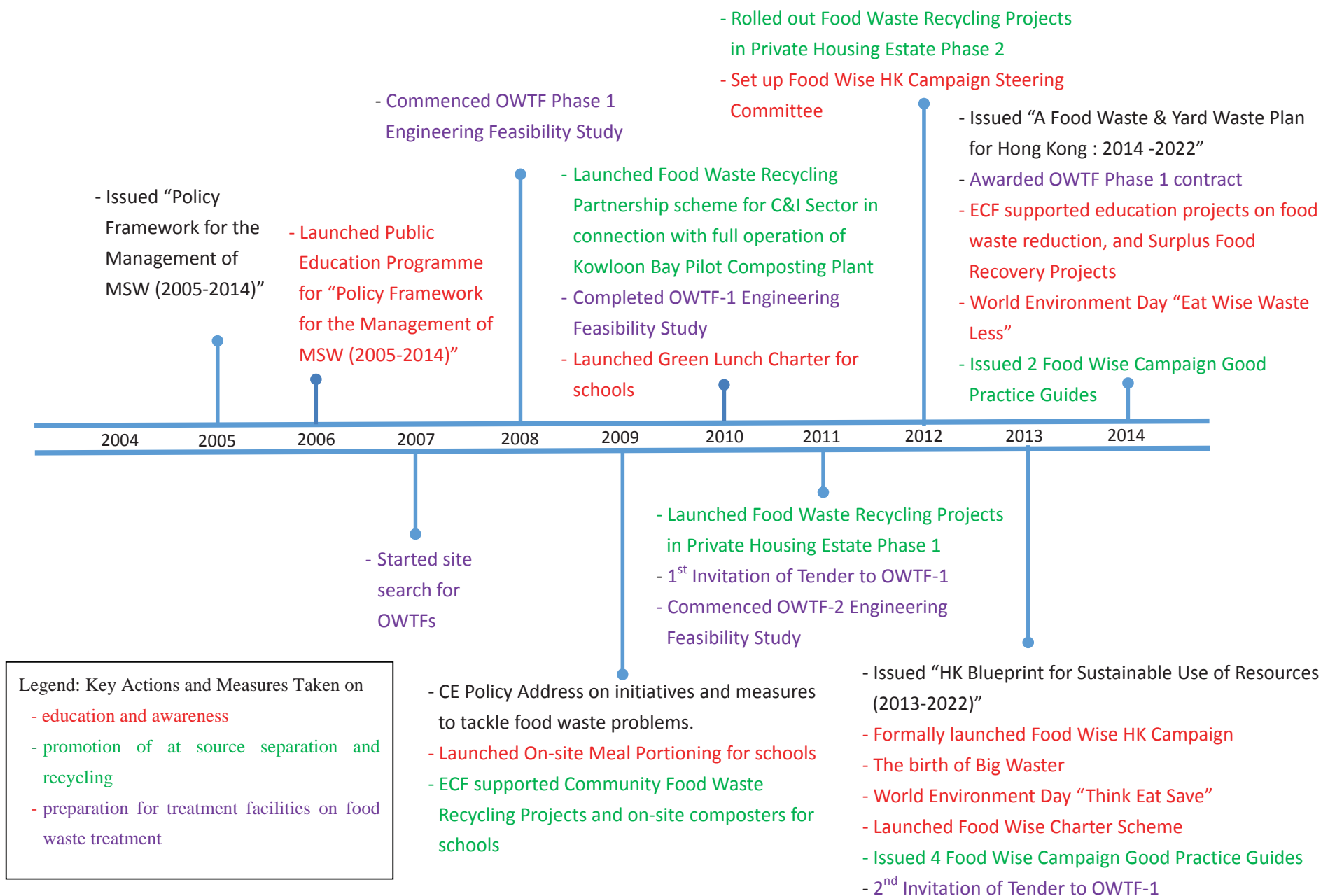


Chart B - Key Actions and Measures Taken on Food Waste

- (b) the way used by the Environmental Protection Department (“EPD”) to measure the quantity of food-waste disposal at landfills;**

Reply:

The quantities of disposal of Municipal Solid Waste (MSW) at landfills analyzed by waste type, in which food waste is a main component, are estimated by combining the waste disposal data recorded at weighbridge located at entrances of landfills, with the waste composition data obtained from EPD’s annual waste composition survey (WCS) of MSW conducted at landfills and Refuse Transfer Stations (RTSs) by contractors.

In carrying out the WCS, a sampling plan is first drawn up in accordance with the established statistical principles such that the survey contractor will draw random samples from MSW transported by waste collection vehicles to the landfills or RTSs for disposal. To take into account the seasonal effects, the WCS is conducted twice in a year, one in the first half of the year, the other in the second, and will draw a total number of 420 waste samples over a total period of 70 days. Contents in each sample will be put into a sampling box and will then be manually sorted by waste type (e.g. plastics, paper, glass, food waste, wood etc.) into different containers. Each of these containers will be separately weighed for the purpose of compiling waste composition data.

Upon completion of sorting and weighing for all samples, the whole set of waste composition data will then be combined with the weighbridge waste disposal data for estimating the disposal of MSW at landfills by waste type, in which food waste is the main component.

Detailed methodology concerning waste sampling, manual sorting, weighing and recording etc. are specified in the contract documents for the survey contractor who must follow such methodology as a mandatory contractual requirement. Appropriate training is provided to frontline field workers. The survey contractor will deploy supervisory staff to provide on-site guidance to the field

workers and exercise quality control. EPD inspectorate staff are also present throughout the field work period to ensure that the surveying processes are properly carried out.

On the whole, the WCS is designed to meet an overall margin of error of around 10% at a 95% confidence level, which by professional statistical standards means that the survey results are valid.

- (c) **according to paragraph 2.6(a) of the Audit Report, the “Policy Framework for the Management of Municipal Solid Waste (2005-2014)” set the target of reducing the quantity of municipal solid waste (including food waste) by 1% per annum up to 2014, using 2003 as the base year. However, according to Figure 3 in paragraph 2.11 of the Audit Report, from 2004 to 2013, the actual quantity of food-waste disposal had increased by 13% from 1.18 million tonnes to 1.33 million tonnes. Please explain why the increase in the quantity of food-waste disposal in this period, and the measures taken by EPD to tackle the food-waste problem during this period;**

Reply:

As stated in the Remarks in page 14 of the Audit Report, from 2004 to 2013 when the actual quantity of food waste disposal had increased by 13%, Hong Kong’s annual Gross Domestic Product had increased from \$1,317 billion to \$2,132 billion (a 62% increase), the annual number of visitors from 22 million to 54 million (a 145% increase), and population from 6.8 million to 7.2 million (a 6% increase).

The domestic food waste disposal on a per capita basis has dropped from about 0.42 kg/person/day in 2003 (base year of 2005 Policy Framework) to about 0.36 kg/person/day in 2014, by about 14%. Within the same period, the C&I food waste has increased from about 0.08 kg/person/day to about 0.14 kg/person/day, showing some correlation with the increasing trend in GDP and the number of tourists to Hong Kong. For the period from 2005 to 2014, the total restaurant receipts in Hong Kong increased by some 29% in

real terms (according to the volume index of total restaurant receipts compiled by the Government). Taking an example for comparison with a neighboring Asian city (Singapore), the food waste disposal amount in Singapore has a growth rate of some 38 % during the past 7 years, from 0.28 kg/person/day in 2008 to 0.34 kg/person/day in 2014¹.

The Government has put forward proposals and action plans and has taken actions on food waste from 2005 and 2013 as shown in the following documents:

- In “A Policy Framework for the Management of MSW (2005-2014)” issued in 2005, section 108 already mentioned that 500 tpd of food waste from C&I Sector could be separately collected at source for biological treatment. During the period from 2005 to 2009, we have developed the Kowloon Bay Pilot Composting Plant to prepare for large-scale food-waste recycling in future; and initiated the site search, EIA and Engineering Feasibility Study for Organic Waste Treatment Facility (OWTF) Phase 1.
- In April 2009 and January 2011, ENB issued the LegCo EA Panel Paper “Update on the Progress of The Key Initiatives in the ‘Policy Framework for the Management of MSW (2005 – 2014)’ “which have reported the initiatives including the ECF support for on-site treatment, as well as planning and development of OWTF-1 and 2 with a total capacity of 500 tpd. During this period from 2009 to 2011, we have formed a partnership programme with key food waste generators in the C&I sector with a view to setting up the delivery and collection protocol so that their food waste generated can be delivered for treatment at OWTFs when commissioned; launched the Food Waste Recycling Projects in Housing Estates; completed the EIA for OWTF Phase 1.

