CHAPTER 11

Environment Bureau
Environmental Protection Department

Reduction and recovery of municipal solid waste

Audit Commission
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This audit review was carried out under a set of guidelines tabled in the Provisional Legislative Council by the Chairman of the Public Accounts Committee on 11 February 1998. The guidelines were agreed between the Public Accounts Committee and the Director of Audit and accepted by the Government of the Hong Kong Special Administrative Region.

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REDUCTION AND RECOVERY OF MUNICIPAL SOLID WASTE

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PART 1: INTRODUCTION

1.1 This PART describes the background to the audit and outlines the audit objectives and scope.

Background

1.2 According to the Environmental Protection Department (EPD)'s classification, there are three main types of solid waste, namely:

(a) ***Municipal solid waste (MSW).*** This mainly comprises domestic waste, and commercial and industrial (C&I) waste;

(b) ***Construction waste.*** This arises from site clearance, excavation and construction; and

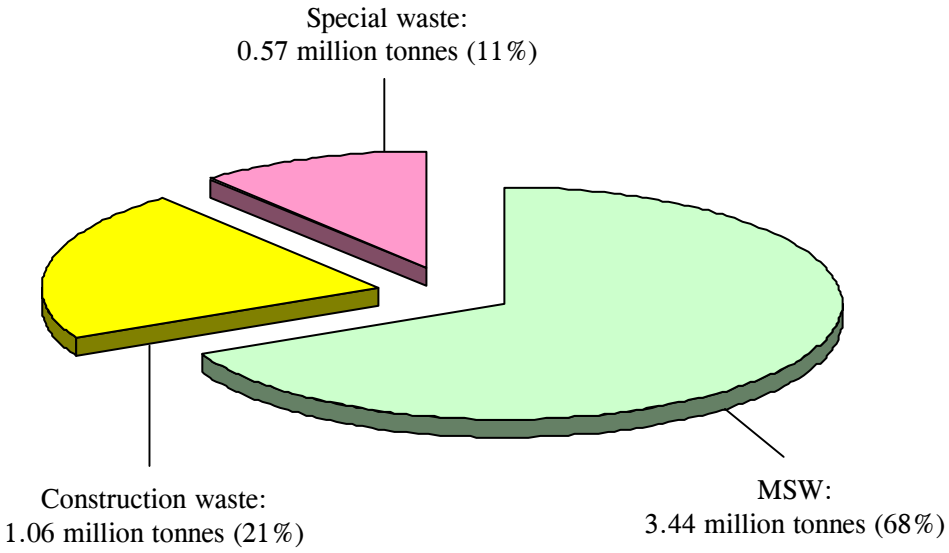
(c) ***Special waste.*** This includes clinical waste, animal carcasses, sludge, chemical waste and security waste. The disposal of such waste needs to meet safety and security requirements.

In 2007, a total of 5.07 million tonnes of solid waste (comprising MSW, construction waste and special waste — see Figure 1) were disposed of at three landfills (Note 1).

Note 1: *The three landfills are: (a) West New Territories Landfill at Nim Wan, Tuen Mun; (b) South East New Territories Landfill at Tai Chik Sha, Tseung Kwan O; and (c) North East New Territories Landfill at Ping Yeung, Ta Kwu Ling.*

Figure 1

Disposal of 5.07 million tonnes of solid waste at landfills (2007)



Source: EPD records

Director of Audit's Report on management of municipal solid waste

1.3 In Chapter 7 of the Director of Audit's Report No. 39 of October 2002, the Audit Commission (Audit) reported its observations on the implementation of the "Waste Reduction Framework Plan" of 1998, and the allocation of land to the waste recycling industry. Audit made a number of recommendations for improvement. The Environment Bureau (ENB — Note 2), the EPD and the Lands Department accepted and subsequently implemented the audit recommendations.

Note 2: *In July 2007, the ENB was formed to take up the environmental policy portfolio of the former Environment, Transport and Works Bureau. For simplicity, the Environment, Transport and Works Bureau is also referred to as the ENB in this Report.*

Audit review

1.4 In 2003, the Council for Sustainable Development (Note 3) was established. In 2004, the Council selected MSW management as an area for identifying sustainable practices. In December 2005, the Government published "A Policy Framework for the Management of Municipal Solid Waste" which set out some targets on reducing and recycling MSW (see PART 2).

1.5 Against the above background, Audit has recently conducted a review to examine the economy, efficiency and effectiveness of the ENB and the EPD in managing the disposal of MSW. The review focused on the following areas:

(a) strategic management of municipal solid waste (PART 2);

(b) progress of municipal solid waste recovery (PART 3);

(c) implementation of domestic waste-recovery programmes (PART 4); and

(d) implementation of non-domestic waste-recovery programmes (PART 5).

Audit has found that there are areas where improvements can be made in managing the disposal of MSW, and has made a number of recommendations to address the issues.

Acknowledgement

1.6 Audit would like to acknowledge with gratitude the full cooperation of the staff of the ENB, the EPD, the Food and Environmental Hygiene Department (FEHD), the Leisure and Cultural Services Department (LCSD) and the Education Bureau during the audit.

Note 3: *The Council comprises representatives from government departments, and the environment, social and business sectors as its members. The Council advises the Government on key issues relating to Hong Kong's long-term sustainability.*

PART 2: STRATEGIC MANAGEMENT OF MUNICIPAL SOLID WASTE

2.1 This PART examines the strategic management of MSW by the ENB and the EPD.

1998 Framework Plan

2.2 In November 1998, the Administration promulgated the Waste Reduction Framework Plan (hereinafter referred to as the **1998 Framework Plan**). The main objectives of the 1998 Framework Plan (Note 4) included:

(a) extending the useful lives of existing landfills;

(b) reducing the land required for new landfills in future;

(c) reducing the annual waste management costs;

(d) saving resources by encouraging the use of less raw materials; and

(e) enhancing public awareness of environmental protection.

2.3 The 1998 Framework Plan laid down the following two programmes for reducing MSW:

(a) ***Prevention of waste programme.*** This programme involved the reduction of MSW generated at source and increasing the quantities of waste recovered, recycled or reused; and

(b) ***MSW bulk reduction programme.*** This programme involved the development of waste-to-energy incinerators and composting plants to reduce the bulk of MSW requiring disposal at landfills.

2.4 The 1998 Framework Plan set the following waste reduction targets:

(a) extending the lives of the landfills from 2015 to 2019; and

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Note 4: *In addition to MSW, the 1998 Framework Plan also covered the management of construction waste.*

(b) reducing the annual amount of MSW requiring disposal at landfills from 4.57 million tonnes to 2.75 million tonnes by 2007.

2.5 According to the 1998 Framework Plan, the ENB would conduct two reviews of the implementation of the initiatives under the Plan: the first one in 2001 and the second one in 2005. **In January 2000, the EPD informed the Advisory Council on the Environment (ACE — Note 5) that it would monitor and report progress of implementing the initiatives under the Plan.**

Review of the 1998 Framework Plan in 2001

2.6 In 2001, after conducting a review of the progress in implementing the 1998 Framework Plan, the ENB found that:

(a) the time-frame of providing incinerators by 2007 under the MSW bulk reduction programme was no longer realistic; and

(b) there was a need to strengthen support for waste separation and recovery.

New MSW recovery targets set after the 2001 review

2.7 In 2001, in the light of the above-mentioned review findings, the ENB set new MSW recovery targets, as follows:

(a) by 2004, achieving an MSW recovery rate of 36% and a domestic waste recovery rate of 14% (Note 6);

(b) by 2007, achieving an MSW recovery rate of 40% and a domestic waste recovery rate of 20%; and

(c) containing the quantity of MSW requiring disposal to 3.4 million tonnes in 2004, and **3.7 million tonnes in 2007.**

Note 5: *The ACE is the Government's principal advisory body on matters relating to pollution control, environmental protection and nature conservation. Members of the ACE include academic, businessmen, professionals and representatives from major environmental groups, and trade and industrial associations.*

Note 6: *MSW mainly comprises domestic waste and C&I waste (see para. 1.2(a)).*

2.8 In September 2001, the ENB informed the Legislative Council Panel on Environmental Affairs and the ACE that it would implement the following measures on the recovery of domestic waste:

(a) providing long-term land for waste recovery and processing operations;

(b) strengthening support for waste separation and recovery activities;

(c) enhancing public education and community involvement in waste prevention and separation activities;

(d) taking the lead and setting an example in waste prevention and recovery;

(e) developing producer responsibility schemes; and

(f) involving the business community in waste prevention and recovery.

