



THE HONG KONG
POLYTECHNIC UNIVERSITY
香港理工大學

DEPARTMENT OF
BUILDING SERVICES ENGINEERING

屋宇設備工程學系



Good Practice Guide to Waste Management

for Hotels in Hong Kong



ID Industry Department, The Government of
The Hong Kong Special Administrative Region
香港特別行政區政府工業署


HONG KONG HOTELS ASSOCIATION
香港酒店業協會

ihra
INTERNATIONAL
HOTEL & RESTAURANT
ASSOCIATION


UNEP



Forward...

Visitors to Hong Kong...



Hong Kong, with a total land area of just under 1,100 square kilometres, is one of the most popular destinations in Asia. The travel and tourism industry has long played an important role in the Hong Kong economy. Figures published by the Hong Kong Tourist Association show that, in 1998, despite the downturn in the sector, it still earned HK\$ 72.6 billion (HK\$ 55.3 billion from travel & tourism receipts and HK\$ 17.4 from related passenger services). The revenue came from 9.6 million visitors, an 8 % decrease over 1997 (Figure 1).

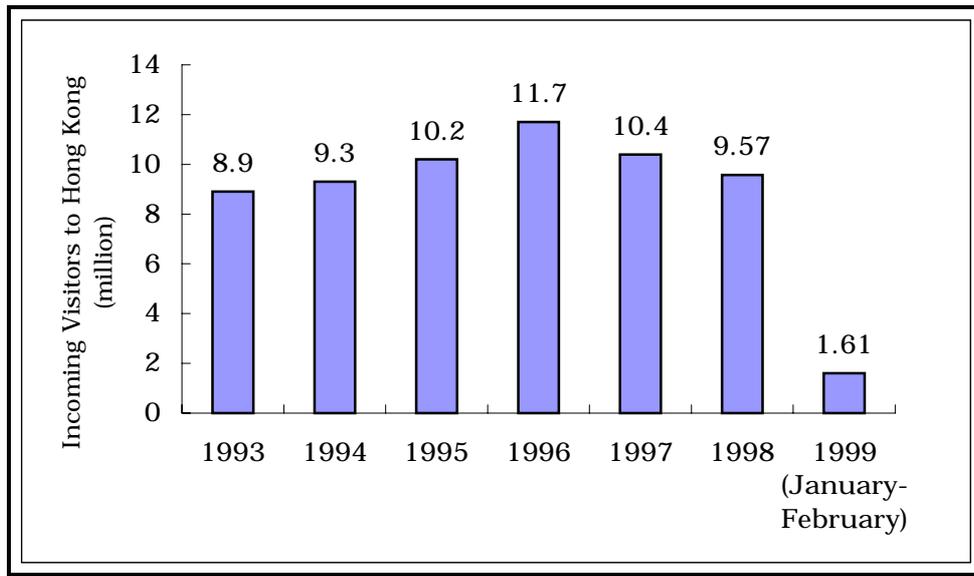


Figure 1. Visitors to Hong Kong from 1993 to February 1999.

Hotels...



The outcome for the boost in travel and tourism industry is the large number of hotels in Hong Kong. At the end of 1998, Hong Kong had 88 hotels, with 33,981 rooms. Approved plans for new hotels (as at June 1999) will increase the total number of rooms to more than 44,000 by the end of 2006!

Visitors to Hong Kong typically spend 3-4 days in the territory. This equates to an average standing population of around one hundred thousand. This is not insignificant in relation to Hong Kong's permanent population of around 6.8 million, and contributes pro-rata to the environmental loading.

Responsibility...

Hong Kong is no exception to the growing world-wide recognition and acceptance of the moral, ethical, social and political arguments for taking action on environmental issues. For the hotel sector, there are sound business reasons for operators to pay attention to good environmental practices. This includes increased

profitability and the potential for improved market share. Hotel operations, in order to provide high quality of services to guests, unavoidably produce large amounts of waste of every kind. To maintain the competitiveness of Hong Kong's travel and tourism industry and to improve individual hotel's operating cost thus increasing the profitability, hotel operators should review their waste management policies to manage the travel and tourism business in a sustainable manner.

The challenge for hotels is to ensure that the needs of guests are met while the environmental impacts of hotel operations is minimised.

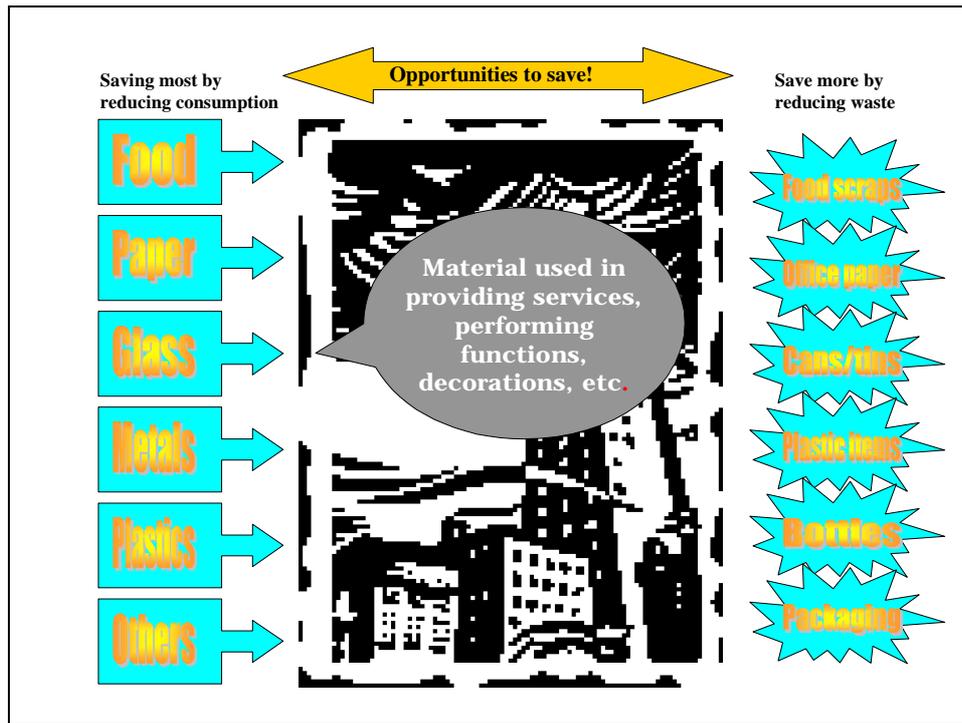
Meeting the challenges is possible. Some measures require additional costs, but some should provide cost benefits. Measures taken need not compromise guest comforts, enjoyment or convenience.

Change thinking...

...waste as a resource

In Hong Kong a lot of emphasis is being placed on *waste management* and *recycling* as Government and society tackle the problem of disposal of huge amounts of waste generated daily.

Perhaps society should stop thinking only about waste as a problem, but instead regard it is as a *resource*. Perhaps a change of terminology might encourage society to think more about reducing this wasted resource, or recovering as much of it as possible, rather than the problem of disposal. Maybe a new term to use is *discard management*.



The inputs and outputs of materials use.

The cost of improving efficiency is often seen as an expense, rather than as an investment. It is common for investments in 'efficient technologies' to be evaluated on the basis of payback period. Often, payback periods of 1-3 years need to be justified. This is inappropriate. Unlike some business related expenses, the value of an investment in efficiency is often retained as a capital improvement. Lower operating costs increase profitability, which can be reflected in the value of a business.

This Guide...



The objectives of this *Guide* are to:

- introduce current waste problems in Hong Kong hotels;
- identify waste types in typical Hong Kong hotels;
- recommend the waste management policies, taking into account the possibility and viability of recovering and recycling solid waste generated from hotel operations; and
- provide practical tips for hotel operators to manage their waste.

Reference is made to relevant Government publications, and contact details for offices that can provide assistance are included.

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Waste Reduction Framework Plan...

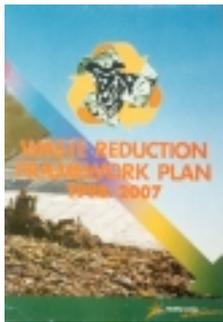
Waste disposal problems...

Management of municipal solid waste has long been a headache to the Hong Kong Government. Over the past ten years, the amount of waste disposed of at landfills each day increased by about 32% from 12,500 tonnes in 1989 to 16,560 tonnes in 1998. It is estimated that the three strategic landfills will be exhausted by 2015 if nothing is done on waste reduction.



