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## **ACE Paper 16/2013**

*For discussion on 11 November 2013*

### **Public Consultation on a Producer Responsibility Scheme on Glass Beverage Bottles**

#### **PURPOSE**

We completed a public consultation for introducing a new mandatory producer responsibility scheme (“PRS”) to enhance the management of waste glass beverage bottles. The public consultation revealed strong community aspiration to implement comprehensive glass bottle recycling in Hong Kong. This paper seeks Members’ views on our proposed way forward.

#### **BACKGROUND**

2. Glass bottles are widely used in our everyday life. We do not have a local glass manufacturing industry. Due to a low commercial value, waste glass beverage bottles are mostly landfilled in Hong Kong rather than collected for recycling. At present, most of the waste glass bottles generated in Hong Kong are disposed of at landfills rather than being reused or recycled. In 2011, they constituted about 3% of our daily municipal solid waste (“MSW”) disposal, which included about 150 tonne per day (“tpd”) of beverage bottles, 80 tpd of food/sauce bottles and 10 tpd of other bottles.

3. The Government has made considerable efforts in establishing a circular economy for glass bottles in Hong Kong. We have been supporting a number of voluntary recycling programmes that are funded through the Environment and Conservation Fund or other sources. Waste glass bottles collected under these programmes (majority being glass beverage bottles<sup>1</sup>) are crushed as granules to produce concrete paving blocks (“eco-pavers”) for use

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<sup>1</sup> According to our crude estimation, most, if not all, of the glass bottles collected from non-residential sources are beverage bottles while some 30% to 40% of those from residential collection points of our voluntary recycling programmes are food/sauce bottles.

in public works. In 2011, waste glass bottles totalling about 1 500 tonnes (or 2.7%) were recovered under the various voluntary recycling programmes supported by the Government. As at end 2012, a total of 270 collection points have been set up across the territory; over 120 public/private housing estates have participated, covering some 880 000 people (i.e. around 12% of the total Hong Kong population).

## **The Public Consultation**

4. We launched a three-month public consultation in February 2013 setting out our analysis and preliminary proposals on whether and how to pursue a mandatory PRS on glass beverage bottles. An outline of the public consultation process is set out at **Annex A**. On the whole, the community was generally supportive<sup>2</sup> of a mandatory PRS on glass beverage bottles. We propose to proceed with further preparation of the mandatory PRS along the direction outlined in the Consultation Document. In parallel, a number of demands for more specific measures were proposed, and they are: (i) there will be a convenient collection network and adequate incentives to achieve a high recovery rate, (ii) there will be adequate capacity in both the treatment facilities and the reuse/recycling outlets, and (iii) all waste glass bottles can be recycled in Hong Kong as far as possible. There were also discussions on how the recycling fee should be collected (e.g. at the supplier or retailer end) in order that the PRS costs could be shared among stakeholders on a fair basis. Suitable adjustments have been incorporated in the proposed way forward below to cater for the comments received.

## **THE PRODUCER RESPONSIBILITY SCHEME**

### **Legislative Measures**

5. We *propose* to affirm our initial proposal to first target at glass beverage bottles with the intended coverage detailed at **Annex B**. In line with the “polluter pays” principle, we will introduce a recycling fee under the Product Eco-responsibility Ordinance (Cap 603; “PERO”) on these glass-bottled beverages so as to recover in principle the full PRS costs (cf. paragraphs 8 to 10). Under the Waste Disposal Ordinance (Cap 354; “WDO”) there will also be licencing control for the quality control of the recycling processes employed under the mandatory PRS (and import/export permit control to ensure the meeting of comparable environmental standards if the recycling processes are undertaken outside Hong Kong (cf. paragraph 11).

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<sup>2</sup> For instance, over 70% of the written submissions were positive and a telephone survey conducted during the public consultation also revealed that 70% of the interviewees were in support of the mandatory PRS.

## The Scope

6. Under Section 2(1)(b) of the PERO, a PRS must be based on the “polluter pays” principle. To achieve this, a recycling fee at some level should be imposed on any glass-bottled products that are covered under the mandatory PRS. Accordingly, applying the mandatory PRS to glass food/sauce bottles may necessitate the collection of a recycling fee on such household items and thus a potential livelihood concern. Therefore, we **propose** the mandatory PRS to first focus at glass beverage bottle and to consider coverage of other glass bottles under a phased approach.