2.9 From 2003 to 2005, the Council for Sustainable Development (see Note 3 in para. 1.4) conducted a public engagement process (Note 7) to obtain stakeholders' views on MSW management. In February 2005, some Members of the Legislative Council urged the Administration to implement as early as possible a sustainable development plan for waste reduction, recovery and reuse.

2.10 In May 2005, based on the findings of the Council for Sustainable Development, the Administration published a Sustainable Development Strategy. The Strategy set out the following three objectives on solid waste management:

(a) as a community, to make every effort to avoid generating waste and to reduce the amount of MSW requiring final disposal, by adopting measures to facilitate the separation of discarded materials, the recovery and reuse of materials and the recycling of non-reusable materials;

(b) to apply the "user-pays principle" as a means of reducing volumes of waste for disposal; and

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Note 7: *The public engagement process on MSW management involved:*

(a) the publication of an "Invitation and Response" document in July 2004;

(b) the organisation of a series of workshops in 2003 and 2004; and

(c) the publication of the "Report on the Engagement Process" in February 2005.

(c) to adopt advanced technologies and practices to treat waste requiring final disposal and to create new economic opportunities.

2.11 In July 2005, the Legislative Council Panel on Environmental Affairs urged the Administration to draw up a holistic and comprehensive plan on MSW management.

2005 Policy Framework

2.12 In December 2005, the Government published "A Policy Framework for the Management of Municipal Solid Waste" (hereinafter referred to as the **2005 Policy Framework**). Under the 2005 Policy Framework, the ENB set the following three targets on MSW management:

Waste avoidance and minimisation

(a) reducing the quantity of MSW generated by 1% per annum up to 2014, based on the 2003 level;

Waste recovery, recycling and reuse

(b) increasing the recovery of MSW to 45% of the MSW generated by 2009 and **50% by 2014**; and

Bulk reduction and disposal of unrecyclable waste

(c) reducing the total MSW disposed of at landfills to **less than 25% of the MSW generated by 2014.**

The EPD periodically reported the progress of implementing the 2005 Policy Framework to the ACE and the Legislative Council Panel on Environmental Affairs.

2.13 In December 2005, the ENB informed the Legislative Council Panel on Environmental Affairs that:

(a) the target of 1% reduction in MSW generated per annum had taken into account the annual growth of 3% of MSW generated in Hong Kong; and

(b) therefore, the target represented a reduction rate of 4% per annum.

Implementation of the 2005 Policy Framework

2.14 The ENB and the EPD had been taking actions to implement measures as set out in the 2005 Policy Framework. These included:

Waste avoidance and minimisation

(a) ***Introducing charging for MSW.*** In February 2007, the EPD completed a three-month trial scheme on MSW charging. The EPD planned to appoint a consultant in late 2008 to carry out a survey to ascertain waste generation patterns and waste collection modes for identifying practicable options for MSW charging schemes;

Waste recovery, recycling and reuse

(b) ***Rolling out territory-wide source separation programmes.*** The programmes aimed to increase the recovery of recyclable waste. Details of the programmes are shown in PARTs 4 and 5;

(c) ***Introducing producer responsibility schemes.*** The producer responsibility schemes assigned responsibilities to appropriate parties to collect, recycle and properly dispose of used products that did not have a ready market. In July 2008, the Product Eco-responsibility Ordinance (Cap. 603 — Note 8) was enacted to provide the framework for producer responsibility schemes. In addition, up to July 2008, the EPD had implemented the following three territory-wide voluntary producer responsibility schemes funded by the business sector:

(i) rechargeable battery recycling scheme since April 2002;

(ii) computer recycling scheme since January 2008; and

(iii) fluorescent lamp recycling scheme since March 2008;

Note 8: *The objectives of the Product Eco-responsibility Ordinance are:*

(a) to lay down a statutory framework for introducing measures to minimise the environmental impact of certain types of products. These include plastic shopping bags, vehicle tyres, electrical and electronic equipment, packaging materials, beverage containers and rechargeable batteries; and

(b) to impose a levy on certain retailers for providing plastic shopping bags.

(d) ***Providing short-term land for recovery and recycling industries.*** Short-term tenancies (STTs) on suitable land sites were granted exclusively for the recovery and recycling industries (see para. 3.6);

(e) ***Developing the EcoPark.*** The EcoPark provided sites exclusively for the recovery and recycling industries on a long-term basis (see para. 3.7);

Bulk reduction and disposal of unrecyclable waste

(f) ***Developing integrated waste management facilities.*** The EPD proposed to develop integrated waste management facilities with incineration as the core technology, as stated in the 2005 Policy Framework. In January 2008, the EPD identified two potential sites suitable for developing the first phase of the facilities, taking into account environmental, technical and economic considerations as well as social impact. The EPD would continue public consultation on the proposed sites, and conduct engineering studies and environmental impact assessments of the two sites; and

(g) ***Extending landfill areas.*** The EPD was considering actions to expand the three existing landfills.

Audit observations and recommendations

Need to meet MSW reduction target

2.15 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%. Details are shown in Table 1.

Table 1

Comparison of target and actual quantities of MSW generated

Year	Target quantity (Note) (million tonnes)	Actual quantity (million tonnes)
2003	—	5.83
2004	—	5.71
2005	5.77	6.01
2006	5.71	6.23
2007	5.66	**6.25**
2014	5.25	—

Source: *Audit analysis of EPD records*

Note: *The target quantities were calculated based on the actual MSW generated in 2003 of 5.83 million tonnes as the base year, and a reduction of 1% per annum (i.e. 58,300 tonnes) from 2005 up to 2014.*

2.16 **Audit considers that the ENB and the EPD need to take necessary measures with a view to achieving the target on reduction of MSW generated as set out in the 2005 Policy Framework.**

Need to step up efforts to promote MSW reduction

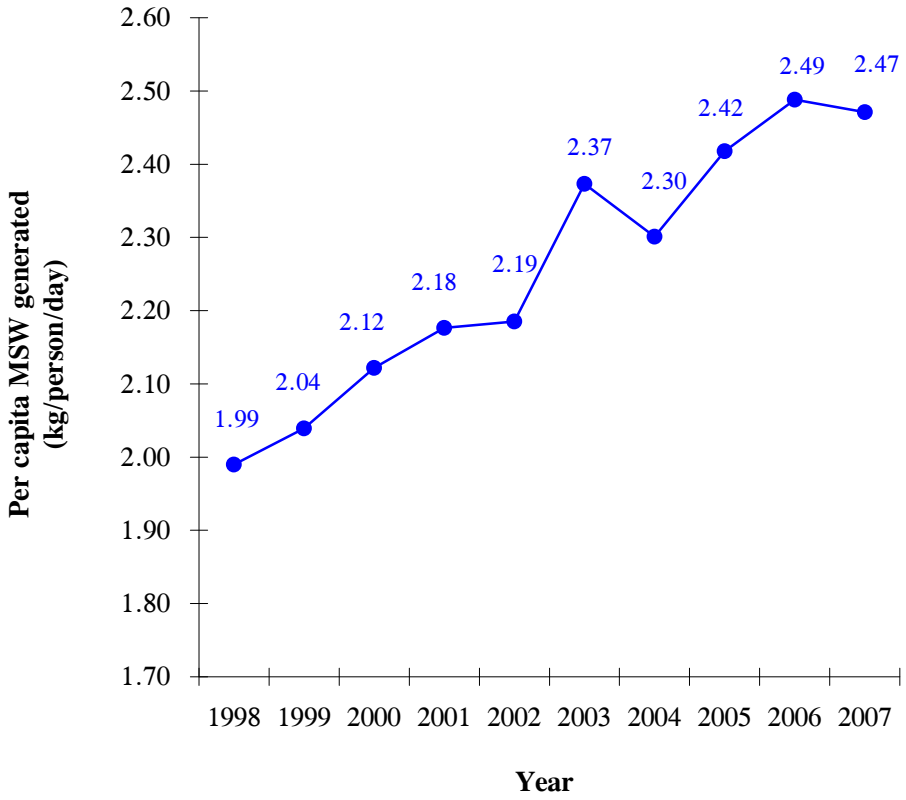
2.17 Audit noted that the increase in MSW was attributable to:

(a) an increase in population, from 6.54 million in 1998 to **6.93 million in 2007** (6% increase); and

(b) an increase in the per capita MSW generated, from 1.99 kilograms (kg) per person per day in 1998 to **2.47 kg per person per day in 2007** (24% increase). Details are shown in Figure 2.

Figure 2

Per capita MSW generated
(1998 to 2007)



Source: Audit analysis of EPD records

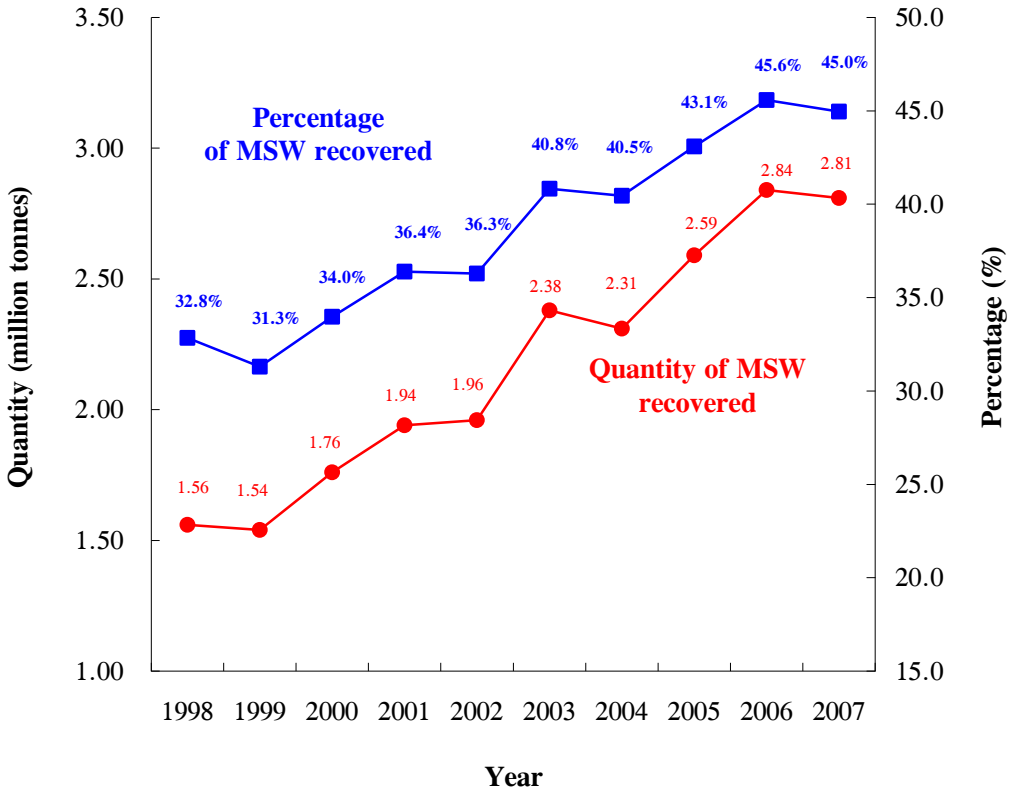
2.18 Audit noted that there was a significant growth in economic activities, particularly in tourism, in recent years, which might increase the quantities of C&I waste generated. In view of the significant increase in the per capita MSW generated, Audit considers that the ENB and the EPD need to ascertain the reasons for the increase and take necessary remedial measures. **The ENB and the EPD also need to consider stepping up educational and publicity campaigns to promote the importance of a reduction in the per capita MSW generated.**

Merits of raising the MSW recovery rate target

2.19 Another target set out in the 2005 Policy Framework was to increase the recovery of MSW to **45% of the MSW generated by 2009 and 50% by 2014.** Audit examination revealed that, in 2006 and 2007, the recovery rates were 45.6% and 45.0% respectively (see Figure 3).

Figure 3

MSW recovered for recycling (1998 to 2007)



Source: Audit analysis of EPD records

2.20 In February 2007, a Member of the Legislative Council enquired whether the ENB would suitably raise the target on the recovery rate of MSW, given that the recovery rate of MSW in 2005 already reached 43%. In response, the ENB said that:

(a) the waste recovery targets had been developed through a public engagement process (see para. 2.9) and proven to be realistic and practicable; and

(b) the Government would monitor the waste reduction trend in the coming years and considerations could be given to ascertaining whether it would be necessary to raise the target.

2.21 Audit noted that the MSW recovery rate target of 45% (originally set for achievement by 2009 — see para. 2.19) had already been achieved in 2006. **In Audit's view, the ENB should keep under review the need to raise the MSW recovery rate target.**

Need to reduce the reliance on landfills

2.22 The provision and operation of landfills are costly. The three existing landfills, which occupy 270 hectares of land, cost $6 billion to build and $400 million a year to operate. In comparison, some Asian cities only disposed of small percentages of their MSW at landfills (see Table 2).

Table 2

Disposal of MSW of some Asian cities
(2007)

City	Recovery/composting (%)	Disposed of by incineration (%)	Disposed of at landfills (%)
Singapore	54.0	43.0	**3.0**
Taipei	43.0	47.8	**9.2**
Tokyo (Note)	19.3	64.6	**16.1**
Hong Kong	45.0	0.0	**55.0**

Source: *EPD records and websites of environmental agencies of relevant Asian cities*

Note: *The data were for 2005 only because data for 2007 were not available.*

2.23 According to the 1998 Framework Plan, the Administration set a target on reducing the quantity of MSW requiring disposal at landfills to 2.75 million tonnes by 2007 (see para. 2.4(b)). Audit noted that, in 2007, 3.44 million tonnes of MSW were disposed of at landfills. Details are shown in Table 3.

Table 3

Disposal of MSW
(1998 to 2007)

Year	MSW generated	MSW recycled		MSW disposed of at landfills	
	Quantity (a) (million tonnes)	Quantity (b) (million tonnes)	Percentage (c) = $\frac{(b)}{(a)} \times 100\%$ (%)	Quantity (d) (million tonnes)	Percentage (e) = $\frac{(d)}{(a)} \times 100\%$ (%)
1998	4.75	1.56	32.8	3.19	67.2
1999	4.92	1.54	31.3	3.38	68.7
2000	5.18	1.76	34.0	3.42	66.0
2001	5.33	1.94	36.4	3.39	63.6
2002	5.40	1.96	36.3	3.44	63.7
2003	5.83	2.38	40.8	3.45	59.2
2004	5.71	2.31	40.5	3.40	59.5
2005	6.01	2.59	43.1	3.42	56.9
2006	6.23	2.84	45.6	3.39	54.4
2007	**6.25**	**2.81**	**45.0**	**3.44**	**55.0**

Source: Audit analysis of EPD records

2.24 **According to the 2005 Policy Framework, the three landfills would reach their full capacities in six to ten years' time. The Policy Framework set out a target of reducing the total MSW disposed of at landfills to less than 25% of the MSW generated by 2014. As shown in Table 3, in 2007, 55% of the MSW generated was still disposed of at landfills. Audit considers that the ENB needs to expedite action with a view to reducing the Government's reliance on landfills for MSW disposal.**