¹ Source :

<http://www.nea.gov.sg/energy-waste/waste-management/waste-statistics-and-overall-recycling>

<http://www.zerowastesg.com/2013/04/01/singapore-waste-statistics-2012/>

<http://www.singstat.gov.sg/statistics/browse-by-theme/population-and-population-structure>

- In March 2012, ENB issued the LegCo EA Panel Paper “Reduce, Recycle and Proper Waste Management” and further updated the progress of various initiatives and plans. During this period from 2011 to 2013, we have carried out the pre-qualification and tendering for OWTF 1 (and the retendering for OWTF Phase 1 due to very high returned tender prices, hence enhancing the cost-effectiveness of the project); and initiated a further site search for more OWTFs in addition to OWTF Phases 1 and 2 what were already under planning.
 - The May 2013 Hong Kong Blueprint for Sustainable Use of Resources (2013-2022) also stressed the need to prevent and reduce food waste (page 16 of the Blueprint) and the importance of the Food Wise Campaign and OWTFs in the Action Blueprint, in addition to various plans mentioned in the earlier papers/documents. During this period from 2013 to late 2015, we have launched the Food Wise Hong Kong Campaign to raise awareness and enhance community support; completed the EIA and feasibility studies for OWTF Phase 2; discussed with the C&I sector on the delivery of food waste to OWTF1 and engaged a service contractor to facilitate the C&I sector to make arrangement for delivering food waste to OWTF1.
- (d) **according to paragraph 2.7 of the Audit, in the “A Food Waste and Yard Waste Plan for Hong Kong (2014 -2022) (“the 2014 Food Waste Plan”), the Environment Bureau (“ENB”), for the first time, set a target of reducing food-waste disposal at landfills by 40% by 2022, using 2011 as the base year. According to Figure 3 in paragraph, food-waste disposal had increased from 1.31 million tonnes in 2011 to 1.33 million tonnes in 2013. In view of the increase in food-waste disposal during this period and the inadequacies identified in the Audit Report on the reduction and recycling of food waste, the measures, including setting any mid-term targets, enhancement of monitoring mechanisms, etc., to be taken by EPD to achieve the 40% food-waste reduction target by 2022;**

Reply:

The 2014 Food Waste Plan analysed the current situation of food waste in Hong Kong, and maps out a comprehensive strategy, targets, policies and action plans for the management of such waste in the coming years with a view to tackling the challenge faced in Hong Kong to meet the target of reducing food-waste disposal at landfills by 40% by 2022, using 2011 as the base year. Based on the experience of other places, it will take some time before we can achieve meaningful reduction in the quantities of food waste being disposed at the landfills. We have therefore not set a mid-term target in the Food Waste Plan. As the Plan has only been introduced for one year, we are working diligently to implement/launch all necessary policy measures and programmes to achieve our target. We are also closely monitoring the effects of the various measures where practicable. In particular, we are conducting a food waste survey and audit for the food and beverage sector with a view to providing information to evaluate the effectiveness of the Food Wise Campaign in the sector. We will continue to closely monitor progress of various measures and make any corrective/enhancement actions as necessary to ensure that the food waste reduction target would be met. Ultimately, the question of whether we are on track to meeting the reduction target set in the Food Waste Plan will be captured in our annual waste disposal survey.

- (e) **total expenditure for the Food Wise Hong Kong Campaign (“FW Campaign”) with a breakdown of the expenditure on the design of the promotional materials, promotional and public education activities, website management and operation expenses of the Campaign since it was launched in May 2013;**

Reply:

As at end of March 2015, the expenditure spent on advertising and other related items was \$13.5 million and the total expenditure on the other major schemes and activities was \$8 million (including the expenditure on the design and publicity of the “Big Waster” at about \$1.6 million), as shown in the table below:

Description	Expenditure 2012-13	Expenditure 2013-14	Expenditure 2014-15
Advertising for the Campaign (including those in public transport system, printed materials and electronic platform, etc.).	-	About \$10.4 million	About \$3.1 million
Establishing a supporting website for the Campaign, organising food waste reduction training workshops for launching the Food Wise Hong Kong Ambassador Scheme and participation by the relevant sectors and interested parties.	About \$0.3 million	About \$0.5 million	About \$1.1 million
Organising publicity activities to promote the Food Wise message, including launch ceremony of the Campaign, Food Wise Hong Kong Steering Committee First Anniversary Ceremony/Food Wise Caroling, Food Wise Hong Kong Campaign Roving Exhibition at various Districts in Hong Kong, and design and publicity of the “Big Waster”.	About \$0.3 million	About \$2.4 million	About \$3.4 million

- (f) **according to paragraph 2(e) of the opening remark made by the Secretary for the Environment at the public hearing on 12 December 2015, as of October 2015, the Environment and Conservation Fund (“ECF”) has approved a total of 10 projects with funding support of about \$15 million for the collection of around 950 tonnes of surplus food in two years, and donation to 700 000 headcounts. In this regard, the Administration’s assessment on whether these 10 projects with a funding support of \$15 million have achieved the best value for money;**

Reply:

The Administration is committed to promoting the culture of food waste reduction, in order to avoid and reduce food waste disposed of at landfills. Since July 2014, the ECF has been funding non-profit organisations in the recovery of surplus food for distribution in the community. The funded activities include collection of surplus and edible food from markets, retail shops and food wholesalers. The collected surplus food is distributed to those in need, achieving the dual purposes of caring for the community and waste reduction. Apart from collection and distribution of surplus food, the projects also organise promotional and educational activities in the community to encourage different stakeholders to treasure food and reduce food waste. The Administration notes that the projects have brought about not only actual reduction in food waste, but also environmental education impact in deepening the awareness of members of the public on the issue.

- (g) **with reference to the different stages of the FW Campaign as mentioned by the Secretary for the Environment in paragraph 4 of his opening remark at the public hearing on 12 December 2015, the targets set, if any, and corresponding actions taken by EPD in each stage of the Campaign with the results of these actions (supported by relevant statistics, such as those on food waste generation and disposal);**

Reply:

As stated in the Policy Address 2013, the purpose of the Food Wise Hong Kong Campaign (FWHKC) is to mobilise the public and the industrial and commercial sector to reduce food waste. A Steering Committee has been set up, with representation from the various trades, academics, NGOs, university and school representatives, professionals and government departments. As decided by the Steering Committee for the Campaign, the Campaign's objectives are to promote awareness of the community on food waste problems, coordinate efforts within the Government, instill behavioral changes in the community, draw and promote good practices, and facilitate food donation. To achieve the objectives, the campaign has adopted a bottom-up strategy, with primarily stakeholders-led and trade-led and with the objective of maximizing engagement and buy-in and building partnership with the community and the trades. The Steering Committee, together with 2 Sub-committees and 6 Working Groups, decided on the strategies, approaches, foci, emphasis, tactics and action plans to take forward the campaign. There are over 110 stakeholders and representatives involved in the Steering Committee, Sub-committees and Working Groups.

Taking into account the views of the various stakeholders, the Steering Committee decided that the strategies and directions for the campaign and the work of the campaign should be broadly organized into three phases: launching phase, reaching out phase, and consolidation phase. Each year, the Steering Committee would review the progress and worked out an annual work plan and key action items, taking account of the progress and latest circumstances.