The amount of municipal solid waste disposed of every day in Hong Kong continues to increase. Disposal of waste not only has a significant impact on the environment, but also poses a heavy burden on the waste disposal facilities of Hong Kong such as the three strategic landfills (WENT, NENT and SENT Landfill) and the Chemical Waste Treatment Centre (CWTC). Over a year the government spends \$2.6 billion, or \$400 for every person in Hong Kong, just to dispose of rubbish!

Waste Reduction Framework Plan...



The intention of the Hong Kong Government to control the growing waste problem in the long run is evidenced by the launch of the 10-year Waste Reduction Framework Plan in 1998. The Plan aims to prolong the life of landfills and optimise waste management costs, and emphasises waste prevention and reuse of waste materials. The Plan integrates a range of measures, from policy initiatives to technological innovation, culminating in an integrated strategy that follows the waste management hierarchy as shown in Figure 2.



Figure 2. Waste Management Hierarchy.

Actions...

Actions are integrated in three programme areas:

- Prevention of Waste Programme;
- Institutional Programme; and
- Waste Bulk Reduction Programme.

Institutional Programme...

The Institutional Programme comprises the setting up of a Waste Reduction Committee and a Resources Recovery Unit for spearheading the implementation of the Waste Reduction Framework Plan in the community. It also includes establishing task forces within various sectors of the community to promulgate and facilitate waste reduction initiatives.

Waste Reduction Task Force for the Hotel Sector...

The Waste Reduction Task Force for the Hotel Sector was set up in September 1997. Members include the Environmental Committee members of the Hong Kong Hotels Association, representatives from the Friends of the Earth, academic institutions (Hong Kong University of Science & Technology and The Hong Kong Polytechnic University) and Environmental Protection Department (EPD). Meetings are held regularly to discuss various waste reduction initiatives and environmental measures (such as water and energy conservation) for hotels.

Further information...

The WRFP can be obtained from the EPD Headquarters at 28/F, Southorn Centre, 130 Hennessy Road, Wan Chai, Hong Kong, or the two Environmental Resource Centres at 221 Queen's Road East, Wan Chai, Hong Kong (Tel.: 2893 2856) and Tak Wah Park, Tak Wah Street, Tsuen Wan, New Territories (Tel.: 2944 8204), and can be viewed at the web site: <http://www.pelb.wpelb.gov.hk>.

Refer also to the 'Guide to Environmental Legislation for Hotel Operators in Hong Kong'.

Future Waste Management Legislation

Legislative proposals are being prepared to strengthen control over the management of all types of wastes. Together with the existing legislation, a more comprehensive legislative framework will be developed to safeguard the public from any adverse environmental effects associated with the handling and disposal of all wastes.

Waste from Hotels...

Sources of hotel waste...



In a typical Hong Kong hotel six main operating areas may be identified with respect to waste management:

- offices (Accounts, Purchasing, Human Resources, Public Relations, Sales & Marketing, Front Office, supporting offices of other departments);
- stores;
- engineering;
- housekeeping;
- laundry (and dry cleaning); and
- food and beverage (including outlets, kitchens and stewarding).

These aspects of hotels operations generate different kinds of waste, ranging from paper to environmentally hazardous chemical waste, much of which is disposed of at landfills or the CWTC.

Statistics...

Currently there are no detailed statistics on waste arising and disposal covering a significant number of hotels in Hong Kong. In fact some hotels do not regularly monitor their waste. However detailed waste data for two hotels – one with over four hundred guest rooms eight restaurants & bars operating an environmental management programme, and another with almost six hundred guest rooms and similar food & beverage outlets – have been used for illustration in this *Guide*.

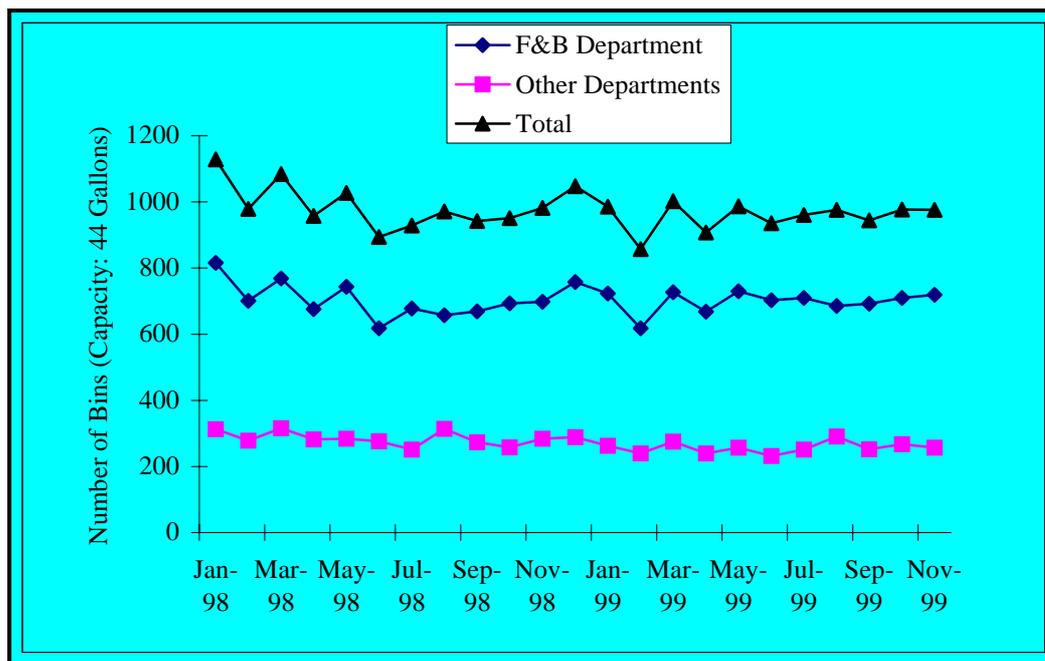


Figure 3 Number of bins of waste disposed per month in a 400+ room hotel.

It can be concluded from Figures 3 and 4 that a typical hotel in Hong Kong will regularly dispose of 50,000 kg of waste per month, which eventually finds its way to landfills.

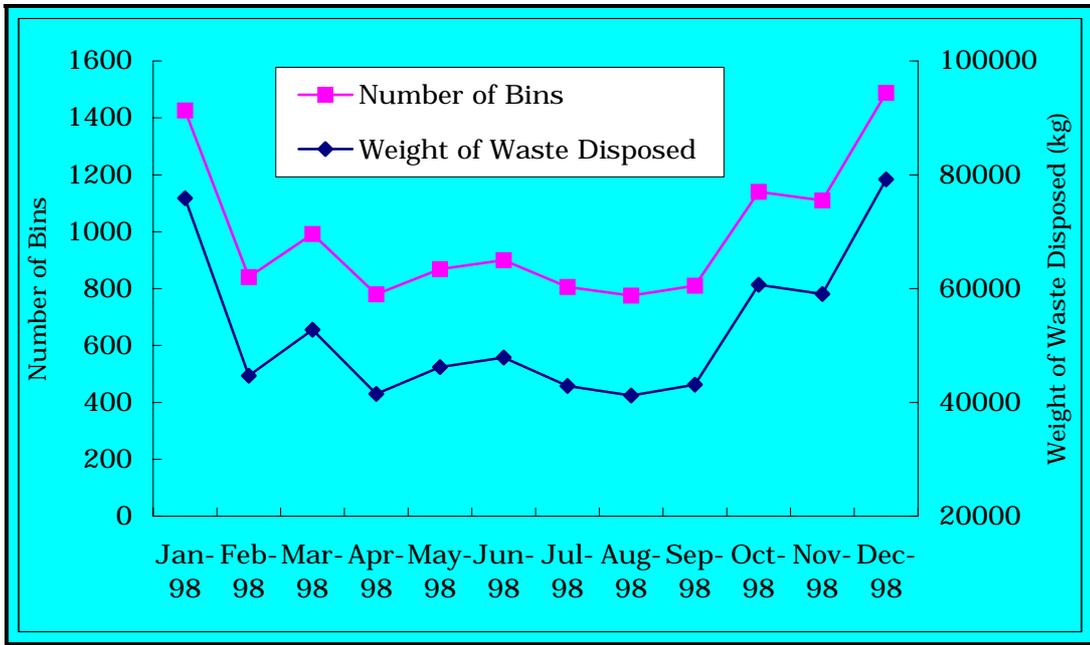


Figure 4 Amount of waste disposed per month by a 600 room hotel in 1998.

