

Report No. 51 of the Director of Audit — Chapter 11

REDUCTION AND RECOVERY OF MUNICIPAL SOLID WASTE

Summary

1. Municipal solid waste (MSW) mainly comprises domestic waste, and commercial and industrial (C&I) waste. In 2007, 3.44 million tonnes of MSW were disposed of at landfills. The provision and operation of landfills in Hong Kong are costly. The three existing landfills, which occupy 270 hectares of land, cost \$6 billion to build and \$400 million a year to operate. The Audit Commission (Audit) has recently conducted a review to examine the economy, efficiency and effectiveness of the Environment Bureau and the Environmental Protection Department (EPD) in managing the disposal of MSW.

Strategic management of municipal solid waste

2. In order to make improvements on the disposal of MSW, the Government promulgated the “Waste Reduction Framework Plan” in 1998 (1998 Framework Plan) and “A Policy Framework for the Management of Municipal Solid Waste” in 2005 (2005 Policy Framework). According to the 2005 Policy Framework, the landfills would reach their full capacities in six to ten years’ time.

3. ***Need to reduce the reliance on landfills.*** Under the 1998 Framework Plan, the Administration set a target of reducing the quantity of MSW requiring disposal at landfills to 2.75 million tonnes by 2007 (in 2001, the target was revised to 3.7 million tonnes). **The 2005 Policy Framework further set out a target of reducing the MSW disposed of at landfills to less than 25% of the total MSW generated by 2014.** In 2007, 3.44 million tonnes of MSW, accounting for 55% of the MSW generated, were still disposed of at landfills. Some Asian cities only disposed of small percentages (3% to 16%) of their MSW at landfills. *Audit has recommended that the Secretary for the Environment should, in collaboration with the Director of Environmental Protection, expedite action with a view to reducing the Government’s reliance on landfills for MSW disposal.*

4. ***Need to meet MSW reduction target.*** According to the 2005 Policy Framework, the **quantity of MSW generated was targeted to be reduced by 1% per annum, from 2005 up to 2014, based on the 2003 level of 5.83 million tonnes.** **However, Audit found that the**

actual quantity of MSW generated was increasing. In 2007, 6.25 million tonnes of MSW were generated, exceeding the target quantity of 5.66 million tonnes by 10.4%. There was also an increase in the per capita MSW generated, from 1.99 kilograms per person per day in 1998 to 2.47 kilograms per person per day in 2007 (24% increase). Audit has recommended that the Secretary for the Environment should, in collaboration with the Director of Environmental Protection: (a) take necessary measures with a view to achieving the target on reduction of MSW generated as set out in the 2005 Policy Framework; (b) ascertain the reasons for the increase in the per capita MSW generated and take necessary measures to contain the increase; and (c) consider stepping up educational and publicity campaigns to promote the importance of a reduction in the per capita MSW generated.

5. **Merits of raising the MSW recovery rate target.** Audit noted that the MSW recovery rate target of 45%, originally set for achievement by 2009, had already been achieved in 2006. Audit has recommended that the Secretary for the Environment should, in collaboration with the Director of Environmental Protection, keep under review the need to raise the target on the recovery rate of MSW.

Progress of municipal solid waste recovery

6. **Recovery of putrescible waste.** In 2007, 1.36 million tonnes of putrescible waste (mainly food waste) were generated, accounting for 22% of the total MSW. Almost all the putrescible waste generated was disposed of at landfills. Audit noted that the disposal of putrescible waste at landfills would shorten the life spans of the landfills, and generate contaminated liquid and harmful gas. The EPD has planned to develop organic waste treatment facilities for treating and recycling putrescible waste collected from the C&I sector. The first phase would be commissioned in 2013 to treat and recycle 200 tonnes of putrescible waste a day. Audit has recommended that the Director of Environmental Protection should expedite action on the recovery and recycling of putrescible waste.