Phase 1 is the launching phase in which the key activities mainly include setting up and launching of the Steering Committee, Sub-committees and Working Groups, development of work plan, commencement of the preparation of tools and kits for food waste reduction campaign, and engagement of stakeholders and NGO in the development of tools and kits. We have successfully gone through launching phase of which the Food Wise Hong Kong Steering Committee was set up in Dec 2012 to oversee the implementation of FWHKC which was formally launched in May

2013. The Steering Committee is underpinned by two Subcommittees.

Phase 2 is reaching-out phase in which key activities mainly include extensive reach-out to the community through publicity and education programmes, and formulation and promotion of Good Practices. We are now at Phase 2 of the campaign and a number of key achievements are made as follows:

- The FWHKC was awarded Excellence Award at the HKMA/TVB Awards for Marketing Excellence 2014, recognising its effectiveness and positive impact of the FWHKC on the community. It is the first promotional campaign run by the Government receiving such award.
- The "Big Waster" (大嘍鬼) has been firmly taken root in the community and become the commonly accepted icon of waste reduction and energy saving/efficiency. Up to end of Nov 2015, the Big Waster Facebook has also received 24 000 "likes" so far.
- Wide publicity initiatives were held in a continuous manner, including two series of API, media placement, social media by means of Big Waster Facebook and roving exhibitions.
- The Government also launched the Food Wise Eateries Scheme on 2 November 2015, with about 400 participating eateries so far.
- As at November 2015, some 466 business establishments/organisations have signed the Food Waste Charter to pledge for food waste reduction, growing from some 150 in mid-2013.
- On guidance to various sectors, six Food Waste Reduction Good Practice Guides (減少廚餘良好作業守則) have been issued in 2013/2014 for "Market" Sector (in October 2014), "School" Sector (in July 2014), "Food & Beverage", "Hotel", "Residential" and "Shopping Mall" Sectors in May 2013. These Good Practice

Guides are made available for downloading on Food Wise website.

- 9 roving exhibitions have been held and the Government will continue to arrange roving exhibitions targeting a total of 18 to be held.
- 37 food wise training sessions and sharing workshops have been completed and about 3 000 participants attended these training sessions and workshops.

Phase 3 is consolidation phase in which there will be more intensive promotion of behavioral changes and adoption of good practices in various sectors of the community so as to achieve food waste reduction outcomes as far as possible. We will formulate the detailed measures to promote behavioural changes and adoption of good practices upon the completion of Phase 2 which is very likely to reach its later period in the coming year, subject to the outcome and progress of food waste reduction. In parallel, we are also conducting a food waste survey and audit for the food and beverage sector in obtaining reliable information for carrying out analysis in generation and reduction food waste in this sector for facilitating our formulation of detailed measures. (Please also read reply to question (m) below).

It should be noted that the strategy above is based on a work plan covering various actions and programmes, which we are working closely to achieve, rather than meeting any specific target set for each phase.

- (h) **according to paragraph 2.17(b) of the Audit Report, one of the objectives of the FW Campaign was for EPD to coordinate efforts within the Government and public institutions to lead by example in food-waste reduction. According to paragraphs 2.22 and 2.24 of the Audit Report, as of June 2015, of the 12 government departments invited by EPD from May to October 2013 to sign the Food Wise Charter (“FW Charter”), eight had**

not signed the Charter. Of the eight governments, six signed the Charter only after the Audit Commission had commenced the review. In this regard, the actions taken by EPD from October 2013 to June 2015 to follow up this matter with the government departments which had not signed the FW Charter.

Reply:

The Food Wise Charter is one of the nine actions under the Food Wise campaign and the objectives are to encourage participation and adoption of good practices and to recognize the efforts of organisations. From October 2013 to June 2015, EPD continued to work together with government departments in implementing and the FWHKC and help to promote food wise message. Representatives from Government Departments including Food and Environment Hygiene Department (FEHD) and Housing Department (HD) attended various meetings of Project Steering Committee and Sub-Committee of FWHKC to make contributions to the campaign. They also participated in working groups on preparation of Good Practices Guides such that a total of six Food Waste Reduction Good Practice Guides have been issued and made available for the community for reference, including Market, School, Food & Beverage, Hotel, Residential and Shopping Mall sectors. FEHD also participated in Food Waste Recycling Partnership Scheme by nominating and coordinating wet markets for the participation of the scheme. In addition, we have also liaised with various government departments (including FEHD, HD, Correctional Services Department (CSD) and Hong Kong Police Force (HKPF)) from time to time in providing Food Wise posters for facilitating them to spread out the food wise message.

We also invited, by means of emails/letters or during interdepartmental meeting, government departments having in-house catering services and/or food waste generation establishments within the facilities managed by them to sign the Food Waste Charter. Whilst some departments raised concerns on the requirements and commitments under the Food Waste Charter, after clarifications and experience sharing of those departments that have signed the Food Wise Charter, 6 additional government

departments listed in Table 2 of the audit report (including Auxiliary Medical Service, CSD, Customs and Excise Department, HKPF, Government Property Agency (GPA), Leisure and Cultural Services Department (LCSD)) have subsequently signed the Food Wise Charter. Together with Civil Aid Service, Fire Services Department, Government Flying Service and Immigration Department which had signed the Charter earlier, 10 government departments in Table 2 have signed the Charter.

In addition to participating in the FWHKC, a number of initiatives and actions had been taken by government departments for helping to reduce food waste. For example, HD implemented food waste reduction and recycling programme as detailed in Part 3 of the Audit Report. LCSD, FEHD, GPA, CSD, and the Government Secretariat Administration Wing have also implemented pilot food waste recycling programmes at some of their facilities.

- (i) According to paragraph 2.26 of the Audit Report, in order to monitor the progress of the implementation of the FW Campaign and assess the extent of achievement in food-waste reduction, EPD requested the signees of the FW Charter to submit returns on their food-waste reduction through implementing planned actions. However, according to paragraph 2.31 of the Audit Report, only 26 (2.5%) of the total 1 027 returns that should have been submitted by signees of the FW Charter contained measurable food-waste-reduction data. In this regard,**

 - i) the reason for the low response rate;**
 - ii) the actions to be taken by EPD to encourage the submission of returns, and**
 - iii) please explain how EPD would monitor and review the effectiveness of the FW Campaign given the low response rate;**
- (j) according to paragraph 2.29 of the Audit Report, of the total 1 027 returns that should have been called for in the period 2013 to 2015, EPD had only called for 808 returns (79%) and omitted**

to call for 219 returns (21%). In this regard, measures taken/to be taken by EPD to prevent recurrence of such omissions;

- (k) with reference to paragraph 2.30 of the Audit Report, the measures taken/to be taken by ENB/EPD to ascertain the reasons why many FW Charter signees failed to submit returns and their difficulties encountered;**

Reply to (i), (j) and (k):

For (i)(i), as stated in Food Wise website, "The Food Wise Charter is open to all local businesses and organizations". The Charter scheme is essentially on a voluntary basis and everyone interested in the scheme is free to join by downloading the charter application from Food Wise website and submit the application accordingly. Based on our understanding, some main reasons that they have yet to do so are because (a) they are too busy to handle their own business and thus could not spare any time to provide the returns, (b) it may involve additional resources and efforts to provide measurable food-waste-reduction data which most of businesses may not be willing to invest, noting that the Food Wise Charter is essentially on a voluntary basis, (c) there is no tangible benefits gained for submitting the periodic returns.

For (i)(ii) and (k), we will strengthen our efforts to encourage and facilitate FW Charter signees to provide returns and related measurable data, such as issuing reminders and contacting signees to understand the difficulties they have. In addition, we will enhance the efforts to consolidate good experiences and practices including those of the charter signees and share them through the network of the FWHKC, including its website and facebook so that signees can make reference to them to learn and build up their food waste reduction and monitoring practices, and also provide incentives for signees to submit returns as their efforts and achievements will be showcased publicly.

For (i)(iii), the Food Wise Charter is one of the nine programmes under the HKFWC. Signing Food Wise Charter is only one of the many ways that B/Ds, NGOs and private organisations could

contribute to the food waste reduction efforts. The effectiveness of the FWHKC should not be measured merely by the response rate of returns from signees of Food Wise Charter scheme. Instead, it is essential to note that this campaign is to promote the behavioral changes, educate/establish and adopt good practices in various sectors of the community. The effectiveness of the campaign should be assessed holistically through more scientific and subjective approach, such as the food waste survey and audit for the food & beverage sector, and ultimately the disposal quantity of food waste at landfills.

For (j), we will deploy additional resources to strengthen the efforts in checking the procedures of calling for returns to ensure that no omission would happen again.

- (l) **with reference to paragraph 2.37(d) and 2.38 of the Audit Report, the progress of issuing guidelines on the methodologies for compiling measurable food-waste-reduction data. Please provide a copy of these guidelines;**

Reply:

As part of the reaching out phase of the FWHKC, we will issue guidelines on methodologies for compiling measurable food-waste-data in accordance with paragraph 2.37(d) of the Audit Report. Once available, the guidelines will be distributed to the signees and applicants of the charter scheme, as well as to be uploaded to Food Wise website for the reference by the public. Meanwhile, we will continue to extract good experiences and practices from the returns of Food Wise Charters and share such information through the network of the FWHKC that signees can make reference to them to learn and build up their food waste reduction and monitoring practices. Also, we will make reference to those good experience and practices for developing the guidelines.