7. This phased approach will allow more time for public education on the need to “rinse before recycle” to gradually take effect such that glass food/sauce bottle recycling will not be regarded as an obnoxious activity or a source of nuisance in the local communities. Indeed, individual recyclers also expressed concerns that their plant is only suitable for handling reasonably cleansed bottles (such as beverage bottles) and a high content of contaminations may severely undermine their product quality. That said, we have NOT rejected the deposition of properly cleansed glass food/sauce bottles under the existing voluntary recycling programmes and will NOT seek to do so after the future mandatory PRS is in place, even though no recycling fee will be imposed on glass food/sauce bottles at this stage. We will seek to make this point clear in our public communication when we pursue the mandatory PRS.

## Collection of a Recycling Fee at Supplier Level

8. On how the recycling fee should be collected, we **propose** to maintain our suggested approach of collecting it at the supplier level through importers and distributors. Our suggested approach received general community support during the public consultation. As for the trades, there were views advocating the alternative of collecting the recycling fee at the points of sale. This alternative is far less cost effective given the vast number of catering or retail establishments. We will further engage with them in order to iron out the detailed compliance system. For this purpose, we have already commissioned a Business Impact Assessment study to help us to assess on the business environment and the potential impact on the affected trades. To facilitate more focused deliberation, we outline below a preliminary framework as follows –

- (a) *Registration of suppliers*: Manufacturers, importers and distributors who supply glass-bottled beverages to the local market<sup>3</sup> will have to be registered as a “registered supplier”.

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<sup>3</sup> By confining the registration requirement to suppliers to the Hong Kong market, we aim to exclude companies that are exclusively engaged in re-export businesses thus alleviating a major concern from the wine industry.

Many of these suppliers should have been registered as a food importer or a food distributor under the Food Safety Ordinance (Cap 612) but the registration requirement will apply also to suppliers who have been exempted from the food safety regime.

- (b) *Submission and auditing of periodic returns:* A registered supplier will have to submit to the Government periodic returns, say on a quarterly basis, setting out the amount of glass-bottled beverages that they have (i) imported into Hong Kong or manufactured locally, (ii) consumed on their own, (iii) supplied to other registered suppliers, (iv) supplied to any other local businesses other than registered suppliers (e.g. restaurants, supermarkets) or individual consumers<sup>4</sup>, or (v) exported/re-exported out of Hong Kong respectively in the reporting period. He will also have to conduct annual audits on the periodic returns to ensure factual accuracy and keep records to facilitate future inspection.
- (c) *Payment of the recycling fees:* Within a reasonable period of time (say 30 days) after their submission, a registered supplier will have to pay the recycling fee to the Government on the basis of the information contained in the periodic returns. As a matter of principle, we will only collect the recycling fee for glass-bottled beverages that are consumed in Hong Kong. This will exclude exports and re-exports which will not add to the landfill burden in Hong Kong.

### *Recycling Fee Level*

9. At this stage, it is premature to suggest any specific level for the ultimate recycling fee. During the public consultation, we put forward an indicative level of the recycling fee at around \$1 per litre of the beverage content and it was considered generally acceptable by the community. Indeed, over 85% of the glass beverage bottles disposed of at landfills are generated from alcoholic beverages. Also given that there are non-glass packing alternatives for the majority of non-alcoholic beverages, we do not expect that the recycling fee on glass-bottled beverages would cause major concerns from livelihood angle. We will determine the level of the recycling fee after completing the open tender for the GMC contracts taking into account the “polluter pays” principle and other relevant factors.

