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**APPENDIX 17**

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31 March 2021

Ms Wendy JAN  
Clerk  
Public Accounts Committee  
Legislative Council  
Legislative Council Complex,  
1 Legislative Council Road  
Central, Hong Kong

Dear Ms JAN,

Public Accounts Committee  
Consideration of Chapter 2 of the Director of Audit's Report No. 75

Government's efforts in tackling shoreline refuse

I refer to your letters dated 17 and 26 March 2021 under ref: CB4/PAC/R75 concerning the above subject. Please find consolidated replies of the Environment Bureau (ENB) and the Environmental Protection Department (EPD) set out below.

(A) Reply to the letter dated 17 March 2021

Part 1: Introduction

**1. Response to Question (a):**

The Government has all along attached great importance to tackling the marine refuse problems. For improving the cleanliness of our waters and shorelines, a three-pronged strategy has been adopted over the past few years, namely reducing waste generation at source; reducing the amount of refuse entering the marine environment; and removing refuse from the marine environment. As explained in

EPD's reply dated 1 March 2021, refuse enters the marine environment through multiple channels and locations by various means, some of which are beyond our control and the overall quantity cannot be measured accurately. Besides, there are close links between the quantity of marine refuse and changes in season, weather and wind direction. In particular, there is more marine refuse in wet seasons, especially after inclement weather such as typhoons or rainstorms. As such, the Government has not set target nor timetable for reducing the amount of refuse entering the sea, which is an immeasurable indicator. Nevertheless, the government departments have strengthened their efforts to clean up marine refuse (including floating refuse and shoreline refuse). The on-site inspections at shorelines also show that the shoreline environment has improved notably. Meanwhile, the quantity of shoreline refuse has exhibited a continuous decline since 2015, with a decrease of about 13% as of 2020. This clearly proves that our three-pronged preventive measures, viz reducing waste generation at source and reducing the amount of refuse entering the marine environment, have been very effective over the past few years. In addition, ENB is open to having discussion with relevant departments at the platform of the Inter-departmental Working Group on Clean Shorelines with a view to examining the approach of evaluating the clean-up results and effectiveness based on cleanliness conditions of the coastal areas.

## Part 2: Monitoring of shoreline cleanliness by Environmental Protection Department

### **2. Response to Question (b):**

The current staff establishment of EPD for maintaining shoreline cleanliness is 15, including 2 Senior Environmental Protection Officers (one of them also covers other duties), 5 Environmental Protection Officers/Assistant Environmental Protection Officers, 2 Senior Environmental Protection Inspectors and 6 Environmental Protection Inspectors. The totals of their notional annual mid-point salary values and recurrent expenditure for 2020-21 were about HK\$10.2 million and HK\$8.5 million respectively. The staff members are mainly responsible for providing support to the meetings of the Inter-departmental Working Group on Marine Environmental Management (the Working Group), as well as that of the Task Force on Marine Refuse and the Task Force on Emergency Response to Marine Environmental Incidents set up under it; performing the follow-up work assigned by the Working Group and Task Forces; formulating strategies to address marine refuse problems; conducting relevant thematic studies;

**\*Note by Clerk, PAC:** *See Appendix 16 of this Report for the reply dated 1 March 2021 from Director of Environmental Protection.*

coordinating inter-departmental efforts for tackling special marine refuse problems and marine emergency incidents; handling complaints on marine refuse; conducting on-site inspections at the 29 marine refuse priority sites every one to 6 months and preparing inspection reports; conducting helicopter surveillance as necessary; launching various publicity, promotion and public education programmes; organising and arranging for members of the public and organisations to participate in regular coastal cleanup activities; managing the clean shoreline Facebook page/IG page/YouTube channel/websites, designated email account and enquiry hotline on the Clean Shorelines Liaison Platform; liaising with various volunteer units and voluntary groups; supporting self-initiated and voluntary shoreline cleanup operations; assisting in vetting applications relating to clean shoreline projects under the Environment and Conservation Fund; executing Hong Kong-Guangdong liaison work on marine environmental management and the notification and alert mechanism; coordinating bids by various departments for additional resources for shoreline cleanup work; etc.

