

Urban Waste Management An Urgent Problem!

Barrie Cook

Chairman, Waste Reduction Committee
Hong Kong

Introduction

Hong Kong is likely to face considerable problems with its solid waste programme unless waste arisings can be controlled. The paper outlines the present problems particularly as it relates to housing related activities, the Waste Reduction Framework Plan and the way forward.

Presentation

Hong Kong can justly take pride in the rapid evolution of its solid waste management infrastructure. We now have three state of the art strategic landfills, a growing number of refuse transfer stations and, of course, an effective chemical waste treatment plant on Tsing Yi.

To compliment this, we are restoring old landfills to provide recreational space. On paper everything in the garden is rosy so what are the problems, why have they occurred and what are we doing and can do about them.

In a nutshell, despite the recent recession Hong Kong's waste arisings are increasing. In particular, construction and demolition waste arisings remain at high levels and more worrying, an increasing amount of this waste is finding its way into our strategic landfills due to the absence of adequate public filling areas.

Let me give you some figures.

In September this year our landfills received around 10,000 mt of MSW, 8,000 mt of construction waste and 900 mt of special waste. However, in addition to this around 27,500 mt of inert construction wastes went into the public filling areas. This has been a typical scenario for 1999.

Construction waste is a 10 million tonne a year problem for Hong Kong and I do not see it improving in the near future. I can say with some authority if we do not get top of this problem in the near future it has the potential to cripple our strategic landfill system.

My first slide [Figure 1] indicates Hong Kong's waste stream.

The next slide [Figure 2] indicates projected waste arisings without any attempt at waste reduction. As the population rises toward 8 million, commercial, domestic and construction wastes also continue to rise.

Bear in mind that our landfills are essentially a finite resource and whilst there may be possibilities to increase the size of the existing strategic landfills, I personally have some doubt as to whether Hong Kong could conduct a fourth strategic landfill within its political boundaries.

This slide [Figure 3] compliments the previous one and shows the alarming situation which would develop if we don't aggressively tackle our solid waste problem. In particular note that the SENT landfill in Tseung Kwan O could be compromised by 2005. You will appreciate that the loss of a strategic landfill in Eastern Kowloon would be an extremely serious matter bearing in mind the continuing development of Tseung Kwan O and future developments in South East Kowloon.

The Administration recognised this problem and commissioned a waste reduction report which was released in 1997. There followed from this the Waste Reduction Framework Plan 1998-2007 which sets out the various steps we need to take to develop a sustainable waste management programme.

In essence the plan sets out targets for reducing municipal and construction wastes. [Figure 4]

In the case of municipal waste 58% of these wastes are to be diverted away from the landfills by 2007 (compared to 30% in 1997 and this is expected to extend the life span of the existing landfills from 2015 to 2019).

The target for construction waste is 84% compared to 80% in 1997.

This would be achieved by three concurrent programmes [Figure 5]. The first is the prevention of waste programme which aims to reduce the amount of solid waste generated at source. An important element of this is recycling which I will deal with later in the context of the housing programme.

The Institutional programme included the setting up of the Waste Reduction Committee and other matters including legislative measures such as landfill charging.

The final programme, called bulk waste reduction will develop waste to energy incinerators and composting plants to reduce the bulk of waste requiring final disposal.

To return to the Waste Reduction Committee for a moment. The Committee is unusual in that it has a number of task forces designed to implement committee policy. For reasons I have already explained to you the construction waste task force has been working very hard.

Of particular interest to his conference are the private and public housing task forces who are also increasingly engaged in the waste reduction and management programme.

As Chairman of the Waste Reduction Committee, I have high hopes we can achieve our goals. If we do we will see a much improved situation [Figure 6].

I would now like to turn to the waste management programme in the context of your conference but before doing so let me show you perhaps the most significant diagram I can present today [Figure 7]. This is what I would call the cone of desirability. You will see our major effort must be in minimising waste with disposal the final and least preferred option. It is our task to educate the community on this principle to make our society more sustainable.

So what has waste management and our waste reduction to do with a housing conference?

My reply would be that it is of significant relevance not only in housing design and construction but in the education process of the tenant or owners, particularly as regards minimisation and recycling.