### *Exemption*

10. At present, a small number of local glass-bottled beverage

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<sup>4</sup> When the glass-bottled beverages change hands among registered beverage suppliers, say from an importer to a distributor, the liability to pay the recycling fee will not arise. This will help alleviate the concerns of any potential double charging.

manufacturers are operating their own corporate reuse/recycling schemes. With majority support as revealed from the public consultation, we *propose* to affirm the direction of providing an exemption mechanism such that these local glass-bottled beverage manufacturers will not be subject to the recycling fee. This will however be subject to an application fee (on full-cost recovery basis) and other suitable terms and conditions. For instance, we will require that the corporate reuse/recycling scheme must be able to achieve a high recovery rate, say at least 90% as the intention of such scheme is to recover most, if not all, of the glass bottles that are introduced by a registered supplier into the local market for refilling of beverage. There must be a robust and reliable monitoring and auditing system in place to ensure the glass beverage bottles are actually recovered for refilling in practice and the factual accuracy of the submitted recovery data. This should include proper procedures to arrange for recycling of any damaged or off-specification bottles which cannot be used for refilling of beverage. There must be periodic audits to ensure that the operation of the scheme continue to meet the terms and conditions.

#### Licensing Control for Glass Recyclers

11. At present, there are two glass bottle recyclers who possess the technical know-how to produce recycled glass materials from waste glass bottles for use in the manufacturing of eco-pavers or other applications. We are also aware that individual businesses are interested in entering the market to undertake the recycling process to turn waste glass bottles into cullet. For the purpose of upholding the environmental merits of the mandatory PRS, we *propose* that all glass bottle recyclers have to be licensed under the WDO. As a matter of principle, the licence will only be issued after a recycler has demonstrated that he has employed a recycling process that is sound from safety and health as well as environmental perspectives and the recycled glass materials produced from this process can satisfy the technical specifications for their reuse in subsequent manufacturing processes. At the same time, importers and exporters of waste glass bottles will be subject to permit control under the WDO.

#### **Administrative Measures**

##### Hiring of Multiple GMCs

12. Through open tender, the Government will outsource the collection and treatment services required under the mandatory PRS. As we initially proposed during the public consultation, we intended to hire one contractor (known as the Glass Management Contractor (“GMCs”). During the public consultation, different stakeholders shared the concern that having only one single contractor to collect and treat waste glass bottle in Hong Kong might

undesirably create a “monopoly” situation<sup>5</sup>. While appointing one single contractor may be more cost-effective in contract acquisition and management, we acknowledge that splitting the territory-wide service into several regional contracts may allow more service providers to participate, thus enabling greater variety in collection and treatment modes that better fit the local characteristics and the contractor’s expertise. Cost competitiveness of each contract will continue to be maintained through the open tendering process. This approach may also address concerns about the need of contingency in case a GMC fails to continue operation due to technical, commercial or other reasons. Therefore, we *propose* that multiple contractors be appointed by way of open tender under the mandatory PRS.

13. Preliminarily, we intend to divide the entire territory into three regions, each of which will be served by a dedicated GMC. Within the catchment region, the responsible GMC will be required by contract to –

- (a) maintain a sufficient network of collection points such that waste producers may conveniently participate in waste glass bottle recycling and accept all properly cleansed waste glass bottles (including food/sauce bottles) with a view to meeting a recovery target which will ramp up over time to enable the mandatory PRS to ultimately recover waste glass bottles of about 50 000 tonnes (or around 50% of the estimated total waste glass bottles generated locally) per year in total for the entire territory. The target for individual GMCs will be based on the profiles and sizes of population and commercial establishments in beverages/ retails/restaurants and related businesses in their catchment areas;
- (b) arrange gainful reuse of the waste glass bottles (including export to competent glass bottle manufacturers overseas) or properly treat them in its own plant or through outsourcing until they become reusable materials. For quality assurance reasons, recyclers who provide treatment to produce recycled glass materials for use in the construction industry must first be licensed as will be proposed in paragraph 11. Import and export arrangements should be subject to permit control under the WDO to ensure the collected waste glass bottles will be re-used or recycled in environmentally sound treatment facilities;

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<sup>5</sup> More specifically, stakeholders in the community are concerned that monopolized services may lead to poor service quality; stakeholders in the recycling trade are concerned whether they may secure a stable supply of recycled glass materials at affordable price if there is only one GMC as the single supplier.