Since the outsourcing of routine inspection work in January 2020, EPD has increased the number of inspection locations from 29 to 150 (119 for on-site inspections and 64 for inspections using unmanned aircraft systems (UAS), among them 33 are common locations) and raised the inspection frequency. Since then, the work of EPD staff in respect of inspection of the 29 marine refuse priority sites has shifted to management of the two inspection contracts and the contractors, including drawing up contract terms, evaluating tenders, providing training and conducting surprise checks. Moreover, the team has also taken up additional work tasks of examining about 80 inspection reports submitted by the contractors every month and the relevant photos used for assessing the shoreline cleanliness grading; making referrals for coastal sites with cleanliness assessed as Grade 3 or worse and following up on the improvement measures of the relevant departments; reviewing the inspection projects and analysing the data obtained; as well as implementing and managing the Shoreline Wardenship Scheme under the Green Employment Scheme.

### **3. Response to Question (c):**

If a site is assessed as Grade 3 (Fair), Grade 4 (Unsatisfactory) or Grade 5 (Poor), EPD will review the inspection reports and photos submitted by the contractors and immediately notify the relevant departments to follow up. Since the outsourcing of routine inspection work in January 2020, EPD's follow-up notifications had been made to relevant departments about an average of 2 working

days after the contractor's completion of on-site inspection work, while the relevant departments' replies on completion of clean-up actions had been made to EPD about an average of 7 working days after receiving EPD's notifications. Regarding remote or special cases of marine refuse problems, the relevant departments would send a reply to EPD about an average of 2 working days after receiving EPD's notifications regarding the arrangements of the planned clean-up operations.

#### **4. Response to Question (d):**

Outsourcing of routine on-site inspections and the UAS trial project were both new attempts made by EPD in 2020. The latter was also the first deployment of UAS for shoreline surveillance. EPD needs to draw on the experience gathered from these two contracts to examine (i) the pros and cons of and complementarity in transferring the routine inspection work from EPD's staff to the contractors; (ii) whether the 29 priority sites are appropriate; (iii) whether new priority sites need to be added; (iv) whether the 90 newly added on-site inspection locations and the 64 UAS inspection locations are suitable; (v) the effectiveness of conducting UAS inspections to supplement on-site inspections; (vi) the constraints of deploying UAS for surveillance and the solutions; (vii) the impact on operation of UAS during wet and typhoon seasons; and (viii) the cost-effectiveness of procuring a UAS contract for inspections at the same time, etc. EPD will, based on the results of the trial, supplement or revise the requirements and terms of the new contracts. Hence, EPD has struck a balance and set the contract periods at about one year as a transitional arrangement.

EPD is reviewing the requirements and terms of the existing contract for conducting routine on-site inspections in terms of the list of inspection locations, inspection frequencies, number of inspection staff to be provided by the contractor, etc., and will draft a new contract for conducting on-site inspections based on the results of the review. We expect the major changes may include: (i) adding several inspection locations; (ii) stepping up inspections on locations where the cleanliness condition is relatively poor; (iii) reducing the inspection frequency of locations where the cleanliness condition is consistently good; and (iv) increasing the manpower requirement in the service contract, etc.

EPD will conduct a comprehensive review upon the expiry of the contract for the UAS trial project in May 2021. The main considerations will include the geographic limitations of the inspection locations, whereabouts of marine refuse

accumulation, requirements of UAS, etc. As the two methods of making on-site inspection and deploying UAS need to work in tandem, EPD will conduct a detailed analysis and an in-depth comparison of the inspection results of the two projects in the past year, and explore the locations where UAS can be used to replace on-site inspections. It is anticipated that the report will be completed within the third quarter of 2021. Based on the comparison results, EPD will adopt on-site inspection, UAS inspection, or a hybrid mode to strive for continuous improvement in the cleanliness monitoring strategies of individual coastal sites. As both inspection projects are under trial and in the stage of strategy adjustment, the durations of the service contracts will again be set at about one year in order to review and consolidate the experience gained, with a view to adjusting the inspection approach timely and appropriately.

