

**For information**  
**23 February 2004**

**Legislative Council Panel on Environmental Affairs**

**Measures to Promote the Prevention and Recovery  
of Municipal Solid Waste in Hong Kong**

**Purpose**

This paper informs Members of the updated progress of measures that the Government has taken to promote the prevention and recovery of municipal solid waste<sup>1</sup> (MSW).

**Background**

2. In 2003, about 6.5 million tonnes of wastes were disposed of in our three landfills. About 53% of them were MSW, 38% were construction waste, and 9% were special waste like sludge and animal carcasses.

3. We have developed three landfills<sup>2</sup> to meet our waste disposal needs. They occupy 270 hectares of land, cost \$6 billion to build and over \$400 million a year to operate. When planned in the 1980s, they were expected to serve our waste disposal need till 2020. However, as the amount of waste requiring disposal has been increasing, the landfills have been filling up much faster than expected. By the end of 2003, we only had a remaining landfill capacity of around 104 million tonnes. We project that the existing landfills would only last 7 to 11 years if waste continues to grow at the current trend.

4. Waste prevention and recycling is our main focus for tackling the waste problem. In our paper "Promoting Prevention and Recovery of Domestic Waste (Paper CB(1)2103/00-01(06)) submitted to this Panel in

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<sup>1</sup> Municipal solid waste includes domestic, commercial and industrial waste.

<sup>2</sup> They are located at Tseung Kwan O, Tuen Mun (Nim Wan) and North District (Ta Kwu Ling).

September 2001, we have set the following targets to facilitate evaluation of the effectiveness of the measures:

- (a) to contain the quantity of MSW requiring disposal to 3.4 million tonnes in 2004 and 3.7 million tonnes in 2007;
- (b) to raise the overall MSW recovery rate from 34% to 36% in 2004 and 40% in 2007; and
- (c) to raise the domestic waste recovery rate from 8% to 14% in 2004 and 20% in 2007.

### **Measures to Promote Waste Prevention and Recovery**

5. The following paragraphs report the updated position of the measures that we have taken to further promote waste prevention and recovery.

#### Strengthening Support for Waste Separation and Recovery

6. We have continued to test out various waste recovery systems in order to identify the modes that are the most cost-effective and will best suit local needs. Such systems include placement of waste separation bins at public venues and public/private housing estates to facilitate public participation in waste separation. We have placed over 27,000 waste separation bins at some 9,000 points throughout the territory. They cover parks, sports venues, leisure and cultural facilities, government buildings, hospitals, clinics, public/private housing estates, schools, refuse collection points and by the roadside.

7. Moreover, we have implemented a 12-month pilot project on wet/dry waste sorting since March 2003 in four housing estates in Eastern District so as to test the economics and logistics of this form of waste recovery. Under the pilot project, dry waste is separately collected and delivered to a designated site for re-sorting, where recyclables are recovered for recycling purpose. So far, the average amount of dry waste collected has been about 1 tonne per day, with a recovery rate of about 20%. The separated dry waste is sold to recyclers by tender, which proves that properly sorted recyclables have values in the market. Upon the completion of the

pilot scheme in March 2004, we will review the viability and cost-effectiveness of this form of waste recovery and decide on the way forward.

#### Making Available Land for Waste Recovery Operations

8. Recognizing that land is essential for primary processing of recovered materials, we have set aside 20 hectares of permanent land in Tuen Mun Area 38 for setting up a Recovery Park. We are now carrying out an environmental impact assessment study which is expected to complete in May 2004.

9. Separately, we have been providing land throughout the territory on short-term tenancies for exclusive use by the recycling industry. At present, 27 sites with a total area of about 5 hectares have been leased to recyclers under this arrangement. In the coming months, another three short-term tenancy sites in Yau Tong, Fanling and Tseung Kwan O will be available to recyclers.

#### Enhancing Community Participation and Involvement

10. In May 2002, we injected \$100 million into the Environment and Conservation Fund (ECF), of which about 60% has been earmarked for community waste recovery projects undertaken by community organisations and green groups etc. So far, the ECF has granted about \$13.8 million for 40 community waste recovery projects.

11. The Environmental Campaign Committee (ECC) has continued to organize territory-wide campaigns to promote waste prevention and recovery. For instance, it organizes campaigns at public/private housing estates, and schools to promote waste separation to residents and students. Waste prevention and recovery has been the main theme of the annual World Environment Day, Environmental Protection Festival, and Schools Environmental Award Scheme in the past few years. In addition, under the Hong Kong Eco-Business Award, both the public and private sectors are encouraged to implement measures to reduce/recycle waste as one of the important elements of environmental management practices.