- (c) supply the recycled glass materials to suitable public works projects or the private sector construction industry (including the manufacturers of eco-pavers) at prices to be determined by the Government from time to time. In general, the prices for recycled glass materials should be competitive vis-à-vis the prevailing market prices of the materials to be replaced by the recycled glass materials (e.g. river sand, general fill materials, etc).

14. For the avoidance of misunderstanding, a GMC will NOT be required to reject the deposition of glass food/sauce bottles into the recycle bins so long as the bottles have been properly cleansed. This echoes paragraph 7. We have slightly adjusted the original recovery target of 38 500 tonnes per year upward to the present target of 50 000 tonnes per year (cf. paragraph 13(a)) so as to clearly establish that glass food/sauce bottles that will be recycled through the GMCs.

#### Progressive Expansion of the Collection Network

15. Since the launch of the public consultation in February 2013, the Government has been taking proactive actions in expanding the collection network. As at July 2013, some 450 collection points are operative in public/private housing estates and other places (up from 270 points by December 2012). In addition, various government departments, property management companies and other stakeholders have nominated some 800 potential collection points which will be rolled out by phases after necessary arrangements. Upon full implementation by end 2014, the residential collection points will form a network serving 50% of the total Hong Kong population, which will be supplemented by other non-residential collection points set up in convenient public places.

#### Enhanced Publicity and Public Education on “Recycle Clean”

16. In parallel, we will step up publicity and public education so as to better facilitate members of the public to put the “recycle clean” concept into practice. Amongst other things, the Environmental Protection Department is developing five pilot Community Green Stations (“CGSs”) across the territory, one in each LegCo geographical constituency, and will expand the network in the coming few years to provide one such facility in each of the 18 districts. The objectives of setting up CGSs are to promote environmental education on the one hand and to support recycling at the community level on the other. One of our priorities is to promote the “recycle clean” concept in the community such that members of the public will not only separate recyclables (including waste glass bottles) from waste but will also properly cleanse such recyclables before depositing them into recycle bins. For waste glass bottles, we will also explore possible improvements to the design of the recycle bins

that may better remind users of the need to “rinse before recycle”.

### Broadening the Demand for Recycled Glass

17. The Government has been supporting waste glass bottle recycling by creating the demand for recycled glass materials through the promotion of “green procurement”. In 2012, some 3 600 tonnes of waste glass bottles were recovered for use in public works, mainly in the manufacturing of eco-pavers. Given that significantly more waste glass bottles will be recovered under the mandatory PRS, we will further broaden the demand from the Public Works Programme and in the private sector through the promotion of “green procurement” and “green building”.

18. In addition to the use of eco-pavers, continued research is underway for other potential applications and progress is satisfactory. For instance, Development Bureau has been drawing up the technical specifications for reusing recycled glass as fill materials for reclamation and earthworks and will launch trial programmes. Please refer to **Annex D** on the potential reuse of waste glass in construction. We will continue to arrange suitable publicity to clarify the situation and reinforce the green message that the mandatory PRS will help turn waste into resource.

### **Other Adjustments**

#### Landfill Ban on Glass Beverage Bottles

19. In practice, a landfill ban if implemented will involve restrictions on the disposal of certain products at designated waste disposal facilities such as landfills and refuse transfer stations. During the public consultation, we brought up the issue of a landfill ban and indicated that there are pros and cons as to whether we should include such a measure under the mandatory PRS. The public consultation showed a slight majority view in favour of a landfill ban. Such a ban, if implemented, may provide a tool for the operators of our waste disposal facilities to reject the disposal of waste glass beverage bottles, especially those in bulk. There will also be positive public relation message in terms of conservation of landfill resources and eco-responsibility about source separation of waste.

20. But in Hong Kong, the way that waste is currently collected for disposal may pose operational challenges to the effective implementation of a landfill ban. Also, the issue of “penalty” against the breach and who is to be liable will need to be deliberated. Looking ahead, the implementation of MSW charging will likely result in adjustments in the existing waste collection system, and thorough consultation with the refuse collection trades will be required. This may offer a more suitable opportunity to consider whether and how to introduce a landfill ban on waste glass beverage bottles. Therefore,

we intend to defer further consideration of the matter until a later stage when we determine the operational details of MSW charging.