#### **5. Response to Question (e):**

EPD has been monitoring the cleanliness conditions of coastal sites by on-site inspections and using helicopters to conduct wide-area inspections, and started to deploy UAS to supplement on-site inspections in May 2020.

From experience gained over the years, we learned that on-site inspections allow us to observe and take photos of the cleanliness conditions of coastal sites at close range. Hence, clearer and more accurate data can be obtained, and the overall cost is lower than using helicopters. However, conducting on-site inspections requires monitoring staff to walk along shorelines that may stretch from over a hundred metres to several kilometres. Therefore more time is required to complete the inspection at each site. On-site inspections are also restricted by the availability of transport facilities in the coastal sites. Inspections cannot be carried out at some remote islands and coastal sites which are neither accessible by vehicles nor provided with berths for vessels.

Owing to the high mobility of UAS, its advantage for inspection is that the flight paths, flying altitude, filming locations and angles can be repeated accurately every time, thus increasing the efficiency of the inspection work. However, UAS are subject to strict privacy and safety control. UAS shall not be flown over or within 50 metres of any person, vessel, vehicle or structure, and the operation of UAS is easily affected by weather conditions. Furthermore, an application for operating UAS together with the flight path have to be submitted to the Civil Aviation Department before the proposed date of flight. As such, UAS cannot be used for emergency or ad hoc inspections. Concerning the cost, it is cheaper to deploy

UAS than helicopters currently. Although the cost of using UAS is higher than on-site inspections at present, with advances in technologies, we believe the cost of using UAS may drop in future. Given the high mobility of UAS, we will continue to examine the feasibility of using UAS to supplement the inspections.

Helicopters can be deployed to conduct surveillance over an extensive area in a short time, thus enabling us to quickly examine the distribution of marine and shoreline refuse. It is very suitable to deploy helicopters in marine emergency incidents, marine refuse surges after inclement weather and marine incidents that aroused grave public concern. However, it is very expensive to conduct helicopter surveillance. The flying altitude cannot be too low and the flying time cannot be too long. Hence, this method can only provide a general overview of the cleanliness conditions of the coastal sites and cannot make an accurate assessment on the cleanliness grading for the inspection locations.

As mentioned in Reply to Question (d) (paragraph 4) above, EPD will compare the results of the reports to decide on the adoption of on-site inspection, UAS inspection, or a hybrid mode to strive for continuous improvement in the cleanliness monitoring strategies of individual coastal sites.

#### **6. Response to Question (f):**

According to EPD's record, 8 of the 24 re-inspections involved schedule adjustment within one week. Another 9 re-inspections were conducted by helicopter surveillance flights as needed. Only 7 re-inspections were conducted 10 to 31 days after the planned timeframe. The reason for failing to conduct these 7 re-inspections within the planned timeframe was that necessary temporary deployment had to be made due to manpower shortage under the following situations: (i) following up on and preparing for the inter-departmental joint clean-up operations at Pak Kok Tsui Pebble Beach, Lamma Island and Aberdeen Typhoon Shelter; (ii) inspecting areas severely affected by Super Typhoon Mangkhut to arrange for the departments concerned to deploy resources for clean-up; and (iii) handling a marine refuse pollution case at Rambler Channel at Tsuen Wan and a refuse accumulation case at Lan Nai Wan, and coordinating with relevant departments to conduct clean-up operations, etc.

#### **7. Response to Question (g):**

EPD first drew up the list of Marine Refuse Priority Sites (27 numbers in total) in

2015 so that the Inter-departmental Working Group on Clean Shorelines could pool resources for various departments to clean up coastal sites that were of great concerns at that time and where the cleanliness conditions were poorer. As the cleanliness conditions of many coastal sites had improved quickly within two years after the formulation of the list, for better deployment of resources, those improved sites should be de-listed to allow for some new ones to be added. Upon a comprehensive review (including factors of cleanliness concern of the public and government departments, amount of refuse collected, geographical and hydrological conditions and land use status of coastal areas, cleansing frequency, accessibility by the public, ecological value, etc.), EPD updated the list of priority sites (29 numbers in total) in November 2017, covering 14 newly added sites and 15 existing ones. Subsequently, based on experience and observations accumulated, EPD considered that it was most appropriate to review the inspection list (including the 29 priority sites) and inspection frequency according to the cleanliness conditions of the sites, and a large-scale review similar to the one conducted in 2017 was not required for the time being.