Audit recommendations

2.25 **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 (see para. 2.16);**

(b) **ascertain the reasons for the increase in the per capita MSW generated and take necessary measures to contain the increase (see para. 2.18);**

(c) **consider stepping up educational and publicity campaigns to promote the importance of a reduction in the per capita MSW generated (see para. 2.18);**

(d) **keep under review the need to raise the target on the recovery rate of MSW (see para. 2.21); and**

(e) **expedite action with a view to reducing the Government's reliance on landfills for MSW disposal (see para. 2.24).**

Response from the Administration

2.26 The **Secretary for the Environment** and the **Director of Environmental Protection** agree with the audit recommendations. The Director of Environmental Protection has said that:

(a) the EPD will continue to monitor the trend to ascertain the relationship between the per capita MSW generated and economic growth;

(b) the EPD will take measures to step up educational and publicity campaign to enhance public awareness about the importance of reduction in waste generation. The Government has earmarked $10 million under the Environment and Conservation Fund (Note 9) to promote environmental initiatives under the 2005 Policy Framework, including public education programmes on waste reduction and recovery;

(c) the EPD and the Environmental Campaign Committee (see para. 4.7) organise major events such as the Environmental Protection Festival each year to promote green living habits and highlight environmental issues of concern, focusing on waste recycling. The EPD and the Environmental Campaign Committee will continue to organise publicity campaigns and activities to further promote waste reduction to members of the public; and

(d) the EPD will continue to implement measures as set out in the 2005 Policy Framework to achieve the MSW recovery rate of 50% by 2014, and will keep under regular review the need to raise the MSW recovery rate target. The EPD will also expedite the development of new facilities so as to divert the MSW from the landfills. It has already commissioned the feasibility study on the development of organic waste treatment facilities. The feasibility study on the development of integrated waste management facilities will also be commissioned in late 2008.

Note 9: *The Environment and Conservation Fund was established in 1994 under the Environment and Conservation Fund Ordinance (Cap. 450). The Fund provides funding support for educational, research, technology demonstration and other projects and activities in relation to environmental and conservation matters, as well as community waste recovery projects. An Environment and Conservation Fund Committee was set up to consider applications for funding support under the Fund.*

PART 3: PROGRESS OF MUNICIPAL SOLID WASTE RECOVERY

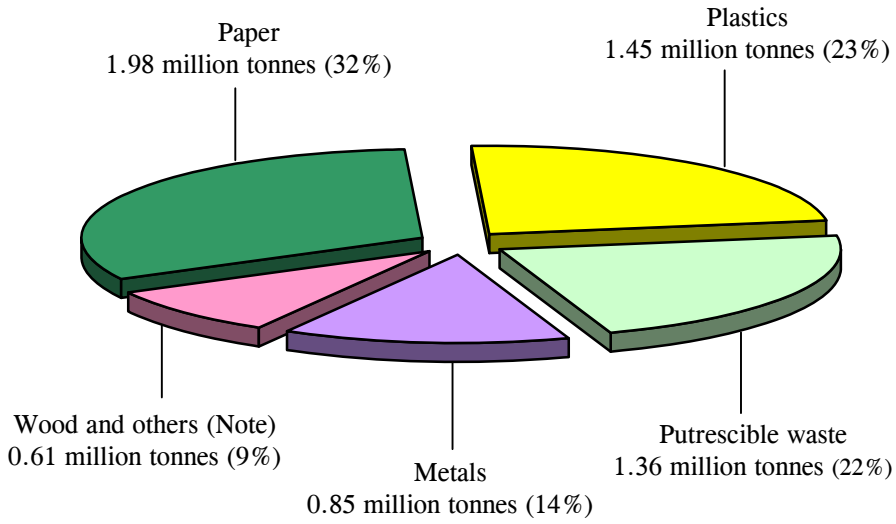
3.1 This PART examines the progress of the actions taken to recover MSW.

Recovery of municipal solid waste

3.2 In 2007, a total of 6.25 million tonnes of MSW were generated. The MSW included paper, plastics, putrescible waste (Note 10) and metals (see Figure 4).

Figure 4

Composition of MSW generated (2007)



Source: *Audit analysis of EPD records*

Note: *Others included electrical and electronic equipment, glass, textiles and tyres.*

Note 10: *Putrescible waste mainly comprises organic and food waste.*

3.3 Of the 6.25 million tonnes of MSW generated:

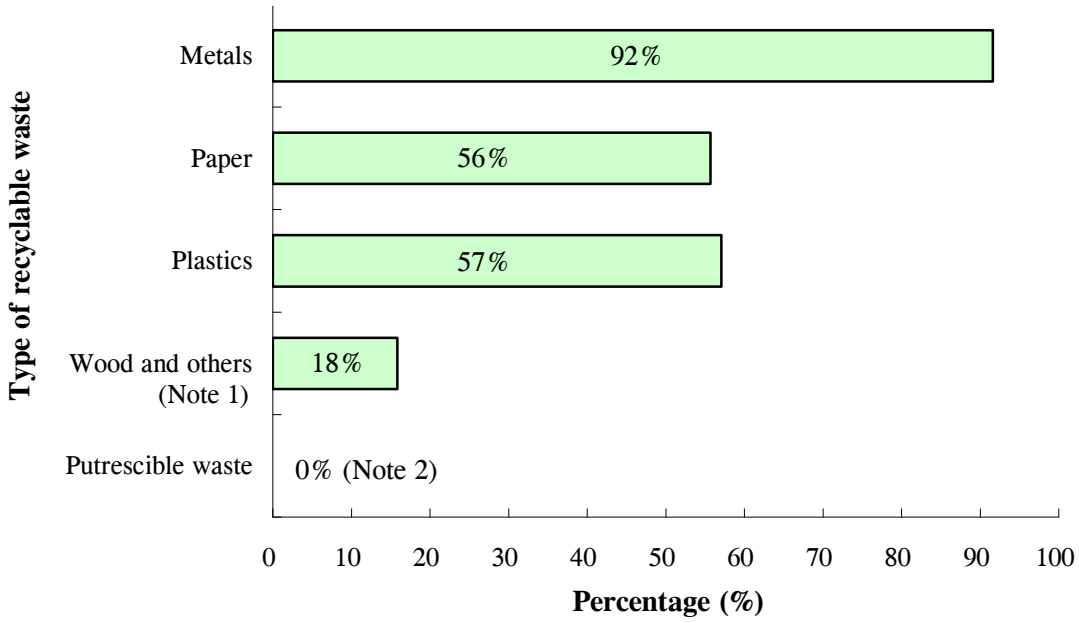
(a) 3.44 million tonnes (55%) were disposed of at landfills; and

(b) the remaining 2.81 million tonnes (45%) were recovered for recycling.

Figure 5 shows the percentages of different types of recyclable waste recovered in 2007.

Figure 5

Recovery of MSW
(2007)



Source: *Audit analysis of EPD records*

Note 1: *Others included electrical and electronic equipment, glass, textiles and tyres.*

Note 2: *In 2007, only an insignificant quantity of putrescible waste was recovered.*

3.4 In Hong Kong, waste is mainly recovered by recycling traders who collect recyclable waste (from manufacturers, suppliers, consumers and waste collection bins) and conduct separation and compression processes. The recyclable waste is mainly exported to other territories for recycling.