The number of rooms in hotels which are members of the Hong Kong Hotels Association (77 hotels) are illustrated in Figure 5. On this basis the average number of guest rooms (417) is comparable with the number of guest rooms the case study hotel. Using 1998 data, the total amount of waste disposed of by all hotels in Hong Kong is approximately equal to 147,000 kg per day, about 0.9% of total municipal solid waste disposed of at landfills.

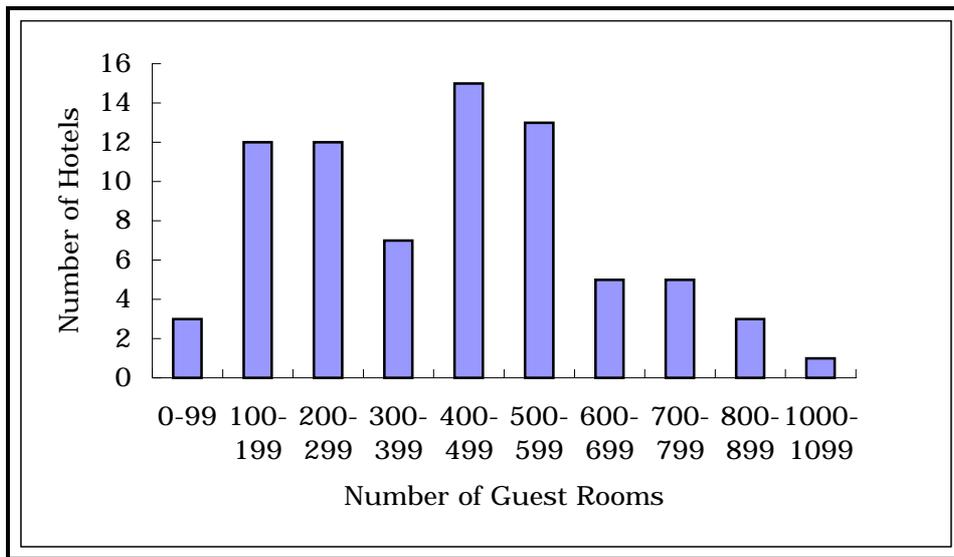


Figure 5. Frequency distribution of number of guest rooms in HKHA member hotels.

Nature of Waste Generated in Hotels...

Categorising waste...

Generally, the types of waste generated by a typical hotel in Hong Kong are wide-ranging and fall into the following categories:



- Waste paper generated from office operations, such as newspapers, magazines, printed materials, cards, telephone directories, paper cups, wrapping paper, etc;



- Used office consumables, such as ball pens, clips, rubber bands, toner cartridges, files, folders, floppy disks, batteries, etc;



- Packaging waste from suppliers, such as carton boxes, glass, plastic and metal containers, Styrofoam boxes, plastic bags, etc;

- Waste generated from guest rooms, such as plastic bottles for bathroom amenities, plastic products (e.g. toothbrush, razor, shower cap, comb, etc.), laundry bags, shopping bags, used soap and toilet rolls, food and beverage containers, key cards, damaged linen, etc;



- Broken utensils, cleaning rags, and consumables such as food and table decorations, menus, place mats, coasters, paper napkins, chopstick, matches, toothpicks, stirrers, etc.) from kitchens, restaurants and bars;

- Food waste and used cooking oil from kitchens, leftover food from restaurants and bars, spoiled and expired food from stores, etc;



- Chemical waste from laundry and engineering operations which includes:

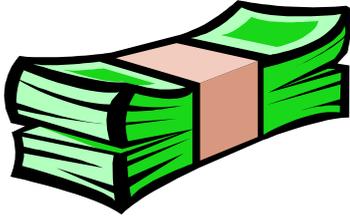
- ◆ Spent lubricating oil from chillers, pumps, lift drives, cold rooms, and other machinery;
- ◆ Spent paint and solvent, e.g. oil-based paint, lacquer, thinner, etc.[dried paint and water-based paint are not classified as chemical waste and can be disposed as general waste];
- ◆ Residue from dry clean machines (mixture of lint particles and dry cleaning chemical containing Perchloroethylene (PCE));
- ◆ Fire extinguishers containing halon 1211 (BCF);
- ◆ CFCs and halons from equipment (e.g. chiller plant);
- ◆ Cleaning agents for machinery (e.g. Carbon Tetrachloride);
- ◆ Used Ni-Cad batteries.



- Engineering and building waste, such as broken equipment and components, damaged electric light bulbs and fluorescent tubes, worn carpets, furniture, wall paper, building materials, etc.

Market Value of Waste...

Market value...



The market value of the waste is one of the important parameters to gauge the potential of good waste management practices for hotels in Hong Kong. Only waste that has comparably high market value is separated and arranged for collection by waste collectors/recyclers. Waste separation is extremely important because cleaner waste products usually have a higher market value and are welcomed by most waste collectors/recyclers. The amount of recyclable waste collected by waste collectors for two hotels in Hong Kong are illustrated in Figure 6 and Figure 7 as examples.

Nothing is thrown away for free, but by recovering paper, plastics, glass and other recyclable materials, it may be possible to both save the environment and save money.

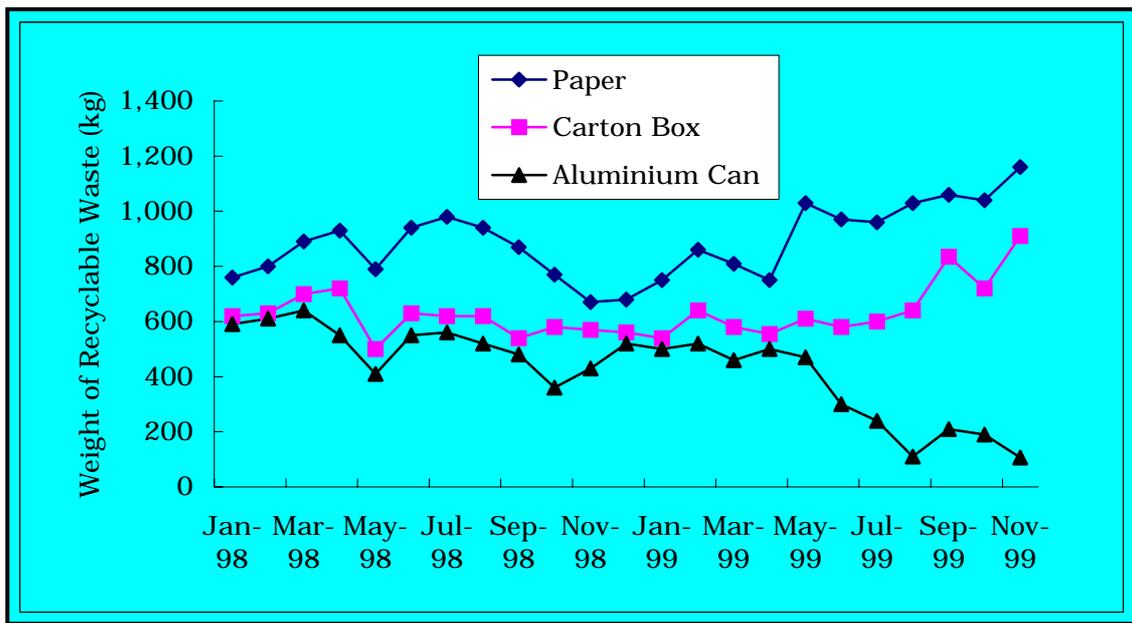


Figure 6. Amount of recyclable waste collected by waste collectors per month for 400+ room hotel from January 1998 to November 1999.

