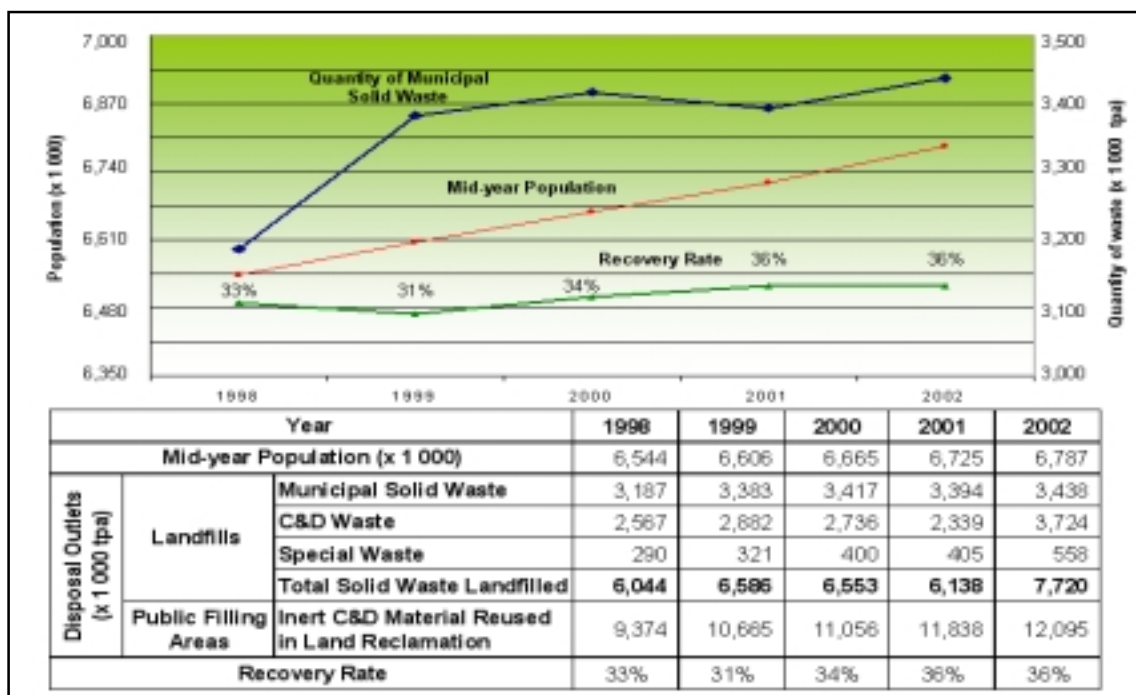


**2002 Implementation Report of the Waste Reduction Framework Plan**

**OVERVIEW**

1. With continued enhancement of publicity and community education as well as strengthened waste reduction efforts in 2002, there are clear signs of improvement in public awareness and participation in waste reduction. A Government survey<sup>1</sup> conducted in the first half of 2002 showed that about 52% of the households in Hong Kong had the habit of separating recyclable waste before disposal (compared to 47% in 1998). The publicity messages to promote source separation and recycling of domestic waste have reached nearly 90% of the members of the public. The amount of municipal solid waste disposed of at landfills has been maintained at around 3.4 million tonnes each year in 2000, 2001 and 2002, and the overall recovery rate has risen from 34% to 36% in 2002 against a growing population (see Figure 1 below).