- (m) **according to paragraph 2.38(e) of the Audit Report, EPD has commissioned a food-waste survey/audit for the food and beverage sector with a view to providing information to evaluate**

the effectiveness of the FW Campaign in the sector. In this regard, whether consideration would be given to extending the survey to cover other sectors;

Reply:

The main objective of the survey is to conduct a food waste survey and audit in obtaining reliable information for carrying out analysis for the evaluation of the effectiveness of the FWHKC in reducing food waste generated in the F&B sector of Hong Kong. A baseline survey was conducted in 2014 to (i) establish the baseline data by conducting survey and measuring of food waste generated by F&B sectors; (ii) collect information on F&B sector's procedures and habits in food waste handling and measures in place to reduce food waste generation; (iii) understand the F&B sectors awareness of and attitudes towards food waste and disposal as well as their behaviour towards food waste; and (iv) estimate the food waste generation quantity of F&B sectors by on-site measurement. Subject to findings of the full survey which include interim survey and final survey, we will consider extending the survey to cover other sectors such that we could make reference to the experience gained throughout the survey.

- (n) according to paragraph 2.54 (a) of the Audit Report, as stated in the 2009-2010 Policy Address, to further reduce food waste and disposable lunch boxes, schools are encouraged to stop using disposable containers and adopt on-site meal portioning where possible. According to paragraph 2.63 of the Audit Report, EPD's latest survey conducted in 2010 showed that only 12% of students taking lunch at school took lunch through the on-site meal portioning arrangement, and 46% of those students used disposable containers. In this regard, the actions taken/to be taken by EPD to improve the above situation;**
- (o) according to paragraph 2.68 of the Audit Report, in June 2010, EPD informed the Legislative Council Panel on Environmental Affairs ("EA Panel") that it had set targets to reduce the number of disposable lunch boxes by 60 000 per day by the 2012/23 school year, and it would conduct surveys to ascertain**

the latest situation and review the targets accordingly. According to paragraph 2.69 of the Audit Report, except the 114 schools adopting on-site meal portioning funded by ECF, EPD had not conducted any survey on lunch practices of other whole-day schools from January 2011 to August 2015 nor reviewed the targets. Please explain the reason(s) for not conducting the survey during this period, and when will be next survey be carried out;

Reply to (n) and (o):

Riding on the surveys in 2008 and 2010, EPD and EDB invited all whole-day schools to apply for ECF for implementing on-site meal portioning (OMP) to prepare lunch for schools. Between 2009 and 2015, 277 whole-day schools submitted applications for retrofitting their schools to prepare OMP. After the review carried out by the Electrical and Mechanical Services Department (EMSD), 163 schools out of the 277 schools were assessed to be feasible to carry out the necessary retrofitting works (paragraph 2.65 of the Audit Report). To further promote OMP in whole-day schools, EPD wrote to 740 schools in 2013 to explain the support provided by the ECF in implementing OMP in whole-day school (paragraph 2.64(a) of the Audit Report). Furthermore, EPD and EDB issued a joint letter to all primary and secondary whole-day schools on 7 December 2015 encouraging those schools that have not yet adopted OMP to apply for ECF for implementing OMP. Up to now, applications from 114 whole-day schools have been approved by the ECF and 6 applications are being considered. EPD, in collaboration with EDB, will continue to encourage whole-day schools to adopt green lunch practices including reviewing the relevant guidelines and circulars and commending schools with good performance. EPD together with EDB will also explore arranging sharing sessions with schools on the successful implementation of OMP and other green lunch practices in schools.

The surveys on the 114 schools adopting on-site meal portioning funded by ECF could provide data on the latest situation on reduction of the number of disposable lunch boxes. According to the surveys on these schools, it was estimated that around 56 000

students had benefited from taking lunch at school through on-site meal portioning (paragraph 2.64(a) of the Audit Report). These students would no longer take lunch using disposable containers. EPD, with the support from EDB, is now considering to conduct a survey on the lunch practice of all whole-day schools in 2016, including the use of disposable lunch boxes and food-waste quantities. Based on the data collected from the survey, we will also review the targets on reduction of using disposable lunch boxes at schools.

- (p) **according to paragraphs 2.74 and 2.75 of the Audit Report, of the 32 schools approved with ECF funding in or after July 2011 (they were required to provide food-waste quantities as a condition of receiving ECF funding), only 5 schools (16%) had provided food-waste quantities both before and after adopting on-site meal portioning, and 15 schools (47%) had not provided any related information. Please explain the follow-up actions that EPD has taken on this issue and the difficulties encountered by the 15 schools that had not provided the latest information;**

Reply:

The ECF Secretariat issued follow-up letters on 3 November 2015 to all the 32 schools approved with ECF funding in or after July 2011 reminding them to provide food waste quantities both before and after adopting OMP as required under the conditions of receiving funding from ECF. As at 15 December 2015, out of the 32 schools, 26 schools had already provided the food waste quantities after adopting OMP. Some schools, which had already implemented OMP before the 2015/16 school term, explained that they had not maintained the old food waste data and had difficulties to provide the food waste quantities before adopting OMP. As the submission of returns is an on-going exercise, we expect receiving more returns in the 2015/16 school term.

- (q) **with reference to paragraph 2.88(j) and 2.91 of the Audit Report, the progress of evaluation of the effectiveness of EPD's actions to promote green lunch practice at schools, including Green Lunch Charter;**

- (r) with reference to paragraph 2.91 (a)(i), the progress of conducting periodic surveys to obtain information on lunch practice at school;**

Reply to (q) and (r):

EPD and EDB issued a joint letter to all primary and secondary whole-day schools on 7 December 2015 inviting them to complete a questionnaire on their current lunch practices in schools, including the use of disposable lunch boxes and adopting of on-site meal portioning. We will analyse the information collected and, with the support from EDB, to work out the arrangement of conducting periodic survey to obtain information on lunch practices at schools. For the Green Lunch Charter, to maximize the publicity effect, we will consider further promoting green lunch practice in schools through the Food Wise Charter.

Recycling of Food Waste

- (s) according to Plates 3.3 of the Waste Statistics for 2013 and 2014, the quantity of food waste recycled locally had dropped significantly from 28.6 thousand tonnes to 6.9 thousand tonnes from 2013 to 2014. Please explain the reason(s) for this significant drop;**

Reply:

According to data obtained from EPD's annual waste recovery survey conducted by contractors, the drop in the quantity of food waste recycled locally from 28.6 thousand tonnes to 6.9 thousand tonnes from 2013 to 2014 was due to the ceasing of operation of a large food waste recycler in 2014, coupled with a contraction in the scale of operation of a few other food waste recyclers.

- (t) According to paragraphs 3.7 and 3.11, in April 2009 and March 2010, EPD informed EA Panel that the Pilot Plant would be capable of receiving up to 4 tpd of source-separated food waste from C&I premises, and this quantity of food waste could be perceived as the net quantity of food waste to be treated a day.**

Please explain why EPD had not clearly stated that the 4 tpd figure included bulking agent and other non-food-waste materials in the papers submitted to EA Panel;

Reply:

The Kowloon Bay Pilot Composting Plant (Pilot Plant) was the first pilot facility that EPD set up to work jointly with the Commerce and Industry (C&I) sector on promoting food waste reduction and source separation. The deliverables aimed at gathering experience and information on the collection and treatment of organic waste thus facilitating future food waste recycling when the large scale organic waste treatment facilities for the C&I sector were ready for commissioning in accordance with the plan in the 2005 Policy Framework in December 2005. These objectives were presented to the Environmental Affairs Panel of Legislative Council (the EA Panel) in its paper CB(1) 1357/08-09 (03) on 27 April 2009 and CB(1) 1443/09-10(04) on 29 March 2010.