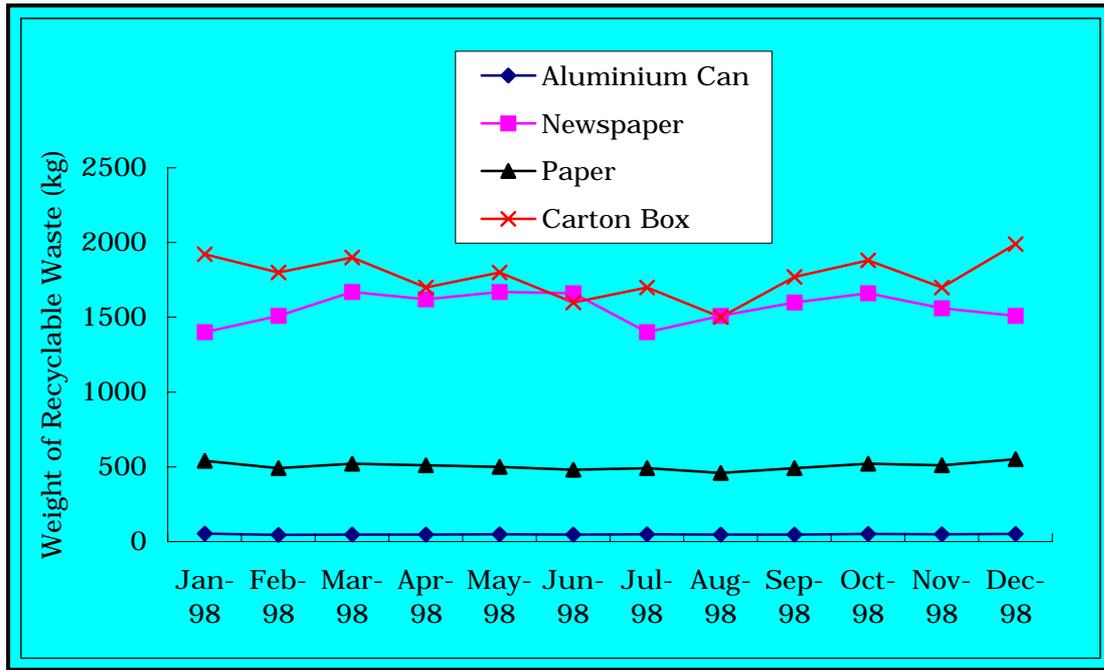


Figure 7. Amount of recyclable waste collected by waste collectors per month from a 600 room hotel with 8 F&B outlets in 1998.

Paper waste...



The high market value of recyclable waste paper is evidenced by the high recovery rate in Hong Kong (about 53% by weight in 1998). Recyclable waste paper is either recycled locally or sold to nearby countries, such as China, Philippines and Taiwan. According to data from the Environmental Protection Department, there are currently about 130 active private waste paper collectors.

For various reasons, two paper mills ceased production in 1998, so currently there is only one local paper recycler/waste paper trader in operation. Apart from recycling waste paper collected locally, the recycler also imports waste paper from other countries for recycling.

Given the mature market for recyclable waste paper, it is therefore not difficult to find a waste paper collector to collect hotel waste paper if:

- the quality of recyclable waste paper is good (only recyclable waste paper is collected);
- the recyclable waste paper is at least separated into four categories:
 - ◆ white writing paper and computer printout;
 - ◆ carton box;
 - ◆ newspapers; and
 - ◆ other mixed paper.
- the quantity of recyclable waste paper is large so that it is worthwhile to be collected by waste paper collectors.

Table 1 shows what types of waste paper that is accepted by local waste paper collectors.

Table 1. Common recyclable paper that is accepted by local waste paper collectors.

Common Recyclable Paper*	Paper/other materials not suitable for recycling
<ul style="list-style-type: none"> • White office paper – letterhead, business forms, offset paper, scratch paper, copy paper, etc • Coloured paper • Photo copies • Adding machine tape • Index cards • Computer printout • Standard business cards • Brochures and Newsletters (if not on glossy paper) • Newspaper • Weekly magazines • Magazines/books with stapled/sewn binding (any coated glossy covers should be removed) • Envelopes and folders (including stamps, but remove adhesive flap or plastic windows) • Leaflets from junk mail 	<ul style="list-style-type: none"> • Adhesive removable notes • Overhead transparencies • Carbon paper • Envelopes with plastic windows • Blueprint paper • Cellophane • Film • Spiral binders • Magazines/books using glue for binding • Lunch boxes, wax paper, paper cups, paper plates • Napkins, tissue, paper towel • Self-adhesive stickers or those with glue or tape

*Paper clips, staples and rubber bands need not be removed as they will be removed in the recycling process but large metal fasteners and other contaminants should be removed.

Plastic waste...



Contrary to recyclable paper waste, the market value for plastic waste is currently very limited, despite the relatively high recovery rate in Hong Kong (about 35% by weight in 1998). Unlike plastic waste generated from various industrial process which is generally homogeneous, clean and in large quantities, post-consumer plastic waste, such as plastic bottles and plastic bags are seldom accepted by plastic collectors due to the heterogeneous and heavily contaminated nature of these wastes, and the high cost of collection. Thus, a huge amount of plastic waste is disposed of in landfills every day (1,530 tonnes in 1998; 17.5% of total municipal solid waste).

However, there is a market for clean recyclable plastic. For hotels in Hong Kong, there are two types of plastic bottles that can be accepted by plastic collectors/recyclers:

- empty Polyethylene Terephthalate (PET) distilled/mineral water bottles; and
- empty PET bottles of bathroom amenities (with lids or labels that are non-PET materials removed).

As empty PET bottles are bulky, the collection cost is

quite high. It may be opportune to establish joint ventures with neighbouring hotels, to reduce the transportation cost.

Guidelines are available...

The Environmental Protection Department has published a "Guideline on Plastic Coding System for Resin Identification" for plastic manufacturers to follow, and to assist plastic waste collectors/recyclers in identifying plastic products of various types, so that they can be properly collected, sorted and recycled. The Guideline can be viewed or downloaded at the web site:

<http://www.info.gov.hk/epd/E/wastereduce/>.

Plastic Bottle Recycling Pilot Programme...



In December 1999, to promote waste minimisation within the hotel industry, the Environmental Committee of Hong Kong Hotel Association (HKHA) and Friends of the Earth organised a one-year Plastic Bottle Recycling Pilot Programme with 14 hotels in the areas of Tsimshatsui, Mongkok and Yaumatei, which expressed interest in the Programme. A shelter workshop will collect the PET bottles regularly and shred them into flakes, which can be recycled into fibres (material for making waterproof ski jackets) by mildly handicapped workers at the Shelter Workshop. If the practice proves to be successful, the practice could be extended to other hotels in other areas.

Glass bottles...



Apart from glass bottles from local beverage manufacturers that are recovered through "deposit-and-refund" schemes, the recovery rate of glass waste in Hong Kong is very low (about 4% by weight in 1998). One reason is that the technology for recycling glass waste locally is not mature. Non-recoverable glass bottles end up in landfills.

Glass collectors...

According to data from the Environmental Protection Department, there is currently only one waste glass bottle collector/processor in Hong Kong which collects glass bottles from refuse collection points, service outlets and scavengers. These are cleaned, dried and sold them to soy sauce manufacturers and fruit juice producers for bottling purposes.

Glass in cement...

To make the recycling of glass waste more viable, the Hong Kong University of Science and Technology is now conducting a project with Green Island Cement Co. Ltd. to investigate the feasibility of incorporating crushed

glass into cement in its production process. It is heartening to note from preliminary results that, a few percent of glass can be integrated into cement without altering its properties significantly. It is possible that the market for glass waste will improve, encouraging recycling of non-refundable glass bottles.

Metal waste...



The market for metal waste has long been established. In 1998 the recovery rate of metal waste in Hong Kong was over 80% (about 86% by weight for ferrous metal waste and about 80% for non-ferrous metal waste). Over 99% of ferrous metal waste and 80% of non-ferrous metal waste are exported for recycling.

For hotels in Hong Kong, direct trading of metal waste such as scrap equipment and appliances is not common due to the high transportation cost and small quantities. Instead, hotel operators generally pay to industrial waste collection companies for collecting such wastes. One exception is aluminium cans for beverage products. Because empty aluminium cans are homogeneous in nature (can be recycled easily) and the quantity is large (hotel operators may a joint venture with neighbouring hotels to share the transportation cost), metal waste collectors are very willing to collect this type of waste.

Figure 6 and Figure 7 also indicate the quantity of aluminium cans collected by waste collectors from the two case study hotels.

Waste cooking oil...



A significant amount of waste cooking oil is generated by hotels in Hong Kong for two reasons:

- normally there are several kitchens in a hotel which cook different styles of cuisines for guests; and
- the replacement frequency of cooking oil is high in order to maintain the quality of food cooked.

Local waste oil collection companies are willing to collect waste cooking oil from hotels, and reprocess it or sell it to recyclers for other purposes.