## Enhancing Publicity and Public Education

12. We have been organizing publicity and public education programmes to promote waste prevention and recovery. These include exhibitions, seminars, visits by a theme van on waste problems and solutions to shopping centres, schools, and housing developments, etc. In 2003, we trained some 18,400 voluntary environmental protection ambassadors to promote waste reduction and recovery in schools, housing estates and the community. We have also developed education materials on waste separation and prevention for use by teachers in primary and secondary schools. Moreover, the Environmental Protection Department (EPD) has organized workshops for teachers to enhance their knowledge and teaching skills in waste issues. Waste reduction is also a main theme of the workshops for the student environmental protection ambassadors.

13. Moreover, we have continued to provide the hotline service, which provides information and advice on waste reduction and separation<sup>3</sup>.

## Government Leadership

14. To demonstrate leadership and set an example to the community, Government has taken various measures in waste reduction and recovery. For instance, we have urged all government bureaux and departments to reduce photocopying paper consumption by 10% by 2006-07, i.e. an annual reduction of 2.5%, using 2002-03 as the base year. Also, the recycled content required in the specification of recycled photocopying paper has been revised from 50% to 80%. We have extended the use of retreaded tyres to all government medium and heavy vehicles. Where practicable, departments involved in greening work are encouraged to use compost made from organic waste.

15. With regard to green procurement, the Government Logistics Department has been updating product specifications and tender assessment criteria by taking into account environmental considerations where practicable. EPD has commissioned a study, which will be completed soon, to update the green specifications of products. The study results would be useful for future reviews of the product specifications.

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<sup>3</sup> Such as information related to outlets for recovered materials, locations of waste separation bins, community waste reduction programmes, technical information and advice on recycling practices, etc.

## Product Responsibility Schemes

### (a) Batteries

16. Together with the telecommunication and mobile phone battery industries, EPD launched a pilot mobile phone battery recycling programme<sup>4</sup> in April 2002. This is the first voluntary product responsibility scheme in Hong Kong. Since the launch of the programme in April 2002, about 8.3 tonnes of mobile phone batteries (about 170,000 pieces) have been collected for recycling by the industry. Based on the experience from this pilot scheme, EPD has initiated discussion with the trade with a view to expanding the recycling programme to cover other types of rechargeable batteries<sup>5</sup> consumed in Hong Kong.

### (b) Waste Tyres

17. We have been looking into ways to further promote waste tyre recycling. To provide incentives for stakeholders to reuse/recycle waste tyres, we are exploring the feasibility of introducing a product responsibility scheme for waste tyres. In this regard, a working group, which was formed in May 2003 between EPD and the Hong Kong and Kowloon Rubber Tyres Commercial General Association, is examining various possible options. EPD has also commenced a regulatory impact assessment study in October 2003 to assess the costs and benefits of different options, their impacts on stakeholders, and to recommend a preferred option taking into account the views of stakeholders. The study is expected to complete in mid-2004. We would then consult the industry and stakeholders on the recommended option.

### (c) Others

18. Separately, we plan to conduct another regulatory impact assessment study on the implementation of product responsibility schemes for electrical and electronic equipment and for beverage containers in the second half of 2004.

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<sup>4</sup> The industries have extended the programme to March 2004.

<sup>5</sup> Such as general purpose rechargeable batteries (e.g. AA and AAA size) and batteries for notebook computers, digital cameras, video cameras, cordless phones and walkie-talkie etc.

## Closer Cooperation with the Business Sector

19. We have been working closely with the business sector, particularly property management companies, restaurants and hotels, with a view to encouraging them to take a more active role in waste reduction and prevention. Examples include leftover food donation programme, furniture and plastic bottles and textile recycling programmes specially designed for hotels, as well as plastic bag recovery programmes involving supermarket chains. In September 2003, EPD collaborated with property management companies and restaurants to launch a mooncake containers recovery trial. During the five-day collection period, 25 000 containers were collected from the public. In view of the satisfactory responses, we will encourage mooncake manufacturers, restaurants and property management companies to run a similar partnership recovery programme in 2004.

20. Since 1999, the ECC has been organizing the Hong Kong Eco-Business Awards each year to encourage businesses to adopt more environmental friendly practices in their operations. Waste reduction and recovery is one of the key assessment criteria for the Awards. EPD has also launched the “Wastewi\$e” Scheme to encourage businesses to organize waste reduction measures. So far, over 550 companies and institutions have enrolled in the Scheme and 196 have been awarded the “Wastewi\$e” logos to commend their achievement of waste reduction targets.

