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ACE-WM Paper 4/2020
For discussion on 28 September 2020

Strategies on Waste Management

PURPOSE

This paper briefs Members on the Government's holistic work and progress in various waste management initiatives, with a view to formulating long-term strategies on waste management for Hong Kong.

BACKGROUND

2. In May 2013, the Environment Bureau (ENB) published the "Hong Kong Blueprint for Sustainable Use of Resources 2013–2022" (2013 Blueprint) which maps out comprehensive strategies and action plans on waste management for the years of 2013 to 2022. The 2013 Blueprint encompasses the vision of "Use Less, Waste Less", which is supported by actions in three main areas, namely (i) policy development and legislation; (ii) social mobilisation; and (iii) investing in infrastructure. Later, ENB unveiled "A Food Waste & Yard Waste Plan for Hong Kong 2014-2022" (2014 Food and Yard Waste Plan) in February 2014, a companion document to the 2013 Blueprint that outlines the strategies specifically for the management of food waste and yard waste.

3. Over the years, the Government has spared no effort in exploring and rolling out a spectrum of initiatives, from educational campaigns to legislative amendments and waste-to-resources infrastructure, with a view to realising the objectives of waste reduction and recycling in Hong Kong as set out in the 2013 Blueprint. At the same time, unprecedented challenges arise that affect our recycling performance as well as put further burden on our depleting landfills.

CURRENT SITUATION AND CHALLENGES

4. Hong Kong's waste challenges are complex. Our economy is service-oriented with a lack of robust manufacturing base for utilising our recyclables. We have thus been relying on exporting the recyclables to other nearby economies for further processing and recycling. Locally, we also rely much on our landfills for waste disposal. However, such reliance is not sustainable to both our community and resources utilisation.

5. Municipal solid waste (MSW) constitutes the largest bulk of our waste. With our efforts on scaling up waste-related public education and publicity, we see a slight decline of 6% in our MSW generation as compared with 2011[1]. However, waste disposal at landfills has kept rising in the past years. In 2018, the average daily rate of MSW disposal is 1.53kg per capita, a 21% increase from 2011, putting tremendous pressure on our waste chain from collection to disposal.

6. We also encounter unprecedented challenges on waste recycling. In recent years, Hong Kong's nearby economies, including the Mainland China, have tightened up their control or even prohibited import of recyclables and a large range of foreign waste. These severely affected our recycling performance. In 2018, only 30% of MSW we generated was recovered for recycling. We need to move toward to a more circular economy by scaling up our recycling capability. More proactive community participation in source separation and clean recycling as well as public support on our various waste initiatives are also needed to enhance recycling performance.

IMPLEMENTATION PROGRESS OF WASTE INITIATIVES

7. The implementation progress of our major waste management initiatives is set out below.

(A) Policy Development and Legislation

Producer Responsibility Schemes

8. Producer responsibility scheme (PRS) is a key policy tool in the waste management strategy in Hong Kong. Enshrining the principle of "polluter pays" and

[1] Statistics in 2011 form the basis of analysis and assumptions in the 2013 Blueprint and 2014 Food and Yard Waste Plan.

the element of "eco-responsibility", PRS requires relevant stakeholders, for example, the business and industry sectors, consumers, recyclers, etc., to share the responsibility for the collection, recycling, treatment and disposal of end-of-life products with a view to reducing waste at source, and to avoiding and minimising the environmental impacts caused by such products. The Legislative Council (LegCo) enacted the Product Eco-responsibility Ordinance (Cap. 603) in July 2008 to provide for the legislative framework for putting forward PRSs. We have subsequently developed PRSs for various types of products under the Ordinance.

9. The Plastic Shopping Bag (PSB) Charging Scheme is the first PRS introduced in Hong Kong. The first phase of the Charging Scheme was implemented in 2009 covering some 3 000 retail outlets[2]. With public support, the Charging Scheme has been extended to cover the entire retail sector (over 100 000 outlets) since 2015 under which all retail outlets shall, save for exemptions, charge not less than 50 cents for each PSB distributed. According to our landfill survey, there was a 25% year-on-year drop in the number of PSBs[3] disposed of at landfills in 2015, the first year of full implementation of the Charging Scheme. However, we note a rebound of PSB disposal rate after 2015, although the rate in 2018 is still 14% lower than that of 2014 before the full implementation of the Charging Scheme. In view of the rebound of PSB disposal, we are conducting a full review of the Charging Scheme. We plan to consult the public on the outcome of the review in the next few months to map out the way forward.