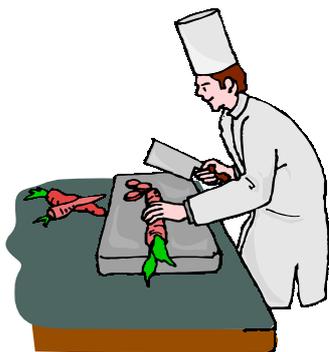
Other wastes...



Other wastes generated by a hotel such as Styrofoam containers, food waste, composite materials, and all other non-recyclable and contaminated waste currently have no market value in Hong Kong for various reasons.

Recycling of Styrofoam is not viable because of the lack of feasible technology, the cheap price of virgin Styrofoam material and the high transportation cost. The Environmental Protection Department has published a "Guideline on the Reduction of Disposable Styrofoam Food/Drink Containers" to educate the general public to minimise the use of Styrofoam products. This can be viewed or downloaded at the web site:

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<http://www.info.gov.hk/epd/E/wastereduce/>.



Food waste is disposed of in landfills, since composting is usually limited to livestock waste. The collection and disposal of these wastes to landfills, which is currently free of charge, is the duty of Urban Services Department (USD) and Regional Services Department (RSD). Waste producers may also employ private waste collectors to dispose of their waste. In the near future, waste producers will have to pay the landfill charges when the payment arrangements are finalised by the Hong Kong SAR Government.

Further information... The Environmental Protection Department has published a series of Waste Reduction Factsheets to give the general public an understanding of the current recovery and recycling of municipal solid waste in Hong Kong. The fact sheets can be viewed or downloaded at the web site:
<http://www.info.gov.hk/epd/E/wastereduce/>.

Enquiries...



The Environmental Protection Department has also been operating a Hotline – 2755 2750 since 1991 for providing the public with information and advice on waste reduction and recycling. From 1991 to 1998, the Hotline has served about 9,400 inquirers from the household, commercial and industrial sectors in relation to waste reduction and recycling matter.

It is Government policy to encourage waste reduction and recycling activities. The Hotline serves the community by providing information and advice on various initiatives including:

- technical advice on organising and running voluntary waste reduction and recovery programmes;
- statistics on waste recycling; and
- lists of local recyclable material collectors and recyclers.

Recyclable Material Collectors and Licensed Chemical Waste Collectors...

Lists of Recyclable Material Collectors and Licensed Chemical Waste Collectors in Hong Kong can also be viewed at the following web sites:
<http://www.info.gov.hk/epd/E/wastereduce/lwr.htm>; and
<http://www.info.gov.hk/epd/E/gcorner/cwr.htm>.

Waste Management Policy for Hotels...



In spite of the fact that some waste such as paper, aluminium, and even plastic and glass bottles are viable or becoming viable for recycling/reprocessing, resources such as energy and other materials are unavoidably consumed during the transportation and recycling processes. Intentionally throwing useful office paper into a waste paper recycling box, for example, is not good environmental practice.

In line with the WRFPP, the strategy represented by the waste management hierarchy (Figure 2), implementing on a corporate scale, should be adopted when establishing a waste management policy for a hotel in Hong Kong.

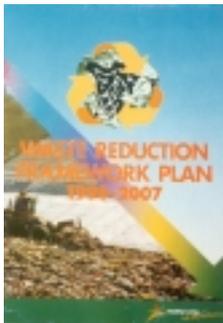


Figure 2. Waste Management Hierarchy

Avoidance...

Unnecessary waste should not be produced if disposable, non-recyclable and unnecessary products or materials (such as packaging materials) are not purchased.

Minimisation...

Resources should be conserved and utilised properly to minimise wastage.

Recover, recycle, reuse...

Waste produced should be recovered, recycled and reused where applicable.

Treatment...

The volume of residual wastes should be reduced prior to disposal to save space of garbage collection point and facilitate removal by waste collectors.

Disposal...

Proper arrangements should be made (e.g. employ licensed chemical waste collectors) for disposing of the waste.

Best Waste Management Practices Checklist...



Action plan...



of the waste.

The best waste management policy for hotels in Hong Kong is expanded to a list of waste management practices (Appendix I) for hotel operators to follow. As can be seen, over 99% of these practices do not involve additional investment but can lead to substantial cost savings.

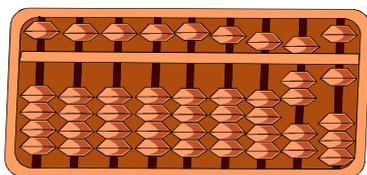
This “Waste Management Checklist” is not an exhaustive list. Hotel operators should adopt suitable ones or even explore new practices according to their own situations. Below are some further recommendations that hotel operators should take into account for successful management of their waste.

The first point is to provide a central collection point (garbage room) with sufficient space for temporary storage of separated wastes. Then establish a Waste Management System to:

- identify waste problems within the hotel;
- ensure legal compliance;
- set waste reduction goals to achieve better environmental performance;
- clearly define the roles, responsibilities and authorities of personnel responsible for waste management;
- provide appropriate training to educate hotel staff to increase their environmental awareness;
- enhance co-ordination among different departments;
- document waste management practices for staff reference;
- response to changes;
- track performance by monitoring waste statistics regularly (e.g. record the amount of waste disposed of by the hotel every day and the amount of recyclable items collected by recyclers each time), or conduct waste audits regularly;
- review the waste management policy regularly and revise it where necessary;
- co-operate with neighbouring hotels to share the transportation cost of waste collection; and
- encourage free flow of information (e.g. waste management practices of individual hotel, sources of environmentally friendly products, waste statistics of individual hotel, etc.) among hotels.

Waste Audit and Recycling Potential...

Estimating the quantity...



It is important to know the quantities of the various waste streams being generated, by whom, and when! The target is the recyclable materials such as paper, cardboard, plastic, glass, aluminium cans, etc. It should be borne in mind that although some items may not yet have a market for recycling, there is increased pressure in Hong Kong for such facilities, and the market may appear.

Determine the scope for recycling...



Commercial collection services are not widely available, and can prove volatile over time. The cost of transportation and fluctuating value of various waste streams will encourage or discourage activities. The quantity of waste may be important in determining the potential for recycling. The simple rules:

- determine which materials are collected and in what form (usually as clean and homogeneous as possible)
- determine the minimum quantities which are viable for collection (hotels may have a storage problem or on the other hand, joining forces with nearby hotels may help);
- how it is collected and the frequency; and
- saleable value or cost of disposal (reduction in garbage collection charges to be factored in).

Sorting and storage system...



It is a good idea to sort at source as far as practicable, especially where otherwise one waste stream contaminates another. The system should comprise as a minimum:

- labelled boxes, bins, etc. at source (offices, kitchens, etc);
- defined collection arrangements, by whom and when; and
- proper storage locations to avoid eyesores, provide security, ensure no health impacts, etc.

Containers...



An audit of waste streams will enable the appropriate sizes of collection containers and size of storage facilities needed. Ensure containers and instructions are clear and understood by all users.

Communications...

Encourage participation by guests and all employees. Include waste management in induction training for new staff, and in instructions to existing staff. Include waste management as part of the duties of key staff.

Benchmarking...



Determining benchmarks for a hotel can be useful for reviewing progress towards targets. Given the variability of properties, facilities, occupancy rates, food covers, etc., benchmark figures must take the key variables into account, otherwise they are meaningless.

Suggested benchmarks for materials consumption in a hotel are:

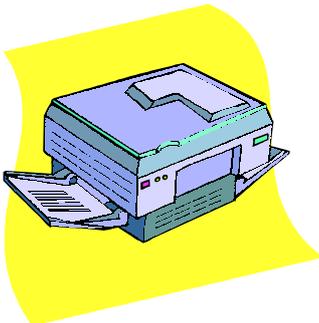
- m³ of landfill/chemical waste per guest night.
- m³ or kg of recycled materials per guest night.

If sorting can separate waste streams, such as separation of food scraps from others, then benchmarking could include:

- m³ of food waste per 100 food covers.

Appendix I: Waste Management Checklist...

Purchasing practices...