## Closer Cooperation with District Councils

21. EPD and ECC have been collaborating with District Councils<sup>6</sup> in carrying out various types of district-based waste prevention and recovery campaigns. We consider such campaigns extremely useful and meaningful, as the District Councils are in a better position to assess the needs of the districts, and at the same time can mobilize the support of local residents.

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<sup>6</sup> In 2002/3, EPD/ECC collaborated with Central & Western, Eastern, Islands, Kwai Tsing, Sai Kung, Shamshuipo, Southern, Tsuen Wan, Tuen Mun, Wanchai, Wong Tai Sin and Yuen Long District Council.

In 2003/04, EPD/ECC collaborated with Eastern, Wanchai, Southern, Tsuen Wan, Yuen Long, Sham Shui Po, Sai Kung, Kowloon City and Wong Tai Sin District Councils.

## Other Measures to Handle Difficult Waste

### (a) Plastic Bottles

22. As plastic bottles are bulky and light, their transportation cost is high, and some housing estates experience difficulties in securing recyclers to collect their recovered plastic bottles. To address this problem, EPD has since April 2001 hired contractors to collect plastic bottles from public/private housing estates to prevent them from being dumped in landfills. Currently, about 330 housing estates that have difficulties in handling plastic bottles are using this service.

23. Separately, the ECF has provided funding for the Hong Kong Productivity Council (HKPC) to develop compactors so as to reduce the bulkiness of plastic bottles and lower their average transportation cost. Field trials have been carried out to test the compactors and HKPC is now reviewing the technical aspect and cost-effectiveness of utilizing such compactors in collection of plastic bottles. Moreover, the ECF has provided funding support for 36 community waste recovery projects to test out different collection systems for plastic bottles, such as setting up mobile collection stations and collection centres.

### (b) Plastic Bags

24. We are also examining whether recycling of plastic bags is practicable and economically viable. In August 2002, we started placing plastic bag collection bins in eight housing estates and 24 supermarkets. The number of housing estates with the collection bins has now increased to 32. So far, about 13.6 tonnes of plastic bags (equivalent to about 2.4 million plastic bags) have been collected. As part of the review of the programme, EPD will soon carry out a survey to ascertain the attitude of residents towards the recovery of plastic bags.

### (c) Electrical & Electronic Appliances

25. We have been exploring the feasibility of utilizing waste management facilities to facilitate waste recovery. For instance, we set up in mid-2002 a pilot recycling plant at the North West New Territories Refuse Transfer Station in Tuen Mun to recover discarded electronic and electrical appliances collected in the nearby areas. So far, about 3,000 appliances have been recovered. We have extended the pilot programme to end-2004 and will review the cost-effectiveness of the plant and the recovery programme.

26. We have also engaged Caritas (Hong Kong) and St. James' Settlement to implement a territory-wide trial programme to recover computers and electrical appliances respectively since January 2003. The trial programme aims is to explore environmentally sound recycling outlets for used computers and electrical appliances, and examine the financial and operational requirements for running a long-term recycling programme. The trial programme has been well received by the public with the quantity collected exceeding the target by more than 30%, at over 25,000 units of computers and electrical appliances. The collected computers and electrical appliances are either donated to charitable organizations/needy or dismantled with the recovered parts sold to recyclers. In view of the success of the trial programme, we have extended the programme for a year until December 2004.

(d) Waste Tyres

27. We commenced a pilot programme to recycle waste tyres collected at the Kowloon Bay Transfer Station in April 2003. For the first 6 months, about 1,450 tonnes of waste tyres were recovered. The contractor used waste tyres collected to produce a lightweight geo-construction material which has been applied as filling material for road sub-base and slope<sup>7</sup>. Apart from saving the use of landfill space, the pilot programme has generated savings in landfill disposal cost of about \$1 million in the first 6 months. EPD is working to extend the programme to October 2004 to further assess its cost-effectiveness and sustainability. Separately, we are exploring the feasibility of introducing a product responsibility scheme for waste tyres (as mentioned in paragraph 17 above).

(e) Waste Glass

28. We have been trying to identify recycling outlets for waste glass and have engaged two universities in 2003 to carry out studies on the application of waste glass in construction and other uses. The studies, which are expected to complete by mid-2004, would provide useful information to determine whether long-term outlets for waste glass can be established in Hong Kong.