7. **Recovery of paper waste and plastic waste.** Paper waste and plastic waste were the two main types of recyclable waste, accounting for 55% of MSW generated in 2007. Audit noted that the Government had taken action to assist the paper and plastic recovery and recycling industries. The Lands Department had let out short-term tenancies on land exclusively for the recovery and recycling industries, and the EPD had developed the EcoPark for these industries. However, Audit noted that only 56% of paper waste and 57% of plastic waste were recovered, and the remaining were disposed of at landfills. Audit has recommended that the Director of Environmental Protection should take further measures to improve the recovery of paper waste and plastic waste.

Implementation of domestic waste-recovery programmes

8. Since 2005, the EPD had implemented a territory-wide Source Separation of Domestic Waste (SSDW) programme for recovering domestic waste at housing estates. The Environment Bureau had set the following performance targets under the SSDW programme: (a) to have 80% of population enrolled in the programme by 2010; (b) to extend the programme to cover all public rental housing estates by 2012; and (c) to increase the domestic waste recovery rate from 16% in 2005 to 26% in 2012.

9. *Evaluating programme effectiveness.* The EPD relied on the Census and Statistics Department's statistics collected from recycling traders to evaluate the performance of the SSDW programme. However, Audit examination revealed that the estimated quantities of domestic waste recovered based on the Census and Statistics Department's statistics might not represent the actual quantities of MSW recovered. Audit has recommended that the Director of Environmental Protection should: (a) monitor closely the achievements of the SSDW programme by reference to laid-down performance targets; and (b) consider conducting periodic surveys to estimate the quantities of recyclable waste recovered under the SSDW programme.

Implementation of non-domestic waste-recovery programmes

10. *Need to compile C&I waste-recovery rates based on statistics from C&I buildings.* In October 2007, the EPD launched a Source Separation of Commercial and Industrial Waste (SSCIW) programme. Under the programme, management offices of the participating C&I buildings were encouraged to implement measures for waste separation and recovery, and to provide quarterly returns on the quantities of waste recovered. Audit noted that the C&I waste recovery rate of 60% estimated by the EPD was based on information obtained from recycling traders. Audit has recommended that the Director of Environmental Protection should: (a) obtain statistics of recyclable waste recovered under the SSCIW programme from management offices of the participating C&I buildings; and (b) compile and publish the quantities of the C&I waste recovered as a result of the implementation of the SSCIW programme.

11. *Need to cultivate the importance of resource conservation among students.* Since 2000, the EPD, the Education Bureau and the Environmental Campaign Committee had implemented a waste-recovery programme at schools to enhance students' awareness of the importance of resource conservation and waste separation, and to encourage them to dispose of recyclable waste in waste-separation bins. Up to July 2008, 3,090 waste-separation bins had been provided to 67% of schools in Hong Kong. However, as compared with 2.81 million tonnes of MSW recovered in 2007, only 623 tonnes of recyclable waste were recovered from waste-separation bins at schools and public places. Audit supports the initiative to implement waste-recovery programmes at

schools, which would help cultivate a culture of environmental conservation among students. *Audit has recommended that the Director of Environmental Protection should, in collaboration with the Secretary for Education: (a) step up measures to enhance students' awareness of the importance of resource conservation and waste separation; and (b) provide adequate waste-separation bins for use by all schools as far as possible.*

12. *Need for improvement measures for waste-separation bins at public places.* Since 1998, the EPD had implemented waste-recovery programmes through the provision of waste-separation bins at public places to foster public participation in waste separation and recovery. As at July 2008, 6,560 waste-separation bins were provided at public places. Audit examination revealed that there were overflowing waste-separation bins at some public places, and instances where rubbish bins were not provided near waste-separation bins. Moreover, some refuse collection points in rural areas were not provided with waste-separation bins. *Audit has recommended that the Director of Food and Environmental Hygiene should, in collaboration with the Director of Environmental Protection: (a) take appropriate measures to minimise overflowing waste-separation bins at public places; and (b) provide waste-separation bins at refuse collection points in rural areas. Audit has also recommended that the Director of Food and Environmental Hygiene and the Director of Leisure and Cultural Services should, in collaboration with the Director of Environmental Protection, place rubbish bins near waste-separation bins at public places as far as practicable.*

Response from the Administration

13. The Administration has accepted the audit recommendations.

November 2008