- Only purchase what is absolutely necessary.
- Before issuing a purchase requisition, check the quantity of products in stores to minimise inventories and reduce potential for waste arising.
- Purchase goods in bulk packaging whenever applicable, to minimise packaging waste (in the case of perishable goods small packages are often unavoidably for hygienic reasons).
- Purchase recycled paper or environmentally friendly paper products, for example, paper made by 100% total chlorine free bleached pulps (name cards, newsletters, fact sheets, service directories, table place mats, etc.) where costs are within budgets.
- Purchase refillable or reusable stationery and office consumables (correction fluids, ball pens, fluorescent pens, pencils, rulers, cells, glues, rubber bands, paper clips, etc.).
- Purchase recycled toner cartridges for laser printers.
- Preferentially purchase beverage products with aluminium containers (can be recycled easily) and returnable glass bottles.
- For plastic-bottled beverage products, buy from suppliers who use PET plastic bottles which are biodegradable and recyclable.
- Purchase photo-degradable plastic bags for sanitary use, shirt bags, garment covers, laundry bags, dim sum bags, shopping bags, etc.
- Purchase bathroom amenities (e.g. shampoo, conditioner, bath gel, body lotion, etc.) packed in PET bottles where costs are within budgets.
- Minimise the purchase of PVC products (shampoo/bath gel bottles, toothbrushes, razors, shoe horns, shower caps, combs, etc.) when environmentally friendly and financially viable substitutes are obtainable in the market.
- Purchase environmentally friendly/biodegradable/non-CFC cleaning chemicals (e.g. phosphate-free detergents, non-aerosol cleansers).
- Purchase mercury-free cells and rechargeable batteries or cells.
- Purchase energy efficient, durable and high quality equipment/ components made of recycled or environmentally friendly materials.



- Purchase appliances/equipment of one model type to allow broken parts to be reused for repairing similar appliances/equipment.
- Purchase equipment or materials that do not contain CFCs or do not use CFCs in their manufacture.
- Purchase asbestos-free appliances and building materials.
- Consider feedback from the staff for the suitability and quality of products in use when replacing products.
- Endeavour to sell used furniture or donate it to charity.
- Purchase environmentally friendly (e.g. lead free) paints and varnishes where available.
- Purchase wooden items not made from hardwoods from tropical rainforests (unless there is a properly managed replanting programme).
- Check on-day bookings of restaurants, banquet events and existing food stock, and calculate the amount of fresh food, grocery food, beverage, etc. needed to be purchased before placing orders to avoid purchasing excessive food and overstocking.
- Source suppliers who use environmentally friendly packaging materials (e.g. avoid the use of Styrofoam) and avoid unnecessary packaging, and select environmentally responsible vendors and suppliers.
- Purchase locally, to save transportation costs and increase the possibility of returning packaging materials to suppliers.
- Communicate the hotel's purchasing expectations to contractors and suppliers on a regular basis, (to reduce the level of waste, obtain updated product/packaging information, express the need of using returnable/recyclable packaging, discuss the possibility of collecting or buying back empty containers by suppliers, etc.)
- When renewing service contracts, consider adding environmental-related conditions where applicable.
- Monitor and record the activities and operations of contractors to see whether they meet the hotel's environmental requirements.
- Continuously review purchasing policies and seek better alternatives from suppliers. Check the price of potential substitutes and replace less environmentally friendly ones where costs are within budgets.



The Electrical and Mechanical Services Department of the Hong Kong SAR Government has published a series of energy efficient labelling scheme documents covering energy efficient products:

- Voluntary Energy Efficiency Labelling Scheme for Household Refrigeration Appliances
- Voluntary Energy Efficiency Labelling Scheme for Room Coolers
- Voluntary Energy Efficiency Labelling Scheme for Washing Machines
- Voluntary Energy Efficiency Labelling Scheme for Compact Fluorescent Lamps
- Voluntary Energy Efficiency Labelling Scheme for Electric Clothes Dryers

Interested parties may obtain the relevant scheme documents from: Chief Engineer/ Energy Efficiency, Energy Efficiency Office, Electrical and Mechanical Services Department, 11/F, 111 Leighton Road, Causeway Bay, Hong Kong.

Although an compact fluorescent lamp (CFL) may be up to 10 times the cost of a filament light bulb, an 18 W energy saving CFL can achieve the same lighting level as a 100 W light bulb. Such energy saving lamps are also more durable than normal light bulbs. The average life of a CFL is about 8000 hrs, while the average life of a normal light bulb is about 1000 hrs.

In some types of CFL the lamp is integrated with the ballast. In other types, the ballast is separated from the lamp. When the energy saving bulb or tube fails, it is not necessary to replace the ballast, so that the cost can be reduced by some 60% and less waste is created.

Offices ...

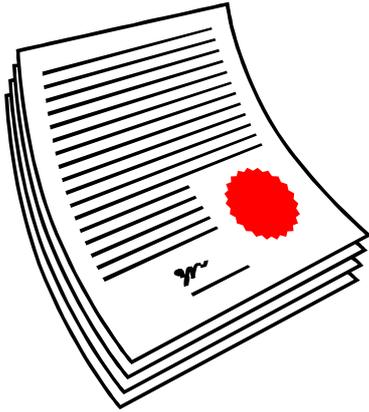
(Accounts, Purchasing, Human Resources, Public Relations, Sales & Marketing, Front Office, and supporting offices of other departments)

Paper waste...

- Minimise the use of non-recyclable NCR paper.
- Discontinue use of unnecessary forms, consider reducing the size of forms or combine different forms with similar function.



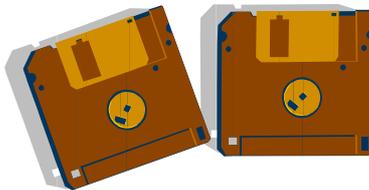
- Preview draft documents on VDU's, instead of printing it out. Print a minimum of copies for record keeping.
- Avoid unnecessary photocopying by determining exact number of copies required and machine settings before photocopying. Use double-sided copying when available and appropriate.
- Place two labelled paper collection boxes next to the photocopiers. One box is used to collect one-side-used paper which can be reused for photocopying. Another box (waste paper recycling box) is used to collect double-side-used/waste paper (e.g. excess invoice, paper roll from calculator, scrap paper, etc.) for recycling purposes.
- Place discarded newspapers, magazines, printed materials and cards in waste paper recycling boxes for collection and recycling.
- One-side-used paper can be cut to smaller sizes and reused as memo paper/draft paper (except documents containing confidential information).
- Attach labels on used envelopes to reuse for internal correspondence.
- Remove the plastic windows from envelopes before placing into recycling paper collection boxes.
- Minimise the consumption of paper cups.
- Reuse some good-conditioned carton boxes, paper files, paper folders or paper boxes such as empty A4 paper boxes for filing or storage purpose.
- For internal communication, reduce unnecessary paper consumption by communicating through local area computer network (if available), notice boards and circulating documents (e.g. non-confidential internal memos and meeting minutes) among staff where applicable, and avoid printing copies to each staff member.
- For external communication, reduce paper consumption by uploading information on the hotel's Internet homepage, or communicate through telephone, e-mail or computer fax when available and appropriate.
- Avoid using fax cover page. Place the name of recipient directly on the first page.
- Update mailing lists regularly to avoid mailing to incorrect addresses. Non-confidential information can be posted as "PRINTED MATTER" to save cost.
- Do not send greeting cards to guests and staff. Post a staff birthday list on the notice board each month instead of printing and sending birthday card to individual staff. Seasonal greetings can be placed in hotel's Internet homepage or made by telephone.



hotel's Internet homepage or made by telephone.

- Post guest letters/information on notices inside guest lifts instead of issuing and distributing to each guest.
- Develop a document control system to remove obsolete documents/correspondence regularly and send excess reusable files/folders and other storage containers to centralised store for other departments' requisition.
- Post notices on the walls of offices to remind staff not to waste paper.

Waste from other consumables...



- Use reusable toner cartridges for laser printers and return empty toner cartridges to suppliers for reuse.
- Reuse office stationery to minimise wastage.
- Replace battery operated calculators, if damaged, by solar energy operated calculators.
- Use mercury-free/ rechargeable cells whenever practicable.
- Delete obsolete files in hard disks and floppy diskettes to save hard disk space and the consumption of floppy diskettes. Store computer files preferably in hard disks and centralised computer server, only use floppy diskettes for file transfer purpose. Reuse old floppy diskettes until they are damaged.
- Collect used private shopping bags for reuse.

Practical tips:

Reuse old clip board as layer board for paper cutting.

Stick labels on the front of files and reuse.

Stores...

Packaging waste...