Nevertheless, since the outsourcing of the routine on-site inspection work in 2020, EPD has already incorporated the 29 priority sites into the list of locations for conducting monthly inspections and added 90 other sites for conducting quarterly inspections under the contract. When renewing the contract, EPD will, having regard to the cleanliness conditions of the inspection locations in the past year, review and update the list of inspection locations and adjust the inspection frequencies.

#### **8. Response to (h):**

Upon completion of the coastal inspection every time, the service contractor is required to submit an inspection report, photos taken, etc., within the specified time. EPD staff will review the assessed cleanliness grading, inspection coverage, photo-taking locations and other information in the report. If there are obvious discrepancies, the contractor has to conduct re-inspections to the individual locations in accordance with the contractual requirements. Besides, EPD staff will conduct surprise checks at the inspection locations from time to time, so as to ensure that the contractor has carried out coastal inspections at the specified time and locations, and has complied with the relevant requirements of the service contract. Over the past year, EPD had conducted a total of 8 surprise checks. Please refer to Annex 1 for a sample of the surprise check record sheet.

**\*Note by Clerk, PAC: Annex 1 not attached.**

## 9. **Response to (i):**

The “Clean Shorelines” thematic website mainly provides the necessary information for organising shorelines cleanup activities, including the relevant guidelines, government support items, activity locations, tidal information, etc. EPD will update the information and photos of shorelines cleanup activities provided by the public on a weekly basis, and will produce and upload clean shorelines videos from time to time for publicity and promotion purposes. The website also provides the Study Report on Investigation on the Sources and Fates of Marine Refuse in Hong Kong published in April 2015, statistics on the marine refuse collected by various government departments, and information on the measures taken for keeping the shorelines clean. Regarding the information on the cleanliness conditions of coastal sites, EPD had already uploaded the annual average cleanliness grading of the 29 priority sites to the “Clean Shorelines” thematic website in February 2021 for public inspection. To provide the public with the latest information on shoreline cleanliness, with due consideration of the different inspection frequencies of the priority sites, EPD will update the information regularly (e.g. on a quarterly basis) starting from the second quarter of 2021.

## 10. **Response to (j):**

Regarding the incident of a large quantity of pork hocks being washed ashore in Hong Kong in July 2020, upon receipt of sighting report on 13 July, EPD promptly gave notices to the Leisure and Cultural Services Department (LCSD), the Food and Environmental Hygiene Department (FEHD), the Agriculture, Fisheries and Conservation Department (AFCD) and the Marine Department (MD) and requested them to arrange for clean-up operations as soon as possible. On the same and subsequent few days, EPD conducted inspections at various sites, and notified the relevant departments immediately about where pork hocks had been found (see Table 1 for the details). EPD also collected water samples at the affected beaches for examination, and the results revealed that the beach water quality had not been affected. Moreover, EPD also liaised with the Department of Ecology and Environment of Guangdong Province (GDDEE) on 13 July to understand the situation. It was learnt that their local authorities were conducting investigations, and that their marine authority had not received any report of capsized cargo vessel. According to the GDDEE’s reply dated 19 August, the investigations conducted by the relevant authorities of Guangdong Province could not identify the origin of the pork hocks.



During FEHD's scheduled clean-up operation on 13 July 2020, the cleansing workers had found some pork hocks being washed ashore in Lung Kwu Tan. The 360-degree cameras are set up as real-time monitoring tools mainly used for long-range and wide-area surveillance to facilitate timely arrangement of more effective refuse clean-up operations. The 360-degree cameras can also help monitor the occurrence of bulky or large quantities of refuse being washed ashore, like the situation after typhoon attack. However, as the 360-degree cameras provide very wide-angle images, small objects like pork hocks being washed ashore at a relatively long distance cannot be identified. Therefore, the incident had not discovered at an earlier time.