As an educational and trial facility, the Pilot Plant was of a modest scale and adopted the aerobic composting technology that does not require complex engineering work. Furthermore, the quantity of source separated food waste sent to the Pilot Plant from the participating restaurants, markets and food manufacturers fluctuates depending on the daily operations and resources for practicing source separation. The 4-tpd of source-separated food waste figure as stated in the EA Panel papers referred to the total capacity of organic waste (including food waste, bulking agents (e.g. bark chips and saw dust) and premature compost) that the Pilot Plant could handle. The addition of bulking agents and premature compost was required to achieve composting of food waste though the exact proportion of them to food waste was subject to trial for local conditions. As the Pilot Plant was to deal with “food waste”, we generalized to adopt the term “food waste” instead of referring to the various components of “organic waste” to be treated at the Pilot Plant. There was no intention to mislead the EA Panel in any way as the Pilot Plant was not set up as a regular waste treatment facility. Rather it was intended to be used for demonstration and educational purposes to encourage source separation of food waste among the

C&I sectors. In hindsight, the use of the term “organic waste” would better describe the actual process materials being used at the Pilot Plant.

- (u) **according to paragraph 3.12 of the Audit Report, in the first half of 2015, the average quantity of food waste treated at the Pilot Plant was 0.65 tpd, representing only 47% of its treatment capacity of 1.37 tpd (which is the equivalent of 4 tpd after considering the bulking agents and other non-food-waste materials). Please explain the reasons(s) for the low utilization of the Pilot Plant and the measures taken/to be taken by EPD to improve this utilization rate;**

Reply:

The Pilot Plant is set up as a demonstration facility which forms an integral part of the Food Waste Recycling Partnership Scheme (the partnership scheme) launched in 2010. The partnership scheme aims to promote food waste collection and source-separation among the C&I sectors. Since 2010, over 190 organisations have participated in the partnership scheme and their frontline staffs have become familiar with the practices of collection and source-separation of food waste. Several good practice guides for the C&I sectors have been developed through this partnership scheme for wider sharing within the C&I sectors.

As the participation by C&I premises in the Partnership Scheme was on a voluntary basis. Each participant would commit to deliver food waste within an agreed project period of 3 to 6 months. The factors affecting the actual quantity of food waste delivered to the Pilot Plant included the business nature of the C&I premises, the quantity of food waste that could be source-separated, and their daily operations and resources for practising source separation together with the constraints of the collection and delivery within the premises and shopping malls before the delivery to the Pilot Plant. Therefore, the quantity of food waste delivered to the Pilot Plant would vary among different C&I premises.

Please read reply to question (w) below about the measures taken/to

be taken by EPD to improve this utilization rate.

- (v) **upon the commissioning of the Organic Waste Treatment Facility (Phase 1 in mid-2017, whether the operation of the Pilot Plant would be discontinued. If not, the measures that EPD will take to put the Pilot Plant into gainful use;**

Reply:

Upon the commissioning of the OWTF Phase 1 in mid-2017, we would review the need to continue the operation of the Pilot Plant, taking into consideration the operational performance of OWTF-1, the food waste treatment demand by the C&I sectors, the views of the participants of the Partnership Scheme, as well as the continued availability of the site for the Pilot Plant which is earmarked for development as part of the Development of Kowloon East.

- (w) **with reference to paragraphs 3.13 (b) and 3.14 of the audit report, measures to encourage more C&I premises to participate in the Food Waste Recycling Partnership Scheme;**

Reply:

ENB/EPD will strengthen the efforts to encourage more C&I premises to participate in the partnership scheme. We plan to conduct pro-active food waste collection services at FEHD's wet markets to facilitate stall owners to dispose of source-separated food waste conveniently near their stalls. We will also reach out to more individual restaurants, hotels and shopping malls to engage their participations, coupling with the provision of technical supports, guidelines and training to the C&I sectors to facilitate their implementation on food waste reduction, source separation and recycling.

- (x) **According to paragraphs 3.15 to 3.17 of the Audit Report, the projected commissioning dates for OWTF have been postponed repeatedly. For example, the projected commissioning date for OWTF Phase 2 had been postponed from 2017 under the 2013 Blueprint to end 2018 under the 2014 Food Waste Plan, and further to 2020 according to EPD. Please explain the reason(s)**

for the postponement and the updated progress of the implementation of OWTF Phases 1 to 3;

Reply:

We have kept the programme for organic waste treatment facilities under constant review and have taken all necessary steps to expedite the programme wherever practicable. Ever since the announcement in the 2009 Policy Address on the Government's commitment to tackle the problem of increasing food waste in Hong Kong and to construct a recycling centre in phases to process and recycle food waste generated by the commercial and industrial sectors into useful resources such as compost and biogas, we have carried out a number of actions including the pilot plant project and food waste partnership scheme, site searches, EIA and engineering feasibility studies for OWTF Phases 1 and 2, the pre-qualification and tendering for OWTF Phase 1 (and the retendering for OWTF Phase 1 due to very high returned tender prices, hence enhancing the cost-effectiveness of the project), detailed discussion with the C&I sector on the delivery of food waste to OWTF Phase 1, the FWHKC to raise awareness and enhance community support, and the engagement of service contractor to facilitate the C&I sector to make arrangement for delivering food waste to OWTF Phase 1.

The 2014 Government's Food Waste Plan has set out the Government's action plan, among others, for three OWTFs to be commissioned by 2022. This latest programme in the Food Waste Plan for the three OWTFs has taken into account the progress and the experience gained from the implementation of OWTF Phase 1, the preparation in the C&I sector for food waste source separation and the delivery as well as other latest relevant circumstances.

Following the funding approval of OWTF Phase 1 on 24 October 2014, we awarded the contract in December 2014 for commissioning the facilities in mid-2017. The Environmental Impact Assessment and Engineering Feasibility Study for OWTF phase 2 have been completed and the project is anticipated to commence tendering in mid-2016 with a view to commencing operation by 2020. With this programme, we plan to seek funding

approval from the LegCo for OWTF phase 2 in 2017. A site in Shek Kong has also been earmarked for OWTF phase 3 and we will take forward its EIA and Engineering Feasibility Study in 2016, with a view to commencing its operation by 2022. We will continue to take all necessary steps to expedite the programme wherever practicable.

- (y) **In August 2008, EPD appointed a consultant ("the Consultant") at a lump-sum price of \$6.2 million for carrying out engineering feasibility study, project cost estimation, environmental impact assessment study and tendering for appointing a contractor for OWTF Phase 1. However, the tender exercise for the project carried out in 2011 was cancelled in the public interest. Audit examination revealed that some cost components had been omitted or significantly under-estimated in the project estimate of \$489 million, leading to significant under-estimation of the project cost made in 2010 (paragraphs. 3.18, 3.20, 3.22(a), 3.23, 3.28(a) and 3.32 refer). In this regard, the scope of service provided by the Consultant, and whether EPD had assessed its performance. If yes, the assessment result; if no, the reason(s) for not doing so;**

Reply:

It should be noted that as stated in the LegCo EA panel paper in November 2010, the main purpose of the submission was to brief members on the background and the scope of the OWTF Phase 1 and inform members that the Administration would proceed with tendering for the design-build-operate contract of this project in the second quarter of 2011, and subject to the tender outcome, the Government intended to seek the funding approval of the Finance Committee. It was stated in the same paper that the Government would finalize the project estimate based on the tender return and include the cost breakdown prior to submitting the proposal to the Public Works Sub-committee for consideration. It was not the main purpose of the 2010 November submission to define a reliable project estimate at that stage. After the close of the second tender exercise, the LegCo EA panel members were briefed in March 2014 on the project cost estimate for the project based on that tender

exercise and the LegCo EA panel and the PWSC was provided in March and April 2014 respectively with the cost breakdown based on the tender return covering all key cost components of the works. As the OWTF Phase 1 project was the first of its kind in Hong Kong with limited cost reference information, the actual process adopted for the project was to conduct EIA and engineering feasibility studies, develop the project requirements, prepare tender specifications and carry out the tender exercise before finalizing the project estimate and before the submission to the PWSC for funding approval. Key requirements have been set out in the June 2011 tender document. Such process has been carefully considered by EPD and was considered to be most suitable and appropriate to reflect the most up-to-date market prices and conditions and to come up with a reliable project estimate for the PWSC to consider, given the nature of the project and the circumstances.