- Promote waste separation at source. Sort out recyclable items (e.g. carton boxes, aluminium cans, recyclable paper, etc.) from the garbage for collection and recycling.
- Return containers (e.g. bamboo baskets, plastic baskets and buckets, carton boxes, Styrofoam boxes, empty glass bottles, plastic bottles and distilled water containers, etc.) to suppliers for reuse or reuse some



of them internally where applicable.

Food waste...



- Store dry food and wet food separately to avoid cross contamination.
- Adopt “First-In-First-Out” principle with food and beverage stocks.
- Handle all food carefully to avoid wastage.
- Use wet towel to cover vegetables for storage.
- Check the expiry dates and the packaging of packed food/ grocery goods and the freshness of fresh food. Return damaged goods to suppliers.
- To prevent food stored in cold rooms, freezers and chillers from spoiling, ensure their temperatures are maintained at preset values by monitoring the temperatures regularly (e.g. twice a day).
- For any abnormal condition found by storekeepers (e.g. temperatures in cold rooms, freezers and chillers are higher or lower than pre-set values), contact Engineering Department for immediate attention.
- Keep cold rooms, freezers and chillers clean and tidy to avoid food contamination.

Engineering Department...

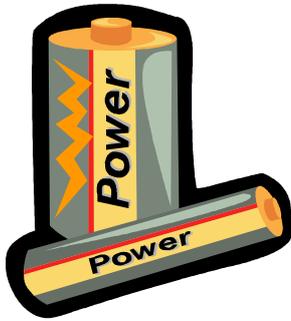
Chemical waste...



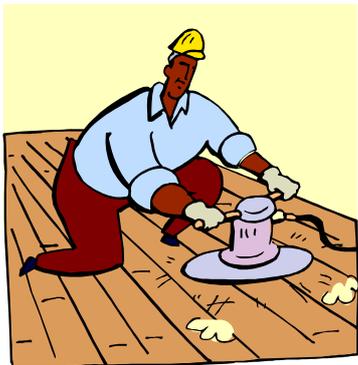
- Register with the Director of Environmental Protection as a chemical waste producer to comply with the Waste Disposal (Chemical Waste) (General) Regulation.
- Temporarily store chemical wastes in safe containers and in a safe place for collection.
- Handle and dispose empty chemical containers in accordance with manufacturers’ instructions or return them to suppliers for reuse.
- Employ licensed contractors to dispose of chemical waste.

Other engineering/ building waste...

- Clean grease traps regularly. Ensure any appointed contractor collects oil and grease in grease interceptors and sump pits into special leakage-free tanks for disposal.



Waste from renovation and refurbishment...



- Collect and store heavy broken equipment and devices such as burnt motors, air handling units fan coil units, water pumps, broken compressors, air-conditioners, refrigerators, other metal waste and building waste in a safe place until a significant amount is reached, then arrange an industrial waste collection company to collect, to minimise the handling/ transportation cost.
- Carry out regular equipment maintenance to prolong the life span of equipment. Repair and reuse all equipment if possible, or disassemble it to recycle reusable components.
- Reuse interior and exterior lighting and decorations (e.g. Christmas and Chinese New Year Decoration) where possible.
- Use rechargeable batteries whenever possible.
- As an alternative to replacing the whole of damaged carpeting, remove the damaged areas only and use refurbished or spare carpet materials for repair whenever possible, to minimise waste.
- Repair and reuse old and broken furniture if possible. If the furniture cannot be repaired, disassemble it to recycle reusable components for other purposes, or donate to charity.
- While making new furniture, make best use of wood and other materials to minimise wastage, and collect and kept unused materials for other purposes.
- Dismantle and store the materials used for temporary applications or structures (e.g. metal or wooden shelves used in exhibitions) for reuse.
- Collect useful old wall paper during renovation, and reuse for repair.
- Repair broken marble or floor tiles with minimum use of materials. Retain surplus stock for reuse.
- Only prepare a sufficient amount of mortar to perform repair work (Excess mortar cannot be reused because it becomes dry when left for a period of time).
- Reuse thinner for cleaning equipment after precipitation to filter out impurities.
- Do not remove any asbestos containing materials (e.g. ceiling tiles) in the premise as it is legally prohibited. Engage a registered asbestos consultant to carry out an asbestos investigation and submit an asbestos abatement plan to the Environmental Protection Department at least 28 days before commencement of the asbestos abatement work, and employ a registered asbestos contractor to carry out the asbestos



Packaging waste...



abatement work under the supervision of a registered consultant.

- Implement an operation and maintenance plan (in consultation with a registered asbestos consultant) for proper management of existing asbestos containing materials not requiring disposal.
- Promote waste separation at source. Sort out recyclable items (e.g. carton boxes) from the garbage for collection and recycling.
- Return packaging materials (e.g. empty containers) to suppliers for reuse or reuse some of them internally where applicable (e.g. collect jute bags and reuse them for holding mason fragments for disposal).
- Use condemned cloth and linen from the Laundry as cleaning rags or covering cloth.

Front Office...

Paper waste...



- Minimise the use of wrapping paper.
- Print messages in concealed manner whenever possible to eliminate the use of envelopes for sending to guests.
- Eliminate the use envelopes with welcome booklet, fruit and gift cards, etc.
- Reduce number of sets of newspapers of each type on newspaper racks to minimum required to meet demand.
- Collect old telephone directories from guest rooms for recycling.

Plastic waste...

- Change master key cards individually when necessary, instead of the whole lot regularly.
- Collect key cards from guests while checking out, and encode used key cards to new sequences for reuse.

Practical tips:

Reuse plastic laundry bags as waste paper bin liners or lost and found wrappers.

Reuse plastic/ paper bags, paper boxes and envelopes collected from guestrooms for packing lost and found items.

Reuse empty chemical containers to made soap containers for staff use in wash rooms.

Reuse carton boxes for collecting waste paper and newspaper, and storing toilet paper.

Housekeeping...

Packaging waste...

- Promote waste separation at source. Sort out recyclable items (e.g. PET photo-degradable plastic bottles, aluminium cans, etc.) from the garbage for collection and recycling.
- Return packaging materials (e.g. returnable empty glass bottles) to suppliers for reuse or reuse some of them internally where applicable.
- Reduce wastage of hotel's plastic shopping bag by offering to guests upon request only.
- Fully load plastic garbage bags to minimise consumption.
- Consider use of auto dispensers for soap, shampoo, conditioner, bath gel, and body lotion, to replace plastic bottles in guest rooms.
- Handle and dispose empty chemical containers in accordance with manufacturers' instructions or return to suppliers for reuse.

Paper waste...

- Send useless newspapers and magazines collected at guest floors to garbage room for recycling.
- Keep only a few sets of telephone directories on each floor to offer to guests upon request.
- Collect partly used toilet paper rolls from guestrooms for use in staff wash rooms.
- Minimise the consumption of paper hand towels by providing electric hand blowers and washable cotton hand towels for hand drying in staff toilets and staff locker rooms.

Waste from other consumables...

- Collect used soaps from guestrooms for staff use in wash rooms, or sell back to soap manufacturers for re-milling, or donate them to charity.
- Reuse leftover toiletries from guestrooms.
- Check and collect worn out/damaged linen from guestrooms. Reuse condemned towels, table linens, bed sheets and pillow cases as cleaning rags/covering cloth in kitchens and Engineering Department. Alter damaged blankets to baby blankets, or donate them to charity.
- Replace worn out poly-cotton blanket cover sheets by cotton bed sheets that are more environmentally



friendly.

- Place hotel newsletters and notices in guest rooms to promote green tips, and request guests to participate in measures to reduce environmental impacts.

Laundries ...

Damaged linen...



- Wash different types of soiled garment/linen separately. Sort and group soiled linen according to soiled level, weight and fabric composition.
- Keep heavy greased rags from kitchens and Engineering Department separately in assigned linen containers to avoid linen contamination.
- Use different washing programmes and use liquid detergent auto dispenser with correct settings as recommended by laundry chemical supplier and washing machine manufacturer for washing different grading of soiled linen and fabric compositions.
- Handle all garment/linen carefully to avoid unnecessary damage.
- Arrange laundry chemical supplier to test the performance of cleaning chemicals regularly, to ensure that the most suitable cleaning chemicals are selected and various cleaning chemical dosages are correct.
- Check liquid detergent auto dispensers regularly to prevent improper dosage of chemicals in washing machines.