Although the handling of the pork hock incident by EPD and the relevant departments was no different from the handling of marine refuse incidents through activating the Protocol for Handling Surge of Marine Refuse (the Protocol), following the Audit Commission's recommendations and with agreement in the Working Group, EPD had already updated the Protocol in February 2021 to include a new activation condition, that is, under the situation when special or urgent clean-up operations are required, so as to cover other possible scenarios of unusual objects arising on sea surfaces or at shores and beaches.

At present, the authorities in Guangdong Province and the Hong Kong Government have the Hong Kong-Guangdong Notification Mechanism on Marine Refuse established for either side to notify the other about massive amount of marine refuse or significant environmental incidents that may occur. In conjunction with the notification mechanism, the Hong Kong side has drawn up the Protocol to facilitate timely deployment of resources and preparation for clean-up operations by the relevant departments. Apart from the above mechanism, there are other communication channels between the two governments for enquiries and follow-up on individual cases (such as this pork hock incident). EPD will continue to enhance exchange and communication with Mainland authorities on various regional marine environmental matters. If there is large amount of refuse netted during fishing operations, the fishermen concerned may call the 24-hour hotline of MD to arrange for special collection by large-scale refuse collection vessels. They can also provide information by email or by fax for MD to arrange for collection service.

**Table 1: A chronology of follow-up actions taken by EPD during the pork hock incident in July 2020**

Date	District Inspected	Location	EPD's action
13 July	-	-	Issued notices to LCSD, FEHD, AFCD and MD, requesting them to arrange for clean-up as soon as possible
	Lantau Island	Beaches at Sam Pak Wan, Nim Shue Wan, Shap Long, Ham Tin, Pui O and Silver Mine Bay	No pork hocks found
14 July	Tsuen Wan	Ting Kau Beach, Approach Beach, Ma Wan Tung Wan Beach	No pork hocks found
		Near Gemini Beaches	Found pork hocks and notified FEHD and MD on that day to follow up with clean-up actions
		Beach near Villa Alfavista, beach outside Vistacove	Found pork hocks and notified FEHD on that day to follow up with clean-up actions
		Anglers' Beach, Ting Kau Beach	Found pork hocks and immediately notified LCSD on-site to follow up with clean-up actions

Date	District Inspected	Location	EPD's action
	Tuen Mun	Coastal area from Butterfly Beach to Tuen Mun Area 40 Pier, Lung Kwu Tan, Lung Kwu Sheung Tan, Butterfly Beach, beach at Tsing Lung Garden on Yu Chui Street	Found pork hocks and notified FEHD on that day to follow with clean up actions
		Castle Peak Beach	Found pork hocks and immediately notified LCSD on-site to follow up with clean-up actions
		Cafeteria Old Beach and Kadoorie Beach	No pork hocks found
15 July	Lantau Island	Tai O, Big Wave Bay, Shek Pik Tung Wan, Shui Hau	No pork hocks found
16 July	Tsuen Wan	Non-gazetted beach near Anglers' Beach (near Sham Tseng Public Pier), beach outside Hong Kong Garden	Found pork hocks and notified FEHD on that day to follow up with clean-up actions
		Coastal area outside Ma Wan Rural Committee, Ma Wan Pak Wan	Found pork hocks and notified FEHD and MD on that day to follow up with clean up actions
		Tung Wan Tsai on Ma Wan Island	No pork hocks found
	Tuen Mun	Coastal area and beaches from Castle Peak Villas to Marine Police Tai Lam Chung Base, area near Castle Peak Power Station and Lung Kwu Tan	Found pork hocks and notified FEHD on that day to follow up with clean-up actions

Date	District Inspected	Location	EPD's action
		Sha Chau and Lung Kwu Chau	Found pork hocks and notified AFCD on that day to follow up with clean-up actions
	Lantau Island	Fan Lau	No pork hocks found
17 July	Lantau Island	Cheung Sha Beach, Lower Cheung Sha Beach, Upper Cheung Sha Beach, Tong Fuk Beach, Pak Mong Beach	No pork hocks found
20 July	Southern	Cape D'Aguiar Beach, Lap Sap Wan, Rocky Bay Beach, Shek O Beach, Big Wave Bay Beach	No pork hocks found

### Part 3: Clean-up operations by Agriculture, Fisheries and Conservation Department

#### 11. **Response to Question (k):**

Please refer to AFCD's reply to the same question.