As regards the consultancy, EPD appointed a consultant in August 2008 for carrying out engineering feasibility study, project cost estimation, EIA study and tendering preparation and evaluation of the OWTF Phase 1 project. To expedite the planning and development of the project, we briefed the LegCo EA Panel on 22 November 2010 on the project as soon as the EIA study was completed and the technical feasibility was confirmed. We reported in the relevant panel paper the scope of the project, the then crude estimated capital costs, and that we planned to proceed with the tendering for the design-build-operate contract for the OWTF Phase 1 project before seeking funding approval from PWSC and Finance Committee on the basis of the tender results. Having consulted the EA Panel, we continued with the detailed feasibility and design studies, taking into account the site conditions and operational requirements based on the experience of the Pilot Composting Plant in Kowloon Bay. We incorporated the detailed requirements in the tender specifications and conducted tender exercises in accordance with the established mechanism. The tender exercise was closed in November 2011.

The EPD completed a detailed evaluation of the returned tenders including price analysis for the first tender exercise in March 2012.

The analysis showed that the returned tender prices were unreasonably high when compared with the updated estimates based on the latest market prices. Our assessment identified that the probable causes of the high returned tender prices were due to the high premium allowed for the escalating labour and construction costs, lack of local references in the local market which is the first of its kind in Hong Kong, uncertain amount of waste to be collected, financial costing and requirement for fully standby equipment rather than any default of the Consultant's work. These factors were not foreseen before the return of the tenders. We submitted our tender assessment report to the Central Tender Board (CTB) on 22 March 2012 and the CTB accepted our recommendation to cancel the 2011 tender exercise in the public interest and to re-tender for the project. EPD considered the Consultant had reasonably discharged their duties in accordance with the requirements under the Assignment. The EPD had followed the established administrative procedures for the management of consultants' performance to assess and evaluate the Consultants' performance quarterly throughout the consultancy study and the records showed that the overall performance of the Consultants was considered satisfactory throughout the consultancy study period.

- (z) **According to paragraph 3.23(b) of the Audit Report, the tender prices received were unreasonably high when compared with updated estimates and the project cost could be reduced by introducing some cost-reduction measures as detailed in the paragraph. Please explain the reason(s) for not incorporating the above cost-reduction measures in the original tender;**

Reply:

The probable causes of the high returned prices were more related to the high premium demanded for mitigating the construction, financing and operation risks perceived by the tenderers due to the market volatility since 2010. These factors were unforeseeable before the return of the tenders in the 2011 tender exercise. We had subsequently identified scope to suitably adjust the performance requirements without adversely affecting the operational and environmental standards expected of the OWTF project. Having

regard to the above, we introduced appropriate measures to balance the construction and price risks to both the Government and the Contractor with a view to lowering the capital and operating costs. These measures included extending the design and construction period from 24 months to 27 months; introducing more milestone payments to reduce the finance cost throughout the design and construction period; and introducing a guaranteed food waste tonnage of 50 tonnes per day to share out the risk of waste quantity uncertainty between the Government and the Contractor.

The above risk sharing measures were based on the actual feedback from the tenderers through the tendering process for this particular project to reflect their assessment of and responses to their perception of risks at the time of tendering in the light of the actual market conditions at that time, and hence could not have been foreseen before the 2011 tendering exercise for this project which is the first of its kind in Hong Kong.

We carried out a re-tendering exercise through open tendering in February 2013 and awarded the contract in December 2014. The capital cost of the awarded contract was substantially lower than the returned tender prices in the 2011 tender exercise.

- (aa) According to paragraph 3.27(b) of the Audit Report, EPD informed EA Panel in March 2014 that a reason for the significant increase in the project cost estimate was the need to operate the OWTF Phase 1 for 24 hours a day and to provide pre-treatment and waste-water treatment facilities. However, according to paragraph 3.28(b) of the Audit Report, the environmental impact assessment report approved in February 2010 had already indicated that OWTF Phase 1 would be operated on a 24-hour daily basis, and pre-treatment and waste-water treatment facilities would be provided. Please explain why these associated costs had not been included in the project cost estimate of \$489 million made in 2010;**

Reply:

Upon the completion and approval of the EIA report in February

2010, EPD carried out detailed designs to develop the project specifications and requirements in accordance with the findings and recommendations in the approved EIA report and to meet other necessary service and operational requirements. These requirements included the detailed design and development works for the major equipment and facilities, namely the pre-treatment facilities, the anaerobic digestion process, the biogas treatment and storage facilities, the waste-water treatment facilities and the odour control facilities, to cater for scheduled maintenance, major overhauls, variation in quality of incoming food waste and inclement weather conditions to ensure the plant's continuous operation. These detailed design and development works and the corresponding project specifications and requirements had been properly incorporated in the 2011 tender documents.

(bb) According to paragraph 3.27(c) of the Audit Report, EPD informed EA Panel in March 2014 that a reason for the significant increase in the project cost estimate was the need to carry out natural terrain and slope protection mitigation works. However, according to paragraph 3.28(c), EPD only requested the Consultant to carry out a natural terrain hazard study in 2011, leading to the omission of the required slope mitigation works costing \$66.7 million in the project cost estimate of \$489 million made in 2010. Please explain why a natural terrain hazard study had not been conducted before making the project cost estimate in 2010, and the measure that EPD will take to prevent recurrence of such omissions;

Reply:

When commenting on the Permanent Government Land Allocation (PGLA) for this project, it was noted that a natural terrain hazard study and any appropriate mitigation measures, if found necessary, should be carried out as part of the proposed development. While awaiting the Lands Department to finalize the engineering conditions for the PGLA, EPD had taken the step to instruct the Consultant to carry out the natural terrain hazard study (NTHS) to assess the requirements of the slope and natural terrain protection works. Before the close of tender in November 2011, EPD had

also taken the step to inform the tenderers on 21 September 2011 that slope mitigation and/ or stabilization works might be required and the Contractor would be informed and might be required to undertake the necessary slope mitigation and/ or stabilization and maintenance works via tender addendum. The Consultant submitted the preliminary NTHS Report to EPD on 29 Nov 2011 confirming that there were no insurmountable natural terrain hazard or slope instability issues that would affect the feasibility of the project. If the 2011 tender exercise was not cancelled on public interest ground, EPD could instruct the Contractor to carry out any necessary slope and natural terrain protection works via a variation order. The necessary natural terrain and slope protection mitigation requirements had been properly incorporated in the 2013 tender exercise and the cost of the required works had been reported in the March 2014 EA Panel paper and the PWSC/FC submitted and approved in the same year. There was no omission of works and no implication on the overall project implementation and the project cost of the OWTF Phase 1 project. In implementing a works project in future, we will take measures to ensure that significant work requirements are included in a consultancy agreement and these measures will include circulation of the draft consultancy brief to concerned government bureaux and departments for inputs and comments and undertake internal review of the draft consultancy brief before consultancy award.

- (cc) According to paragraphs 3.27(d) of the Audit Report, EPD informed EA Panel in March 2014 that a reason for the significant increase in the project cost estimate was the need to finalize the quantity of surplus electricity for the design of power generators and associated control system. However, according to paragraph 3.28(d), as early as November 2010, EPD had informed EA Panel that OWTF Phase 1 was a waste-to-energy facility and up to 28 million kilowatt-hour (kWh - EPD informed Audit in October 2015 that "28 million kWh" should read "14 million kWh") of surplus electricity could be exported every year for the adequate use of 3 000 households. Please explain why the associated cost had not been included in the project cost estimate of \$489 million made in 2010;**

Reply:

Upon the completion and approval of the EIA report in February 2010, EPD carried out detailed designs to develop the project specifications and requirements in accordance with the findings and recommendations in the approved EIA report and to meet other necessary service and operational requirements.

As regards the quantity of surplus electricity for export from the project, the 14 million kWh per year as stated in the November 2010 EA Panel paper was the estimate based on the information available at that time before the completion of the engineering feasibility study in February 2011. A detailed analysis and accurate assessment of the plant's internal power consumption and hence the amount of surplus energy available for export could only be carried out after the completion of the feasibility in February 2011. It was also necessary to assess the impacts of variations in internal power consumption, which was subject to the Contractor's design, and make provisions in the tender specifications for such variations in defining the specifications and requirements of the power generation and surplus electricity export systems. The detailed design and development works and the corresponding specifications and requirements had been properly incorporated in the 2011 tender documents.