Major factors adversely affecting waste recovery and recycling activities

3.5 According to the "Waste Reduction and Recovery Factsheet" issued by the EPD in June 2008, the following constraints limited the extent of waste recovery and recycling activities in Hong Kong:

(a) although the environmental awareness of the general public had increased significantly in recent years, their willingness to actively participate in waste reduction still needed to be enhanced;

(b) the promotion of waste avoidance purely on environmental grounds might not be sufficient. As the cost of collecting and disposing of waste was not linked up directly to the quantity of waste generated (through charging), there was no financial incentive for waste producers to reduce waste;

(c) there was a lack of relevant statutory producer responsibility schemes to facilitate the collection and recovery of items such as waste tyres and electrical and electronic equipment that had marginal recycling values;

(d) the local environment inhibited recovery and recycling activities. Small flat sizes and small communal utility areas restricted waste separation and storage;

(e) low values, high transportation cost and lack of market demand for recyclable waste (particularly glass, wood, tyres and organic materials) hindered the development of the recycling industries;

(f) the majority of recovery and recycling operators were small-to-medium-size companies, which had difficulties in investing in waste recovery technologies; and

(g) high land and labour cost affected the economic viability of setting up local recycling facilities.

Exclusive tenancies to assist waste recovery and recycling industries

3.6 In order to assist waste recovery and the recycling industries, the Lands Department invited tenders and granted STTs on land exclusively for the industries. As at June 2008, there were 35 STTs covering 7 hectares of land exclusively granted for recovery and recycling of different types of waste, including paper, glass, plastics, metals, wood and tyres.

3.7 Furthermore, the EPD has developed an EcoPark of 20 hectares in Tuen Mun to provide long-term and affordable land to the waste recovery and recycling industries. As at June 2008, Phase I of the EcoPark was open and four tenancies had been awarded to recycling traders for processing used computer equipment, cooking oil waste, plastic waste and wood waste. By the end of 2008, the EPD would commence constructing Phase II of the EcoPark which was targeted for completion in 2009.

EPD action to treat and recycle putrescible waste

3.8 According to the EPD, there were two sectors generating putrescible waste, namely the domestic sector and the C&I sector. The domestic sector generated 2,800 tonnes of putrescible waste a day, and the C&I sector generated 900 tonnes a day. After source separation and biological treatment, putrescible waste could be transformed into products, such as compost (Note 11). According to the EPD:

(a) putrescible waste from the C&I sector could be more easily separated at source for collection; and

(b) for putrescible waste from the domestic sector which was mixed with the MSW, it could not be easily separated for collection.

3.9 In 2008, the EPD commissioned a pilot plant to treat and recycle putrescible waste from selected C&I establishments, such as hotels and catering operators. The plant would treat and recycle four tonnes of putrescible waste a day.

3.10 In August 2008, the EPD informed Audit that:

Note 11: *Compost is a product produced from the decomposition of organic materials, which can be added to soil to help plants grow.*

(a) the uncertain and limited marketability of recycled products from putrescible waste and the relatively high sorting and treatment cost were the main reasons for the very low recovery rate of such waste. Compost was a recycled product which could be used in agriculture or landscaping. However, due to the limited agricultural activities in Hong Kong, the local demand for compost was not big;

(b) the high land cost and nuisance and hygiene problems associated with sorting and treatment of putrescible waste hindered its development. Unlike other types of recyclable waste, putrescible waste could not be stored for a long time and transported over a long distance to recycling plants prior to treatment. There was little experience or information in Hong Kong with respect to sizable treatment of putrescible waste and marketability of the compost product;

(c) the pilot plant (see para. 3.9) would provide useful information and experience on source separation and treatment of putrescible waste, as well as on the application and marketability of the recovered products in Hong Kong; and

(d) in the medium term, the EPD planned to develop organic waste treatment facilities to treat source-separated putrescible waste from the C&I sector. The facilities would be developed in two phases, with each phase handling 200 tonnes of putrescible waste a day. Phase I of the organic waste treatment facilities was planned to be built at Siu Ho Wan of Lantau Island. It would be commissioned in 2013. Phase II was planned to be developed at Sha Ling of the North District, for commissioning after the mid-2010s.

Audit observations and recommendations

Need to expedite action to improve the recovery of putrescible waste

3.11 As shown in Figure 4, in 2007, 1.36 million tonnes of putrescible waste were produced, accounting for 22% of the total MSW. While 92% of metal waste, 56% of paper waste and 57% of plastic waste were recovered for recycling (see Figure 5 in para. 3.3), almost all the putrescible waste was disposed of at landfills (only an insignificant amount was recovered and recycled — Note 12). In 2007, 1.36 million tonnes of putrescible waste (39.5% of the 3.44 million tonnes — see para. 3.3(a)) were disposed of at landfills. The disposal of putrescible waste at landfills would:

Note 12: *According to the EPD, some institutions (such as the Airport Authority and Hongkong Disneyland) implemented programmes to treat and recycle a small amount of putrescible waste.*

(a) shorten the life spans of the three landfills; and

(b) generate leachate (Note 13) and landfill gas, which are harmful to the environment if not controlled properly.

3.12 The C&I sector produced 900 tonnes of putrescible waste a day. The EPD had implemented a pilot scheme to collect putrescible waste from selected C&I establishments and transport it to a plant (with a treatment capacity of four tonnes a day) for treatment and recycling (see para. 3.9). The EPD would develop organic waste treatment facilities, the first phase of which would be commissioned in 2013 to treat and recycle 200 tonnes of putrescible waste a day (see para. 3.10(d)). **In view of the fact that almost all putrescible waste was disposed of at landfills, and that such disposal was undesirable (see para. 3.11), Audit considers that the EPD needs to expedite action on the measures to minimise disposal of such waste at landfills.**

Need to improve the recovery of paper waste and plastic waste

3.13 As shown in Figure 4, paper waste and plastic waste were the two main types of recyclable waste accounting for 55% of MSW generated in 2007. In the same year, while 92% of metal waste (accounting for 14% of MSW generated) was recovered for recycling, only 56% of paper waste and 57% of plastic waste were recovered (see Figure 5). The majority of recovered paper waste and plastic waste was exported to other territories for recycling.

3.14 According to the EPD, the following two factors adversely affected the recovery and recycling of paper waste and plastic waste:

(a) paper waste and plastic waste were contaminated when they were mingled with other domestic waste; and

(b) the low density and bulky nature of plastic waste increased the cost of collection and required large storage areas.

Note 13: *Leachate is a highly contaminated liquid formed as a result of the decomposition of waste at landfills.*

3.15 Audit noted that the Government had taken action to assist the paper and plastic recovery and recycling industries. For example, the Lands Department had let out STTs on land exclusively for the recovery and recycling industries (see para. 3.6), and the EPD had also developed the EcoPark for these industries (see para. 3.7). **In view of the significant quantities of paper waste and plastic waste being disposed of at landfills, Audit considers that the EPD needs to take further measures to improve the recovery of paper waste and plastic waste.**

Audit recommendations

3.16 **Audit has *recommended* that the Director of Environmental Protection should:**

(a) **expedite action on the recovery and recycling of putrescible waste (see para. 3.12); and**

(b) **take further measures to improve the recovery of paper waste and plastic waste (see para. 3.15).**

Response from the Administration

3.17 The **Director of Environmental Protection** agrees with the audit recommendations. She has said that:

(a) the EPD has commissioned the feasibility study on the development of the organic waste treatment facilities and will expedite the development of new facilities to divert putrescible waste from the landfills; and

(b) the EPD has commissioned the Hong Kong Business Environment Council (Note 14) to carry out a "Study on Waste Paper and Plastics Generation and Recovery in the C&I Sector in Hong Kong". The Study will be completed by early 2009 and the findings can help further improve the recovery of paper waste and plastic waste.

Note 14: *The Hong Kong Business Environment Council was set up in 1989 to promote corporate social and environmental responsibility. Members of the Council included representatives mainly from industrial and business organisations.*

PART 4: IMPLEMENTATION OF DOMESTIC WASTE-RECOVERY PROGRAMMES

4.1 This PART examines the EPD's implementation of the domestic waste-recovery programmes, which mainly involved the territory-wide Source Separation of Domestic Waste (SSDW) programme.

Recovery of domestic waste

4.2 Based on the Census and Statistics Department's statistics collected from recycling traders about the quantities of different types of recyclable waste exported, and the EPD's survey statistics collected from recycling traders about the quantities of domestic waste recovered, the EPD estimated the quantities and recovery rates of domestic waste recovered from 2005 to 2007 (see Table 4).