In the design of both public and private housing (which in Hong Kong will principally be in high rise development), there will need to be greater emphasis on designs which will produce as little construction waste as possible. At the same time, there will need to be provisions for householders to be able to sort at least some elements of their domestic waste to encourage recycling.

Construction techniques must be focused on reducing waste and the seemingly unique Hong Kong habit of ripping out the fittings in brand new apartments and replacing them needs to be curtailed as soon as possible. I am sure these factors have already been discussed during this conference.

I cannot overestimate the danger our landfills are in due to the increasing amount of construction waste being placed in them.

As I said earlier around 10,000 mt of MSW is currently being delivered to our landfills and much of this is, of course arising in households, in both privately owned or government accommodation.

The first major step in handling these wastes is the education process regarding waste minimisation and recycling and this is being tackled in many ways and at many levels. The importance of grass root support cannot be overestimated and the valuable work done by housing managers, the District Boards and the NGO's should be mentioned here.

The Government will continue its publicly and will provide additional support through such organisations as the Environmental Campaign Committee.

The Waste Reduction Committee will also assist where possible and has established its own website and newsletter to help the process.

All of these steps are designed to educate owners and tenants in the waste minimisation process.

The domestic waste stream can be a valuable resource and recycling/recovery programmes must be supported. Despite what you may think Hong Kong's recycling efforts have been quite successful as the three slides 8, 9, 10 will illustrate.

However the success is rather unbalanced because whereas we recover over 50% of the industrial/commercial waste stream our success rate for municipal solid waste is less than 10%, and it is this we are now concentrating on.

As I noted earlier the Waste Reduction Committee has task forces for the public and private housing sectors, and they are pushing the recycling programme, particularly for paper, aluminum cans and plastics.

Over 230 housing estates, including 157 Housing Department management estates, 28 Housing Society managed estates and 42 private estates together with an additional 13 private housing estates which joined in August are now participating in the Waste Recycling Campaign Phase III organised by ECC.

The Housing Department has reserved \$1 million for the implementation of the recycling credit scheme in Housing Department and Housing Society estates. I attended the kick off ceremony in Tseung Kwan O last month.

As regards the private sector, a target of 100 additional housing estates to establish waste recovery programmes has been agreed.

In order to ensure that materials collected in these programmes are recycled efficiently and not merely transferred to landfill, a number of initiatives are underway.

2 sites at Kai Tak have been let out to waste paper collections and the metal recycling industry. Six additional sites in Kowloon and NT have been identified as are being processed.

The Administration is also engaged in a materials recovery/recycling facility study to be completed next year.

The aim of all of these programmes is to reduce the volume of waste going to the landfills, exploit a resource and provide additional employment through the recycling industry. These are, of course, in line with the recent policy address by the Chief Executive.

I hope my presentation this afternoon has given you an insight into our solid waste problem and efforts society needs to make to overcome the problem.

©1999 Barrie Cook, Hong Kong

All rights reserved. No part of this paper may be reproduced, distributed, published, or transmitted without the prior permission of the copyright owner.