**Figure 1 Disposal quantities and recovery rates of municipal solid waste (1998 - 2002)**

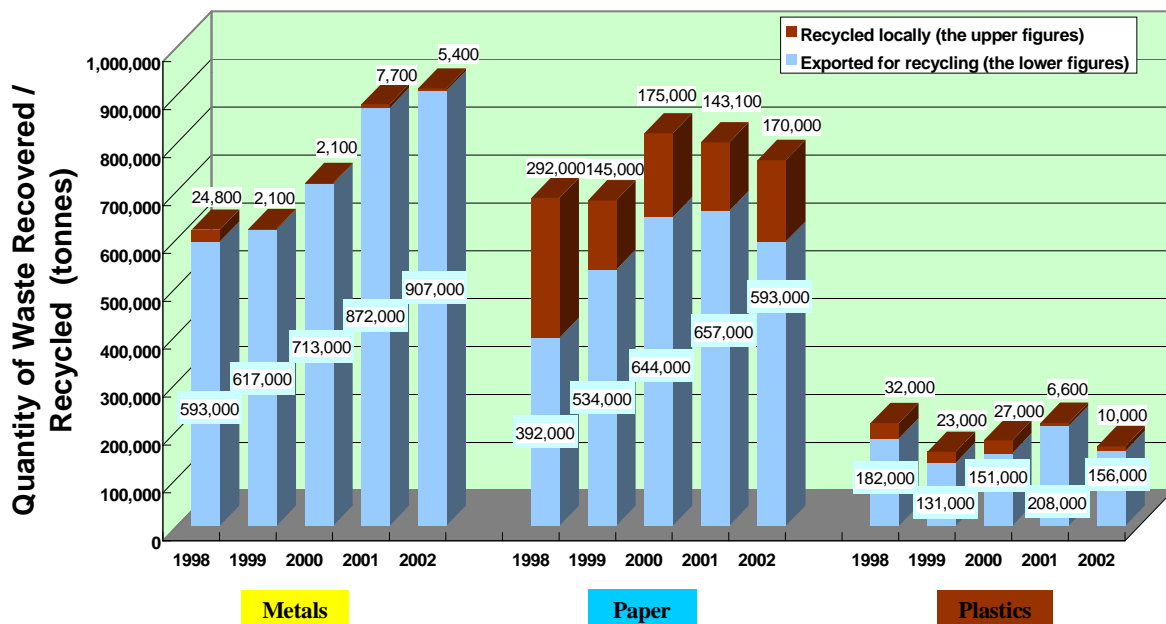


Note: The increase in total solid waste landfilled in 2002 was mainly due to an abnormal increase in the amount of inert construction waste disposed of at the South East New Territories Landfill after the reclamation works at Tseung Kwan O had completed in early 2002. Details are provided in para 11.

<sup>1</sup> Figure quoted from the "Thematic Household Survey - Report No. 9" conducted by the Census and Statistics Department, HKSAR.

2. In 2002, Hong Kong recovered 1.96 million tonnes of waste. As shown in Figure 2, over 760,000 tonnes of paper, 910,000 tonnes of metals, and 170,000 tonnes of plastics were recovered. While both the recovery rates and quantities of paper and plastics have dropped slightly, the quantity of metals recovered has gone up and the overall recovery rate for municipal solid waste in 2002 was maintained at 36%. It is also encouraging to note that the per capita disposal rate for domestic waste showed a slight drop from 1.12 kg/person/day in 2001 to 1.11 kg/person/day in 2002.

**Figure 2 A summary of recovery figures of major recyclable materials (1998 - 2002)**



3. Since the launch of the WRF in 1998, Government has made available over 22,000 waste separation bins to facilitate public participation in waste recovery. There has been an upsurge of numbers of participants joining waste recycling campaigns from all walks of life. In addition to the 1,200 public and private housing estates (20% increase over 2001) with some 1.5 million households participating in the Environmental Campaign Committee (ECC)'s Waste Recycling Campaign in Housing Estates, about 1,026 primary and secondary schools (28% increase over 2001) have joined in collecting recyclables.

4. While the Waste Reduction Committee (WRC) and its task forces continue to promote public and private sector actions to reduce and recover waste, these waste reduction efforts would not have been possible without the support of the community. Since 1999, a partnership approach has proved to be an effective method in promoting public participation in waste recycling. With the concerted efforts of WRC, its task forces,

ECC, government departments, green groups, community organizations, academics and private businesses, waste recovery activities have been extended to cover nearly all major business and community sectors over the territory. To date, over 70% of the Hong Kong population are served by waste separation bins at homes, schools or offices.