Table 4

Estimated quantities of domestic waste recovered (2005 to 2007)

Year	Waste generated	Waste recovered	
	Quantity **(a)** **('000 tonnes)**	**Quantity** **(b)** **('000 tonnes)**	**Recovery rate** **(c) = $\frac{(b)}{(a)}$ × 100%** **(%)**
2005	2,979	487	16.3%
2006	3,042	621	20.4%
2007	3,077	751	24.4%

Source: Audit analysis of EPD records

In 2007, of the 6.25 million tonnes of MSW generated (see Table 3 in para. 2.23), 3.08 million tonnes (49%) were domestic waste.

Waste-recovery programmes

4.3 Since 1998, the EPD had implemented waste-recovery programmes through the provision of waste-separation bins for collecting waste paper, aluminium cans and plastic bottles at housing estates, schools and public places. These programmes aimed to foster public participation in waste separation and recovery. Since 2004, the programmes had been extended to cover other plastic recyclable waste, such as plastic shopping bags, compact discs, and other metal recyclable waste like metal biscuit tins. As at July 2008, about 28,000 waste-separation bins were provided (see Table 5).

Table 5

Provision of waste-separation bins
(July 2008)

Location	Number of bins
Public housing estates and government quarters	8,830
Private housing estates	9,520
Public places	6,560
Schools	3,090
Total	**28,000** (Note)

Source: EPD records

Note: The quantity did not include the number of bins provided at private estates not participating in the SSDW programme or at C&I buildings.

Waste-recovery programme at housing estates

4.4 In 2004, the EPD launched a 12-month pilot SSDW programme for recovering domestic waste at public and private housing estates in the Eastern District. Under the programme:

(a) waste-separation facilities were provided on each floor of housing blocks to facilitate residents to separate waste at source; and

(b) in addition to waste paper, aluminium cans and plastic bottles, the types of recyclable waste were expanded to include other plastic waste, such as plastic shopping bags and compact discs, and other metal waste, such as metal biscuit tins.

4.5 During the pilot programme, there was a significant increase in the quantity of waste recovered at some participating estates. In the light of the positive results, the EPD launched a territory-wide SSDW programme in January 2005. The objective of the programme was to encourage households to separate waste at source, which would help improve waste recovery and recycling. The EPD encouraged and assisted property management companies to provide waste-separation facilities on each building floor, making it more convenient for residents to separate waste at source and increase the types of recyclable waste for recovery.

4.6 In 2007, the EPD spent $9.5 million on campaigns to promote the SSDW programme. The publicity and promotional activities included:

(a) advertisements on television and radio, and in newspapers;

(b) distributing leaflets and displaying posters and banners at participating housing estates; and

(c) organising forums, talks, exhibitions, road shows and award presentation ceremonies.

4.7 In response to Audit's enquiry, in September 2008, the EPD said that in order to facilitate more households to participate in waste recycling and to boost up the domestic waste recovery rate, the Environmental Campaign Committee (Note 15) had committed $5 million for providing waste-separation bins at housing estates (including public and private housing estates) or single-block residential buildings. The EPD expected that the bins would be ready for distribution by late 2008 for housing estates or residential buildings which joined the SSDW programme.

Note 15: *The Environmental Campaign Committee was set up in 1990 to promote public awareness of the importance of environmental conservation. Members of the Committee included representatives from relevant bureaux and departments, green groups, the education sector and industrial and business organisations.*

Performance targets

4.8 The ENB set the following performance targets under the SSDW programme:

(a) by 2010, 5.6 million (i.e. 80% of Hong Kong's population of 7 million) people would enrol in the programme;

(b) by 2012, the programme would be extended to cover all public rental housing estates; and

(c) the domestic waste recovery rate would increase from 16% in 2005 to 26% in 2012.

Achievement of the SSDW programme

4.9 As at December 2007, 987,000 households (44% of the total 2,252,000 households) living in 766 estates or buildings participated in the SSDW programme. Under the programme, waste-separation facilities were either placed on each floor or only on the ground floor of each building. The management offices of the participating estates or buildings submitted to the EPD monthly returns on the quantities of domestic waste recovered. Based on the returns, the EPD estimated that, after implementing the SSDW programme:

(a) the waste recovery rate at housing estates provided with waste-separation facilities on each floor increased from 7.44 kg/household/month by 50.6% to 11.20 kg/household/month; and

(b) the waste recovery rate at housing estates provided with waste-separation facilities only on the ground floor increased from 3.01 kg/household/month by 68.9% to 5.08 kg/household/month.

4.10 The EPD published an Annual Update on the achievements of the SSDW programme. According to the 2007 Annual Update:

(a) there was a 50.6% to 68.9% increase in the waste recovery rates after the estates or buildings concerned had participated in the programme (see para. 4.9);

(b) there were 766 estates or buildings participating in the programme; and

(c) 2.96 million (42% of the population of 7 million) people participated in the programme.

Commendation scheme for the SSDW programme

4.11 In 2006, the EPD launched a commendation scheme for the SSDW programme. Under the scheme:

(a) a participating estate or building would be given one of the following awards if its recovered domestic waste reached some thresholds:

(i) a Diamond Award — if the domestic waste recovered was equal to or greater than 30 kg/household/month;

(ii) a Gold Award — if the domestic waste recovered was equal to or greater than 22 but less than 30 kg/household/month;

(iii) a Silver Award — if the domestic waste recovered was equal to or greater than 17 but less than 22 kg/household/month;

(iv) a Bronze Award — if the domestic waste recovered was equal to or greater than 10 but less than 17 kg/household/month; and

(v) a Certificate of Merit — if the domestic waste recovered was less than 10 kg/household/month;

(b) a participating estate or building which had received a Bronze Award or above and had actively organised activities to promote the programme would be eligible for an Award for Promotion; and

(c) the ten estates or buildings having the largest quantities of domestic waste recovered (in terms of quantity per household per month) would be granted an Award for Highest Recyclable Waste Quantity.

Trial SSDW programme at single-block residential buildings

4.12 In January 2007, the EPD implemented a trial SSDW programme for single-block residential buildings in Sham Shui Po. The objective was to identify appropriate arrangements for waste recovery at these buildings. Under the programme, the EPD set a target of not less than 3 kg/household/month for each participating building.

Waste recovery at new domestic buildings

4.13 Most existing domestic buildings neither have a refuse storage and material recovery room on each floor nor sufficient space for waste-separation facilities. In May 2008, the Building (Refuse Storage and Material Recovery Chambers and Refuse Chutes) Regulations (Cap. 123H) was amended. With effect from December 2008, under the amended Regulations, a refuse storage and material recovery room is required to be provided on every floor of a new domestic building or the domestic part of a new composite building (Note 16).

Audit observations and recommendations

Evaluating the SSDW programme effectiveness

4.14 According to the EPD, it relies on the Census and Statistics Department's statistics collected from recycling traders to evaluate the performance of the SSDW programme (see para. 4.2). In view of the fact that some residents, domestic helpers and cleansing workers might directly take recyclable waste to recycling traders without going through the SSDW programme, **Audit considers 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 under the programme.**

4.15 In June 2008, for the purpose of evaluating the effectiveness of the SSDW programme, Audit requested the EPD to provide information about the quantities of domestic waste recovered under the SSDW programme. In response, the EPD informed Audit that it could not compile such information due to the following:

(a) the quantities of recyclable waste recovered, as reported by the participating housing estates, might only reflect a portion of the actual quantities recovered. Residents might choose to put recyclable waste into the waste-separation bins provided by their buildings/estates or take recyclable waste directly to the recycling traders; and

(b) the submission of information on the quantities of recyclable waste recovered was voluntary. Not all estates or buildings submitted such information to the EPD if they did not join the commendation scheme.