Packaging waste and waste from consumables...

- Minimise the consumption of paper by combining laundry list, dry cleaning list and pressing list to one list.
- Replace plastic shirt bows by recyclable and reusable paper shirt bows.
- Collect laundry hangers for reuse.
- Provide photo-degradable plastic laundry bags for packing laundered items to guests and reuse them whenever possible.
- Use different sizes of paper shirt boxes for returning laundered items to guests, to cater for different needs and reuse good-conditioned covers or boxes.
- Consider the use of rattan baskets and laundry mark



tag to replace plastic laundry bags/paper boxes for guest laundry delivery.

- Handle empty chemical containers in accordance with manufacturers' instructions or return them to suppliers for reuse.

Security Department...

- Send malfunctioning CCTVs to Engineering Department for repair instead of disposal.
- Reuse videotapes.

Kitchens...



- Store fresh food in refrigeration units until required for use. Return excess fresh food back to the refrigeration units immediately, to prevent spoiling.
- Adopt "First-In-First-Out" principle with food and beverage stocks and handling.
- Handle cooked food properly and reuse surplus cooked food if possible. For food that spoils easily, cool it before storing in cold rooms.
- Prepare food based on on-day bookings of restaurants, banquet events, etc. to avoid preparing excess food.
- Minimise food wastage by reusing food trimmings.
- Reuse leftover food where applicable.
- Reuse cooking oil until it is unacceptable for cooking. Store useless oil in a metal can for collection and recycling.
- To prevent fresh food stored in cold rooms, freezers and chillers from spoiling, ensure their temperatures are maintained at preset values by monitoring the temperatures regularly (e.g. twice a day).
- For any abnormal condition found by chefs (e.g. temperatures in cold rooms, freezers and chillers are higher or lower than pre-set values), contact Engineering Department for immediate attention.
- Keep cold rooms, freezers and chillers clean and tidy to avoid food contamination.
- Store raw food and cooked food separately to avoid cross contamination.



Practical tips:

Reuse trimming of meat and fish for making soup, stock and sauce.

Reuse trimming of fat for making cooking oil.

Reuse trimming of vegetables for making soup, stock and sauce.

Reuse trimming of heads and shells of lobster, prawn, etc. for making sauce and soup.

Reuse shells of abalone and scallop for decoration purpose.

Practical tips:

Reuse unused egg yolk for deep fried pawn processing.

Reuse leftover cooked rice for making congee and fried rice.

Reuse the top and bottom parts of baked cakes for making desserts.

Reuse fruits from guestrooms and kitchens for making desserts.

Reuse chocolate from display purpose for making another display.

Reuse leftover bread from buffet tables for serving staff, making bread crumbs or dessert, or donate it to charity.

Reuse unused cooked meat (e.g. bones of prime ribs) for making sauce.

Reuse good-conditioned butter from guest tables and buffet tables as cooking oil.

Reuse leftover cheese from buffet tables for making cheese sauce.

Reuse leftover raw and clean seafood (e.g. salmon, tuna and oyster) from buffet tables for making hot appetisers.

Reuse leftover cooked prawn and beef from salad bar for making cold appetisers.

Reuse leftover baked potatoes for making corned beef hash.

Reuse leftover pancake mix for preparing breakfasts next day.

Packaging waste...

- Promote waste separation at source. Sort out recyclable items (e.g. carton boxes, paper egg containers, plastic bottles, etc.) from the garbage for collection and recycling.
- Return packaging materials to suppliers for reuse or reuse some of them internally where applicable.

Waste from other consumables...

- Replace non-reusable items by reusable substitutes.
- Use environmentally friendly/ reusable food decoration whenever possible.
- Return broken utensils (or equipment to the Engineering Department for repair.
- Use condemned cloth and linen from the Laundry for general cleaning and hand drying.

F&B Outlets...

(Restaurants, Staff Canteen, Room Service, Bar & Lounge)

Food waste from buffet tables...

- Avoid serving portion jams and butter on guest tables. Serve jams in washable jam jars and butter in bowls at buffet tables and refill when necessary.
- Avoid serving bread baskets on guest tables to minimise wastage of bread. Serve bread at buffet



tables for guest selection and refill when necessary.

- Reuse coffee surplus for making iced coffee. Brew coffee by portion during non-busy hours to reduce wastage.
- In staff canteen, serve food to staff in buffet style so that staff can choose the amount and type of food preferred, to minimise food wastage.
- Serve all food based on “First-In-First-Out” principle to avoid food wastage.
- Handle all food carefully to avoid wastage.

Practical tips:

Replace disposable wooden frames by reusable metal frames for holding barbecue sucking pigs.

Replace paper cake boards by reusable plastic cake boards.

Replace grease proof paper by reusable and non-stick baking tray for baking cake.

Replace plastic wrap by reusable containers with lids.

Replace disposable wooden skewers by reusable stainless steel skewers.

Replace wooden chopping board by plastic chopping board which is more durable.

Use Styrofoam for making wedding dummy cake which can be reused.

Food waste from guest tables...



- Collect unopened packed butter for reissue.
- Serve coffee cream/ milk according to number of guests at table. Collect good-conditioned coffee cream surplus/ milk for reuse or send it to kitchens for cooking.
- Serve sauces (e.g. soya sauce and chilli sauce) to guests upon request, to minimise food wastage and disposal of empty containers.
- Serve drinking water to guests only upon request.
- Place tent cards on guest tables to encourage guests to save resources.

Food waste from room service...

- Collect unopened jam, butter and good-conditioned fruits from guest rooms for reuse.
- Serve drinking water to guests only upon request.

Waste from other consumables...



- Pour boiled water into chafing dishes to shorten the pre-heat time and use chafing sets with lower stand to minimise the consumption of canned fuel and disposal of empty fuel cans.
- Replace real flowers and trees by reusable artificial flowers and trees for decoration whenever possible. When real flowers are needed, purchase correct quantities and keep them in a cooler after use to prolong their life.
- Open chopstick paper packs for guests and keep good-conditioned ones for reuse.
- Delete the use of paper coaster when placemat or table linen is set on guest tables.
- Reuse doyley paper whenever possible. Delete the use of doyley paper while serving butter, jam and bread.
- Keep menu inserts and menu covers tidy and clean to avoid wastage.
- Revise menu from multi-pages to one page where applicable and laminate it to reduce the possibility of damage.
- Replace paper napkins by washable and reusable linen napkins.
- Eliminate the use of paper napkin in staff canteen.
- Handle all linen and uniforms properly and carefully to reduce wastage.
- Do not use table napkins for general cleaning.
- Use condemned cloth and linen from the Laundry for general cleaning.
- Serve matches to guests upon request.
- Handle all tableware carefully to minimise breakage.
- Collect used plastic stirrers and cocktail picks, wash good-conditioned ones for reuse.

Packaging waste...



- Promote waste separation at source. Sort out recyclable items (e.g. carton boxes, aluminium cans, etc.) from the garbage for collection and recycling.
- Return packaging materials to suppliers for reuse (e.g. returnable glass bottles) or reuse some of them internally where applicable.
- In Room Service Section, use reusable bowls for serving fruit to room guests. Delete the use of rattan basket, ribbon and cellophane paper.
- Use electric heaters for hot pot to minimise the disposal of empty gas container and improve hygiene.

Stewarding Department...

Broken dishes and glasses...

- Arrange same type of dishes in the same rack for machine washing, to reduce the possibility of generating broken dishes and glasses.
- Handle all tableware carefully to minimise breakage.
- Monitor the number of broken tableware generated by each F&B outlet each month. Outlets with high breakage rate should take appropriate action (e.g. staff briefing) to minimise the breakage rate.

Packaging waste and other consumables...



- Handle empty chemical containers in accordance with manufacturers' instructions or return them to suppliers for reuse.
- Return packaging materials (e.g. empty containers) to suppliers for reuse or reuse some of them internally where applicable.
- Use condemned cloth and linen from the Laundry for general cleaning and hand drying.
- Fully load plastic garbage bags to minimise consumption and reuse good-conditioned ones.

Waste handling...



- Collect all garbage from all departments/sections. Sort out recyclable items from unsorted garbage in garbage room for recycling.
- Reduce the volume of garbage and recyclable waste by compacting, to save space in garbage room.
- Arrange recycling companies to collect recyclable items (waste paper, newspaper, carton box, aluminium can and cooking oil) regularly and keep relevant records.

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