5. Apart from publicity and campaigns, Government has also tried out different collection schemes to increase effectiveness in waste recovery. These include placement of waste separation bins on each floor in public housing estates, the use of plastic bottle compactors and recovery of plastic bags. Moreover, a pilot recycling facility has been established in the North West New Territories Refuse Transfer Station in July 2002 to recover large electrical and electronic (E&E) appliances. Nearly 700 units of E&E appliances had been recovered in 2002. With the injection of \$100 million into the Environment and Conservation Fund, 27 applications for community-based recycling programmes were considered in 2002, of which 23 have been approved and 4 will be further considered. The approved projects will commence soon in early 2003.

6. In 2002, four more pieces of land at a total area of 1.8 hectares were let to recyclers. At present, a total of 24 sites of an aggregate area of about 5 hectares have been leased out to the recycling business. Together, they processed more than 8% of recyclable materials recovered in Hong Kong.

## **PROGRESS REVIEW IN 2002**

### **Waste Reduction Initiatives of the Construction Industry**

7. Since August 2002, works departments have been required to adopt measures to minimize generation and maximize reuse/recycling of inert materials through appropriate design/construction methods at the design and planning stage of projects. Moreover, a Working Group on Waste Management Plan under the Waste Reduction Task Force for the Construction Industry was set up in August 2002. The Working Group, with representatives from the Government and industry, is tasked to develop requirements on waste management plans suitable for use in private construction projects.

8. Materials specifications for public works projects were amended in March 2002 to allow for the use of recycled aggregates in road sub-base and in concrete for minor structures. The Environment, Transport and Works Bureau (ETWB) also set up an inter-departmental Working Group in May 2002 to monitor and further promote the use of recycled aggregates in public works projects. New applications such as using recycled

aggregates in the production of concrete paving blocks were being explored and the Correctional Services Department has set up a production line for concrete paving blocks for trial production in September 2002.

9. The Civil Engineering Department (CED) has made arrangements with the Lam Tei, Shek O and Anderson Road quarries to process 14 million tonnes of highest quality excavated rocks from Government works projects into aggregates for concrete/asphalt production before end-2005. CED has also commissioned a temporary recycling plant at Tuen Mun in July 2002 to handle the lower quality hard materials such as broken concrete and lower grade rock. However, the supply of suitable hard materials for recycling has been lower than average. Contrary to the normal trend of some 20%, less than 10% of the inert materials received in 2002 at Tuen Mun Area 38 were rock and broken concrete that were suitable for recycling. Because of the lack of suitable hard inert materials, only about 56,000 tonnes of recycled aggregates could be produced in 2002. In view of the shortage in the supply of hard materials, the Bureau has put on hold the original plan to set up a second recycling plant in Kai Tak.

10. The first fill bank at Tseung Kwan O was commissioned in October 2002 and another one will be set up in Tuen Mun later this year. Fill banks are used to stockpile inert construction and demolition materials until new reclamation projects became available. The two fill banks could stockpile about 18 million tonnes of materials.

11. Despite all the above efforts, a problem arose from the completion of reclamation projects in the vicinity of SENT Landfill in 2002. Although there were reclamation sites in other districts in the territory (e.g. Tuen Mun), some truck drivers/contractors did not want to travel the long journey to those reclamation sites. Instead, they mixed inert materials with waste and delivered the mixed waste to the SENT Landfill direct. Government currently does not have the legal authority to refuse delivery of mixed waste to landfills, irrespective of the amount of inert materials therein. Although Government had repeatedly reminded waste haulers and the construction industry not to deliver inert materials to SENT Landfill, the situation persisted and SENT Landfill had to accept the mixed waste delivered to it. Similar incidents have not been detected at the other two landfills.

12. Since the opening of the Tseung Kwan O Fill Bank in October 2002, the amount of mixed waste disposed of at SENT Landfill has substantially reduced and has returned to the normal level. However, Government believes the problem would reappear after the Fill Bank has been filled up by end-2004. To prevent this problem from happening again, Government is preparing legislative proposals to provide EPD the legal

authority to refuse delivery of mixed waste with large amount of inert C&D materials to landfills.