Figure 1

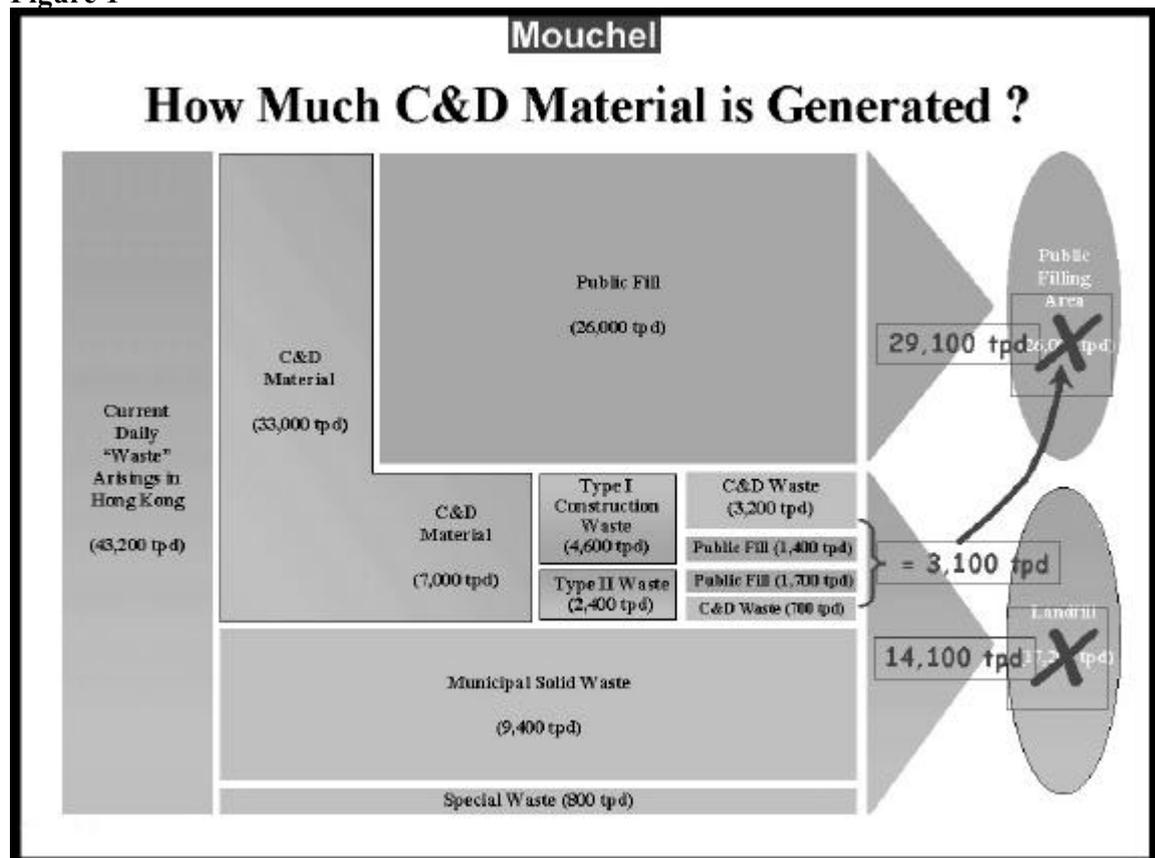


Figure 2

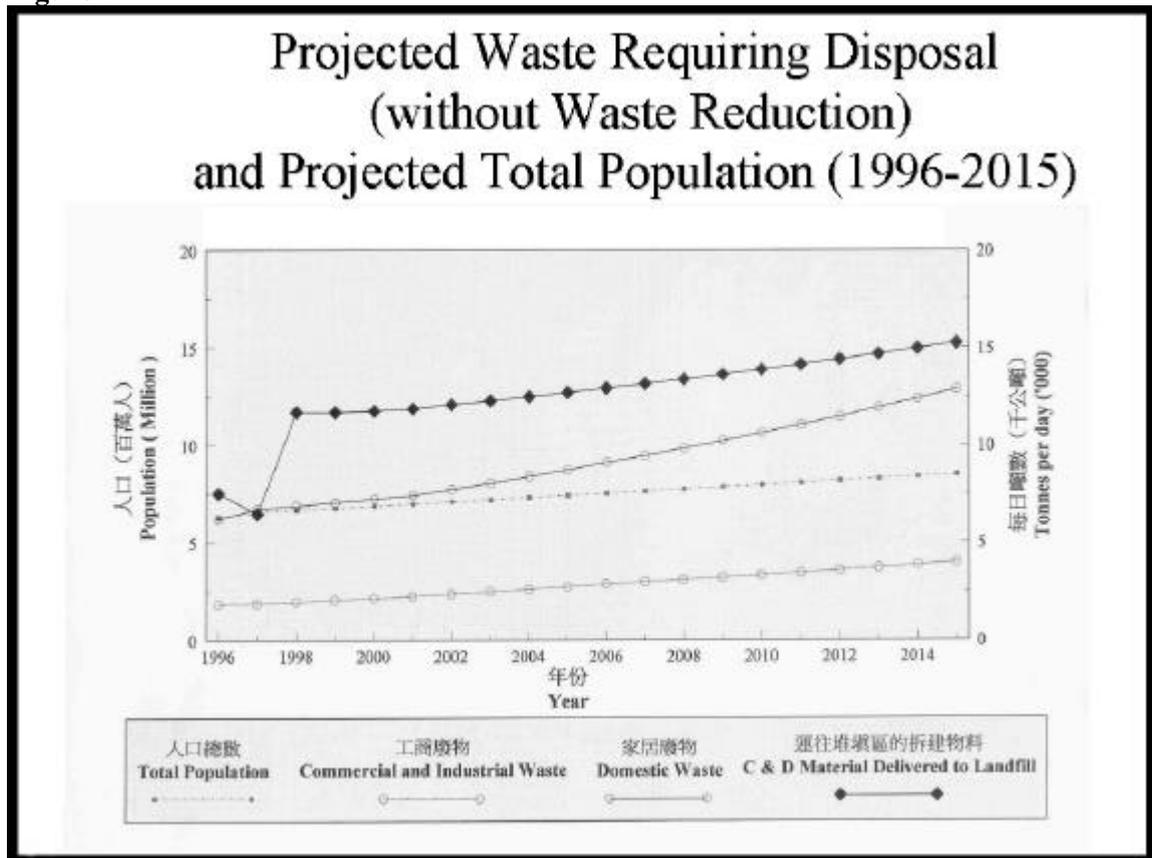


Figure 3

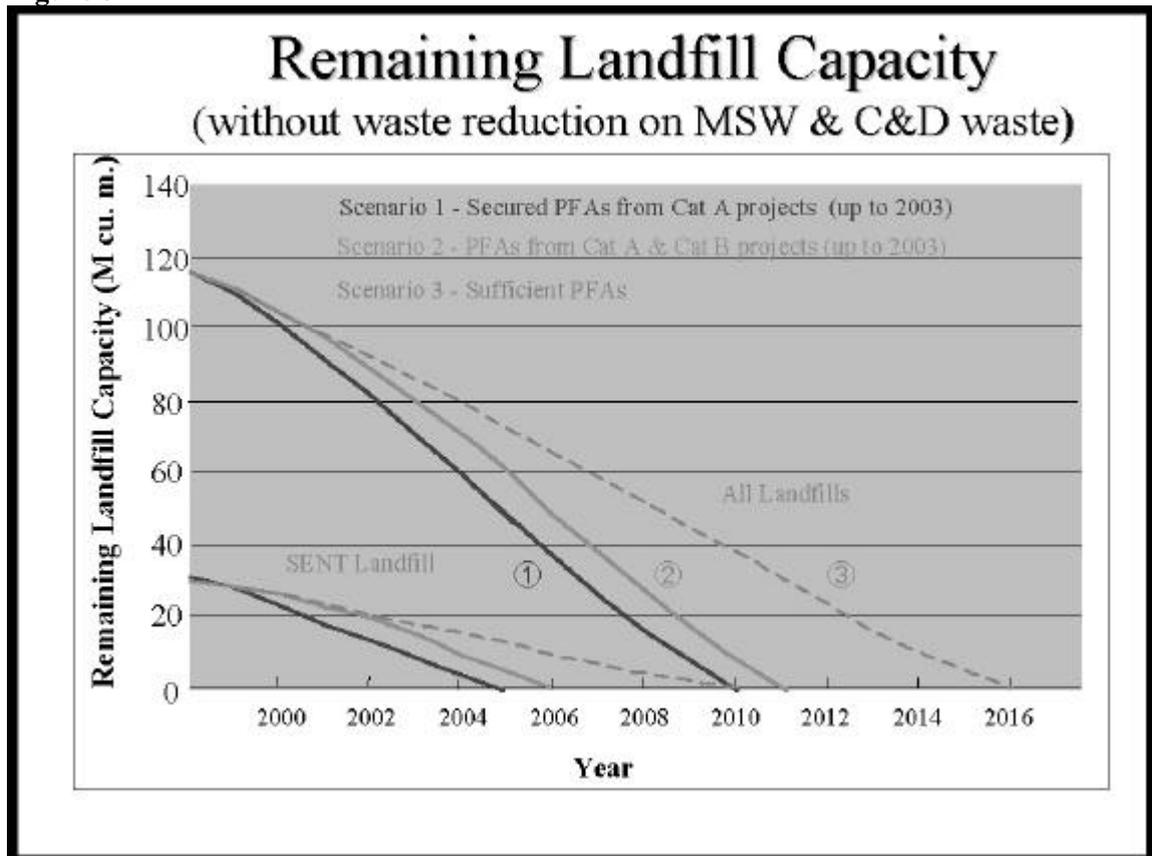


Figure 4

Waste Reduction Framework Plan

Waste Reduction Targets

Municipal Solid Waste

58% of Municipal Solid Waste generated to be diverted away from the landfill by 2007 (Compared with 30% in 1997)