#### 12. **Response to Question (l):**

With reference to Reply to Question (k) in paragraph 11 above (i.e. AFCD's reply to the same question), as refuse accumulation at the back-of-beach area of Lung Kwu Chau is similar to that at the back-of-beach areas in other districts, the strategy of conducting targeted in-depth clean-up operations through special arrangement is applicable as well. In fact, Hong Kong has very long shorelines and many small outlying islands. Many remote places are inaccessible by public transport and are thus rarely visited. It is therefore difficult for government departments to allocate resources for engaging contractors to conduct routine clean-up operations in these places as this arrangement will entail a huge contractual expenditure and is not cost-effective. In recent years, the Working Group has in several instances resolved the refuse accumulation problems at several back-of-beach areas with different solutions after discussion and co-ordination. For instance, EPD collaborated with the Civil Engineering and Development Department and FEHD in

***\*Note by Clerk, PAC:*** *See Appendix 19 of this Report for the reply from Director of Agriculture, Fisheries and Conservation.*

2019 to conduct an in-depth clean-up operation with machinery plus manual labour at Pebble Beach, Pak Kok Tsui, Lamma Island and successfully restored the back-of-beach area to its original state.

(B) Reply to the letter dated 26 March 2021

Part 2: Monitoring of shoreline cleanliness by Environmental Protection Department

**13. Response to (a):**

EPD liaised promptly with the GDDEE to understand the situation upon receipt of the report of pork hocks being washed ashore in Hong Kong on 13 July 2020. During the period between 13 July and 19 August 2020, Hong Kong and Guangdong authorities maintained close communication with each other regarding this incident. According to the information provided by the GDDEE, the Guangdong authorities had completed the basic clean-up work on 11 July 2020, the same day on which the pork hocks were found, and did not find any pork hocks floating on the sea during the marine inspection on 12 July 2020. Later, Guangdong's marine department also confirmed that no report of capsized cargo vessel was received, and that the relevant departments were unable to identify the source of the pork hocks after investigation but had stepped up their inspections and monitoring to prevent the occurrence of marine environmental incidents.

**14. Response to (b):**

EPD provided the following different forms of training to the contractor:

**(1) Briefing**

After awarding the contract for on-site inspection, EPD immediately held a kick-off meeting with the contractor to provide basic knowledge on shoreline cleanliness monitoring and explain to the contractor in detail the background of the shoreline cleanliness monitoring programme, the 119 inspection locations, the five-level Shoreline Cleanliness Grading System, the grading methods, requirements of the inspection reports, the format of the inspection database, matters relating to the application for permits to restricted areas, transport arrangements for remote areas, etc.

(2) Joint on-site inspections

As there are many points and details to note for on-site inspections and the grading work, EPD provides training and guidance in the field through conducting joint inspections with the contractor. In the first month of the contract, EPD and the contractor conducted a total of 7 joint inspections, covering 42 different coastal sites including different settings such as beaches, rocky shores, rocky beaches, mudflats, etc. During ad hoc or special marine refuse incidents, etc., EPD also sends staff to conduct joint inspections with the contractor as necessary to ensure the contractor understand the inspection requirements of individual incidents.

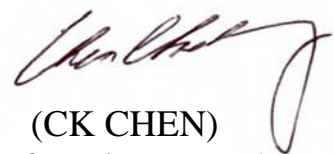
(3) Provision of Templates

To facilitate contractors' easy understanding of the requirements stipulated in the contract, EPD provides templates (including the templates for inspection report, inspection itinerary, the format of the inspection database, etc.) to the contractor to illustrate how to prepare inspection reports. EPD staff members also check all inspection reports and photos to ensure that the performance of contractors meets the requirements, with timely guidance provided.

(4) Telephone Enquiry

EPD and the contractors have set up message chat groups which provide a platform for contractors to make enquiries and seek advice.

Yours sincerely,



(CK CHEN)

for Director of Environmental Protection

Encl.

c.c.

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