### **Waste Prevention and Recycling**

13. Waste prevention and recycling has been Government's main focus in tackling the waste problem. Although the Government has a leading role in promulgating waste reduction initiatives, full support and participation from the public, green groups, academics, professionals, and the private sector are necessary. In recent years, as more people are supportive of environmental protection and waste reduction, the Government has put more efforts on partnership programmes with many sectors of the society. There are now more opportunities for people to take part in waste reduction and recycling activities. Many community sectors such as the property management and tertiary institutions are performing well and achieve encouraging results in their waste recycling programmes. Environmental training programmes jointly organized by ECC and green groups for students and staff of tertiary and vocational institutes in the past few years have contributed to increase waste recovery rate in campuses. There is also ongoing work on partnership programmes with other sectors such as hospitals, restaurants, and the construction and retail industry. Various pilot schemes on food composting, recycling of mobile phone batteries, plastic bottles and bags were launched with private sector participation.

### **Partnership with Community Groups**

14. The Environmental Protection Department (EPD) has been working directly with community groups, schools, green groups, property managers, District Councils, and other Government departments to build up community support in waste reduction and recycling.

15. Since 1998, ECC has joined hands with community organizations to organize the Waste Recycling Campaign in Housing Estates. Green groups, youth groups, community centres, property management companies and Environmental Protection Ambassadors have provided good promotional and organizational support for the Campaign. As testimony to their concerted efforts, the number of participating housing estates in the Campaign has grown from 41 in 1998 to 1,200 in 2002 (all 176 public and 1,024 private housing estates), covering 73% of the Hong Kong population. According to a survey conducted by ECC in mid 2002 on public attitudes to the Waste Recycling Campaign, 82% of the respondents said they recycled, against 70% in 2001 and 62% in 2000. The recovery rates of waste paper, aluminium cans and plastic bottles continued to

increase as shown in Table 1. By end-2002, the average monthly recovery quantities of waste paper, aluminium cans and plastic bottles have increased by 13 times, 56 times and 4 times respectively compared to the results when the Campaign was first introduced in 1998.

**Table 1 - Recovery Results of Waste Recycling Campaign in Housing Estates**

		Phase I	Phase II	Phase III	Phase IV	Phase V	Phase VI
No. of estates		41	132	300	716	1,050	1,200*
No. of households		159,988	458,500	809,064	1,193,155	1,429,016	1,524,553*
Competition period <sup>+</sup>		29/3/98 – 29/5/98	1/10/98 – 31/3/99	1/7/99 – 31/3/00	1/6/00 – 31/3/01	1/6/01 – 31/3/02	1/6/02 – 31/3/03
Duration of competition		(2 months)	(6 months)	(9 months)	(10 months)	(10 months)	(10 months)
Recovery quantities (kg)	Paper	1,760,549	9,365,346	47,228,530	87,627,761	109,593,844	82,110,143*
	Al cans	14,096	232,146	685,053	1,537,329	4,205,274	2,781,165*
	Plastic bottles	N/A	N/A	230,460	715,609	755,651	781,067*
Recovery per month (kg)	Paper	880,274	1,560,891	5,247,614	8,762,776	10,959,384	11,730,020*
	Al cans	7,048	38,691	76,117	153,733	420,528	397,309*
	Plastic bottles	N/A	N/A	25,607	71,561	75,565	111,581*
Recovery per month per household (kg)	Paper	5.50	3.40	6.49	7.34	7.67	7.694*
	Al cans	0.044	0.084	0.094	0.13	0.29	0.26*
	Plastic bottles	N/A	N/A	0.032	0.060	0.053	0.073*

Note: Recovery of plastic bottles was not included in Phases I & II of the Campaign

+ The dates represent the competition period of each phase of the Campaign. The recycling activities in the participating housing estates continue all year round.

\* Temporary figures for June 2002 to December 2002 only (Based on ECC figures reported from an average of about 98% of housing estates participating in the Campaign).

16. 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 tackle this problem, EPD has since April 2001 hired contractors to provide plastic bottles collection service for housing estates with difficulty in identifying reliable collectors. We observe an increasing trend in the recovery rate of plastic bottles, which has increased to a monthly average of 78 kg/estate in 2002, compared to only 34 kg/estate at the start of the programme. The encouraging results could not have been achieved without the help of property management companies of the 339 participating housing estates. EPD also worked in partnership with a large private property management company to launch a series of environmental programmes in 2002 in over 200 of its housing estates covering 200,000 households. These participating estates together have

reduced about 10,000 tonnes of waste and recovered 14,000 tonnes of recyclables during the programmes.