Note 16: *A composite building is one partly used for domestic purposes and partly for non-domestic purposes.*

4.16 **Audit considers that the EPD needs to monitor the achievement of the SSDW programme (see para. 4.8). There are also merits for the EPD to directly estimate the quantities of recyclable waste recovered as a result of implementing the programme.** The EPD may consider conducting periodic surveys to obtain information from households enrolled in the SSDW programme for estimating the quantities of recyclable waste recovered under the programme.

Audit recommendations

4.17 **Audit has *recommended* that the Director of Environmental Protection should:**

(a) **monitor closely the achievement of the SSDW programme by reference to laid-down performance targets (see para. 4.16); and**

(b) **consider conducting periodic surveys to estimate the quantities of recyclable waste recovered under the SSDW programme for information of stakeholders and the general public (see para. 4.16).**

Response from the Administration

4.18 The **Director of Environmental Protection** agrees with the audit recommendations. She has said that:

(a) the EPD will consider conducting periodic surveys to estimate the quantities of recyclable waste recovered under the SSDW programme;

(b) through territory-wide promotion of the SSDW programme, the message of source-separation of waste is widely disseminated in the community. More residents, which include those living in buildings/estates that have not yet joined the programme, are practising source-separation of waste; and

(c) the programme has improved the waste recovery in Hong Kong. The increased quantities of recyclable waste collected have contributed to the overall achievement of the programme.

PART 5: IMPLEMENTATION OF NON-DOMESTIC WASTE-RECOVERY PROGRAMMES

5.1 This PART examines the EPD's implementation of the non-domestic waste-recovery programmes at C&I buildings, schools and public places.

Recovery of waste from commercial and industrial buildings

5.2 Waste at C&I buildings is normally sorted for recovery by cleansing contractors/workers. The quantities of waste recovered from C&I buildings are shown in Table 6.

Table 6

Recovery of C&I waste
(2005 to 2007)

Year	Waste generated	Waste recovered	
	Quantity **(a)** **('000 tonnes)**	**Quantity** **(b)** **('000 tonnes)**	**Recovery rate** **(c) = $\frac{(b)}{(a)} \times 100\%$** **(%)**
2005	2,556	1,626	63.6%
2006	2,654	1,689	63.6%
2007	2,904	1,789	61.6%

Source: Audit analysis of EPD records

5.3 In 2007, of the 6.25 million tonnes of MSW generated (see Table 3 in para. 2.23), 2.9 million tonnes (46%) were C&I waste.

Waste-recovery programmes at commercial and industrial sector

5.4 In October 2007, the EPD launched a Source Separation of Commercial and Industrial Waste (SSCIW) programme. Under the programme, the management offices of C&I buildings were encouraged to implement measures for waste separation and recovery. The EPD spent about $1 million a year on promotion of the programme.

5.5 Up to June 2008, 330 C&I buildings had participated in the SSCIW programme. The buildings included commercial buildings, government office buildings, shopping arcades, industrial buildings, warehouses and car parks.

5.6 According to the EPD, it encouraged management offices of C&I buildings participating in the SSCIW programme to provide quarterly returns on the quantities of waste recovered. As at June 2008, of the 330 C&I buildings which participated in the programme, 130 buildings (39%) had submitted quarterly returns.

5.7 In July and September 2008, in response to Audit's enquiry, the EPD said that:

(a) the SSCIW programme was launched in October 2007 and was still in an early implementation phase;

(b) the recovery rate of the C&I waste was relatively high. The EPD did not anticipate a further significant increase in the recovery rate. The EPD would remind people of the importance of waste separation both at home and at the workplace;

(c) at present, the target was to encourage more participants to join the programme. The EPD would conduct a review in early 2009 when more data would be collected and analysed, and would consider setting other performance targets;

(d) in order to encourage more participants to join the programme, the Environmental Campaign Committee (see Note 15 in para. 4.7) had extended its programme to provide waste-separation bins for the C&I sector. The C&I buildings provided with the bins would join the programme; and

(e) the EPD had obtained approval from the Environment and Conservation Fund Committee (see Note 9 in para. 2.26(b)) for extending the scope of the Fund to cover C&I buildings.

Audit observations and recommendations

Need to compile C&I waste-recovery rates based on statistics from C&I buildings

5.8 In February 2008, after the implementation of the SSCIW programme, the EPD informed the Legislative Council Panel on Environmental Affairs that the overall recovery rate of C&I waste was 60%. Audit notes that the 60% recovery rate was estimated based on information obtained from recycling traders. **In Audit's view, the EPD needs to obtain statistics of recyclable waste recovered under the SSCIW programme from management offices of the participating buildings.** The statistics would facilitate the EPD's compilation of waste-recovery rates for evaluating the effectiveness of the programme.

Merits of introducing commendation scheme for the SSCIW programme

5.9 As mentioned in paragraph 4.11 above, the EPD has implemented a commendation scheme for the SSDW programme. **Audit considers that operating a similar commendation scheme for the C&I sector may provide incentives to occupants of participating buildings under the SSCIW programme.**

Audit recommendations

5.10 **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 (see para. 5.8);**

(b) **compile and publish the quantities of the C&I waste recovered as a result of the implementation of the SSCIW programme (see para. 5.8); and**

(c) **consider introducing a commendation scheme for the SSCIW programme (see para. 5.9).**

Response from the Administration

5.11 The **Director of Environmental Protection** agrees with the audit recommendations. She has said that the EPD:

(a) has requested participants of the SSCIW programme to submit regular returns in prescribed form, and compiled statistics based on the returns. The return rate has reached about 40%. The EPD will, through further communications with the participants, endeavour to encourage better response;

(b) will compile and publish data obtained from participants of the SSCIW programme; and

(c) will consider introducing a commendation scheme similar to the one for the SSDW programme.

Waste-recovery programmes at schools and public places

5.12 The following government bureau/departments, in collaboration with the EPD, are involved in waste-recovery programmes at schools and public places (Note 17):

Schools

(a) ***Education Bureau, EPD and Environmental Campaign Committee.*** They have, since 2000, implemented a waste-recovery programme at schools. Under the programme, the EPD and the Environmental Campaign Committee coordinate the provision of waste-separation bins at schools;

Public places

(b) ***LCSD.*** It provides waste-separation bins at public recreational venues and cultural centres;

Note 17: *The quantities of waste generated from schools and public places were insignificant. For statistical purposes, the EPD includes the quantities of waste generated from schools and public places in the quantities of domestic waste generated.*

(c) ***FEHD.*** It provides waste-separation bins on pedestrian walkways and at other public places. It is also responsible for collecting recyclable waste recovered from schools and public places;

(d) ***Agriculture, Fisheries and Conservation Department.*** It provides waste-separation bins at country parks for collecting both recyclable waste and rubbish (see Photograph 1); and

(e) ***Other government departments (e.g. the Government Property Agency and the Department of Health).*** They provide waste-separation bins at other government premises and institutions (e.g. government office buildings and clinics).

Photograph 1

A waste-separation-cum-rubbish bin at a country park

Source: Photograph taken by Audit in May 2008

Table 7 shows the quantities of recyclable waste collected from waste-separation bins provided at schools and public places.

Table 7

Recyclable waste collected from schools and public places (2003 to 2007)

Year	Paper (a) (tonnes)	Aluminium cans (b) (tonnes)	Plastic bottles (c) (tonnes)	Total (d)=(a)+(b)+(c) (tonnes)
2003	690	10	210	910
2004	550	20	160	730
2005	325	24	146	495
2006	518	25	94	637
2007	504	10	109	623

Source: *EPD records*

Remarks: *Since May 2005, recyclable waste collected has included all plastic materials, and since May 2006, it has included all metal containers.*

5.13 In July 2008, in response to Audit's enquiry, the EPD said that:

(a) the main reason for the low quantity of recyclable waste recovered from waste-separation bins placed at schools and public places was that scavengers sometimes collected and sold the recyclable waste to the recycling traders;

(b) waste-separation bins were mainly used by people with a high degree of environmental awareness;

(c) people normally generated small quantities of recyclable waste at public places;

(d) sometimes garbage might be dumped into waste-separation bins by non-caring people. Recyclable waste, being mingled with the other garbage, could not be separated for recycling; and

(e) despite the low quantity of recyclable waste recovered, the waste-separation bins provided at schools and public places played an important role in enhancing public awareness, especially for students, on the importance of waste recycling. The provision of these bins also facilitated public participation in waste recovery at streets and the workplace. Overseas countries and cities had similar experience in the provision of waste-separation bins at public places.