#### Retailers to Provide Recycling-Related Information

21. We initially proposed during the public consultation that retailers of glass-bottled beverages be mandated to provide recycling information to consumers. General feedback from the retail industry about playing some role in disseminating recycling information is positive but there were suggestions that a collaborative approach may be more flexible to achieve the intended objective, i.e. to ensure that members of the public will not be discouraged from participating in glass bottle recycling due to lack of information. On balance, we tend to agree that we may start with voluntary collaboration and not to legislate at this stage. We will review the effectiveness of such a collaborative approach in the light of implementation experience in due course.

#### **WAY FORWARD AND ADVICE SOUGHT**

22. As the next step, subject to this Council's views, we would proceed with the necessary preparations with a view to putting in place the mandatory PRS as soon as practicable. Meanwhile, we will continue to expand the collection network through enhancing the support to the existing voluntary recycling schemes and other means.

23. Members are invited to comment on our approach in implementing the PRS as outlined above.

**Environment Bureau / Environmental Protection Department  
November 2013**

## **Outline of the Public Consultation Process**

We conducted a three-month public consultation starting from 7 February 2013 on whether and how to introduce a Government-led mandatory PRS to enhance the management of waste glass beverage bottles in Hong Kong. Stakeholders and members of the public to offer views to the following questions –

- (a) *Question 1:* Do you agree that we should now proceed to pursue a mandatory PRS on glass beverage bottles as a priority among different types of glass bottles, because this removes the largest number of glass bottles?
- (b) *Question 2:* At present, a person who carries out a food importation or distribution business must be registered under the Food Safety Ordinance (Cap 612). Do you agree that the recycling fee for the PRS should be collected from those registered food importers and distributors who import or distribute glass-bottled beverages for local consumption? Who else would also be in the position to serve as the anchor point for the fee?
- (c) *Question 3:* For ordinary consumers, do you find it helpful if a beverage retailer could advise you on how to participate in glass bottle recycling? For beverage retailers, are there any practical difficulties that would prevent you from providing recycling-related information to consumers?
- (d) *Question 4:* As a matter of principle, we should ensure that any end-of-life products under a PRS are efficiently collected for environmentally sound recycling processes to produce reusable materials. Do you agree that new licensing control for the processing of waste glass beverage bottles could contribute to the accomplishment of the said objective of the PRS?
- (e) *Question 5:* Do you agree that beverage suppliers with a satisfactory corporate reuse/recycling plan could be exempted from the payment of a recycling fee? Are you aware of any other stakeholders who should also be entitled

to similar exemption?

- (f) *Question 6:* Do you agree that a landfill ban on glass beverage bottles should be introduced? If yes, how it should be refined for better implementation?

2. During the public consultation, we briefed and listened to views from the LegCo Panel on Environmental Affairs, five District Councils (“DCs”) or their committees (i.e. Wan Chai, Yau Tsim Mong, Central & Western, Sham Shui Po and Southern Districts) and relevant boards and committees including the Advisory Council on the Environment and the Business Facilitation Advisory Committee. We attended 26 briefing and meeting sessions, having met 67 other organisations and stakeholder groups including key trade organizations such as Hong Kong General Chamber of Commerce, The Federation of Hong Kong Industries, Hong Kong Beverage Association, Hong Kong Food Drink & Grocery Association, Hong Kong Federation of Restaurants & Related Trades, Hong Kong Wine Merchants’ Chamber of Commerce and Hong Kong Retail Management Association. Lastly, we conducted a telephone survey towards the end of the consultation period. By the end of the public consultation, we received some 550 written submissions.

3. In general, the trade organizations were supportive of glass recycling but were interested in the operational details on different aspects of the mandatory PRS notably the recycling fee. There were concerns that the recycling fee would be misconstrued as the reinstatement of the duty on alcoholic beverages. Some advocated the collection of the recycling fee at the points of sales. Some raised questions on whether or how the recycling fee will be exempted for glass-bottled beverages exported or re-exported out of Hong Kong. But in an overall term, we have received general community support during the public consultation.

4. As regards the DCs, members offered views and suggestions that are broadly in line as summarized in paragraph 4 of the main text. At the operational level, there are specific concerns about bottle collection from pubs and bars after midnight which may cause considerable noise nuisance to the residential neighbourhood. We will bear this in mind in planning our GMC contractual requirements.