(dd) According to paragraphs 3.27(e) of the Audit Report, EPD informed EA Panel in March 2014 that a reason for the significant increase in the project cost estimate was that consultants' fees for contract administration and remuneration of resident site staff were later found to be required. However, according to paragraph 3.28(e) of the Audit Report, the related cost estimates should have been included in the original project estimate. Please explain why the associated cost had not been included in the project cost estimate of \$489 million made in 2010;

Reply:

The initial estimate at \$489 million presented in the 2010 EA Panel

paper was an indicative figure based on an initial, broad-brush scheme. As we mentioned above, the purpose of the EA Panel paper was to set out the background and scope of the OWTF Phase 1 project and to inform the Panel that the Government would proceed with tendering for the design-build-operate contract of the project in the second quarter of 2011. On the other hand, the contract administration consultancy would be selected in accordance with the established administrative procedures for consultant selection.

Upon the completion and approval of the EIA report in February 2010 and in parallel with the project tender preparation works, EPD carried out an in-house assessment of the requirements of the contract administration works and because of the practical need to commence the consultants selection process in parallel with the tendering process such that the works contract and the consultancy could be awarded at the same time, EPD sought SEN's approval for initiating the consultant selection procedures before funding was secured in accordance with Financial Circular No. 2/2009. SEN's approval was obtained on 22 September 2011 for the EPD to initiate the consultant selection process in January 2012. The most updated cost estimate for these items based on the technical and fee proposals received together with a detailed breakdown had been provided to LegCo in the March 2014 EA Panel paper and the PWSC/FC submitted and approved in the same year.

- (ee) According to paragraph 3.31 of the Audit Report, partly owing to the cancellation of the 2011 Tender Exercise and re-tendering of the project in 2013, the commissioning of OWTF Phase 1 had been postponed by four years from March 2013 to mid-2017. During the four-year period, a substantial quantity of food waste would be disposed of at landfills instead of being treated by the facility. Please explain whether EPD was aware of the consequence of cancelling the tender exercise in 2011 at that time, measures that EPD had taken at that time to address the additional food waste disposed of at landfills and measures to be taken by EPD to improve the implementation of works projects in future;**

Reply:

As stated in the Food Waste and Yard Waste Plan for Hong Kong promulgated by ENB in February 2014, we envisage Hong Kong needs to build a network of around five to six OWTFs between 2014 and 2024 with a total recycling capacity of about 1 300 - 1 500 tonnes per day. It will take some years before Hong Kong has the recycling capability to deal with approximately 50% of the city's food waste. Before completion of the OWTF network, food waste generated would have to be disposed of at landfills. The OWTF Phase 1 is designed to recycle 200 tonnes of food waste per day, which is equivalent to about 2% of the total MSW disposed of at landfills in Hong Kong. Before commissioning the OWTF Phase 1 in 2017, the current practice of food waste disposal has to continue.

OWTF Phase 1 was the first of its kind in Hong Kong and there was no applicable reference of cost to allow the EPD to come up with an accurate cost estimate for the project. The initial estimate of \$489 million set out in the November 2010 LegCo EA Panel paper was an indicative figure based on an initial, broad-brush approach. ENB/EPD had explained in March 2014 to the LegCo EA Panel among other things the main reasons for the differences between the latest project cost and the initial indicative estimate.

It should be noted that EPD had followed the Government's tendering procedures in the preparation and evaluation of the 2011 tendering exercise and sought the relevant approval of the Central Tender Board as required along the way. After assessment of tenders received in accordance with the tender procedures, the EPD's Tender Assessment Panel found that the tender prices were unreasonably high when compared with updated estimates and it would not be in the public interest to proceed with the award of the tender. The Central Tender Board approved EPD's proposal to cancel the 2011 Tender Exercise in March 2012. It is unfortunate that the 2011 tender exercise was cancelled. But it was done to protect the public interest. Its cancellation had not been caused by any under-estimation of project costs as there were established

internal government procedures to seek an increase in the project estimates to cover any shortfall due to higher than expected tender prices. The 2011 tender exercise could still have been completed successfully if not for the unreasonably high tender prices received. Assuming that if the returned tender in the first tender was not unreasonably high, we would have gone through the internal resource allocation process to seek approval to increase the project estimate, which might take 3 to 6 months, and submitted the project to LegCo EA panel and PWSC for approval, which might take another 6 to 9 months. So the delay of the OWTF Phase 1 would only be the extra time required for the second tender exercise, which was necessitated by the unreasonably high tender prices received in the first tender exercise.

Having assessed the tender returns in the first tender exercise, we had identified scope to suitably adjust the performance requirements which would mitigate the perceived risks and costs in project delivery, without adversely affecting the operational and environmental standards expected of the OWTF Phase 1 project. The re-tender exercise was carried out in February 2013 and tender evaluation was completed in January 2014. The returned prices were substantially lower than those from the previous cancelled tender exercise validating the decision to cancel the 2011 tender. We consulted LegCo EA Panel in March 2014 on the updated project cost estimate and scope on the basis of the tender results. The PWSC and Finance Committee endorsed and approved the project in April 2014 and October 2014 respectively. The design-build-operate contract for OWTF Phase 1 was awarded in December 2014.

The above contract provides important cost information and reference data for EPD to come up with more accurate project cost estimate for future OWTFs. We have already made use of this set of updated and relevant project cost data for estimating the project cost of further phases of OWTF.

(ff) According to paragraph 3.33 of the Audit Report, ENB/EPD informed EA Panel in March 2014 that they did not have the

detailed breakdown information on the project cost of \$489 million estimated in 2010. However, according to paragraph 3.35 and Appendix G of the Audit Report, such information was in fact available. Please explain the reason(s) for not providing such information to EA Panel in March 2014;

Reply:

The OWTF Phase 1 was the first of its kind and scale of organic waste treatment facility to be developed in Hong Kong and there was little information on local cost figures and no applicable reference of cost to allow EPD to come up with an accurate cost estimate for the project. Given the lack of local reference cost data for development and implementation of organic waste treatment facilities in Hong Kong, EPD adopted a prudent and cautious approach of going for tendering prior to PWSC submission in order to get a more reliable estimate for seeking funding approval.

In June 2006, EPD commissioned a consultancy study for the design and development of the Kowloon Bay Pilot Composting Plant and under this consultancy study, a rough preliminary capital cost estimate based on information collated from overseas anaerobic digestion technical suppliers for the development of large scale biological treatment facilities was compiled in April 2007 (as shown in Part (A) of Annex G). This rough preliminary capital cost estimate formed the basis for EPD to form the initial capital cost estimate for OWTF Phase 1.

This rough preliminary capital cost estimate, which was prepared before EPD appointed a consultant to carry out engineering feasibility study in Aug 2008, was intended for indicative purpose and subject to change upon detailed development of the OWTF Phase 1. The detailed engineering feasibility study was completed in February 2011.

As shown in Appendix G of the Audit report, the breakdown only comprised broad-brush estimates for the basic elements and these indicative cost estimates were based on information collated from overseas anaerobic digestion technical suppliers for the

development of large scale biological treatment facilities for a hybrid anaerobic plus composting treatment system. These cost estimates which were prepared before carrying out the engineering feasibility study were not site and project specific and meant for broad-brush cost indication only.

In addition, the rough preliminary capital cost estimate was based on a design of hybrid system with part of the organic waste to be treated by anaerobic digestion while the remaining would be treated by aerobic composting. In the course of the engineering feasibility study, it was reviewed and confirmed that full anaerobic digestion for all the food waste received would be more suitable and cost effective for the extremely wet Hong Kong food waste. It was also proposed that the residues of anaerobic digestion (called digestate) should be treated by aerobic composting to render the residue suitable for use as soil conditioner. This arrangement also met our policy as stated in the Food Waste Plan to treat the city's collected food waste to produce energy using anaerobic digestion as the core technology given that Hong Kong has a large need for energy and has been adopted for OWTF Phase 1.

As the rough preliminary capital cost estimates given in the Technical Feasibility Statement were not directly applicable to OWTF Phase 1, we did not consider that the various estimated cost components to be accurate reflection of the likely estimated costs, even though we had adopted the broad brush estimated figures with suitable price adjustments and changes in project design up to that time when preparing the crude estimated costs for the purpose of presentation to LegCo EA Panel in November 2010. We had informed LegCo EA Panel at that time that the estimated project costs were very crude and that we would update these costs according to the tender results before we seek funding approval from LegCo. As we had not accepted the rough preliminary capital cost estimates as accurate reflection of the eventual project cost, a direct comparison with the detailed cost breakdown provided to LegCo for OWTF Phase 1 would be very misleading.