Waste-recovery programme at schools

5.14 Under the waste-recovery programme at schools (see para. 5.12(a)), waste-separation bins were provided at schools. The recyclable waste collected would be taken to nearby recyclable waste collection points for collection by the FEHD contractors. The main objectives of the programme were to:

(a) enhance students' awareness of the importance of resource conservation and waste separation; and

(b) encourage students to dispose of paper, metal and plastic waste in waste-separation bins for recovery and recycling.

Up to July 2008, 3,090 waste-separation bins had been provided to 67% of schools in Hong Kong.

Waste-recovery programme at public places

5.15 People are more willing to separate waste if waste-separation bins are provided at convenient locations. As at July 2008, 6,560 waste-separation bins were provided at public places. Recyclable waste disposed of at the waste-separation bins was collected by the FEHD's contractors at least once a week.

5.16 In July 2006, at a meeting of Waste Management Subcommittee of the ACE (see Note 5 in para. 2.5), members suggested that:

(a) waste-separation bins and rubbish bins should be placed together for the convenience of the public;

(b) the collection frequency of recyclable waste from waste-separation bins should be improved to avoid overflow; and

(c) the design and size of waste-separation bins could be improved to cater for different usage patterns.

Audit observations and recommendations

Need to cultivate the importance of resource conservation among students

5.17 In July 2008, in response to Audit's enquiry, the EPD said that:

(a) there was a need to increase the number of waste-separation bins provided at schools if space was available. The next step forward was to enhance the waste recovery at schools through the provision of waste-separation bins on a floor-to-floor basis; and

(b) in 2008, the Environmental Campaign Committee provided $6 million for providing waste-separation bins at schools. The EPD aimed to complete the production of the bins for distribution to schools by late 2008 or early 2009.

5.18 Audit supports the initiative of the EPD and the Education Bureau to implement waste-recovery programmes at schools which would help cultivate a culture of environmental conservation among students. **The EPD, in collaboration with the Education Bureau, needs to step up measures to ensure that sustained efforts are made in enhancing students' awareness of the importance of resource conservation and waste separation. There is a need to provide adequate waste-separation bins for use by schools to facilitate the implementation of the waste-recovery programmes.**

Need for improvement measures for waste-separation bins at public places

5.19 ***Need to minimise overflowing waste-separation bins.*** In April 2008, Audit field inspections revealed overflowing waste-separation bins at some public places (see Case A).

Case A

Overflowing waste-separation bins

Audit field inspections revealed overflowing waste-separation bins at some public places. An example is shown at Photograph 2. In July 2008, in response to Audit's observation, the FEHD said that:

- its contractor would collect recyclable waste from various collection points at least once a week or as and when the waste-separation bins were 70% full. It would monitor the collection service through routine inspections and surprise checks; and

- it had taken the following rectification actions on overflowing waste-separation bins (see Photograph 2):

  - replacing the dilapidated 240-litre waste-separation bins by new 300-litre bins; and

  - placing rubbish bins adjacent to the waste-separation bins. Members of the public could put non-recyclable waste into rubbish bins.

Photograph 2

Overflowing waste-separation bins at a public place

12 April 2008
Before rectification

26 July 2008
After rectification

Source: Photographs taken by Audit

5.20 **Audit considers that the FEHD should take appropriate measures to minimise overflowing waste-separation bins at public places.** These may include revising the collection frequency of recyclable waste, improving the design and size of waste-separation bins, and advising the public to compress the waste where practicable.

5.21 ***Need to provide rubbish bins near waste-separation bins***. In June 2008, Audit field inspections revealed that, at some public places, rubbish bins were not provided near waste-separation bins (see Case B).

Case B

Rubbish bins not provided near waste-separation bins

In June 2008, Audit field inspections revealed that:

- 22 rubbish bins were provided at the Avenue of Stars in Tsim Sha Tsui but no waste-separation bins were provided (an example is shown at Photograph 3); and

- rubbish bins were not provided at the same place of waste-separation bins at the Tsim Sha Tsui Promenade (an example is shown at Photograph 4).

In July and September 2008, in response to Audit's observations, the LCSD said that:

- it had provided waste-separation bins at the Avenue of Stars. It would provide additional bins at the venues during special festive days (e.g. Christmas and Lunar New Year);

- it had made improvement to the provision of waste-separation bins in Tsim Sha Tsui (see Photograph 4); and

- it would place rubbish bins near waste-separation bins as far as practicable.

Photograph 3

A rubbish bin at Avenue of Stars in Tsim Sha Tsui (waste-separation bins not provided nearby)

Source: Photograph taken by Audit in June 2008

Photograph 4

Waste-separation bins and a rubbish bin at Tsim Sha Tsui Promenade

10 June 2008
Before improvement

25 July 2008
After improvement

Source: Photographs taken by Audit

5.22 **Audit considers that the FEHD and the LCSD should place rubbish bins near waste-separation bins at public places as far as practicable.**

5.23 ***Need to provide waste-separation bins at refuse collection points in rural areas.*** As at June 2008, the FEHD provided 746 refuse collection points in rural areas (an example is shown at Photograph 5). Audit noted that, of these 746 refuse collection points, only 130 (17%) were provided with waste-separation bins. **Audit considers that the FEHD needs to provide waste-separation bins at refuse collection points in rural areas.**

Photograph 5

A rural refuse collection point without waste-separation bins

Source: Photograph taken by Audit in June 2008

Audit recommendations

5.24 **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 (see para. 5.18).**

5.25 **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 (see para. 5.20); and**

(b) **provide waste-separation bins at refuse collection points in rural areas (see para. 5.23).**

5.26 **Audit has *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 (see para. 5.22).**

Response from the Administration

5.27 The **Director of Environmental Protection** agrees with the audit recommendations mentioned in paragraph 5.24. She has said that, in order to facilitate the implementation of the waste-recovery programme at schools, there is a need to provide adequate waste-separation bins for use by schools.

5.28 The **Secretary for Education** agrees with the audit recommendations mentioned in paragraph 5.24.

5.29 The **Director of Food and Environmental Hygiene** agrees with the audit recommendations mentioned in paragraphs 5.25 and 5.26. He has said that:

(a) the FEHD will step up contract management to ensure its contractors collect recyclable waste from various recyclable waste collection points at least once a week or when the waste-separation bins are 70% full. If situation warrants, the FEHD will increase the collection frequency or suitably adjust the number of recyclable waste collection points and waste-separation bins as appropriate;

(b) the FEHD and the EPD will review the design and size of waste-separation bins to suit different usage patterns;

(c) the FEHD has placed waste-separation bins at about 50 village-type refuse collection points since August 2008, in addition to the 130 refuse collection points (see para. 5.23). The FEHD will closely monitor the situation; and

(d) it is the FEHD's existing practice to provide a rubbish bin near the waste-separation bins for public convenience.

5.30 The **Director of Leisure and Cultural Services** agrees with the audit recommendation mentioned in paragraph 5.26.

Acronyms and abbreviations

ACE	Advisory Council on the Environment
Audit	Audit Commission
C&I	Commercial and industrial
ENB	Environment Bureau
EPD	Environmental Protection Department
FEHD	Food and Environmental Hygiene Department
kg	kilograms
LCSD	Leisure and Cultural Services Department
MSW	Municipal solid waste
SSCIW	Source Separation of Commercial and Industrial Waste
SSDW	Source Separation of Domestic Waste
STTs	Short-term tenancies