17. Separately, the Environment and Conservation Fund has provided funding for the Hong Kong Productivity Council to develop compactors so as to reduce the bulkiness of plastic bottles and lower their average transportation cost. Community groups have joined the Government to conduct tests on these compactors in two housing estates, namely Kwai Shing East Estate and Un Chau Estate. The Hung Hom Resident's Association, with support from EPD, has set up a recycling centre to collect plastic bottles from local residents with a view to improving recycling value of plastic bottles. Similar programmes in other districts such as Lai King and Sham Shui Po are also being planned by local community organizations.

18. Voluntary agencies have been active in organizing activities such as computer donation and second-hand exchanges for books, clothes, and toys. EPD has therefore tapped the experience of these organizations including St. James Settlement and Caritas Youth & Community Service to conduct territory-wide recovery and donation programmes of waste electrical and electronic equipment including computers. The trial programmes have commenced in January 2003 for a period of 12 months.

19. Our partnership with District Councils is progressing well with a total of 23 recycling campaigns held in 12 districts in 2002/03. They included exhibitions, fun days, recruitment and training of green ambassadors, recycling bin design competition and visits to EPD waste facilities. The food waste composting competition organized by the Shatin District Council completed in October 2002 and had a total participation of 1,400 households from 15 housing estates. A project on community composting was launched in July 2002 in Un Chau Estate to demonstrate to local residents the re-use of the organic waste collected in the estate-wide recycling programme. The compost produced will be used for landscaping work of the estate.

### **Partnership with Businesses**

20. The Wastewi\$e Scheme, established in 1999 to encourage and assist Hong Kong businesses in taking measures to reduce waste, has provided a good channel for a broad range of businesses to participate in waste recycling. By the end of 2002, participating business organizations in construction, property management, manufacturing, health care, insurance and trading as well as public utilities, hotels and Government departments have increased twenty-fold to over 450. EPD has awarded six batches of Certificates of Wastewi\$e Logo to 51 establishments to honour their waste reduction

efforts. Together they have avoided dumping of 125 tonnes of paper, more than 21 tonnes of plastics and 4,600 tonnes of metal. They have recycled 28,200 tonnes of paper, 1,400 tonnes of metals (including aluminium cans) and 244 tonnes of plastics. They have also procured 164 tonnes of recycled paper and 900 refilled toner cartridges.

21. Together with the telecommunication and mobile phone battery industries, EPD launched a pilot mobile phone battery recycling programme in April 2002. This is the first voluntary product responsibility scheme in Hong Kong. More than one hundred collection points have been set up at convenient locations throughout the territory. However, public responses have been lukewarm and only about 40,000 pieces of mobile phone batteries have been collected by end-2002. In November 2002, the Government launched another round of publicity on television and radio to boost public participation. Nonetheless, the results of this programme could provide the necessary information and experience for planning similar industry-based product responsibility schemes in the future.

22. EPD has also approached other trades to explore the possibility of developing similar product responsibility schemes for waste tyres and electrical and electronic equipment including computers. The results of a questionnaire survey on the tyre industry showed that about 77% of the members of the Hong Kong and Kowloon Rubber Tire Association agreed to some form of product responsibility scheme to manage the waste tyres. While the long-term management options for handling and recycling waste tyres has yet to be decided, EPD has engaged a contractor to recycle waste tyres at the Kowloon Bay Transfer Station on a pilot basis for six months in April 2003 as an interim measure.

23. The retail sector comprising supermarkets, convenience stores and pharmacy stores has assisted in publicizing reduction of the use of plastic bags since 1994. In August 2002, 85 stores of 7-Eleven, 24 stores of Wellcome, and 8 public and private housing estates covering 16,000 households joined hands for the first time to participate in a trial to collect plastic bags from households. Responses so far have been encouraging. In the first five months, a total of 2,260 kg of plastic bags were recovered.