10. The PRS on waste electrical and electronic equipment (WEEE) was fully implemented in 2018 to control the collection, treatment and recycling of regulated electrical equipment (REE)[4] by requiring registered suppliers of REE to pay recycling levies according to the product types and the sellers to arrange free removal service for used REE. Disposal licensing control, import and export permit control and landfill disposal ban have also been imposed in respect of abandoned REE. To implement the PRS on WEEE, the WEEE Treatment and Recycling Facility (WEEE·PARK) commenced full operation in March 2018, enabling adequate local capacity for processing waste REE generated locally. It adopts advanced technologies to turn waste into valuable secondary raw materials through a series of detoxification, dismantling and recycling processes. An 8% drop was recorded in the total amount of WEEE disposed of at landfills in 2018.

[2] Mainly large supermarkets, convenience stores, and medicare and cosmetics stores.
[3] Flat-top bag is not covered by the survey.
[4] REE includes air-conditioners, refrigerators, washing machines, televisions, computers, printers, scanners and monitors.

11. At the same time, we have been implementing the PRS on glass beverage containers (GPRS) progressively. We have appointed contractors to undertake collection and treatment of waste glass containers across the territory. Over 35 000 tonnes of glass containers have been collected and treated since the commencement of the collection services in November 2017. Meanwhile, the drafting of the subsidiary legislation to provide for the operational details of the GPRS has largely been completed. We plan to submit it for the LegCo's scrutiny in the fourth quarter of 2020 with a view to implementing the GPRS in full by mid-2021 the earliest.

12. Looking ahead, the Government is actively preparing to introduce a new PRS on plastic beverage containers (PPRS). We aim to consult the public on the proposal in late 2020. In parallel, we have recently awarded a contract to a service provider to install 60 reverse vending machines (RVMs) under a pilot scheme at locations such as public places or government facilities with higher foot traffic to facilitate the public's return of used plastic beverage containers and test the application of RVMs in local context. The pilot scheme is expected to be rolled out by end 2020.

Municipal Solid Waste Charging

13. Quantity-based waste charging aims to create financial incentives to drive behavioural change in waste generation and hence reduce overall waste disposal. Premised on the "polluter pays" principle and the consensus fostered within the community through public consultation and public engagement process, we introduced the Waste Disposal (Charging for Municipal Solid Waste) (Amendment) Bill 2018 into LegCo in November 2018. Under the proposals, MSW charges will be levied through the dual modes of (a) charging by designated bags/designated labels and (b) charging by weight-based "gate-fee".

14. The relevant LegCo Bills Committee decided in June 2020 to discontinue its scrutiny work having regard to its progress. Yet, in view of the decision of the Standing Committee of the National People's Congress on 11 August 2020 that the sixth-term LegCo of the Hong Kong Special Administrative Region will continue to discharge its duties for no less than one year until the commencement of the seventh-term LegCo, the Government will maintain communication with LegCo if and when they deliberate on the way forward of those bills committees that have decided to discontinue their work in the 2020-21 legislative session (including the one on the MSW Charging Bill). Meanwhile, we will continue to devote additional resources to strengthen our waste reduction and recycling effort, with a view to building a more solid foundation for the future implementation of MSW charging.

Green Procurement

15. Green procurement means purchasing products and services that cause minimal adverse environmental impacts. While many of such products are made of recycled materials, promoting green procurement can boost the demand of recyclables and create business opportunities for the recycling trade. We have developed a set of green specifications for 150 products or services that are commonly used by Government departments, and have been encouraging the Government as a whole to adopt so. For instance, the use of recycled construction materials is promoted in public works.

(B) Social Mobilisation

Food Wise Campaign

16. Food waste forms the bulk of waste generation and disposal, and about two-thirds of the food waste comes from households. To promote food waste reduction at source, we launched the Food Wise Hong Kong Campaign in 2013, under which the Big Waster icon was created. The Campaign has launched various publicity and educational programmes such as the Food Wise Charter and Food Wise Eateries Scheme, while food donation to charitable organisations is also encouraged. We are glad to see a 14% reduction in domestic food waste disposal since the launch of the Scheme.

Collaboration with the Community

17. We empower the community to take on diversified publicity and educational programmes through funding support of the Environment and Conservation Fund. For instance, the Fund supported private housing estates in recycling over 2 000 tonnes of food waste for producing about 300 tonnes of compost using on-site food waste composters. We also jointly organise "green events" with community partners to instill a "Use Less, Waste Less" culture in the community. To facilitate community efforts, we published a guidebook on green events in 2017, and launched the Green Event Pledge in 2018 which is now participated by 240 organisations.