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<sup>7</sup> The recycled geo-construction material made from waste tyres has been used in a number of government projects: A temporary road for vehicles in Sai Sha Road extension works; a slope stabilization work in Shau Kei Wan; and lawn bowling greens in the Victoria Park and in Police Officers' Club.



*(f) Wood pallets*

29. We started a wood pallet recycling programme in October 2003 where wood pallets collected at the North Lantau Transfer Station and West Kowloon Transfer Station are cut into wood stripes for recycling in the Mainland. The programme will last six months.

*(g) Mercury Lamps*

30. We installed a set of equipment at the Chemical Waste Treatment Centre in late 2003 to recover mercury from fluorescent tubes and energy-saving lamps. The facility has started taking in mercury lamps disposed of by government departments. We estimate that about 400,000 lamps can be handled in the first year. We will then evaluate the effectiveness and logistics of the system to see if the service could be extended to recover mercury lamps arising from commercial buildings and other waste with mercury content.

**Results of the Measures**

31. We are moving towards our targets set out in paragraph 4 above, which indicate that our efforts to promote waste prevention and recovery have been generally effective. Details are as follows:

- (a) the quantity of MSW requiring disposal was maintained at 3.4 million tonnes each year from 2000 to 2003. This compares favourably with the 3.5% annual growth rate in the years before 2000;
- (b) the overall MSW recovery rate rose from 34% to 36% in 2002 and to about 41% in 2003<sup>8</sup>; and
- (c) the domestic waste recovery rate rose from 8% to about 13% in 2002<sup>9</sup>.

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<sup>8</sup> Initial data to be finalized.

<sup>9</sup> The domestic waste recovery rate for 2003 will be available in March 2004.

32. It is noteworthy that the overall waste recovery rate registered a 5% increase from 36% in 2002 to 41% in 2003. This is the largest yearly increase ever observed. While recognizing that the increase is mainly attributed to an unusual surge in metal recovery for the year as a result of a strong demand for waste metals in the Mainland, it also reflects that our measures to further promote waste prevention and recovery are effective.

33. We will continue with our existing measures to further promote waste separation and recovery in the coming year. In terms of costs, we spent about \$11 million in providing waste separation bins throughout the territory, and the recyclables collection cost was about \$4 million in 2003-04. Also, in 2003-04, EPD spent about \$4 million in organizing public education and publicity programmes on waste reduction and recovery. Through the ECF, \$13.8 million was given to support 40 community waste recovery projects, and \$3.3 million was granted to ECC for carrying out territory-wide campaigns on waste reduction and recovery.

34. In 2003, Hong Kong recovered about 2.4 million tonnes<sup>10</sup> of waste. Based on a landfill disposal cost of about \$125/tonne<sup>11</sup>, the diverted waste had saved some \$300 million in landfill disposal cost.

### **Other Waste-Related Issues**

35. In December 2003, we introduced into the Legislative Council (LegCo) the Waste Disposal (Amendment) (No.2) Bill 2003 which aims to introduce charging for the disposal of construction waste at landfills, sorting facilities and public fill reception facilities. Subject to the passage of the Bill and related regulations by LegCo, we aim to implement the charging scheme in late 2004.

36. Regarding the selection of technologies for the development of large-scale waste management facilities in Hong Kong, we invited expressions of interest from the local and international waste management industry in April 2002. In September 2002, we set up an advisory group, comprising mainly non-officials, to assist Government in considering the

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<sup>10</sup> Initial data to be finalized.

<sup>11</sup> The landfill disposal cost of \$125/tonne covers the construction, operation, restoration and post-completion environmental monitoring of the three existing landfills.

submissions. The group is now evaluating the proposed technologies in detail. We aim to report the group's recommendations in the fourth quarter of 2004.

37. As the three landfills will be filled up soon, there is an urgent need to find new sites for landfills to cater for Hong Kong's waste disposal needs. Hence, we commenced a preliminary study in February 2000 to examine the extension of the existing landfills and identify potential sites for new landfills. The study was completed in January 2003. Following a series of appraisals from planning, engineering and environmental perspectives, the Study has recommended that the extension of the three existing landfills and the setting up of a new landfill site in Tuen Mun are likely to be feasible and environmentally acceptable. We plan to carry out detailed feasibility and environmental impact assessment studies on the extension of the three landfills in 2004/2005. Detailed studies on the development of the new landfill site will be carried out at a later stage.

### **Conclusion**

38. Members are invited to note the progress of Government's measures to promote MSW prevention and recovery.

Environment, Transport and Works Bureau  
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