24. The catering trade has an important role to play in managing food waste, which contributes to over 30% of the municipal solid waste generated in Hong Kong. It is encouraging to note that many hotels and restaurants have taken actions to reduce food waste and implement recycling programmes for other waste types in the past year. By the end of 2002, over 30 hotels have participated in a programme to donate surplus food to the needy. A composter has also been tried out in a hotel to treat its kitchen waste. As for beverage containers, more than half of the hotels in Hong Kong has joined a centralized



plastic bottle recovery programme. To reduce the in-transit volume of plastic bottles, on-site trials of a plastic bottle compactor were arranged in several hotels in early 2002, which were well received with quite a few orders placed. Apart from that, EPD has successfully sought the support of the Lan Kwai Fong Association and the SoHo Association in a partnership programme for restaurants in the area to deliver food waste to a 50-kg electrical composter to be set up at Lan Kwai Fong in Central.

### **ACTION AREAS IN 2003**

25. Driven by the increase in the domestic sector recovery rate, the Government will continue to accord priority to this important sector in the coming year. Notably, the Government has rolled out in March 2003 a 12-month pilot project in the Eastern District to test out the wet/dry sorting with a view to increasing further the recovery level. Under the pilot project, dry waste would be separately collected and delivered to a temporary sorting facility at the Island East Transfer Station where recyclables would be recovered for recycling purpose. Wet waste would continue to be disposed of at landfills. Upon completion of the pilot project, Government will carry out a review to examine the feasibility, logistics and cost-effectiveness of this form of waste recovery.

26. In light of the encouraging results of the trial scheme of placing waste separation bins on each floor of two housing estates, the Housing Department has extended this arrangement to another six housing estates in early 2003. EPD will also evaluate whether the use of plastic bottle compactors and the centralized collection service of plastic bottles could help reduce the transportation cost of plastic bottles. . Moreover, EPD will expand the trial scheme to recycle plastic bags shortly and will evaluate the effectiveness of recovery of plastic bags in the second half of 2003.

27. The six-month trial for recycling scrap tyres at the Kowloon Bay Transfer Station has commenced in April 2003. While discussion with the trades on adopting a voluntary approach to product responsibility schemes will continue, Government will examine the need for implementing mandatory schemes.

28. To further assist the recycling industry, the Government will continue to make available short-term tenancy sites at suitable locations. In the coming months, another three short-term tenancy sites in Kwai Chung and Sheung Shui will be available for recyclers. Besides, the contract preparation work and environmental impact assessment for the proposed Recovery Park at Tuen Mun Area 38 will commence in the coming months to provide long term land for exclusive use by the recycling trade.

29. On the management of C&D materials, ETWB will tighten up the contract specifications requiring contractors to draw up more effective waste management plans for Government works projects in May 2003. Contractors' waste management performance will also be included in the Pay for Safety Scheme to provide a financial incentive for contractors to ensure satisfactory implementation of Waste Management Plans. ETWB will also extend the mandatory on-site sorting requirement which is already implemented for Government demolition projects to all works projects. To assist construction sites which have physical constraints in carrying out on-site sorting, ETWB is examining the feasibility of setting up sorting facilities. Moreover, another temporary fill bank will be commissioned in Tuen Mun in the first half of 2003. Separately, the Government is now actively examining the feasibility of reusing inert materials in reclamation projects outside Hong Kong.

30. To provide economic incentives for waste producers to reduce waste and carry out sorting to facilitate reuse/recycling, as a first step, the Government will introduce a landfill charging scheme for disposal of C&D waste. The Government is working on the detailed proposals and arrangements associated with the landfill charging scheme for implementation in 2004.

31. Even if we are able to reduce as much waste as possible and recycle as much as we can, there will still be nearly four million tonnes of municipal solid waste that cannot be recycled and require disposal by 2007. The Government invited expressions of interest (EOI) from local and international waste management industry for the development of large-scale waste management facilities in Hong Kong in April 2002. An Advisory Group, comprising mainly non-officials, has been set up in late 2002 to assist the Government in considering the submissions received. The Advisory Group is expected to come up with its recommendations of waste management technologies and options that are best suited for Hong Kong in 2003.

**Waste Reduction Committee**  
**April 2003**