Construction Waste

84% of Construction and Reduction Waste generated to be diverted away from the landfill by 2007 (Compared to 80% in 1997)

Figure 5

Waste Reduction Framework Plan Key Elements of Implementation

- **Prevention of Waste Programme**
Reduce waste generation at source and encourage recovery of materials for recycling.
- **Institutional Programme**
Provide necessary arrangement for implementation of the waste avoidance, minimisation and material recovery program.
- **Bulk Waste Reduction Programme**
 - * Waste to Energy Incineration
 - * Composting

Figure 6

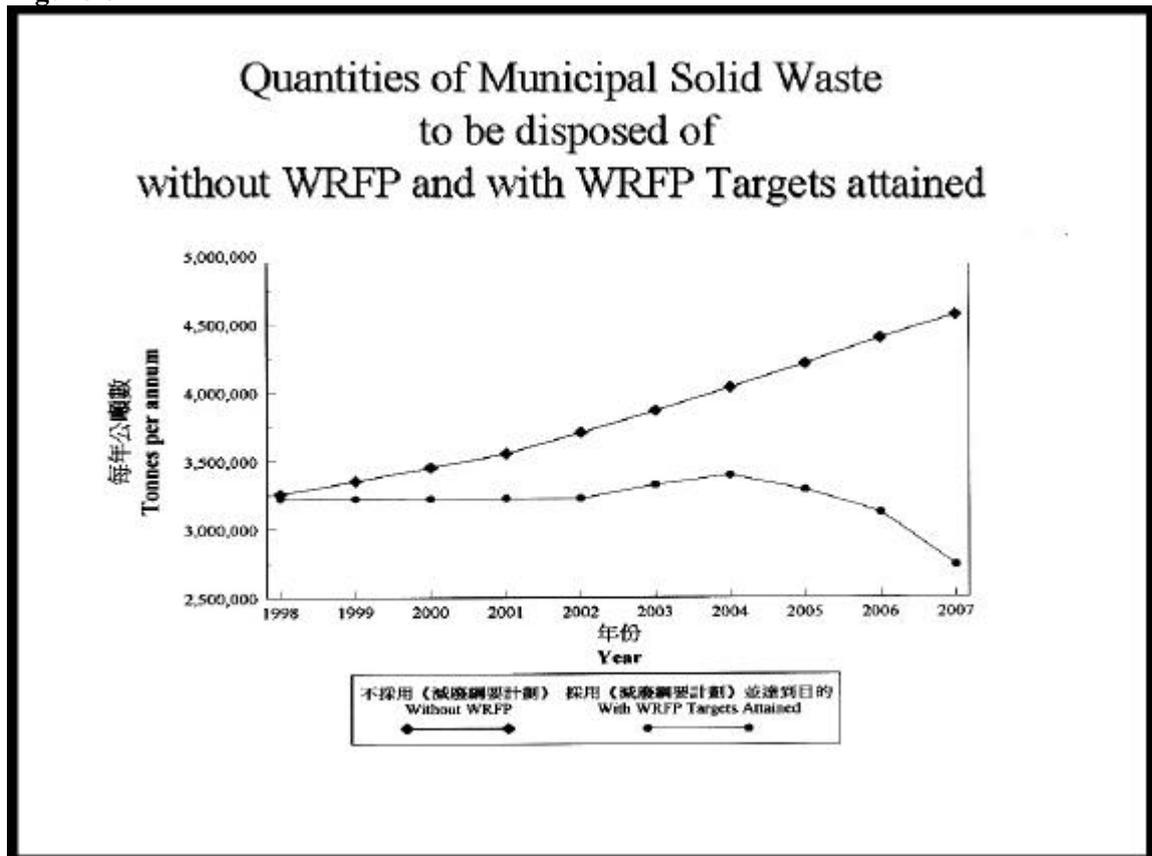


Figure 7

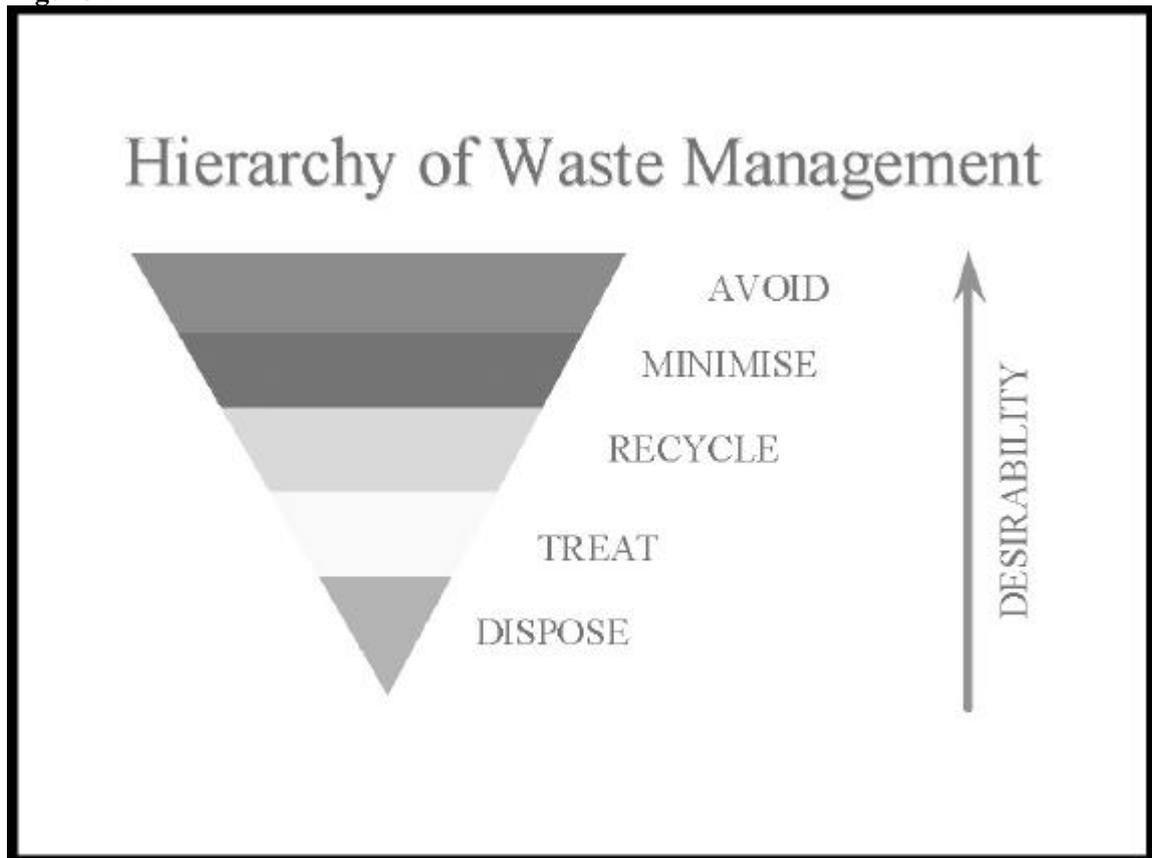


Figure 8

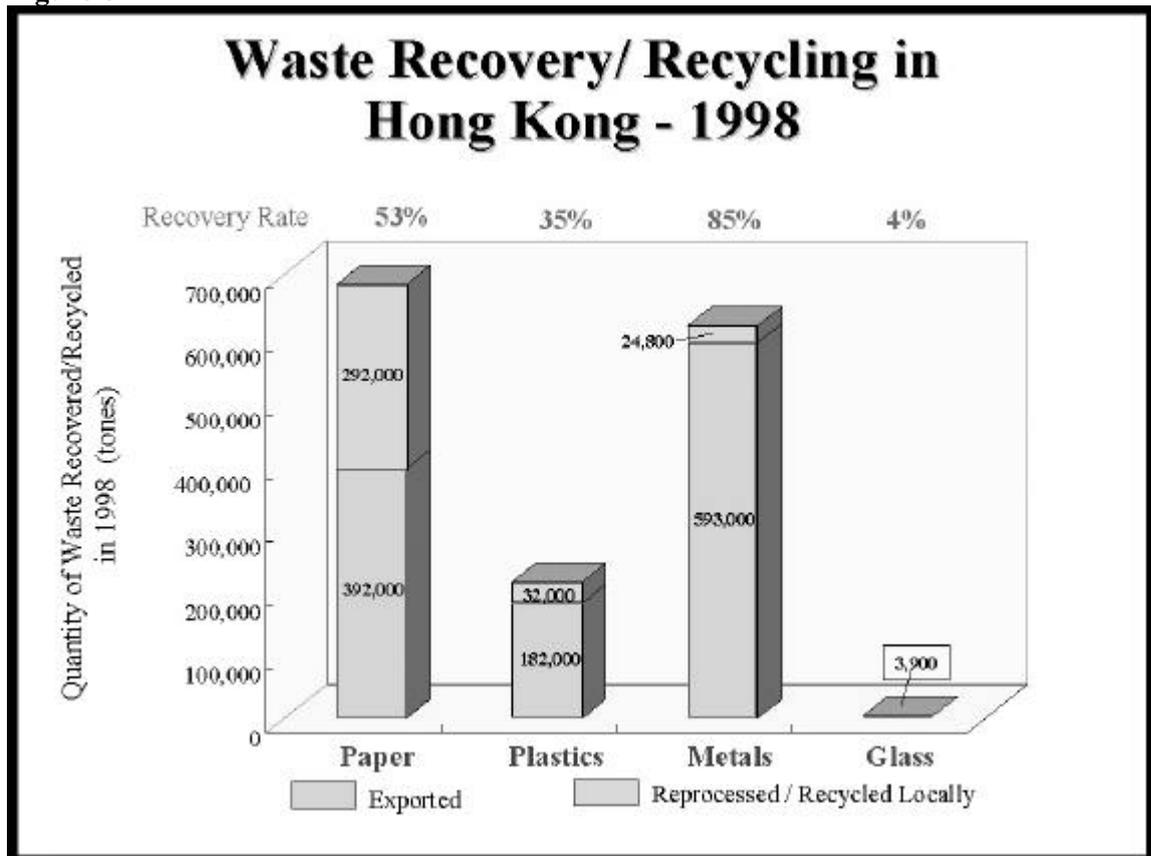


Figure 9

Recovery Rates of Major Types of Recyclable Materials (in percentage)

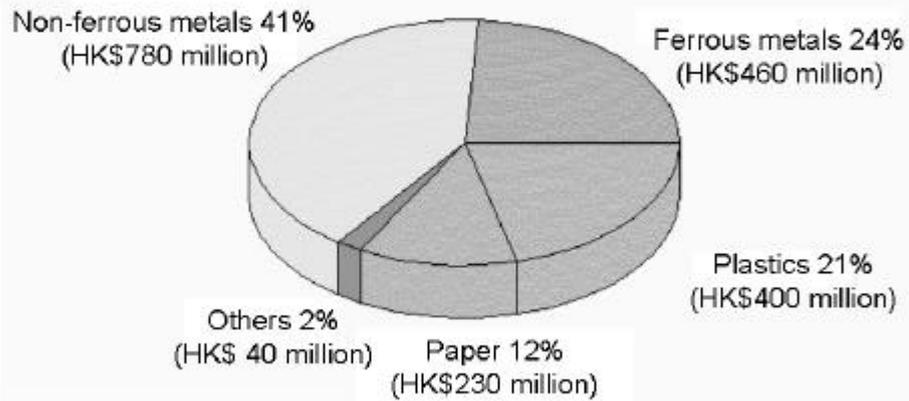
Country	Year	Paper (27%)*	Plastics (18%)*	Metals (3%)*	Glass (3%)*
Hong Kong	1998	53	35	85	4
Australia	1995	50	30 ^(a) 42 ^(b)	65 (Al can) 23 (others)	42
Japan	1997	53	11 (1996 figures)	60 (1996 figures)	55
USA	1996	41	5	40	26
Germany	1995	87	70 ^(c)	65 (scrap metal)	78
UK ^(d)	1994	49	5	12 (steel can) 24 (Al can)	28

* percentage in brackets represents the proportion of the recyclable material in HK's MSW

Notes: (a) for PET bottles (c) for plastic and paper packaging
 (b) for HDPE bottles (d) for England and Wales

Figure 10

Values of Exported Recyclable Materials in 1998



Total value = HK\$1.9 billion (US\$240 million)