18. The EPD also worked with the Environmental Campaign Committee (ECC) to launch a two-year territory-wide publicity campaign "Reduce and Recycle 2.0" in June 2020, which aims to promote waste reduction at source and step up calls for members of the public to make good use of the community recycling networks. The

Campaign promotes various themes in phases. A new character, Greeny, has also been introduced to partner with the Big Waster to promote the message "Save More, Recycle More" in all walks of life in the community.

19. To facilitate closer collaboration with the community on waste reduction, separation and recycling, we have also rolled out outreaching services in three pilot districts, namely the Eastern, Kwun Tong and Sha Tin districts, since December 2018 to enhance on-site support, which will be further extended to other districts by phases.

Nurturing a "Plastic-free" Culture

20. Although plastics are versatile and durable, they are difficult and take long to decompose naturally. Mindful of their potential impacts on the environment, we are dedicated to taking the lead and gauging concerted efforts in going "plastic-free".

21. Since February 2018, we have taken the lead in progressively ceasing the sale of plastic bottled water of one litre or less in automatic vending machines at government premises. Over 80% of about 1 600 automatic vending machines have already put forward such arrangement. At the same time, we target to increase the number of water dispensers by 500 units to about 3 200 units by 2022 in government venues and country parks to inculcate "bring your own bottle" culture. We have also ceased the provision of plastic straws and polyfoam food containers in most Government premises and canteens in 2019, while relevant requirement on the avoidance of such disposable tableware would also be imposed when awarding new contracts or renewing existing contracts.

22. To nurture a "plastic-free" culture in campus, we will launch the "Plastic-free" School Lunch Pilot Scheme in the fourth quarter of 2020 by providing 50 schools with "Four Treasures"[5] to encourage students to bring their own lunch using reusable food containers. Another pilot scheme to provide 80 schools with smart water dispensers with their exteriors designed by students will also be launched in 2020/21.

23. Other major community campaigns include the "Plastic-Free Takeaway, Use Reusable Tableware" and "Plastic Free Beach, Tableware First" in the past two years which together allied over 700 eateries and food stalls to minimise the use of over 2.4 million disposable tableware sets.

[5] "Four Treasures" include refrigerators, steam cabinets, dishwashers and disinfection machines.

(C) Building up Recycling Network and Investing in Infrastructure

Community Recycling Network

24. We continue to take forward the development of the network of Community Green Stations (CGSs) to strengthen support for waste reduction and recycling as well as environmental education at district level. Currently, nine CGSs are in operation to collect different types of recyclables, including eight basic types[6], while another two CGSs are under construction. There are also 17 Community Recycling Centres (CRCs) and two mobile community recycling vehicles operated by non-government organisations (NGOs) through funding from the Environment and Conservation Fund to provide the public with another recycling channel. We will soon expand the network of CRCs to all 18 districts and regularise the funding for the CRCs to further enhance the community recycling support. The CRCs will also be enlarged and rebranded with services enhanced in the fourth quarter of 2020.

Recyclables Collection Services

25. Food waste, waste paper and waste plastics form the largest bulk (over two-thirds) of MSW. Collection of these wastes is never an easy task due to the high logistics costs involved and their low economic value. With a view to enhancing our recycling performance and support the sustainable development of the recycling industry amid market changes, the Government is now taking a proactive role by progressively launching collection and recycling services for these waste streams.

26. The first phase of the pilot scheme on food waste collection has commenced in July 2018, covering 70 public venues, schools and about 120 private institutions. With positive feedback, we are now taking a step forward to launch the second phase of the scheme by early 2021, in order to gradually increase the daily food waste collection from the current 100 tonnes to 250 tonnes by 2022 by covering more public and private institutions, as well as some residential estates for the first time. The food waste collected would be delivered to local food waste recycling facilities for turning into energy and compost. We will also encourage the trial of smart bins to collect food waste in housing estates to increase efficiency and ensure environmental hygiene.

[6] Eight types of recyclables include waste paper, metals, plastic, glass, fluorescent lamp, rechargeable batteries, small electrical appliances, and Regulated Electrical Equipment (REE).

27. We have also commenced the pilot scheme on waste plastics collection in the Eastern District early this year, which has been extended to Kwun Tong and Sha Tin districts in July 2020. Waste plastics collected from non-commercial and non-industrial sources would be processed to produce raw materials or recycled products for export or supply to the local market.

28. As for waste paper collection, we are implementing territory-wide waste paper collection and recycling services which will commence progressively from September 2020. Waste paper meeting the required standards will be collected from the whole territory for further processing and then exported for recycling. In parallel, we are also facilitating the development of local waste paper recycling facilities.

Waste-to-resources Infrastructure

29. Over the years, we have embarked on the journey of building up a number of state-of-the-art waste-to-resources infrastructure to turn our waste into resources or energy in a highly efficient manner. They also help relieve the waste disposal burden of our landfills as well as reduce greenhouse gas emissions, bringing much benefits to the community.