**Definition of “Beverage”**

1. A food product is a beverage for the purpose of the mandatory PRS on glass bottles if it –
  - (a) is principally in liquid form;
  - (b) is contained in a glass bottle;
  - (c) is suitable or intended for human consumption, either without or after dilution; and
  - (d) falls under the food categories in paragraph 2 below.
  
2. The food categories relevant to paragraph 1(d) above include –
  - (a) water;
  - (b) alcoholic beverage including beer and ale;
  - (c) milk and milk beverage;
  - (d) tea and tea beverage;
  - (e) soft drink and other carbonated drink;
  - (f) fruit and vegetable juice drink;
  - (g) other non-alcoholic beverage including coffee, decaffeinated coffee, soybean milk, chocolate drink, coconut drink, vinegar drink, energy drink, isotonic sports drink.

## Annex C

### Distribution of Collection Points

	As at end 2012	As at mid 2013	By end 2013	By mid 2014	By end 2014
<b>Residential</b>					
Hong Kong Island	23	60	81	143	175
Kowloon	37	62	100	156	196
New Territories	36	103	187	285	355
<b>Total</b>	<b>96</b>	<b>225</b>	<b>368</b>	<b>584</b>	<b>726</b>
<b>(by % Population)</b>	<b>12%</b>	<b>18%</b>	<b>22%</b>	<b>38%</b>	<b>50%</b>
<b>Non Residential</b>					
Hong Kong Island	60	76	121	137	192
Kowloon	49	54	97	112	182
New Territories	72	93	169	189	241
<b>Total</b>	<b>181</b>	<b>223</b>	<b>387</b>	<b>438</b>	<b>615</b>

Note:

1. Progressive expansion of the collection network is advisable because collection points usually cannot be launched in bulk but individually after (i) consultation with local residents, property management and other relevant stakeholders; (ii) publicity and public education about the need to “rinse and recycle” and (iii) coordination with logistics service providers.

## Annex D

### Potential Reuse of Recycled Glass Materials <sup>(1)</sup> in the Construction Sector

	Application	Latest Progress	Maximum Potential Capacity
	<u>Stage: Implementation</u>		
1.	<i>Eco-Paver</i> , to replace river sand and aggregates in the production of paving blocks	Eco-pavers have already been specified for use in all public works maintenance contracts and most of the capital works contracts for replacing concrete paving blocks.	~ 3 600 tonnes per year.
	<u>Stage: Trial</u>		
2.	<i>Fill Material</i> , to be used as filled materials in site formation, backfilling and reclamation works	Technical specifications for applications in reclamation and earthworks are being drawn up. Further trials are being planned.	~ 50 000 tonnes per year.
	<u>Stage: R&amp;D</u>		
3.	<i>Eco-Partition Blocks</i> , to replace aggregates in the production of partition blocks	Several trial projects using partition wall blocks with recycled glass in existing government buildings have been completed. Further trial may be planned with the second supplier who could provide products with fire rating certificate starts its business.	May not be significant in public works but a market may exist for the private construction industry

	<b>Application</b>	<b>Latest Progress</b>	<b>Maximum Potential Capacity</b>
4.	<b><i>Blanket Drainage Layer</i></b> , to replace natural or recycled aggregate for constructing blanket drainage layers in landfills to facilitate the collection of leachate	Trial application of glass cullet as blanket drainage layer at landfill has been completed and the results are under review. Initial findings suggested that the application is technically feasible.	Up to 20 000 tonnes per year.
5.	<b><i>Cement Mortar</i></b> , to replace river sand in the production of cement mortar for building and refurbishment works	The Construction Industry Council has commissioned a study to assess the technical feasibility of using crushed glass to replace river sand in the production of cement mortar. The study will be completed in mid-2014.	Up to one million tonnes per year

Note:

1. Glassphalt is also a potential application being explored. That said, the application may not be very promising as preliminary research findings suggest that the use of glassphalt may weaken the engineering performance of asphalt and in turn jeopardise the long term integrity of asphalt pavement.