Based on the returned tender prices representing the most updated

market price information, EPD reported the updated project cost estimate together with a detailed breakdown of all the major works components to LegCo in the March 2014 EA Panel paper and submitted to the PWSC/FC for approval in the same year.

- (gg) With reference to paragraphs 3.39(b) and 3.40 of the Audit Report, the measures that EPD has taken or will take to ensure that adequate quantity of food waste is collected and delivered to OWTF Phase 1 for treatment upon its commissioning in mid-2007;**

Reply:

Please read the reply to question (oo) below.

- (hh) with reference to paragraph 3.54 of the Audit Report, the measures that EPD will take to achieve the participation rate of 11% of all households in Hong Kong in separation of food waste by 2022;**

Reply:

The figure of 250,000 households (about 11% of the 2 270 000 households in Hong Kong) as mentioned in page 15 of the Food Waste Plan illustrated a possible scenario assuming OWTF Phase 1, 2 and 3 could be built by 2022 as scheduled in the 2014 Food Waste Plan.

It is stated in the 2014 Food Waste Plan that achieving this magnitude of increase of food waste recycling requires massive social mobilization, as well as collaboration with food-related business and estate managers. The FWHKC will work hard to mobilize all stakeholders and the public. It is also anticipated that food separation would increase progressively in scale when MSW charging is in place. The EPD will also ensure that OWTF Phase 1 to commence operation by 2017 and endeavour to take forward OWTF Phases 2 and 3 as early as practicable

- (ii) according to para. 3.63 of the Audit Report, up to June 2015, 67% of the nine completed food waste recycling projects in**

private housing estates had not applied for the extended funding support after expiry of the original two-year period. In this regard, measures that will be taken by EPD to encourage private housing estates to apply for the extending funding support;

Reply:

By June 2015 when the Audit review was carried out, there were 9 Phase 1 projects completed. For information, these projects had different commencement and completion dates. The estates had the free choice in joining the extension scheme. Among the 9 completed projects, 3 estates have applied for the extension scheme and were approved. For the 6 estates “not applied for extended funding support” as denoted in Table 11 in the Audit report, some of them were considering to apply for the extension scheme.

As at end November 2015, there were another 2 Phase 1 projects completed. Amongst those 8 completed projects eligible for joining the extension scheme, 4 more applications were received and being processed; 2 estates declined to join because the estates were not willing to pay the remaining operation cost; and 2 estates were still pending their formal reply.

EPD will continue to provide technical support (including technical guidelines, information leaflets, hotline for technical enquiries, etc.) to those estates that have completed the initial phase of projects and joined the extended scheme.

Way forward

- (jj) based on lessons learned from the operation of the Pilot Plant and the food-waste recycling schemes in the private housing and public rental housing estates, measures that EPD will take to implement an effective system for separating, collecting and transporting food waste from the C&I sector and the domestic sector to OWTFs for the treatment;**

Reply:

Further to the explanations made in answering question (nn), we will initiate a study on Organic Waste Collection and Delivery to OWTFs. Various factors/issues will be considered in the course of the study, including collection and delivery arrangement, types of collection vehicles, necessary ancillary and supporting facilities, on-site interim storage, as well as the social, institutional, legislative and resource implications.

- (kk) according to paragraph 4.8 of the Audit Report, the refuse collection vehicles of the Food and Environment Hygiene Department may not be suitable for collecting food waste because of the stringent need to prevent leachate spillage and to contain the odour problem during transportation of food waste. Please provide the measures that EPD will take to address this problem;**

Reply:

At present, there are two types of refuse collection vehicles available in the market, which suit the waste reception at OWTF-1, they include:

- (i) Vehicle adopted under the Food Waste Recycling Partnership Programme - close compartment vehicle with lifting platform at the back (密斗貨車連尾板升降台) in which collection bins (say 240 L volume) containing food waste will be placed inside the closed compartment for transportation to prevent spillage and odour emission.



or (ii) Vehicle adopted for the collection of livestock waste - vehicle with sealed containers where food waste is dumped into the sealed containers (特定防漏則上筒缸車) at the collection point.



According to our initial discussion with the waste collection trade, they will choose to use the above 2 types of the vehicles for delivery the source separated food waste to the OWTF Phase 1 when it commences its operation, depending on the market demands as well as conditions and quantities of food waste to be collected. EPD will continue and strengthen the efforts to liaise and work with the relevant trades and organizations to make suitable arrangements in due course.

- (II) **with reference to paragraph 4.10 of the Audit Report, actions that EPD will take to explore ways and means to make beneficial use of the compost that would be generated by OWTF phases 1 to 3;**

Reply:

The OWTF Phases 1 and 2 aim to covert food waste into useful resources, such as biogas and compost.

It is estimated that the OWTF Phases 1 and 2 would produce about 7 400 tonnes and 14 900 tonnes of compost per year respectively. On the other hand, it is estimated that the demand of compost /

fertilizer in Hong Kong would fluctuate (e.g. affected by the number of works contracts which require soil conditioner and fertilizer) and is around 20 000 tonnes per annum based on a conservative estimation. The previous experience from the Kowloon Bay Pilot Plan project has received positive feedback from various government departments and local users on the compost quality. We estimate that the demand from the government departments plus private markets should be able to absorb most of the compost produced from the OWTF Phases 1 and 2. It is also anticipated that the contractor of the OWTF would also explore the Mainland and overseas market for the compost products.

The technology of OWTF Phase 3 would be reviewed in the Engineering Feasibility Study to be commenced in 2016. Whether composting technology (together with anaerobic digestion) would be adopted for OWTF Phase 3 has not been determined.

(mm) with reference to paragraph 4.12(c) of the Audit Report, the progress in identifying suitable sites for constructing additional OWTF to treat the remaining food waste that can be separated and collected for treatment;

Reply:

The 2014 Food Waste Plan envisaged Hong Kong needs to build a network of around five to six OWTFs in the long term with a total recycling capacity of about 1 300 – 1 500 tonnes per day.

OWTF Phase 1 is already under construction at Siu Ho Wan (North Lantau). A site in Sha Ling of North District, and Shek Kong of Yuen Long has already been earmarked for OWTF Phase 2 and 3 respectively. We are following up with the relevant departments, in particular Planning Department, to identify suitable sites for additional OWTFs in other regions.

(nn) with reference to 4.12(d) of the Audit Report, the progress of the study on the food-waste collection and delivery arrangements to prepare for the operation of future OWTF; and

Reply:

The study on Organic Waste Collection and Delivery to OWTFs is planned for commencement in year 2016. We are working on the preparatory works and finalizing the scope of this study with a view to initiating the tender for commencement of the study.

- (oo) With reference to 4.12 (e) of the Audit Report, the progress of liaising and working with the relevant trades and organizations for them to make suitable arrangements (including provision of suitable vehicles) to deliver food waste to OWTF Phase.**

Reply:

In June 2010, EPD launched the Partnership Scheme in collaboration with the C&I sectors to provide training to managerial and front-line staff of participating premises on good food-waste management practices, and gain experiences in source separation and delivery of food waste. Several good practice guides for the C&I sectors have been developed through this partnership scheme for wider sharing within the C&I sectors.

We are liaising closely with various stakeholders and waste collectors to source separate and deliver food waste to OWTF-1 upon its commissioning, with particular focus on different key sectors (such as restaurant trade, developers of shopping malls, hotel trade, food factories, etc.) within the catchment of the OWTF-1. We will provide technical support, guidelines and the associated trainings for the trades/sectors. We have also engaged a service contractor to facilitate the communication between C&I sectors and the waste collectors to implement food waste reduction, source separation, collection and transportation, etc. We are liaising with over 230 establishments to explore logistic arrangement for delivering food waste to OWTF Phase, the response is generally positive so far.

Moreover, we are liaising with FEHD to explore the possibility of conducting the pro-active food waste collection at the 36 wet markets identified. In order to increase the amount of food waste collected, the mode of operation will allow the stall operators to

dispose source-separated food waste at a designated time and location, without the need to leave their stalls. We will continue to liaise with other government departments (disciplined services, LCSD and quasi-government units, such as Hospital Authority and Universities, etc. on this issue.

We will continue our liaison with various trades/sectors, aiming at engaging the continuous support from the C&I sectors so as to secure sufficient food waste. We anticipate that the food waste amount to be delivered to the OWTF-1 will be able to meet its operational requirements at its early operational stage. The amount will then gradually grow to achieve its maximum design capacity of 200 tpd.