30. T•PARK marks the beginning of our waste-to-energy transformation process. Commencing operation in 2015, T•PARK adopts advanced incineration technology to treat up to 2 000 tonnes of sewage sludge each day and at the same time produce electricity with the heat energy generated. It is also a leisure and educational facility designed in visual harmony with the surrounding landscape.

31. The waste transformation journey continues with the WEEE•PARK designed to treat up to 30 000 tonnes of WEEE annually for converting them into valuable secondary raw materials. Since the commencement of its operation in March 2018, more than 50 000 tonnes of WEEE have been processed.

32. To complement the food waste collection service, O•PARK1 commenced operation in July 2018 with a daily treatment capacity of 200 tonnes of food waste. It adopts anaerobic digestion technology to convert food waste into biogas for electricity generation whilst the residues can be produced as compost for landscaping and agricultural use. Since the commencement of its operation, about 70 000 tonnes of food waste have been processed. We are taking a step forward with O•PARK2 which is expected to commission in 2022 with a further treatment capacity of 300 tonnes of food waste per day. At the same time, with a view to optimising the use of existing waste-related facilities to achieve synergy in recycling our food waste, we kick started

the food waste/sewage sludge anaerobic co-digestion trial at Tai Po Sewage Treatment Works last year to turn food waste into energy. We will continue to explore the further development of food waste treatment facilities, including developing co-digestion facilities at other sewage treatment works, to scale up our food waste recycling capacity.

33. The Integrated Waste Management Facilities Phase 1 (IWMF1) is expected to commence operation in 2025. IWMF1 is designed with a treatment capacity of 3 000 tonnes of MSW (about 30% of the total amount of MSW) per day. Adopting modern incineration technology, IWMF1 is a highly efficient waste-to-energy facility which can substantially reduce the bulk size of waste by 90% with heat energy generated be recovered for electricity generation. Following the experience of other economies such as Denmark, Sweden, South Korea, Singapore and Japan, incinerating facilities are proven highly effective in significantly reducing the size of waste and relieving the pressure on landfills. They can also be designed with leisure and environmental education facilities for public use, benefitting the community as a whole.

34. In addition to the above facilities, we are planning to develop a Yard Waste Processing Centre next to the T•PARK for recycling yard waste into useful materials such as compost and mulch for gardening and mushroom cultivation materials. Some of the material produced can also be reused as raw woods for renovating/ decorating facilities or upcycling into other products. The Centre is expected to commence operation in 2021, with a target to gradually increasing the treatment capacity to processing 60 tonnes of yard waste each day.

Support for the Recycling Trade

35. To support the recycling industry to upgrade its operational capability, the Government launched the $1 billion Recycling Fund in 2015 to provide funding support to the industry. As at mid-August 2020, the Fund has supported over 1 100 applications involving funding of about $470 million, covering such projects as upgrading and expanding local waste recycling operations in relation to a wide range of recyclables such as food waste, waste paper, plastics, metal, yard waste, waste tyres, etc.

36. As recycling operations require substantial space, we also lease out land in EcoPark, in operation since 2007 with a total site area of 200 000m^2, at affordable price as well as other sites designated exclusively for recycling use. Currently, 12 lots of EcoPark have been leased for recycling waste plastics, waste metals, WEEE,

waste cooking oil, etc., supporting the land requirement in their operation.

Waste Disposal Outlets

37. Although landfilling is not a sustainable option for MSW, in lack of incinerating facilities, we have no choice but to rely on landfills for the final disposal of MSW now. We have three landfills which together occupy about 270 hectares of land. Commencing operations in the 1990s, their operations will soon reach their design capacities and service lives. We have thus earlier obtained LegCo's approval to extend the South East New Territories Landfill and North East New Territories Landfill, which will commission in 2021/22 and mid-2020s respectively. Capacity enhancement of the West New Territories Landfill is also being prepared.

WAY FORWARD

38. Moving forward, we will continue to promote waste reduction at source and enhance community recycling so as to facilitate members of the society to practise waste reduction and recycling proactively in their daily lives to achieve "Use Less, Waste Less" and contribute to carbon emission reduction.

39. Landfilling is not a sustainable option for waste disposal given the precious land resources and the limited service life of landfills. Drawing reference from the successful experience of other economies in building up their waste-to-energy infrastructural capacity, we shall continue to promote waste-to-energy transformation and endeavour to explore the further development of relevant waste facilities so as to handle our waste in a more efficient and environmentally friendly manner.

ADVICE SOUGHT

40. Members are invited to note and offer views on our waste management strategies.

Environmental Protection Department
September 2020